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Universitat de
les Illes Balears

Universitat de les Illes Balears

CATÀLEG DE PROJECTES D'INVESTIGACIÓ

2008

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**PROJECTES DE RECERCA
EN EL MARC DE LA UNIÓ EUROPEA**

DEPARTAMENT DE BIOLOGIA

Referència: INCO-CT-2004-509140.

Títol: *Improvement of native perennial forage plants for sustainability of Mediterranean farming systems.*

Acrònim: PERMED.

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: CIFRE LLOMPART, Josep.

Categoria: Contr. dr. (àrea de coneixement: Producció Vegetal).

Inici: 2004 **Fi:** 2009

Socis

Institut National de la Recherche Agronomique d'Algerie (Algèria)

Institut National de la Recherche Agronomique (Marroc)

Institut des Regions Arides (Tunísia)

Consiglio Nazionale delle Ricerche (Itàlia)

Instituto de Investigação Agraria e das Pescas (Portugal)

Universitat de Barcelona (Espanya)

Institution de Recherche et d'Enseignement Superieur Agronomique (Tunísia)

Istituto Sperimentale per le Colture Foraggere (Itàlia)

Coordinador: Institut National de la Recherche Agronomique (França)

Summary

The amount of water available to agriculture in the Mediterranean is declining because of increasing population pressure and greater incidence of drought. Therefore, the efficiency of the use of water for agricultural production must be maximized, and in this context perennial forage species have a number of advantages in comparison to the predominantly used annuals. They can utilize water throughout the whole year besides being able to halt rangeland degradation, restore soil fertility and enhance forage production, thereby contributing to greater sustainability of rain-fed agricultural systems in the southern European Union and North Africa.

Despite these advantages, the small size of individual national markets has so far worked against the development of a viable forage industry based on perennials. Therefore, by adopting a multi-national approach and targeting the key breeding objectives of superior drought resistance and water use efficiency (WUE), this project aims to produce commercially viable cultivars of a select number of species of broad regional interest and adaptation.

Ten research groups from southern Europe and North Africa will combine to work on species including lucerne, cocksfoot, tall fescue and sulla to enhance cultivar development across environments ranging from the sub-humid to arid. Complementary Workpackages will (i) complete North African forage germplasm collection and evaluation, (ii) assess the use of molecular genetics in breeding of drought resistant lucerne, (iii) evaluate elite forage populations across the region for high WUE and adaptation to drought as bases for new cultivars, (iv) enhance knowledge of physiological traits for drought survival and WUE, and (v) determine optimal use of perennial forages in four representative farming systems. Their results will contribute to the development of technical packages for easy on-farm adoption across the western Mediterranean, thereby ensuring a long-term interest of the seed industry.

Referència: FP-2005-SSP-5A

Títol: *Surveillance network of Reoviruses, Bluetongue and African Horse Sickness, in the Mediterranean basin and Europe.*

Acrònim: MED_REO_NET

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: MIRANDA CHUECA, Miguel Ángel.

Categoria: TEU (àrea de coneixement: Zoologia).

Inici: 2007 **Fi:** 2009

Socis

Centre de coopération internationale en recherche agronomique pour le développement
(França)

Agence française de Sécurité sanitaire des aliments (França)

Istituto Zooprofilattico Sperimentale "G. Caporale" (Itàlia)

University of Liverpool (Regne Unit)

Institute for Animal Health (Regne Unit)

Swiss Federal Veterinary Office (Suïssa)

Institut National de Médecine vétérinaire (Algèria)

Institut de la Recherche Vétérinaire de Tunisie (Tunísia)

Laboratoire National d'Epidémiologie et des Zoonoses (Marroc)

Central veterinary control and research institute (Turquia)

National Diagnostic and Research Veterinary Medical Institute (Bulgaria)

Fundació Centre de Recerca en Sanitat Animal (Espanya)

Universidad Complutense de Madrid, Facultad de Veterinaria (Espanya)

Institute of Infectious and Parasitic Diseases (Grècia)

Lisbon University (Portugal)

Agricultural Research Council (Sudàfrica)

Federal Institute for Animal Health (Alemanya)

Centre d'étude et de recherches vétérinaires et agrochimiques (Bèlgica)

Lelystad Stichting Dienst Landbouwkundig Onderzoek (Holanda)

Danish Institute for Food and Veterinary Research (Dinamarca)

Summary

Bluetongue virus (BTV) and African horse sickness virus (AHSV) are reoviruses transmitted by vectors species belonging to the Culicoides genus that affect respectively ruminants and Equidae.

BT disease has occurred sporadically in the Mediterranean region in the past, involving relatively short lived epizootics. Since 1998, large BT outbreaks affected different countries around the Mediterranean. The virus has extended further north than ever. This geographical expansion is mainly due to the northern extension of the main afro-tropical BT vector *C. imicola*. During summer 2006, BT outbreaks were recorded in Belgium, Germany, Netherlands and France with European Culicoides species probably involved in this emergence. This episode highlighted the potential of BT to further established in Europe and presents a major risk to the livestock industry.

AHSV outbreaks have occurred in Southern Europe in the past, especially in Spain from 1987 to 1991. It causes one of the most severe diseases in horses. It is closely related to

BTV and is transmitted by the same Culicoides vectors, hence regions at risk of BTV can be regarded at risk of AHSV.

Apart from BT and AHS, another Culicoides-borne virus, Epizootic hemorrhagic disease virus (EHDV) has been detected in 2004 in Morocco and in 2006 in Israel.

Considerable advances and expertise already exist on these both Culicoides-borne diseases, the viral agents which cause them, the vector, their spread, etc, but in many cases it is not readily accessible or could be significantly enhanced by better communication between the research centres involved, and improved dissemination of data.

The coordination action will gather and share information on BT, AHS and EHD, (i) promote regional studies on the risks of introduction of new strains and spread with inclusion of neighbouring areas (North Africa, Turkey) as an early warning, (ii) survey the expansion of *C. imicola* in new northern territories taking into account the potential novel vectors group in Europe and (iii) improve information technology for storage, communication and sharing of vector and sentinel surveillance and vaccination data. The consortium is bringing together national and international reference laboratories working on vectors, detection of infection, and surveillance and risk assessment around Mediterranean.

DEPARTAMENT DE BIOLOGIA FONAMENTAL I CIÈNCIES DE LA SALUT

Referència: FOOD-CT-2004-506360.

Modalitat: Network of excellence.

Títol: *European nutrigenomics organisation-linking genomics, nutrition and health research.*

Acrònim: NUGO.

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigador responsable: PALOU OLIVER, Andreu.

Categoria: CU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2004 **Fi:** 2009

Socis

Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek (Holanda)

Rikilt (Holanda)

Nutrition and Toxicology Research Institute Maastricht (Holanda)

Rijksintituut voor Volksgezondheid en Milieu (Holanda)

University College Cork, National University of Ireland (Irlanda)

Trinity College Dublin (Irlanda)

University of Ulster (Regne Unit)

Deutches Institut fuer Ernaehrungsforschung (Alemanya)

Technische Universitaet Muenchen (Alemanya)

Institute of Food Research (Regne Unit)

Rowett Research Institute (Regne Unit)

University of Reading (Regne Unit)

Universita degli Studi di Firenze (Itàlia)

Uniwersytet Jagiellonski (Polònia)

Lunds Universitet (Suècia)

University of Newcastle upon Tyne (Regne Unit)

Instiut Nacional de la Sante et de la Recherche Medicale (França)

Universitetet I Oslo (Noruega)

European Molecular Biology Laboratory (Alemanya)

Topshare International BV (Holanda)

Coordinador: Wageningen Universiteit (Holanda)

Summary

The primary aim of NuGO is integration, making future nutrigenomics research easier. Twenty-two partners organisations from ten European countries form the core of The European Nutrigenomics Organisation (NuGO). The specific aims of NuGO are to:
Strengthen the European scientific and technological excellence in nutrigenomics by bringing together the critical mass of resources and expertise needed to offer leadership in this rapidly developing field

Define individual response to nutrients and refine the requirements for population sub-groups based on genetic variations (nutrigenetics), sex, and the different life-stages

Determine the relative health benefits and risks of food compounds for different population sub-groups and improve public health

Spread excellence in nutrigenomics beyond the partnership through training, sharing of methods and facilities, dissemination and exploitation, and enter into dialogue with stakeholder groups. Support the competitive arm of the European food industry, facilitating its growth as a knowledge-based business, with a view to evidence-based healthier food production

Promote understanding in the ethical, social, legal, economical and scientific issues of concern in nutrigenomics

There are four related activities to help this process, each with complementary tasks:

Integration Activities which will harmonise, stimulate and facilitate new technologies, informatics and systems for common use, and underpin research activities

Joint Research Activities, which exploit the technological and scientific innovations in a number of key areas of nutrition and health research as well as consolidate the research effort in Europe

Spreading of Excellence will build upon the acquired knowledge, sharing it with stakeholder groups including researchers, industry, society and healthcare

NuGO is funded by the European Commission's Research Directorate General under the Food Quality and Safety Priority of the Sixth Framework Programme for Research and Technological Development. The project began in January 2004 and will be funded until December 2009, but expects to be self-funding after this date.

Referència: FP6-2004-FOOD-3-A 016181-2.

Modalitat: Integrated Project.

Títol: *Identification and prevention of dietary - and lifestyle- induced health effects in children and infants.*

Acrònim: IDEFICS

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

Investigador responsable: PALOU OLIVER, Andreu.

Categoria: CU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2006 **Fi:** 2011

Socis

University of Bremen (Alemanya)
Ghent University, Faculty of Medicine and Health Sciences (Bèlgica)
Research & Education Foundation of Child Health (Xipre)
University Joseph Fourier (França)
Verein zur Förderung des Technologietransfer ander Hochschule Bremerhaven
(Alemanya)
University of Glasgow (Regne Unit)
Lancaster University (Regne Unit)
University of Pécs (Hungria)
University Cattolica del Sacro Cuore (Itàlia)
National Research Council, Institute of Food Sciences (Itàlia)
National Cancer Institute (Itàlia)
University of Milan (Itàlia)
Universitat de Saragossa (Espanya)
Universitat de les Illes Balears (Espanya)
Göteborg University (Suècia)
European Food Information Council (Bèlgica)
Laboratoriumsmedizin Dortmund (Alemanya)
BioTel Ltd (Regne Unit)
Pécs TV Communication Ltd (Hungria)
Agorà Med srl (Itàlia)
National Institute for Health Development (Estònia)
Gockel desing (Alemanya)
Copenhagen Business School (Dinamarca)

Summary

The environment of infants and children has drastically changed in Europe during the last decades as reflected in alterations of behaviour, unhealthy dietary habits, and low physical activity. Nutrition obviously plays a part in the development of overweight in childhood. Moreover, dietary factors are also thought to be involved in the development of metabolic syndrome, type II diabetes etc. In this IP, we focus on overweight and obesity as major components of the metabolic syndrome and on musculoskeletal disorders. The latter share risk factors with overweight but they are also of interest on their own. To stop the resulting epidemic of diet- and lifestyle-induced morbidity, evidence-based efficient approaches are needed. The IP shall identify risk profile

inventories for children susceptible to any of these disorders and their comorbid conditions and shall devise tailored prevention strategies that are effective, easy to implement and that account for the needs of different social groups. Genetic and non-genetic factors, psychosocial factors and social settings will be considered in the research. Population-based studies will investigate the impact of sensory perception and provide results concerning internal and external factors, children's consumer behaviour and short and long-term effects of food choices. The IP will consider societies' use of information on individual risk factors as well as on individuals' rights and responsibilities. The ethical implications of a „right not to know“ of genetic factors and the use of individual data will be addressed. The IP will propose a knowledge-based set of guidelines on dietary and lifestyle activities for health promotion and disease prevention in children for health professionals, stakeholders, channels, and consumers at a pan European level and for individual countries.

Referència: FA0602

Modalitat: Programa COST.

Títol: *Bioactive food components, mitochondrial function and health.*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

Investigador responsable: PALOU OLIVER, Andreu.

Categoria: CU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2007 **Fi:** 2011

Referència: BM0602

Modalitat: Programa COST.

Títol: *Adipose tissue: A Key Target for Prevention of the Metabolic Syndrome Domain: Biomedicine and Molecular Biosciences.*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

Investigador responsable: PALOU OLIVER, Andreu.

Categoria: CU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2007 **Fi:** 2011

Referència: CIBERobn.

Modalitat: FIS- Fondo de Investigaciones Sanitarias.

Títol: *Ciber del área de Fisiopatología de la Obesidad y Nutrición.*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

Investigador responsable: PALOU OLIVER, Andreu.

Categoria: CU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2006 **Fi:** 2010

DEPARTAMENT D'ECONOMIA APLICADA

Referència: GOCE-CT-2003-003933.

Modalitat: Integrating and strengthening the European Research Area.

Títol: *Thresholds of environmental sustainability.*

Acrònim: THRESHOLDS.

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: RIERA FONT, Antoni.

Categoria: TU (àrea de coneixement: Economia Aplicada).

Inici: 2005 **Fi:** 2008

Socis

Istituto di Studi per l'Integrazione dei Sistemi (Itàlia)
Universitaet Stuttgart (Alemanya)
Uppsala Univesity (Suècia)
National Environmental Research Institute (Dinamarca)
European Comission (Bèlgica)
Suomen Ympäristökeskus (Finlàndia)
University of Southern Denmark (Dinamarca)
University of Kalmar (Suècia)
Université Pierre et Marie Curie (França)
Norsk Institutt for Vannforskning (Noruega)
Intitut Français de Recherche pour l'Exploitation de la Mer (França)
Université Libre de Bruxelles (Bèlgica)
University of Oslo (Noruega)
Ringkjoebing County (Dinamarca)
University of Bath (Regne Unit)
TerrAquat (Alemanya)
Centrale Recherche SA (França)
ARDMPI (França)
Intitut of Oceanology (Bulgària)
University of Tartu (Estònia)
Coordinador: Consell Superior d'Investigacions Científiques (Espanya)

Summary

THRESHOLDS seeks to contribute to the development of Sustainability Science and through the implementation of a procedure for policy formulation based on the development of a target setting process that integrates scientific knowledge on thresholds of indicators of environmental sustainability, the socio-economic activities that impinge in these indicators and the components of their vulnerability, and the evaluation of the resultant externalities associated with these socioeconomic activities.

THRESHOLDS carries out innovative crosscutting research to develop, improve and integrate tools and methods to provide the basis to formulate sustainable strategies through research to deliver the scientific tools to identify Thresholds and Points of No-return of Environmental Sustainability and externality valuations required to define targets for the development of the European sustainable Development Strategy. The

THRESHOLDS IP will confront complex behaviour of ecosystems, such as regime shifts between alternative stable states, and complexity in valuation of the sectors affecting environmental quality, such as nonlinear cost-accommodate to the complexity of the socio-economic and environmental systems. The tools developed will be applied to case studies in the European coastal zone, where policy needs are pressing, involving increasing levels of complexity, from local to pan-European.

THRESHOLDS IP will draw on the extensive data sets and research results produced on the basis of national efforts as well as previous framework programmes, which have focussed on major environmental problems and have delivered models and data which can be used to define Thresholds and Points of No Return. The THRESHOLDS IP, will, therefore, build on the European Research Area concept and add value to the applications of results derived from national and FP 6-funded research.

DEPARTAMENT DE FÍSICA

Referència: RII3-CT-2004-506222.

Modalitat: Research infrastructures action.

Títol: *Integrated large infrastructures for astroparticle science.*

Acrònim: ILIAS.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigadora responsable: SINTES OLIVES, Alícia Magdalena.

Categoria: TU (àrea de coneixement: Física Teòrica).

Inici: 2005 **Fi:** 2009

Socis

Centre National de la Recherche Scientifique (França)

Istituto Nazionale di Fisica Nucleare (Itàlia)

Universitat de Zaragoza (Espanya)

University of Sheffield (Regne Unit)

Czech Technical University (Txèquia)

University of Southern Denmark (Dinamarca)

University of Jyväskylä (Finlàndia)

Max Planck Society for the Advancement of Science (Alemanya)

Technische Universität München (Alemanya)

Eberhard Karls Universität Tübingen (Alemanya)

Aristotle University of Thessaloniki (Grècia)

Istituto di Fotonica e Nanotecnologie (Itàlia)

European Gravitational Observatory (Itàlia)

Leiden University (Holanda)

Comenius University (Eslovàquia)

European Organization for Nuclear Research (Suïssa)

Bogazici University (Turquia)

University of Glasgow (Regne Unit)

University College London (Regne Unit)

Coordinador: European Gravitational Observatory (Itàlia)

Summary

ILLIAS is an integrated infrastructure initiative that has pulled together all of Europe's leading infrastructures in astroparticle Physics to produce a focused, coherent and integrated project to improve the existing infrastructures and their operation as well as to organise and structure the scientific community to prepare the best infrastructures for the future. ILIAS results from an extensive consultation of the community and an internal review process through the Astroparticle Physics European Co-ordination (ApPEC).

ILIAS has 20 participants. In addition, there are numerous institutions that will contribute to the activities of ILIAS (but are not signatories to the contract). ILIAS will strengthen the new coordination by focusing on the following three scientific poles:

- Physics in deep underground laboratories.
- Gravitational wave detection.
- Theoretical astroparticle physics.

INSTITUT MEDITERRANI D'ESTUDIS AVANÇATS (IMEDEA)

Referència: GOCE-CT-2003-505446.

Modalitat: Network of excellence.

Títol: *Marine biodiversity and ecosystem functioning.*

Acrònim: MARBEF.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: DUARTE QUESADA, Carlos.

Categoria: Professor d'investigació del CSIC.

Inici: 2004 **Fi:** 2009

Socis

The Natural History Museum (Regne Unit)
Plymouth Marine Laboratory (Regne Unit)
The University Court of the University of St Andrews (Regne Unit)
Stazione Zoologica Anton Dohrn (Itàlia)
Vlaams Instituut Voor de Zee (Bèlgica)
Ecological Consultancy Services, LTD (Irlanda)
Natural Environment Research Council (Regne Unit)
Senckenbergische Naturforschende Gesellschaft (Alemanya)
Max Planck Gesellschaft zur Foerderung der Wissenschaften E.V. (alemanya)
Universidade dos Açores (Portugal)
Instytut Oceanologii (Polònia)
Stiftung Alfred Wegener Institut fuer Polar und Meeresforschung (Alemanya)
Abo Akademi University (Finlàndia)
University of Southampton (Regne Unit)
Nacionalni Institut za Biologijo (Eslovènia)
Danmarks Fiskeriundersogelser (Dinamarca)
Institut fuer Ostseeforschung Warnemuende (Alemanya)
Consell Superior d'Investigacions Científiques (Espanya)
Universiteit Gent (Bèlgica)
Consorcio Nazionale Interuniversitario per le Scienze del Mare (Italia)
Sir Alister Hardy Foundation for Ocean Science (Regne Unit)
National University of Ireland (Irlanda)
Institut fuer Meereskunde an der Universitaet (Alemanya)
Rijksuniversiteit Groningen (Holanda)
Consiglio Nazionale delle Ricerche (Itàlia)
University of Hull (Regne Unit)
Syddansk Universiteit (Dinamarca)
Akvaplan-Niva AS (Noruega)
Netherlands Institute for Fisheries Research (Holanda)
Centro Interdisciplinar de Investigaçao Marinha e Ambiental (Portugal)
Universitetet I Oslo (Noruega)
Klaipėdos Universitetas (Lituània)
Institut Français de Recherche pour l'Exploitation de la Mer (França)
Universiteit van Amsterdam (Holanda)
The Center for Environment, Fisheries and Aquaculture Science (Regne Unit)
Uniwersytet Gdanski (Polònia)

Expert Center for Taxonomic Identification (Holanda)
Rijkinstituut voor Kust en Zee (Holanda)
Institute of Marine Biology of Crete (Grècia)
Marine Biological Association of the United Kingdom (Regne Unit)
Centre National de la Recherche Scientifique (França)
Nationaal Natuurhistorisch Museum (Holanda)
Goeteborg Universitet (Suècia)
Universiteit Maastricht (Holanda)
University of Wales (Regne Unit)
Wageningen Universiteit (Holanda)
Università degli Studi dei Pisa (Itàlia)
Stichting Nederlands Instituut loor Onderzoek der Zee (Holanda)
Havforskningsinstituttet (Noruega)
Coordinador: Netherlands Institute of Ecology (Holanda)

Summary

The creation of the network of excellence MARBEF (Marine Biodiversity and Ecosystem Functioning) aims at integrating research efforts by forming a dedicated group of marine scientists and institutes and creating a virtual European institute with a long-term research programme and dedicated links with industry and the public at large. This involves besides coordination of research the training, exchange and outreach activities in several relevant fields of science, including marine ecology and biogeochemistry, fisheries biology, taxonomy and socio-economic sciences. Better integration of research is also required to support the legal obligations of the EU and its member states and associated states for the Convention for Biological Diversity, the OSPAR and Barcelona conventions as well as several EU directives (Bird Directive, Habitat Directive, Water Framework Directive). The network will also improve links with the large and growing number of industries depending on the sustainable use and exploitation of marine biodiversity. This includes tourism, fisheries and aquaculture but also new industries that explore and commercialise marine genetic and chemical products.

Referència: SIP3-CT-2003-502885.

Títol: *Marine Environment and Security for the European Area.*

Acrònim: MERSEA.

Investigador responsable: ÁLVAREZ DÍAZ, Alberto.

Categoria: Investigador científic del CSIC.

Inici: 2004 **Fi:** 2008

Summary

MERSEA aims to develop a European system for operational monitoring and forecasting on global and regional scales of the ocean physics, biogeochemistry and ecosystems. The prediction time scales of interest extend from days to months. This integrated system will be the Ocean component of the future GMES system. At the core of the system is the collection, validation and assimilation of remote sensed and in situ data into ocean circulation models that allow for the self consistent merging of the data types, interpolation in time and space for uniform coverage, nowcasting (i.e. data synthesis in real-time), forecasting, and hindcasting, and delivery of information products.

The project will develop Marine Applications addressing the needs of both intermediate and end-users, whether institutional or from the private sector, with the objective to improve the safety and efficiency of maritime transport and naval operations ; to enable the sustainable exploitation and management of ocean resources (offshore oil and gas industry, fisheries); to more efficiently mitigate the effects of environmental hazards and pollution crisis (oil spills, harmful algal blooms) ; to improve contribution to ocean climate variability studies and seasonal climate prediction and its effects on coastal populations; to improve national security and reduce public health risks ; and to advance marine research with the aim to better understand the global climate, the ocean and its ecosystems.

The project will lead to a single high-resolution global ocean forecasting system shared by European partners together with a coordinated network of regional systems for European waters which will provide the platform required for coastal forecasting systems. During the project the main preoperational systems will be transitioned towards operational status and three of the centres will converge on a single ocean model framework suitable for both the deep ocean and shelf-seas.

Referència: GOCE-CT-2004-505403. Network of Excellence.

Títol: *Implementation of high-throughput genomic approaches to investigate the functioning of marine ecosystems and the biology of marine organisms.*

Acrònim: MARINE GENOMICS.

Investigador responsable: ROSSELLÓ MORA, Ramon.

Categoria: Científic titular del CSIC.

Inici: 2004 **Fi:** 2008

Summary

Experts in genomics, proteomics and bioinformatics from several Centres of Excellence in genomics in Europe will be grouped and networked with marine biologists who can make use of high-throughput genomics data. The network aims among others at sharing existing technological platforms; enabling access to major genomic centres; establishing a common DNA Stock Centre and a common Bioinformatics Centre. Marine Genomics will also develop complementary dissemination strategies, targeting public, private and institutional communities with the purpose of enhancing the integration of marine biologists in the ERA.

Referència: 022745 (SSP8).

Títol: *Probabilistic assessment, management and advice model for fishery management in the case of poor data availability.*

Acrònim: POORFISH.

Investigadora responsable: MORALES NIN, Beatriu.

Categoria: Científica titular del CSIC.

Inici: 2005 **Fi:** 2008

Socis

The Secretary of State for Environment, Food and Rural Affairs (Regne Unit)

Institute de Recherche pour le Developpement (França)

Helsingin Yliopisto (Finlàndia)

Suomen Ymparistokeskus (Finlàndia)

Coordinador: Univesity of Portsmouth (Regne Unit)

INSTITUT DE FÍSICA INTERDISCIPLINÀRIA DE SISTEMES COMPLEXOS (IFISC)

Referència: FP6-2005-NEST-Path-043251

Títol: *Ecological Diversity and Evolutionary Networks.*

Acrònim: EDEN.

Investigador responsable: HERNÁNDEZ GARCÍA, Emilio.

Categoria: Professor d'investigació del CSIC.

Inici: 2007 **Fi:** 2009

Socis

Centro do Ciencias do Mar (Portugal)
Leipzig University (Alemanya)
Helsinki University of Technology (Finlàndia)

Summary

Biological systems and their highly organized constituents are paradigms of Complexity. The study of Complex Networks, representing interactions among components, has become central in the science of Complex Systems. The EDEN proposal aims at considering in depth the representation of ecological and evolutionary relationships among biological entities –organisms, populations, taxa– in terms of networks by developing methods to construct them from genetic data and by expanding the toolbox for their analysis.

Evolutionary relationships between species are usually represented in phylogenies, i.e. evolutionary trees. Intraspecific gene genealogies and population structure are also conventionally represented as tree-like objects. However, processes such as sexual reproduction or lateral gene transfer introduce cycles and need richer structures – networks– to be properly represented. EDEN will develop tools to build networks of ecological and of evolutionary relationships from genetic data, and study them with the modern methods of network theory. More specifically, EDEN will focus on:

- Networks of genetic diversity, constructed from genetic data of a large sample of marine plants in coastal ecosystems. Innovative network methods will be developed to address questions on population structure, gene flow, evolution, biogeography and conservation of these threatened ecosystems.

- The tools of reticulate evolution, and novel approaches based on network theory will be used to build and analyze phylogenies with rich structure beyond trees. The aim is to gain biological insight on the evolution of life, from specific lineages to the entire spectrum of life forms, by evolving from the present concept of a 'Tree of Life' to a more flexible concept of 'Network of Trees'.

The synergy between extensive data collection and analysis together with individual-based modelling (including genetic, ecological, and spatial factors) will be pursued in all these focus cases.

Referència: FP6-2005-NEST-Path-043268

Títol: *Pattern Resilience.*

Acrònim: PATRES.

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoria: CU (àrea de coneixement: Física de la Matèria Condensada)

Inici: 2007 **Fi:** 2009

Socis

Cemagref. Laboratoire d'Ingénierie des Systèmes Complexes (França)

University of Surrey (Regne Unit)

Helmholtz Centre for Environmental Research (Alemanya)

Centre National de la Recherche Scientifique (França)

Referència: FP6-2005-NEST-Path-043309

Títol: *Global Approach to Brain Activity: From Cognition to Disease.*

Acrònim: GABA.

Investigador responsable: MIRASSO SANTOS, Claudio.

Categoria: TU (àrea de coneixement: Física de la Matèria Condensada)

Inici: 2007 **Fi:** 2009

Summary

Synchronization is a ubiquitous phenomenon in Nature, and has been identified as one of the main features of complex biological systems. Its study has originated new fundamental insights and analysis tools in both local and global dynamical models stemming from divergent disciplines. Neuronal synchronization, at a wide range of spatial scales, is considered a major orchestrator of brain integration processes. GABA aims to determine the functional role of normal and aberrant synchronization mechanisms in the emergence of higher cerebral functions in health and disease, by using tools borrowed from nonlinear dynamics and complexity theory. To that end, it is necessary to understand how local and long-range interactions scale up to a global activity in the brain.

To accomplish this goal, we recollect and analyze collective brain responses (multichannel-EEG, intracranial EEG, magnetoencephalographic recordings and local field potentials) and single-neuron activity under different normal and abnormal physiological conditions: from cognitive performance (sensory processing, attention, and memory in humans and non-human primates) to pathological mechanisms underlying Alzheimer's disease and epilepsy. We apply linear and nonlinear methods, as well as tools from stochastic analysis and from the theories of complex networks and delayed dynamical systems. Such approaches have proven in the past to be very useful in the characterization of complex systems in generic models, and are here applied to obtain a better understanding of how higher cerebral functions arise in the normal brain. Results from this approach are expected to contribute to the early diagnosis of Alzheimer's disease and to the anticipation of epileptic seizures. Additionally, insights arising within GABA are also expected to revert into new paradigms and an increased knowledge of the collective dynamics of other complex networks, in fields such as sociology and engineering.

Referència: MSCF-CT-2004-013119.

Modalitat: Marie Curie conferences and training courses.

Títol: *Interactive training and research in nonlinear science from physics to biology.*

Acrònim: PHYSBIO.

Centre: IFISC. Edifici Instituts Universitaris.

Investigador responsable: TORAL GARCÉS, Raúl.

Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2005 **Fi:** 2008

Socis

Centre National de la Recherche Scientifique (França)

Universität Bayreuth (Alemanya)

Coordinador: Research Institute for Solid State Physics and Optics (Hongria)

Summary

A new shift in the understanding of stochastic processes has emerged in the last decades. Since they were first analyzed about one hundred years ago (the pioneering works of Einstein, Langevin, Perrin, Smoluchovsky, etc.), the noise terms in physical, chemical, engineering and biological systems had commonly been considered to be a nuisance, something to be avoided or, in those cases where the noise is intrinsic to the system, to be minimize as much as possible. This point of view has changed recently with the discovery that in nolinear systems noise can actually have a constructive effect that induces new ordering phenomena. This change was originated in the already classic works on stochastic resonance, originally aiming to explain the observed periodicity of the Earth's ice ages as a subtle entanglement between a nonlinear climatic model, the periodic changes in solar radiation due to the variations in the ellipticity of the earth's orbit, and noise in the form of random variations of the total solar emission. This work instantly opened a door. Many other constructive effects have since been found, such as noise -induced transitions and noise -induced phase transitions, noise -induced transport (Brownian motors, ratchets, etc), noise -sustained patterns, synchronization induced by noise, etc. In all the examples, th e nonlinearities play an essential role.

Many applications of those phenomena have been found in different fields, mainly of physical and biological interest.

Stochastic processes are usually not covered, or only very superficially, in the academic programs and therefore there is need to start at a low level in the training. The proposed course will address a wide audience, including, physicists, chemists, biologists, mathematicians, electrical engineers, etc.

Since one of the major tools in this field is that of numerical simulations, special attention will be devoted to the application of numerical algorithms for stochastic processes.

Referència: 034743.

Modalitat: Information society technologies.

Títol: *Integrated optical logic and memory using ultrafast micro-ring bistable semiconductor lasers.*

Acrònim: IOLOS.

Centre: IFISC. Edifici Instituts Universitaris.

Investigador responsable: SCIRÉ, Alessandro.

Categoria: Investigador contractat.

Inici: 2006 **Fi:** 2009

Socis

University of Glasgow (Escòcia)

Universita degli Studi di Pavia (Itàlia)

Vrije Universiteit Brussel (Bèlgica)

Intense Limited (Regne Unit)

Siemens, S.A. (Portugal)

Coordinador: University of Bristol (Regne Unit)

Summary

The research proposed by IOLOS aims to develop a new and universal building block, thereby creating the necessary integration technologies for future all-optical digital and logic functional sub-systems. The key approach is the exploitation of the strong and robust directional optical bi-stability in semiconductor ring lasers (SRLs) as the fundamental mechanism for all-optical digital building blocks - from which digital functions of all types can be synthesised. The central concept is that the switching between two digital logic states within an SRL device (the two possible directions of operation) can be triggered by an external optical signal - and can occur at ultra-high speeds, being limited solely by the round-trip time of the optical laser cavity. The innovation lies in the development of proven technologies that enable the progressive down-scaling of the dimensions of micro-SRLs to less than 20 microns, thus allowing optically induced switching times of < 10 ps.

IOLOS will develop theoretical understanding and numerical models for the design and optimisation of the directional bistability and switching speed of micro-SRLs. IOLOS will study the ultimate limits of device down scaling, thus predicting future technological development capability. IOLOS will further develop technologies to monolithically integrate the SRL bistable devices into functional all-optical digital and logic chips that incorporate optical access couplers, passive waveguides, and all-optical gates. These chips will be used to realise and demonstrate all-optical set/reset flip-flop function, all-optical threshold devices for all-optical data regeneration and retiming, and optical memory units with all-optical write, read, and reset control functions.

Referència: FP6/2005/IST/5.

Modalitat: Information society technologies.

Títol: *Photonic integrated components applied to secure chaos encoded optical communications systems.*

Acrònim: PICASSO.

Centre: IFISC. Edifici Instituts Universitaris.

Investigador responsable: MIRASSO SANTOS, Claudio Rubén.

Categoria: TU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2006 **Fi:** 2009

Socis

Fraunhofer Gesellschaft zur Foerderung der Angewandten Forschung E.V. (Alemanya)

University of Wales, Bangor (Gal·les)

Universite de Franche-Comte (França)

Eblana Photonics Limited (Irlanda)

Phoenix Photonics Limited (Regne Unit)

Attica Telecommunications, S.A. (Grècia)

Universita degli Studi di Pavia (Itàlia)

Coordinador: National and Kapodistrian University of Athens (Grècia)

Referència: LSHB-CT-2004-005137.

Modalitat: Network of excellence.

Títol: *Biosimulation. A new tool in drug development.*

Acrònim: BioSim.

Centre: IFISC. Edifici Instituts Universitaris.

Investigador responsable: TORAL GARCÉS, Raúl.

Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2004 **Fi:** 2009

Socis

VrijeUniversiteit Amsterdam/Faculteit Aard en Levenswetenschappen (Holanda)
The Cancellor, Master and Scholars of the University of Oxford (Regne Unit)
Phillips-Universitaet Marburg (Alemany)
University of Manchester (Regne Unit)
Universitaet Postdam (Alemanya)
Forshungszentrum Juelich GmbH (Alemanya)
Lund University (Suècia)
Linkoeeping University (Suècia)
Université Libre de Bruxelles (Bèlgica)
Universitat de València (Espanya)
University of Copenhagen (Dinamarca)
University of Warwick (Regne Unit)
University of Sheffield (Regne Unit)
Danish University of Pharmaceutical Sciences (Dinamarca)
Technische Universitatet of Dresden (Alemanya)
Institute of Experimental Pharmacology (Eslovàquia)
Institut of Enzymology (Hongria)
Charite Universitatsmedizin Berlin (Alemanya)
University of Bordeaux 2 (França)
University of Leeds (Regne Unit)
Institut National de la Sante et de la Recherche Medicale (França)
EML Research gGmbH (Alemanya)
Simcyp Limited (Regne Unit)
InNetics AB (Suècia)
MXM Laboratories, SA (França)
InterActive Systems GmbH (Alemanya)
Fraunhofer-Chalmers Research Centre for Industrial Mathematics (Suècia)
SOLVO Biotechnology Inc. (Hongria)
Zealand Pharma A/S (Dinamarca)
Novo Nordisk A/S (Dinamarca)
Danish Medicines Agency (Dinamarca)
Agencia Española de Medicamentos y Productos Sanitarios (Espanya)
Medicines Evaluation Board (Holanda)
Medical Products Agency (Suècia)
Lasdale Limited (Regne Unit)
Coordinador: Technical University of Denmark (Dinamarca)

Summary

The BIOSIM network focuses on the structuring of efforts devoted to the development of simulation models for the design, selection and testing of drugs. In silico simulation models using pharmacokinetic, function mechanism and side-effect describing parameters and interaction profiles should be developed for biological systems (cells and tissues) enabling to predict the efficacy of drugs. The integration of regulatory and industrial aspects is particularly important to the success of research under this line.

International competition in the pharmaceutical industry is increasingly becoming a competition with respect to the ability to understand complex biological processes and exploit the rapidly growing amount of biological information. The methods that are currently applied in the development of new medicines suffer from the lack of effective means to evaluate, combine, and accumulate biological knowledge. Essential improvements must involve the use of computational models that can provide a dynamic and more quantitative description of the relevant biological, pathological, and pharmacokinetic processes.

The BIOSIM Network of Excellence aims to restructure and strengthen the area of biosimulation by focusing on the development of professional, physiologically-based models that can help the pharmaceutical industry develop safe and effective drugs at significantly lower costs. The modelling approach is strongly recommended by the American Food and Drug Administration that already uses mathematical models in its evaluation of applications for drug approval. Academic institutions in Europe have significant expertise in biological modelling, and several groups are individually at the research front in their specific areas. At the present, however, the research is strongly fragmented, and the industry itself has relatively few qualified experts in the field. The Network will provide a new forum for collaboration across disciplinary boundaries as well as between industry, regulatory authorities, and academia.

The BioSim Network involves 26 academic organisations, 9 small and medium-sized enterprises, 1 large pharmaceutical company, and the Danish, Spanish, Dutch, and Swedish regulatory agencies. The Network collaborates with the European Federation for Pharmaceutical Sciences (EUFEPS).

Referència: 015539.

Modalitat: Integrating and strengthening the European Research Area.

Títol: *Open network for connecting excellence in complex systems.*

Acrònim: ONCE-CS.

Centre: IFISC. Edifici Instituts Universitaris.

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2005 **Fi:** 2008

Socis

Centre National de la Recherche Scientifique (França)
Ecole Normale Supérieure de Lyon (França)
University of Oxford (Regne Unit)
Fondazione Istituto per l'Intercambio Scientifico (Itàlia)
International University Bremen (Alemanya)
University of Surrey (Regne Unit)
Institut National de Recherche en Informatique et en Automatique (França)
Collegium Budapest (Hongria)
Politechnika Warszawska (Polònia)
København's Universitet (Dinamarca)
Universidad de Chile (Xile)
Genopole Evry (França)
Max-Planck Gesellschaft zur Förderung der Wissenschaften (Alemanya)
Santa Fe Institute (EUA)
Universität Wien (Àustria)
Vrije Universiteit Brussel (Bèlgica)
The London School of Economics and Political Science (Regne Unit)
Budapesti Műszaki és Gazdaságtudományi Egyetem (Hongria)
Institut za Matematiko, Fiziko in Mehaniko (Eslovènia)
Protolife S.R.L. (Itàlia)
Ecole Polytechnique Fédérale de Lausanne (Suïssa)
Hadassah Medical Organization (Israel)
Coordinador: The Open University (Regne Unit)

Summary

ONCE-CS will strengthen the network of the Complex Systems community in Europe by coordinating the currently fragmented organisation of meetings, workshops, and conferences. It will connect the different parts of the community reducing the possibility of clashing events as currently happens. It will organise Thematic Institutes, Thematic Schools, and Thematic Workshops where these are needed to coordinate the academic community, and connect it better to industry and government. It will pay special attention to integrating the new and applicant states. It will actively link the European CS community to the rest of the world. ONCE-CS has strong mission in coordinating education in the CS community. It will do this by combining existing open-source methods for individual scientists to create interdisciplinary courses, using a well managed and well indexed database open sources resources such as images, videoclips, text, presentations, software, data and so on. It will use the well-supported open source authoring and content management software. ONCE-CS will coordinate scientific

research in the community by providing open source simulation software and open source data sets provided by the CS community, allowing replication of innovative experiments, rapid research progress arising from them, and rapid dissemination. The ONCE-CS project centres on the web-based Portal which will use robust professionally-managed industrial hardware-software infrastructure to provide all the above services to the community. The content of the interactive portal will be community driven. The success of ONCE-CS can be measured objectively by network measures including the number of new nodes and links added, vertically in terms of countries, institutions, individuals, and horizontally in terms of the academic, industry and government networks.

Referència: COST ACTION MP0801

Títol: *Physics of Competition and Conflicts.*

Acrònim: PhysCoCo.

Centre: IFISC. Edifici Instituts Universitaris.

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2008 **Fi:** 2012

Summary

Recently physicists have extended ideas of atoms and lattices to more generalized concepts of agents and networks and are facilitating new understanding of systems traditionally the province of other disciplines. Applications include, for example, competition between firms, mergers and acquisitions, evolutionary dynamics, cultural change and transportation networks. Set to undergo a renaissance in the 21st century, the area of complexity, rooted in statistical physics and probability theory is at the core of these developments. Better understanding in these areas will provide routes to greater social stability and economic well-being across an increasingly networked world. The Action will promote discussion and research. The Action will promote discussion and research across the physical and sociological disciplinary divide by providing a platform from which the participating researchers can develop important, new and substantial research initiatives aimed at tackling these key trans-disciplinary issues. Overall the Action will provide a unique forum for physicists and mathematical scientists to share leading-edge knowledge, experience and build up a common language with economists, social scientists, industry and government. Keywords: Complexity, competition, cooperation & conflict, self organization, emergence, extreme events.

CENTRE DE RECERCA ECONÒMICA

Referència: 036961-2

Modalitat: VIPM-VI Programa Marc de la Unió Europea.

Títol: *Climate Change and Impact Research: the Mediterranean Environment.*

Acrònim: CIRCE.

Investigador responsable: ROSSELLÓ NADAL, Jaume.

Categoria: TU (àrea de coneixement: Economia Aplicada)

Inici: 2007 **Fi:** 2011

Summary

CIRCE aims at developing for the first time an assessment of the climate change impacts in the Mediterranean area. The objectives of the project are: (i) To predict and to quantify physical impacts of climate change in the Mediterranean area; (ii) To evaluate the consequences of climate change for the society and the economy of the populations located in this area; (iii) To develop an integrated approach to understand combined effects of climate change, and (iv) To identify adaptation and mitigation strategies in collaboration with regional stakeholders.

CIRCE wants to understand and to explain how climate will change in the Mediterranean area. The project will investigate how global and Mediterranean climates interact, how the radiative properties of the atmosphere and the radiative fluxes vary, the interaction between cloudiness and aerosol, the modifications in the water cycle. Recent observed modifications in the climate variables and detected trends will be compared.

The economic and social consequences of climate change shall be evaluated by analysing direct impacts on migration, tourism and energy markets together with indirect impacts on the economic system. CIRCE will moreover investigate the consequences on agriculture, forests and ecosystems, human health and air quality. The variability of extreme events in the future scenario and their impacts will be assessed.

A rigorous common framework, including a set of quantitative indicators developed specifically for the Mediterranean environment will be developed and used in collaboration with regional stakeholders. The results will be incorporated in a decision support system tool and disseminated to the relevant users. Possible adaptation and mitigation strategies will be identified.

**PROJECTES FINANÇATS PER EL GOVERN ESPANYOL
I PER EL GOVERN DE LES ILLES BALEARS**

DEPARTAMENT DE BIOLOGIA

Referència: AGL2005-06927-C02-01/AGR. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.

Títol: *Optimización del uso del agua en la vid: regulación y control fisiológico y agronómico y efectos en la calidad del fruto.*

Acrònim: AGUAVID.

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: MEDRANO GIL, Hipólito.

Categoria: CU (àrea de coneixement: Fisiologia Vegetal).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|----------------------------------|------------------------|
| Medrano Gil, Hipólito | CU | 1 |
| Bota Salort, Josefina | Col. | 0.5 |
| Gulías León, Javier | Aj. | 1 |
| Cifre Llompart, Josep | Col. | 0.5 |
| Sánchez Forss, Antonio L. | Tèc. | 0.5 |
| Vadell Adrover, Jaume | TEU | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| García Escudero, Enrique | Govern de La Rioja | |
| Ibáñez Pascual, Sergio | Govern de La Rioja | |
| Schubert, Andrea | Università degli Studi di Torino | |

EDP del grup investigador de l'entitat sol·licitant: 4.

Referència: CTM2005-01783/MAR. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències i tecnologies mediambientals.
Títol: *Respuesta de comunidades microbianas marinas a contaminación por hidrocarburos: diversificación, funcionalidad y mecanismos genéticos de adaptación.*
Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.
Investigadora responsable: NOGALES FERNÁNDEZ, Balbina.
Categoria: Inv. Contr.
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------------|------------------|------------------------|
| Nogales Fernández, Balbina | Inv. | 1 |
| Bosch Zaragoza, Rafel | TEU | 1 |
| Martín Cardona, Celia | B | 1 |
| Lanfranconi, Mariana Patricia | B | 1 |
| Christie Oleza, Joseph Alexander | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

Hydrocarbon pollution is very frequent in the marine environment and it is especially important in coastal areas, which have great economical and recreational relevance. The conservation of the integrity of the ecosystem is paramount for a sustainable development of the coastal environment. Therefore, a good knowledge on the impact that hydrocarbon pollution has in the coastal ecosystem is necessary.

Despite the fact that microorganisms are the main players in hydrocarbon degradation in marine environments, information on the microbial communities in hydrocarbon polluted environments, their functionality and adaptation mechanisms is scarce. This project proposes a study of microbial communities of coastal environments, in order to elucidate the impact of hydrocarbon pollution on them. The analysis will be based in the use of molecular biology techniques, the analysis of environmental samples, experiments in microcosms subjected to different treatments, and with the isolation of bacteria from the environments studied. Firstly, the structure and composition of the microbial communities in the presence and absence of hydrocarbons will be compared and changes in response to pollution will be analysed. Special attention will be dedicated to the study of two important marine bacterial groups, SAR11 and *Roseobacter* groups. Secondly, the changes in community global gene expression will be analysed, as well as the expression of selected functional genes, important for the functionality of the community (photosynthesis, carbon fixation, processes in the nitrogen cycle, hydrocarbon degradation genes). Following these two approaches, the response of the communities by proliferation and/or disappearance of certain microorganisms will be determined, but also information about the functional response of the community to the presence of pollutants will be obtained by following changes in gene expression. Finally, mechanisms for the genetic adaptation of bacterial populations within the community to the stress caused by hydrocarbon pollution will be studied. In particular, the role of insertion sequences and hypermutation in the adaptation to the presence of hydrocarbons in the environment will be analysed.

Referència: BFU2005-03102/BFI. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biologia fonamental.

Títol: *Efecto de la sequía sobre la fotosíntesis y la respiración: aclimatación y recuperación.*

Acrònim: FORESAR.

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: FLEXAS SANS, Jaume.

Categoria: TEU (àrea de coneixement: Fisiologia Vegetal).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|--|---------------------------------|------------------------|
| Flexas Sans, Jaume | TEU | 1 |
| Ribas Carbó, Miquel | Inv. | 1 |
| Galmés Galmés, Jeroni | Aj. | 1 |
| Pons Ros, Rosa | As. | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Lambers, Johannes Thieo | University of Western Australia | |

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

The study the combined responses of photosynthesis and respiration to water stress is of significant importance to understand the underlying physiological mechanisms that permit plants to survive under arid and semi-arid conditions, with an important effect on agricultural production and water economy. In the previous project the physiological basis of these processes were determined as a function of the intensity of the stress and its timing. However, it is important not only to know the response of these processes during the imposition of the stress but also its acclimation and its recovery capacity. The present proposal intends to study these aspects rather unknown regardless of its unmistakable relevance.

The core of this proposal is the hypothesis that foresees that the intensity of the stress would affect the recovery of both the photosynthetic and the respiratory metabolism after the stress. It also predicts that the physiological response to both the stress imposition and its recovery will depend on previous acclimation to the stress. Furthermore, the hypothesis suggest that photosynthesis and respiration interact closely during the stress, its acclimation and its recovery, and particularly, the hypothesis gives an important role to the cyanide-resistant alternative respiration during the recovery period. These interactions between intensity, acclimation and recovery and between photosynthesis and respiration should have a clear sign with the specific patterns of gene expression. The specific objectives of this proposal are the following:

1. To confirm that CO₂ availability at the chloroplast level is the main limiting factor of photosynthesis under water stress conditions and during plant recovery.
2. To elucidate how the intensity of water stress affects the velocity and the degree of the photosynthetic recovery after re-hydration, as well to find out which physiological mechanisms are the most limiting for each recovery case.

3. To discover the main physiological adjustments contributing to the acclimation of photosynthesis and respiration to water stress.
4. To study the regulation of respiration in different tissues under simulated and its relation with photosynthesis and the total plant carbon balance.
5. To analyse the possible role of the cyanide-resistant respiration on the recovery of photosynthesis after severe water stress.
6. To relate gene expression with the physiological response to different water stress scenarios.

Referència: AGL2005-06150/GAN. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.
Títol: *Desarrollo de estrategias de control de las poblaciones de culicoides (Diptera; Ceratopogonidae), vectores del virus de la lengua azul.*
Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.
Investigador responsable: MIRANDA CHUECA, Miguel Ángel.
Categoria: TEU (àrea de coneixement: Zoologia).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-----------------------------|------------------------|
| Miranda Chueca, Miguel Ángel | TEU | 1 |
| Rincón Otero, Cristina | As. | 1 |
| Monerri Mascaró, Mirian | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Borràs Borràs, David | Institut de Biologia Animal | |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The Blue Tongue (BT) is a disease of ruminants with a wide distribution in the Mediterranean Basin. BT is included in the List A from the OIE that includes obligatory declaration diseases that have important impact on the economy of farmers and affects very seriously the trade of animals in the areas where it is present.

In recent years the BT has been detected in our country. Firstly, during 2000 and 2003 in the Balearic Islands, and secondly, during autumn 2004 in the South of Spain, in particular in Andalucía and Extremadura regions. In all these episodes, the main hypothesis that explains the incursion of BT virus (BTV) in Spain is based on the fact that the BTV could be introduced by vector insects that are transported by air streams from the neighboring areas that are already infected with the BTV. Within these areas we should include Corsica, Sardinia and Sicily in the case of the introduction in the Balearics, and Morocco in the case of the Peninsula.

The vectors are the only way for transmitting the virus among animals, thus, they have an enormous importance in epidemiology issues and for this reason, the main objectives from this proposal have been focused on the following points:

- 1.- To study the biology of the vectors as a basic background knowledge for controlling their populations. This objective is specially focused on the larvae and pupae environmental breeding sites.
- 2.- To evaluate the activity periods of *Culicoides* adults in relationship with their haematofagous feeding behavior, in order to develop efficacious strategies for controlling them.
- 3.- To evaluate which strategies related with farming managing could decrease *Culicoides* populations, specially those related with managing of possible breeding sites.
- 4.- To evaluate the efficacy of insecticides and repellents as a method for the reduction of bite rate and then causing a decrease of the virus transmission.

Referència: SAF2005-01466. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biomedicina.

Títol: *Caracterización molecular de nuevos mecanismos de resistencia a los antimicrobianos.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: ALBERTÍ SERRANO, Sebastià.

Categoria: TEU (àrea de coneixement: Microbiologia).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|----------------------|------------------------|
| Albertí Serrano, Sebastià | TEU | 1 |
| Hernández Allés, Santiago | Tèc. | 1 |
| Franco Capó, Marta | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Doménech Sánchez, Antonio | Saniconsult Mallorca | |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

Bacterial resistance to antimicrobial agents represents a worldwide problem that is very frequent in our country and results in an increase of the morbidity and mortality of the infectious diseases.

Among the general mechanisms exhibit by the microorganisms to resist the antimicrobial agents: inactivating enzymes, target modifications and reduction of intracellular antimicrobial agent concentration, it is probably the last mechanism the most common among different bacterial species. In addition, the combination of this mechanism with one of the other mechanisms results in a very efficient reduction of the antimicrobial drug effects.

Using as model *K. pneumoniae*, we have described two mechanisms that allows to the pathogen to reduce the intracellular antimicrobial drug concentration: reduction of porin expression and expression of efflux pumps. However, the molecular mechanisms that reduce porin expression and the factors involved in this reduction as well as the efflux pumps systems of this microorganism are poorly studied. The goal of this project is to characterize both mechanisms using molecular biology techniques in order to design better treatments to avoid antimicrobial resistance and to identify novel mechanisms of resistance to develop new antimicrobial drugs. It is likely that results obtained in this project will be useful for other microorganisms since antimicrobial resistance mechanisms are quite similar among different pathogens.

Referència: CGL2006-10893-C02-01/BOS. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Integrando la evolución, la ecología y la biología de los lacertidos insulares del Mediterráneo.*
Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.
Investigadora responsable: RAMON JUANPERE, Misericòrdia.
Categoria: TU (àrea de coneixement: Genètica).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|------------------------------|------------------|------------------------|
| Ramon Juanpere, Misericòrdia | TU | 1 |
| Picornell Rigo, Antònia | TEU | 1 |
| Castro Ocón, José Aurelio | TU | 0.5 |
| Terrasa Pont, Bàrbara | As. | 1 |

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

Several groups of islands and islets with endemic populations of lacertid lizards are present over the Mediterranean basin. They are clear examples of adaptation to local conditions and seem to rise from parallel evolutionary processes in front of similar environmental conditions. Together with the previous knowledge on genetic variability and population dynamics showed by the two endemic lacertid lizards of Balearic Islands, *Podarcis lilfordi* and *Podarcis pityusensis*, our research project will include the study of genetic variability, population structure and behavioural ecology of *Podarcis filfolensis*, another endemic lacertid lizard inhabiting Malta Islands and its coastal islets. One of the main targets of the project will be the study of patterns of molecular and morphological evolution of *Podarcis filfolensis* as a replication of the study carried out at Balearic Islands and with the aim to test previous hypotheses of the microevolutionary process at this archipelago. We will enlarge the available genetic information for the three species, including the study of MC1R gene involved in the expression of melanistic coloration, a relevant morphological trait at insular populations of lacertid lizards, being its adaptive significance still under debate. In addition, the project wants to evaluate the health state of population as well as the adaptive responses in terms of behavioural ecology traits and their phylogeographical patterns. We will compare these traits using phylogenetic contrasts within each species. The target is to obtain robust evidences about causal factors to explain present day ecological features of each population. To do that, we will employ general linear models to integrate in common analyses genetical, morphological and ecological traits to explain the particular relation between phenotype and genotype in these species and to construct a predictive model integrating the evolution of populations and their ecological characteristics.

Referència: CGL2006-08810/BOS. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Filogenia molecular de la subfamília Chrysomelinae con especial énfasis en la fauna australiana (Coleoptera, Chrysomelidae).*
Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.
Investigador responsable: PETITPIERRE VALL, Eduard.
Categoria: CU (àrea de coneixement: Genètica).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---------------------------|------------------|------------------------|
| Petitpierre Vall, Eduard | CU | 1 |
| Jurado Rivera, José A. | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

In this project we try to set up a robust molecular phylogeny of the subfamily Chrysomelinae based upon the nucleotide sequences of five nuclear and mitochondrial gene fragments: 28S, 18S, 16S, 12S and COI. Thus we shall analyze species of roughly 90 genera from the total of the 136 so far described, with an especial emphasis on some 40 from the Australian region, and secondarily on some Neotropical (~20) and Paleoafrican (~10), to be added to the 23 just checked mostly from the Palearctics. The findings to be obtained will be discussed in relation with hypotheses on the possible trends of chromosomal evolution, and future cladistic analyses focused on morphological characters. Furthermore, the study of several closely related genera will allow to verify whether their genetic divergences are corresponded or not with the paleogeography of the austral subcontinents derived from the ancient Gondwana.

Referència: CGL2006-01365/BOS. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Factores evolutivos y biogeográficos en la adaptación a la vida subterránea: casos de estudio en invertebrados de los archipiélagos Balear y Canario.*
Acrònim: SUBLIFEVOLUTION.
Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.
Investigador responsable: JUAN CLAR, Carles.
Categoria: TU (àrea de coneixement: Genètica).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--------------------------|------------------------|
| Juan Clar, Carles | TU | 1 |
| Jaume Llabrés, Damià | Científic titular | 0.5 |
| Villacorta Martín, José C. | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Oromí Masoliver, Pedro | Universitat de La Laguna | |
| Fragoso Jerez, María del R. | Universitat de La Laguna | |
| López Hernández, Heriberto D. | Universitat de La Laguna | |

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

Subterranean ecosystems represent perfect natural laboratories for the study of the effects of spatial and temporal isolation on genetic differentiation. The main goal of this project is studying the evolutionary transition to the underground habitat in populations of cave animals, testing hypotheses on the timing and mode of evolution of subterranean lineages using molecular data. Only two species of talitrid amphipods (terrestrial crustaceans) are known to be adapted to cave life, being exclusively troglodytic, one of them (*Palmorchestia hypogaea*) in lava tubes of the island of La Palma (Canary Islands) while the other occurs in Hawaii. The Canarian species is one of the few known cases where a direct epigeal ancestor can be identified and is still alive in the vicinity of a cave-adapted species. On the other hand, another (aquatic) amphipod species (*Metacrangonyx longipes*) lives in underground waters of the islands of Mallorca and Menorca (Balearic Islands), having relatives in the Canarian island of Fuerteventura, North Africa, Elba Island (Italy), the Dead Sea region (Israel) and the Dominican Republic. This extremely disjunct distribution, shared with many other anchialine organisms (occurring in caverns flooded by brackish or marine water), has been explained by vicariance *via* plate tectonics, which would have separated littoral populations of ancestral species once widespread in late Mesozoic epicontinental seas. Using these and other organisms we will derive phylogenetic-phylogeographic patterns and genetic diversity estimates using mitochondrial and nuclear DNA sequences. We want to elucidate if there is genetic flow and/or dispersion across the hypogean environment, between the epigeal and hypogean populations, and if the phylogenetic patterns of aquatic cave species are concordant with vicariance caused by plate tectonics. The results will also include more general aspects of basic and applied Biodiversity research, i. e. speciation and adaptation processes, neutral and selective evolution, establishment of significant units of biological conservation and intrinsic causes of species threat.

Referència: PI05-1340. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Estudio farmacológico y molecular del efecto de ácidos grasos naturales y modificados sobre la obesidad y patologías relacionadas.*
Centre: Biologia. Edifici Guillem Colom Casanovas.
Investigador responsable: VÖGLER, Bernhard Oliver.
Categoria: INVESTIGADOR CONTRACTAT.
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|---------------------------|------------------|
| Vögler, Bernhard Oliver | Inv. |
| Alemany Alonso, Regina | Inv. |
| Tofe Povedano, Santiago | |

Summary

The prevalence of obesity has increased to epidemic proportions in many parts of the world, reflection an imbalance between energy uptake (by food intake) and energy expenditure (by metabolization). Food intake is basically regulated in the hypothalamus, which stimulates or inhibits appetite due to the energetic state of the organism. On the other hand, energy expenditure is regulated by the activation of certain nuclear receptors (PPAR), which are able to augment energy consumption by expression of metabolic enzymes, and by uncoupling proteins (UCP), which increase energy expenditure by thermogenesis. It has been demonstrated that the function of the hypothalamus as well as the activation of PPARs and the expression of UCPs can be modulated by fatty acids. In this context, modification of the chemical structure of fatty acids could become a valuable tool to potentiate their pharmacological efficiency and to develop new potent drugs for the treatment of obesity. Recently, our laboratory has patented a synthetic derivative of oleic acid, 2-hydroxyoleic acid, that reduces very efficiently body weight in animals. Moreover, in order to extend our knowledge about this physiological effect of structural modifications, we have planned to synthesize other modified fatty acids, e.g. 2-methyloleic acid. This project proposes a pharmacological and molecular study of four natural fatty acids (stearic, elaidic, oleic and linoleic acid) and two modified ones (2-hydroxyoleic and 2-methyloleic acid) to evaluate their effects on body weight, food intake, lipid metabolism and thermogenesis in animals. Furthermore, the capacity of these fatty acids in reverting the pathological changes observed in obesity, like the plasma levels of glucose and insulin, triglycerides, cholesterol and the profile of the lipoproteins LDL/HDL, will be investigated in an obese animal model. The results will elucidate the role that the chemical structure of the fatty acid has on its effect and the mechanisms by which certain fatty acids regulate body weight.

Referència: BFU2007-61071. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biologia fonamental.
Títol: *Estructura lipídica en las interacciones proteína G. membrana y rutas de señales asociadas implicadas en la diferenciación de células tumorales.*
Acrònim: GPROTLIPINT.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: ESCRIBÁ RUIZ, Pablo.
Categoria: TU (àrea de coneixement: Biologia Cel·lular).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------|------------------|------------------------|
| Escribá Ruiz, Pablo | TU | 1 |
| Busquets Xaubet, Xavier | TEU | 1 |
| Barceló Mairata, Francisca | TU | 0.5 |
| Terés Jiménez, Silvia | | 0.5 |
| Álvarez Martínez, Rafael | Inv. | |
| Egea Merlos, Carolina | | |
| Noguera Salvá, M. Antonia | | |
| Martín, M. Laura | B | |
| Lladó Cañellas, Victoria | | |
| López Bellán, Alicia | | |

EDP del grup investigador de l'entitat sol·licitant: 3

Referència: BIA 18 07. Conselleria d'Agricultura i Pesca del Govern Balear.
Títol: *Estudios sobre sistemas de control y captura del picudo rojo de las palmeras rhynchophorus ferrugineus (Olivier) en Mallorca.*
Centre: Departament de Biologia. Laboratori de Zoologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: MIRANDA CHUECA, Miguel Ángel.
Categoria: TEU (àrea de coneixement: Zoologia).
Inici: 2007 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|---|--|
| Miranda Chueca, Miguel Ángel | TEU |
| Rincón Otero, Cristina | As. |
| Monerri Mascaró, Miriam | B. |
| Del Río López, Ricardo | B. |
| <u>Investigadors d'altres entitats</u> | |
| Borràs Borràs, David | Institut de Biologia Animal de les Balears |

Participacions a altres projectes

Referència: BFU2005-00503. Ministeri d'Educació i Ciència.

Títol: *Efecto de los compromisos sobre la eficacia biológica de los virus de RNA.*

Investigador responsable: MOYA SIMARRO, Andrés.

Centre: Universitat de València.

Investigador de la UIB: Castro Ocón, José A.

Categoria: TU (àrea de coneixement: Genètica).

Inici: 2005 **Fi:** 2008

Referència: SAF2005-00551. Ministeri d'Educació i Ciència.

Títol: *Mecanismos moleculares implicados en la muerte celular inducida por fármacos que reconocen específicamente el DNA.*

Investigador responsable: PORTUGAL MINGUELA, José.

Centre: Institut de Biologia Molecular de Barcelona (CSIC).

Investigadora de la UIB: Barceló Mairata, Francesca M.

Categoria: TU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2005 **Fi:** 2008

Referència: CTM2007-6608-C02-02. Ministeri d'Educació i Ciència.

Títol: *Intercambio plataforma-océano en el ecosistema marino de las Islas Canarias-península Ibérica (CAIBEX): Afloramiento de Cabo Guir.*

Investigador responsable: ARÍSTEGUI RUIZ, Javier.

Centre: Universitat de las Palmas de GC.

Investigadora de la UIB: AGAWIN ROMUALDO, Nona Sheila.

Categoria: CON

Inici: 2007 **Fi:** 2010

Referència: 063032.

Títol: *Excitotoxic mechanisms, neuroinflammatory response and seric factors in experimental and human amyotrophic lateral sclerosis.*

Investigador responsable: ESQUERDA COLELL, Josep Enrich.

Centre: La Marató TV3.

Investigadora de la UIB: LLADÓ VICH, Jerònia.

Categoria: Contr. dr. (àrea de coneixement: Biologia Cel·lular).

Inici: 2007 **Fi:** 2009

Projectes del Govern Balear

Referència: PROGECIB-10A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Beta-Talasemia: Análisis molecular en la población de las Islas Baleares.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigadora responsable: PICORNELL RIGO, Antònia.

Categoria: TEU (àrea de coneixement: Genètica).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-8A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Nuevas estrategias para contrarrestar la resistencia a fármacos antitumorales.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigadora responsable: ALEMANY ALONSO, Regina.

Categoria: As (àrea de coneixement: Biologia Cel·lular).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Efectos de citoquinas proinflamatorias sobre motoneuronas espinales: implicaciones sobre la etiopatología de la esclerosis lateral amiotrófica.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigadora responsable: LLADÓ VICH, Jerònia.

Categoria: As (àrea de coneixement: Biologia Cel·lular).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Caracterització de la variació del creixement i de la discriminació isotòpica del carboni ($^{13}C/^{12}C$) a *Pistacia lentiscus* L. al llarg d'un gradient edafo-climàtic al' Illa de Mallorca.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: GULÍAS LEÓN, Javier.

Categoria: P.col. (àrea de coneixement: Producció Vegetal).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Aplicacions dels biomarcadors en el músculo *Mytilus galloprovinciales* com eina per evaluar la contaminació marina al litoral balear.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigadora responsable: DEUDERO COMPANYY, Salud.

Categoria: Contr. dr. (àrea de coneixement: Zoologia).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Constitución del grupo interdisciplinar del estudio genético, evolutivo y clínico del virus de la hepatitis C (virus RNA).*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: CASTRO OCÓN, José Aurelio.

Categoria: TU (àrea de coneixement: Genètica).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: Ajudes a grups d'investigació competitius de les Illes Balears. Grup de recerca en Biologia de les plantes en condicions mediterrànies.

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: MEDRANO GIL; Hipólito.

Categoria: CU (àrea de coneixement: Fisiologia Vegetal).

Inici: 2006 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Desarrollo de técnicas para evaluar juveniles del bivalvo endémico Pinna nobilis mediante dispositivos de asentamiento.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigadora responsable: DEUDERO COMPANYY, Salud.

Categoria: Contr. dr. (àrea de coneixement: Zoologia).

Inici: 2008 **Fi:** 2008

Referència: BIA20/07. FOGAIBA. Conselleria d'Agricultura i Pesca del Govern de les Illes Balears.

Modalitat: Beques d'investigació aplicada.

Títol: *Caracterització i conservació de les poblacions de tomàtiga de ramellet de les Illes Balears.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigadora responsable: CONESA MUÑOZ, Miquel Àngel.

Categoria: Prof. Aj. (àrea de coneixement: Producció Vegetal).

Inici: 2008 **Fi:** 2008

Referència: RTA2008-00085-CO2-01. Conselleria d'Agricultura i Pesca del Govern de les Illes Balears.

Modalitat: Subprograma de projectes d'investigació fundamental orientada als recursos i tecnologies agràries amb coordinació amb les CCAA.

Títol: *Caracterización y conservación de variedades locales mayoritarias de vid de las Islas Baleares. Análisis de los principales factores que determinan la calidad de cosecha.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigadora responsable: CIFRE LLOMPART, Josep.

Categoria: Contr. dr. (àrea de coneixement: Producció Vegetal).

Inici: 2008 **Fi:** 2010

DEPARTAMENT DE BIOLOGIA FONAMENTAL I CIÈNCIES DE LA SALUT

Referència: DEP2005-00238-C04-02. Ministeri d'Educació i Ciència.

Modalitat: Acció estratègica esport i activitat física.

Títol: *Alimentos funcionales potenciadores de las defensas antioxidantes y su interacción con el entranamiento de deportistas.*

Acrònim: ACED.

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

Investigador responsable: PONS BIESCAS, Antoni.

Categoria: TU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|----------------------------------|------------------------|
| Pons Biescas, Antoni | TU | 1 |
| Tur Marí, Josep A. | TU | 1 |
| Aguiló Pons, Antoni | P. Col. | 1 |
| Tauler Riera, Pere | Aj. | 1 |
| Sureda Gomila, Antoni | B | 1 |
| Ferrer Reynés, Miquel D. | B | 1 |
| Romaguera Bosch, Dora | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Llompарт Alabern, Isabel | Hospital Universitari Son Dureta | |
| Fuentespina Vidal, Emilia | Hospital Universitari Son Dureta | |
| Roche Collado, Enrique J. | Universitat Miguel Hernández | |
| Micol Molina, Vicente | Universitat Miguel Hernández | |

EDP del grup investigador de l'entitat sol·licitant: 16.

Summary

There is a reasonable doubt on the necessity of using vitamins and nutritional supplements by the competition athlete. But it is certain that there is an oxidative stress induced by exercise when it is performed intense, long duration, or under different conditions hypercaloric, hiper/hipoproteic intake, or special climatic conditions of heat, humidity or cold. The idea of this coordinated project is develop a work from different points of view on the effect of some different types of functional nutrients, and dietary supplements and how they work on the prevention of oxidative stress of exercise under these different conditions, competition, intense exercise, heat, cold, or reduced caloric intake.

Referència: AGL2006-04887/ALI. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.

Títol: *Nutrigenómica funcional en la obesidad. Efecto de componentes de la leche materna y nutrientes específicos durante el desarrollo postnatal temprano sobre la resistencia a la obesidad y sus complicaciones.*

Acrònim: NUTRIGEN-C-OB.

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

Investigador responsable: PALOU OLIVER, Andreu.

Categoria: CU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------|------------------|------------------------|
| Palou Oliver, Andreu | CU | 1 |
| Bonet Piña, M. Lluïsa | CEU | 1 |
| Picó Segura, Catalina | CEU | 1 |
| Serra Vich Francesca | CEU | 1 |
| Ribot Riutort, Joan | TEU int. | 1 |
| Oliver Vara, Paula | TEU int. | 1 |
| Rodríguez Guerrero, Ana M. | TEU | 1 |
| Miralles Barrachina, Olga | As. | 1 |
| Sánchez Roig, Joana | B | 1 |
| Fuster Roca, M. Antònia | B | 1 |
| Mercader Barceló, Josep | B | 1 |
| Priego Cuadra, Teresa | Inv. | 1 |
| Caimari Palou, Antoni | B | 1 |
| Parra Moya, Pilar | B | 1 |
| Amengual Terrasa, Jaume | B | 1 |
| Granados Borbolla, Nuria | B | 1 |
| Servera Barco, Maria | B | 1 |
| Tobaruela arbona, Aixa | B | 1 |
| Palou March, Mariona | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 19.

Summary

The aim of this project is to identify specific breast milk components and nutrients whose administration during early postnatal life may favor the prevention of obesity and its metabolic complications in the adulthood, delineate, when appropriate, the molecular basis of their effect and evaluate their risk/benefit balance. The hypothesis is that changes in diet composition during early life may program the susceptibility to obesity in the long-term, due to persistent effects (epigenetics and of other types) on biochemical processes involved in the control of body weight and adiposity (control of food intake, control of energy efficiency, adipogenesis and fatty acid metabolism) .

We will analyse a set of candidate compounds — initially: retynil palmitate, beta-carotene, docosahexaenoic acid, conjugated linoleic acid, calcium, leptin and other

peptides/proteins present in breast milk — which have been selected due to former evidences of their implication in energy balance in adult individuals or because they are breast milk components which have been demonstrated to present potentially interesting functional features. The project includes interventional studies in animals (which imply the administration of the nutrients/components of interest, individually, and by oral way, at high physiological doses, during early life) and epidemiological studies in lactating mothers and their children and, in the latter, during their ulterior development.

Concrete questions are: Does the administration of these compounds in early life affect energy balance in the short-term?; Does it have long term effects on body weight, adiposity and susceptibility to dietary-induced obesity?; If so, which are the genes and biochemical processes affected? Are epigenetic effects involved?; Are there critical periods of sensitivity to this compounds during early development?; Does the concentration of these compounds in human breast milk correlate with body weight of children up to two years?

The project can contribute to the understanding of the mechanisms of metabolic programming in connection to obesity and to the promotion of optimal nutrition during development, and specifically can provide the basis for the design of novel infant functional foods for the prevention of obesity.

Referència: PI05-1276. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Estudio de la prevalencia de la obesidad infantil y juvenil en las Islas Baleares (estudio OBIB).*
Centre: Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.
Investigador responsable: TUR MARÍ, Josep Antoni.
Categoria: TU (àrea de coneixement: Fisiologia).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|-----------------------------|------------------|
| Tur Marí, Josep Antoni | TU |
| Pons Biescas, Antoni | TU |
| Aguiló Pons, Antoni | P. Col. |
| Fuentespina Vidal, Emilia | |
| Llompart Alabern, Isabel | |
| Riesco Prieto, Maria del T. | |
| Tauler Riera, Pere J. | B |
| Romaguera Bosch, Maria A. | B |
| Reynés Ferrer, Miquel D. | B |

Summary

The main objective of this project is to know the current obesity and overweight prevalence in the child and youth population of the Balearic Islands, its predictive factors (diet quality, physical activity, socio-demographic factors, lifestyle, and the biochemical, hematic and genetic profile) and comorbidity, evolution and trends during the next three years. A longitudinal epidemiological study will be carried out on a population based sample. The sample population will be all residents aged 2 to 18 years registered in the official population census of the Balearic Islands. The estimated theoretical sample size is 2000 individuals, randomly selected from natural clusters of individuals (conglomerates) in the study population of the Balearic Islands. The estimated theoretical sample size population of the Balearic Islands. The sampling technique includes stratification according to 5 geographical areas (Mallorca, Menorca, Ibiza, Formentera and Palma de Mallorca) x 4 age groups (2-5 years, 6-9 years, 10-13 years and 14-18 years) x 2 sexes: 40 strata of 50 individuals. Each selected individual will be interviewed twice, first at the beginning of the study and secondly during the last year of the study; therefore 4000 interviews will be carried out in two stages of 2000 interviews each stage. These individuals will undergo an anthropometric study, nutritional status assessment through a semiquantitative food frequency questionnaire and a 24 hours recall, description of their socio-demographic status and lifestyle, assessment of their nutritional knowledge, opinions and preferences, measurements of biochemical parameters and genetic factors of obesity, and measurement of the arterial pressure. The description of the profile of obese children in the Balearic Islands will be carried out, as well as the distribution map of overweight and obesity prevalence in children and adolescents of the Balearic Islands. Trends to excess weight in children and adolescents and its projection will be described, as well as the influence of the predictive factors on this tendency.

Referència: PI060293. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Influencia del género en la función y biogénesis mitocondrial inducida por estrés oxidativo.*
Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.
Investigadora responsable: GIANOTTI BAUZÀ, Magdalena.
Categoria: CEU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|--------------------------------|------------------|
| Gianotti Bauzà, Magdalena | CEU |
| García Palmer, Francisco J. | TU |
| Proenza Arenas, Ana María | TEU |
| Balaguer Covas, Jaume | As. |
| Estrany Martorell, Maria Elena | As. |
| Gómez Pérez, Yolanda | B |

Summary

Previous results from our research group have shown that there are mitochondrial morphofunctional differences between genders, which could be related with the different incidence in men and women of several pathologies caused by oxidative stress related mitochondrial dysfunction. Oxygen reactive species (ROS) would constitute the nexus between oxidative stress and mitochondrial biogenesis through several signalling pathways, the PI3K/Akt being one of them.

The hypothesis of this research project sets up that these mitochondrial morphofunctional differences are due, at least in part, to the different regulation of mitochondrial biogenesis by ROS, and that the estrogens could modulate the pathways which control this process, as the PI3K/Akt. In order to corroborate this asseveration, we shall study ROS induced mitochondrial biogenesis in both genders, setting the limits of both estrogens and endothelial nitric oxide synthase roles in this process.

The methodology will be based on *in vivo* experiences, using both genders animals, and *in vitro* cell cultures, using tissues also from both genders animals. The morphology and mitochondrial function and biogenesis, and the signalling pathway which would mediate the ROS induced activation of the process will be studied in an oxidative stress inducing dietetic situation: overfeeding by cafeteria diet.

In order to better establish the gender influence, ovariectomized rats treated with 17-beta estradiol will be used. Cell cultures will constitute a controlled system where it can be elucidated the activation sequence of the induction pathway of the oxidative stress induced mitochondrial biogenesis, testing the direct effect of estrogens.

Referència: 10/UPB10/08. Ministeri d'Educació i Ciència.

Modalitat: Acció estratègica esport i activitat física.

Títol: *Evaluación de la exposición a sustancias antioxidantes con efecto hormonal procedente de suplementos nutricionales y su repercusión en la composición corporal y en los mecanismos de estrés oxidativo.*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

Investigador responsable: PONS BIESCAS, Antoni.

Categoria: TU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2008 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------------|-------------------------|-------------------------------|
| Pons Biescas, Antoni | TU | 1 |
| Tur Marí, Josep A. | TU | 1 |
| Tauler Riera, Pere | Aj. | 1 |
| Llompart Alabern, Isabel | As. | 0.5 |
| Sureda Gomila, Antoni | As. | 0.5 |
| Ferrer Reynés, Miquel D. | B | 1 |
| Batle Vidal, Joan | As. | 1 |
| Mestre Alfaro, Antònia | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 7

Summary

There is controversy about the need to commonly consume foods supplemented with antioxidants; is a public health problem based on the need for additional studies to support the beneficial effects of these foods on the population. In the area of professional sport and leisure is very introduced the use of foods and / or antioxidants, in the belief that these elements prevent muscle damage. Our initial hypothesis is that the nutritional antioxidants, in appropriate doses, may enhance endogenous antioxidant defences and contribute in this way to minimize oxidative damage resulting from strenuous physical exercise. Some of the nutritional antioxidants, mainly the phenolic ones, can interact with the hormone system due to their special structures. The overall objective is to establish the basis for a more adequate nutrition in order to prevent the undesirable consequences of oxidative stress on health and performance of high-level and amateur athletes. We will determine the degree of benefit that we can expect from the continued ingestion of foods designed with a high content in mixtures of antioxidants, in order to enhance the endogenous antioxidant defences and to prevent oxidative stress induced by physical activity. At the same time we intend to detect changes in body composition as consequence of the consumption of antioxidants with hormonal effects. We will focus on the effects of physical activity and antioxidant diet supplementation on the immune cells and muscle damage. Determine the synergistic effects of a diet with antioxidants and training on markers of oxidative stress, plasma

and cellular oxidative damage, cell apoptosis, induction of endogenous antioxidant defences at the level of gene expression and activity induced by intense physical activity. The effect of gender on the response to physical activity and the interaction with the antioxidant intake will be analysed taking into account the possible hormonal effects of antioxidants.

Projectes del Govern Balear

Referència: PROGECIB-10A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Estudio de las diferencias entre géneros en el metabolismo energético mediante técnicas de proteómica.*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

Investigador responsable: OLIVER OLIVER, Jordi.

Categoria: TEU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2007 **Fi:** 2009

Referència: PCTIB-2005GC3-01 Conselleria d'Innovació i Tecnologia del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Ayudas para grupo de investigación muy competitivo coherente. Grupo de Bioquímica, Biología Molecular, Nutrición y Biotecnología (Nutrigenómica)*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

Investigador responsable: PALOU OLIVER, Andreu.

Categoria: CU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2006 **Fi:** 2009

DEPARTAMENT DE CIÈNCIES DE LA TERRA

Referència: CGL2005-07664-C02-02/CLI. Ministeri d'Educació i Ciència.

Títol: *Análisis de la irregularidad pluviométrica a diferentes escalas temporales en la península ibérica y Baleares y sus conexiones regionales.*

Acrònim: IPIBEX.

Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

Investigador responsable: GRIMALT GELABERT, Miquel.

Categoria: TU (àrea de coneixement: Geografia Física).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|--|------------------|------------------------|
| Grimalt Gelabert, Miquel | TU | 1 |
| Laita Ruíz de Asúa, Mercedes | CEU | 0.5 |
| Florit Alomar, Francesca | CEU | 1 |
| Rosselló Geli, Joan | As. | 1 |
| González de Alaiza, José Javier | TEU | 1 |
| Ramon Molinas, Jerònia | As. | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Tudela Villalonga, Lluís Fundació Universitat-Empresa (Balears) | | |

EDP del grup investigador de l'entitat sol·licitant: 5.

Referència: CGL2005-00537/BTE. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.

Títol: *Análisis genético de plataformas carbonatadas mesozoicas y cenozoicas; la arquitectura de facies en función de los cambios de producción de sedimento y de acomodación.*

Acrònim: GEPLAT.

Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casasnovas.

Investigador responsable: POMAR GOMÀ, Lluís.

Categoria: CU (àrea de coneixement: Estratigrafia).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--------------------------------------|------------------------|
| Pomar Gomà, Lluís | CU | 1 |
| Mateu Vicens, Guillem | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Obrador Tudurí, Antoni | Universitat Autònoma de Barcelona | |
| Bossellini, Francesca | Università di Modena e Reggio Emilia | |

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

In depositional systems, stratal patterns and facies architecture develop in response to the interaction between sediment availability and existing space for sedimentary accommodation and reflect the depositional profile and sediment types distribution and their spatial changes through time. In siliciclastic systems, sediment flux and accommodation space are independent factors. Sediment flux depends on the existing conditions on the highlands whereas accommodation (physical accommodation) depends on the basin physiography and hydraulic energy.

In carbonate systems, however, sediment flux and accommodation are interdependent factors. (1) Sediment production depends on biological systems and, consequently, on intrabasinal conditions (temperature, salinity, nutrients, etc). (2) Sea floor physiography influences the area available for different biotas to thrive and, consequently, the size and efficiency of the carbonate factory. (3) Sediment redistribution within the basin depends on the interaction between sediment types (grain size and shape and relative density) and extant hydraulic energy on the production loci. Additionally, biological (binding, baffling, framebuilding) and even early diagenetic processes (cementation) can modify sediment redistribution. Therefore, (4) the base level for sediment accumulation, which determines accommodation, highly depends on the type and amount of sediment being produced and the loci (within the basin) where the sediment was produced (ecological accommodation).

Consequently, the main goal of this project consists in analyzing the seminal effect of different Phanerozoic carbonate producing biotas in platform architecture. These analyses will be focused on selected outcrops (exposure quality and accessibility) of Lower Cretaceous, Eocene, Miocene and Plio-Pleistocene carbonate platforms. Growth fabrics and textures distribution, in addition to sedimentary structures and bedding patterns, will be used to understand the particular conditions affecting carbonate

production, redistribution, and their variations through time, that ultimately hold sway over facies architecture. Prediction capacity of sedimentary models highly depends on the comprehension of the genetic mechanisms in controlling facies distribution and diagenesis within sedimentary bodies that ultimately controls platform architecture and petrophysical properties distribution. Comparative analyses of the studied examples will provide the basis to understand the key factors and to discern common- and specific features of the different Phanerozoic biotas in controlling carbonate platform architecture diversity.

Referència: SEJ2006-07256/GEOG. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *La funcionalización turística de las Islas Baleares (1955-2000): adaptación territorial y crisis ecológica del archipiélago.*
Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.
Investigador responsable: RULLAN SALAMANCA, Onofre.
Categoria: TU (àrea de coneixement: Anàlisi Geogràfica Regional).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|--------------------------------|------------------|------------------------|
| Rullan Salamanca, Onofre | TU | 1 |
| Blázquez Salom, Macià | TU | 1 |
| González Pérez, Jesús M. | TEU | 1 |
| Artigues Bonet, Antoni A. | TEU | 1 |
| Murray Mas, Iván | As. | 1 |
| Bauzà Van Slingerlandt, Alicia | As. | 1 |
| Pons Esteve, Antoni | As. | 1 |
| Ramis Sastre, Margalida M. | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 8.

Summary

This project attempts to analyse the territorial transformation the Balearic archipelago has experienced during the second half of the twentieth century, within the context of the political and economic relations which emerged after the Second World War and have been developing until nowadays.

At a European scale, the economic process is considered as the most independent variable of the geographical change. Nevertheless, other variables need to be analysed because of being considered essential for the socio-economic process to materialize. These variables are land cover and land use change, intraurban transformation of the main cities, the energy system evolution, and natural resources required by the Balearic economy to achieve present-day situation of economic development and ecological deterioration.

The main goal of this research is to develop a comparative analysis of the experiences on other islands, with the intention of exporting the Balearic experience to other regions with similar features, and which will be able to learn from our successes and mistakes. At the same time, we can import to the Balearic Islands similar experiences from other regions with a more advanced position within the global tourist market. The analysis of those advanced islands might give some piece of advice about future risks in order to achieve sustainability. The comparison will be addressed to insular cases which have a "Mediterranean position", this means an equidistant position between a developed North and a developing South, in terms of semi-periphery. Some examples are: the Caribbean Islands sited between USA and South America, the South East Asian Islands between the development of Japan and Australia, and the Mediterranean Islands placed between the Europe and the Africa.

Referència: CGL2006-11242-C03-01. Ministeri d'Educació i Ciència.
Modalitat: Programa de Biodiversitat, Ciències de la Terra i Canvi Global. Subprograma Ciències de la Terra (BTE).
Títol: *El litoral carbonatado mediterráneo: morfogénesis kárstica y litoral y registros sedimentarios respectivos, como respuesta a la variabilidad paleoclimática cuaternaria.*
Acrònim: MECARLI.
Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.
Investigador responsable: FORNÓS ASTÓ, Joan Josep.
Categoria: TU (àrea de coneixement: Estratigrafia).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|------------------------|------------------------|
| Fornós Astó, Joan Josep | TU | 1 |
| Ginés Gracia, Ángel | As. | 1 |
| Ginés Gracia, Joaquín | As. | 1 |
| Pons Buades, Guillem X. | TEU | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Gracia Lladó, Francisco | | |
| Tuccimei, Paola | Università di Roma Tre | |

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

The study of the endokarst –cave systems existing in the carbonate lithologies– and its associated deposits represents an investigation field that reports many paleoenvironmental data, which can be complementary to those geomorphological and geochronological information based on conventional studies on fluvial and littoral landscapes. Recent absolute dating methods allow for a proper location of the recognized events within a valid Quaternary time scale. Endokarstic milieus usually contain records of geochronological interest, basically in the way of carbonate mineral deposits: the speleothems. The potential of these chemical deposits, under the geochronological and paleoenvironmental point of views, are nowadays internationally recognized thanks to the advances in isotopic geology. In general terms the geomorphological and sedimentary records associated to the endokarst present a good preservation, since they have not been affected by many of the active mechanisms of the littoral dynamics. The recent application of subaquatic exploration techniques to the study of coastal caves, allows the access to the flooded parts of the littoral subterranean systems. This makes possible the collection of morphogenetic and sedimentary evidences controlled by the regressive paleosealevels of the Mediterranean, which corresponds to the Quaternary cold episodes. The information from the study of the coastal caves will be correlated with the Pleistocene and Holocene epigeal sedimentary sequences of many coastal areas along the Western Mediterranean. The project we propose has several different fields of investigation. Firstly, in order to establish a detailed speleogenetic evolution and characterise and locate chronologically some deposits, we will carry additional geomorphological investigations of the karstic coastal caves –mainly of Mallorca and Menorca, but also of Sardinia or Malta-. The investigation will also include new aspects as the detritic sedimentation observed in these subterranean phreatic systems or the hydrological behaviour of these high permeability littoral karstic aquifers. Additional radiometric datings of the collected phreatic speleothems must be also performed. We will use these new data to establish the evolutionary sequence of the coastal endokarst and how this

sequence is related with the paleoclimatic events that affected Western Mediterranean basin. A well-differentiated second part of the project consists in the detailed morphogenetic study of the coastal fringe, with special attention focused to the Pleistocene dune systems of the study areas as well as to the influence of tectonic and lithological factors. A dating programme (OSL) of the eolian deposits will be carried out in order to precisely locate in the time scale these deposits, generally associated to regressions of the sea level in the Mediterranean. This dual approximation to the interpretation of the littoral environments (which implies the study of both endokarst and epigeal morphogenetic systems) will bring valuable data about marine paleolevels lower than the present one and the complex morphosedimentary evolution of the littoral geodynamic environment.

In other way, with reference to the morphogenetic evolution of coastal limestone landscapes in the Mediterranean, carbonate rocks are responsible for the development of very specific fluvial and littoral processes, fully conditioned by the progress of karstification. In fact, karstic and fluvial processes operate on the limestone materials to form an atypical network of non-functional meandering gorges and valleys, ending in narrow littoral coves (called "calas" in Spanish language). The "calas" constitute incised valleys formed during sea level regressive periods, being afterwards flooded and filled up by the Holocene postglacial transgression; eolianites are very frequent in these coastal emplacements. This geomorphic model, proposed for the reefal platforms of Menorca and Mallorca, must be tested in other environmental systems like the Caroig platform (province of Valencia) and in Malta, a Miocene reef platform similar to Migjorn area in Menorca island. The methodology to be applied in this third part of the investigation includes: the detailed geomorphological cartography of the studied zones, the morphometric analysis of the drainage fluvial network (by means of DTM techniques), the study of hydrological and sedimentary processes in the gorges that cross the carbonate platforms, as well as the morphometric analysis of the coastal belt in order to deepen in the genetic mechanisms of the "calas". The development of specific software tools (based on GIS and DTM applications) is envisaged, in order to proceed to the great-scale morphometric characterization of the fluvio-karstic landscapes in carbonate littoral platforms and the processes involved in their shaping.

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Caracterització dels paràmetres ecològics que influeixen en la producció de sistemes carbonatats no tropicals: la Mediterrània occidental (la Plataforma Balear i l'Arxipèlag de les Illes Pontines, Itàlia) vs. la plataforma mauritània (Banch d'Arguin)*

Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

Investigador responsable: POMAR GOMÀ, Lluís.

Categoria: CU (àrea de coneixement: Estratigrafia).

Inici: 2007 **Fi:** 2008

DEPARTAMENT DE CIÈNCIES HISTÒRIQUES I TEORIA DE LES ARTS

Referència: HUM2005-03467/HIST. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Oligarquías y grupos de poder en la Mallorca Moderna.*

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigador responsable: JUAN VIDAL, Josep.

Categoria: CU (àrea de coneixement: Història Moderna).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---------------------------|------------------|------------------------|
| Juan Vidal, Josep | CU | 1 |
| Vaquer Bennàssar, Onofre | As. | 1 |
| Picazo Muntaner, Antoni | As. | 1 |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The study of the power élites existing in Mallorca during the Modern Age proposes to comprise a collection of biographies of people connected with the exercise of power, including not only representatives of the high royal administration within the island kingdom but also members of the reigning administration. on the one part viceroys, captain generals, royal magistrates, commissioners, regents and Royal Court judges, and on the other hand jurors, advisors, officials, lawyers and councillors as well as important people who, in the service of the monarchy, circulated around the various kingdoms of the Crown of Aragon, the Crown of Castile and the Crown of Italy. It is interesting to reveal their family relationships, social interactions and the relation between their kinship, their economic interests and their aspirations to power.

The primary objectives will be, by means of the cross-referencing of documentary sources, to identify those people who occupied positions of great importance in the kingdom, determining their "cursus honorum", their economic relations, their heritage, their patronage and political

customers as well as other mechanisms whereby the enjoyment of power was assured to them for a determined length of time in modern age Mallorca.

Referència: HUM2005-04035/ARTE. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Guillem Sagrera y la escultura arquitectónica del siglo XV.*
Acrònim: GSEA.
Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.
Investigadora responsable: SABATER REBASSA, Sebastiana M.
Categoria: TU (àrea de coneixement: Història de l'Art).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|--------------------------------|------------------|------------------------|
| Sabater Rebassa, Sebastiana M. | TU | 1 |
| Escandell Proust, Isabel Joana | TEU | 1 |
| Capellà Galmés, Miquel À. | TEU | 1 |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary
The project has two main objectives. First, it pretends to complete the current knowledge about Guillem Sagrera's work and his studio, from the catalogue and study of the historical and artistic sets of architectural sculpture – ornamental traceries, cantilevers, capitals, codes of vaults, gargoyles, etc.- that are linked with his activities in Majorca; analysis that is extended to other interesting works, made in Perpignan and Naples, where the teacher and other sculptors of his environment appear documented. Since the absence of adequate studies about this topic is extended to the whole of this production in Majorca, the project proposes, as second global objective, to catalogue and study the whole works of architectural sculpture, made in the island throughout the century, along with the review of the written documentation related to them. This will lead to a better understanding of the workshops, to a chronological, iconographic, linguistic systematization of the production and, in relation to the first suggested objective, this will make possible to distinguish the direct and indirect echoes of the *sagrariana* sculpture, with regard to other proposals of the late Gothic style.

Referència: HUM2005-05819/ARTE. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Pintura y crítica en las Islas Baleares (1898-1936).*
Acrònim: PINCRIBA.
Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.
Investigadora responsable: CANTARELLAS CAMPS, Catalina.
Categoria: CU (àrea de coneixement: Història de l'Art).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|--------------------------------|------------------|------------------------|
| Cantarellas Camps, Catalina | CU | 1 |
| Lladó Pol, Francesca | TU | 1 |
| Falero Folgoso, Francisco José | TU | 1 |
| Brotons Capó, M. Magdalena | TEU | 1 |

EDP del grup investigador de l'entitat sol·licitant: 4.

Referència: HUM2005-06200/HIST. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Organización y práctica de la sanidad marítima en España, 1720-1904. Un estudio regional.*

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigadora responsable: MOLL BLANES, Isabel.

Categoria: CU (àrea de coneixement: Història Contemporània).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|---------------------------------------|-------------------------------|
| Moll Blanes, Isabel | CU | 0.5 |
| Salas Vives, Pere | As. | 1 |
| Canaleta Safont, Eva | B | 1 |
| Pujadas Mora, Joana Maria | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Montaner Alonso, Pere | Reial Acadèmia de Medicina i Cirurgia | |

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Referència: HUM2006-01329. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *El crédito y el sistema financiero en el Reino de Mallorca (siglos XIV-XV).*

Acrònim: CREFIBAL.

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigador responsable: CATEURA BENNÀSSER, Pau.

Categoria: CU (àrea de coneixement: Història Medieval).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-------------------------|-------------------------------|
| Cateura Bennàsser, Pau | CU | 1 |
| Fernández González, M. Carmen | TU | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Urgell Hernández, Ricard | Govern Balear | |
| Navarro Gómez, Ricardo | Govern Balear | |
| Mayol Llompart, Antoni | Arxius i Biblioteques | |
| López Bonet, Josep F. | Consell de Mallorca | |
| Tudela Villalonga, Lluís | UNED | |

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

The agrarian and commercial expansion of the 13th century is directly related to the term of credit. The development of the commercial activities is incomprehensible without the concepts of credit, as usual methods for the financing of companies. In the area of the real estate property new methods like the buying and selling of received census over properties, the alienation of the eminent lands by the allodial owners and, finally, the National debt have been developed. The project, based on the kingdom of Majorca of the 14-15th centuries, will have the following objectives:

- a) Analysis and chronology of each credit product: from the short-term credit (loans) to the long-term credit (census).
- b) The applicable legal regime for the different credit formulas over the legislation of the period (public control of interests and credits and rules about census)
- c) The introduction of the municipalities to the credit offer. The creation of organizations aimed at deposit-taking (municipal banking) and deposit-taking strategies: bank deposit, compulsory and census credit.

Referència: HUM2006-07725. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *La recuperación de la decoración mural en la arquitectura religiosa de las Islas Baleares*
Acrònim: RDMARIB.
Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.
Investigadora responsable: GAMBÚS SÁIZ, Mercè.
Categoria: TU (àrea de coneixement: Història de l'Art).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--------------------|------------------------|
| Gambús Sáiz, Mercè | TU | 1 |
| Villalonga Vidal, Andreu J. | TEU | 1 |
| Forteza Oliver, Miquela | Aj. Dr. | 1 |
| Bauzá de Mirabó Gralla, Maria C. | TEU | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Reig Morro, Antònia | Bisbat de Mallorca | |

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

This research project aims to study the different manifestations of mural decoration conserved in the religious architecture of the Balearic Islands as a way of contributing to its documentary and material recovery. Mural paintings, sgraffito, ceramic facings and monumental sculpture are the different languages and techniques that have been applied to architectural decoration and have played a significant role with singular links to religious architecture in the Balearic Islands from the time Jaime I conquered the island until today.

Irreparable losses, progressive deterioration and the absence of special studies define the current status of a heritage which is in need of conservation and which has no systematic intervention plan at present. Thus, this project's main objective is to open a line of research in the Balearic Islands that employs artistic and historical studies on mural decoration as a way to conserve documentation, the step which must be taken before any material intervention, conservation plan and dissemination plan.

The project specifies objectives to recover two mural painting areas in the same number of convents (Llucmajor-Mallorca and Ciutadella-Menorca), conduct an inventory, devise a catalogue and prepare a historic-artistic study of the sgraffito and ceramic facings in the Cartuja de Valldemossa, Mallorca, and document and draft a conservation plan for a modern ceramic facing in Palma de Mallorca Cathedral.

Participacions a altres projectes

Referència: HUM2005-04179/ARTE. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Thesaurus Architecturae Hispaniae Mediaevalis.*

Investigador responsable: BANGO TORVISO, Isidro G.

Centre: Universitat Autònoma de Madrid.

Investigador de la UIB: Carrero Santamaría, Eduardo.

Categoria: TU (àrea de coneixement: Història de l'Art).

Inici: 2005 **Fi:** 2008

Referència: HUM2005-06316. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Politica e identidad. La construcción de los discursos identitarios en la Europa contemporánea: el caso de Catalunya.*

Investigador responsable: CASASSAS YMBERT, Jordi.

Centre: Universitat de Barcelona.

Investigador de la UIB: Serra Busquets, Sebastià.

Categoria: CU (àrea de coneixement: Història Contemporània).

Inici: 2005 **Fi:** 2008

Projectes del Govern Balear

Referència: PROGECIB Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *L'impacte del turisme. La difusió de les Balears a través de la fotografia internacional.*

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigadora responsable: MULET GUTIÉRREZ, M^a Josep.

Categoria: TU (àrea de coneixement: Història de l'Art).

Inici: 2007 **Fi:** 2009

DEPARTAMENT DE CIÈNCIES MATEMÀTIQUES I INFORMÀTICA

Referència: MTM2005-08567. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de matemàtiques.

Títol: *Modelos matemáticos para el tratamiento y análisis de imágenes y aplicaciones.*

Acrònim: MATIMA.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: COLL VICENS, Bartomeu.

Categoria: CU (àrea de coneixement: Matemàtica Aplicada).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|------------------|------------------------|
| Coll Vicens, Bartomeu | CU | 1 |
| Sbert Juan, Catalina | TU | 1 |
| Lisiani Roca, Josep Lluís | TEU | 1 |
| Rocha Cardenas, Jairo | TEU int. | 0.5 |
| Buades Capó, Antoni | B | 1 |
| Petro Balaguer, Ana B. | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Morel, Jean Michel | ENS-CACHAN | |

EDP del grup investigador de l'entitat sol·licitant: 5.5.

Summary

The proposed project is a project on applied mathematics, with applications to the field of digital images analysis and processing. The main goals of the project are:

1) Experimentation, modelization and mathematical analysis of some problems in the field of digital images analysis and processing. Specifically, these problems are: color images filtering with partial derivatives equations (PDE's); restoration of noisy images (denoising) by using variational and statistical models; study of the halftoning problem, which consists of representing an image with a reduced number of colors, after its modelization as a discrete dynamical system; basic study of colors, having as a goal the automatic classification of the colors of an image; efficient registration of satellite images.

2) Study and development of the numerical algorithms that correspond to each one of the previously enumerated problems.

3) Practical application of the obtained algorithms and results to different fields such as: restoration of photographic images, with emphasis in the low resolution pictures obtained with cameras such as the ones integrated in mobile telephones; automatic indexing of image

databases, based on color features; fast, automatic and accurate registration of satellite images; improvement in the quality of digital images prints; etc.

Referència: TEC2005-00997/TCM. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies electrònica i de comunicacions.
Títol: *Diseño intercapas aplicado a sistemas basados en MIMO-MC/OFDM-CDMA adaptativo para redes integradas móviles de banda ancha.*
Acrònim: MARIMBA.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: FEMENIES NADAL, Guillem.
Categoria: TU (àrea de coneixement: Enginyeria Telemàtica).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|-----------------------------|------------------|------------------------|
| Femenies Nadal, Guillem | TU | 0.5 |
| Riera Palou, Felip | Inv. | 1 |
| Cardona Juanals, Gabriel | TEU int. | 0.5 |
| Carrasco Martorell, Lorenza | TEU | 0.5 |
| Furió Caldentey, Ignasi | TEU | 0.5 |
| Ramis Bibiloni, Jaume | As. | 1 |

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

Project MARIMBA will be dedicated, on the one hand, to the design and analysis of adaptive and reconfigurable MIMO-OFDM/CDMA (Multiple Input-Multiple Output-Orthogonal Frequency Multiplex/Code Division Multiple Division Access) systems and of the corresponding system level control mechanisms, for their incorporation to multiplatform mobile radio environments and, on the other hand, to the implementation of a software demonstrator that allows to validate the previous designs in realistic scenarios. MIMO technology allows the reconfiguration of the system based on the propagation characteristics, the traffic conditions, the service requirements and the number of antennas available at the base stations and mobile terminals. Therefore, it is hoped to obtain an increase of the spectral efficiency at the link level, a capacity increase at a system level and to provide interoperability in environments made up of different mobile systems (multiplatform environments). Although one assumes that in the mobile communication networks beyond the third generation (3G+) and in those of fourth generation (4G) a great variety of systems and services will coexist, project MARIMBA will be centered in UMTS, IEEE 802.xx and HIPERLAN/2 (High PERFORMANCE LAN) since these systems seem to have a high commercial interest and are appropriate candidates for mobile communication networks of 3G+ and 4G systems. The best possible performance together with a reasonable complexity will be obtained by jointly optimizing (cross-layer design) all the stages of an adaptive system. The study will include, among others, the analysis of the main functions of physical and MAC/DLC layers, the evaluation of MIMO-OFDM/CDMA techniques, the analysis of antenna and/or beam selection in MIMO-OFDM/CDMA environments, the development of channel estimation and synchronization algorithms, the combination of space-time processing with adaptive modulation techniques and the combination of space-time codes, turbo-codes, LDPC (Low-Density Parity-Check) codes and hybrid-ARQ strategies for the control of errors in physical and MAC layers. The system will not be optimized /a priori/, instead it will be adapted and reconfigured based on the user needs and on the variable characteristics of the environments. In a sense, this constitutes a step towards what has been called /software radio/ in fourth generation systems and surpasses the present state of the mobile communications systems, including the cellular mobile systems of third generation (p. e., UMTS) and the IEEE 802.xx and HIPERLAN/2 standards.

Referència: DPI2005-09001-C03-02. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de disseny i producció industrial.
Títol: *Guiado y posicionado de un AUV para inspección de cables y emisarios submarinos.*
Acrònim: AIRSUB.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: OLIVER CODINA, Gabriel.
Categoria: TU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|-------------------------------------|------------------|------------------------|
| Oliver Codina, Gabriel | TU | 1 |
| Guerrero Sastre, José | P. col. | 0.5 |
| Rodríguez-Navas González, Guillermo | P. Col. | 0.5 |
| González Cid, Yolanda | TEU | 0.5 |
| Proenza Arenas, Julián | TEU | 0.5 |
| Antich Tobaruela, Javier | P. Col. | 0.5 |
| Burguera Burguera, Antoni | P. Col. | 0.5 |
| Ortíz Rodríguez, Alberto | TEU | 0.5 |
| Barranco González, Manuel | Aj. | 0.5 |
| Rigo Vadell, Joan | As. | 0.5 |
| Bonnín Font, Francesc Jesús | As. | 1 |

EDP del grup investigador de l'entitat sol·licitant: 6.5.

Summary

This project is part of a bigger one in which the researchers propose the design and development of the necessary technologies for the adaptation of the prototypes of the low-cost underwater vehicles GARBİROV, GARBİAUV, URIS and RAO II for their use in shallow waters. First, a catalogue of industrial applications will be created. For each and every of these missions, the adequate scenario will be established, as well as a mission preliminary schedule. Next, each subproject, led by a different research group, will be focused in one of these industrial applications: dam inspection of hydroelectric plants by UdG; underwater cable and pipe inspection by UIB and inspection of harbours by UPC.

Concerning the UIB, the main objective of the project is the design of an autonomous video-based cable tracker able to work on real environments. As a natural extension, the vehicle could also be tested, with minor changes, to track any other object similar in appearance to a

cable such as oil, gas or waste water pipes. Moreover, the plans for the cable tracking system include the automatic detection of the more frequent defects and anomalous situations of those equipments including cable coverage loss and free-span. It is essential for the project to

have a vehicle with a structure robust enough to reach and work at depths of almost 100 meters. To this end, the Systems, Robotics and Vision (SRV) group has acquired a unit of the low-cost commercial ROV SeaLion prepared to work at 250 m depth. In this project the vehicle will be mechanically and electronically modified to transform it into a new AUV prototype which will be called RAO-II. As concerns research in robotics,

new algorithms of control architectures, computer vision, navigation strategies, behaviours, and learning, among others, will be studied and developed.

Referència: MTM2006-08322. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de matemàtiques.
Títol: *Generación aditiva de normas triangulares sobre espacios de funciones. Aplicaciones.*
Acrònim: GANT.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: MAYOR FORTEZA, Gaspar.
Categoria: CU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|----------------------|------------------------|
| Mayor Forteza, Gaspar | CU | 1 |
| Aguiló Pons, Isabel | TEU | 1 |
| Suñer Llabrés, Jaume | TEU | 0.5 |
| Martín Pelayo, Javier | P. col. | 1 |
| Casasnovas Casasnovas, Jaume | CEU | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Calvo Sánchez, Tomasa | Universitat d'Alcalà | |
| Lázaro García, Jesús | Universitat d'Alcalà | |

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

This project consists of three parts. The first part is devoted to the study of the problem of the additive generation of triangular norms (t-norms) defined on discrete domains. In particular, we deal with the proof of the conjecture 'Any t-norm defined on a finite chain has an additive generator'. In the second part t-norms are studied in the general setting of bounded partially ordered sets, with emphasis on product lattices. An important question in this part of the project is the direct decomposability of t-norms on product lattices. We claim to obtain, in different cases, a characterization of those t-norms which are direct product of t-norms defined on the the lattices we start with. The third part deals with the application of results to some fields. In particular, the acquired knowledge allows us, for the natural numbers ordered by divisibility, the definition of a prime number with respect to a t-norm T, and the possibility of decomposition of any number into T-primes by means of a divisible (smooth) t-conorm. Finally, it seems also interesting to apply some concepts and results to the definition of generalized operations with some classes of multisets.

Referència: MTM2006-05540. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de matemàtiques.

Títol: *Operadores de agregación y sus funciones de implicación derivadas. Aplicaciones.*

Acrònim: OPAGIMA.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: TORRENS SASTRE, Joan.

Categoria: CEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial.

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---------------------------|------------------|------------------------|
| Torrens Sastre, Joan | CEU | 1 |
| González Hidalgo, Manuel | TU | 0.5 |
| Mir Torres, Arnau | TU | 0.5 |
| Monserrat Antich, Miquel | TU | 1 |
| Mas Grimalt, Margalida | TEU | 1 |
| Suñer Llabrés, Jaume | TEU | 0.5 |

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

In this project we deal with the study of aggregation operators and their derived implications from the theoretical point of view and from their applications. The field of aggregation operators and fusion of information is of increasing interest due to the necessity of suitable tools allowing to fuse several inputs or data in just one, in mathematics and also in other fields as physics, engineering, computer science, economics and social sciences. On the other hand, implications are essential in fuzzy logic and approximate reasoning and they have proved to be useful in other fields also, especially in mathematical morphology and image processing. All that leads to set out a research centred on aggregation operators and their implications.

In this project we deal with general aggregation functions but also with specific ones, mainly with uninorms. The main objectives will be: To solve functional equations associated to them; the characterization of new families of implications derived from uninorms and other types of aggregation functions as well as the study of their properties; the study of the discrete case (aggregation operators and implications defined on a finite chain), due to their applicability in the fusion of qualitative data and in the computation with words; the applications of some aggregation functions to mathematical morphology and image processing. In this last case, the implementation of the morphological operators, morphological filters, and distances obtained from uninorms will be of great importance. It is interesting to compare the results with the classical ones and the fuzzy morphology (based until now on the use of t-norms), in the fields of edge detection and non-linear filtering.

Referència: TIN2006-02265. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies informàtiques.
Títol: *Calidad de servicio en el modelado de sistemas de información mediante ontologías.*
Acrònim: QUASIMODO.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: PUIGJANER TREPAT, Ramon.
Categoria: CU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|------------------------------|------------------------|
| Puigjaner Trepas, Ramon | CU | 1 |
| Juiz García, Carlos | TU | 1 |
| Galmés Obrador, Sebastià | TU | 1 |
| Lladó Matas, Catalina | TEU | 1 |
| Serra Cifre, Bartomeu | CU | 1 |
| Erica Ruiz, María del C. | TEU | 1 |
| Guerrero Tomé, Carlos | P. Col. | 1 |
| Sancho de la Jordana, Pere P. | Tèc. | 1 |
| Tramullas Vich, Joan | As. | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Alcaraz Carrasco, Salvador | Universitat Miguel Hernández | |
| Gilly de la Sierra, Katja | Universitat Miguel Hernández | |

EDP del grup investigador de l'entitat sol·licitant: 9.

Summary

Traditionally, the design of computing and communication systems has been carried out only caring about the qualitative properties of these systems and not taking into account their quantitative properties. The quantitative aspects were introduced in the design of computing systems a couple of decades ago with the so-called Software Performance Engineering.

The aim of this project is to incorporate the performance aspects to the ambient intelligence systems both at the design and the execution phases. The approach that seems reasonable at the moment to provide the systems with the capability of analysing the performance during their execution is based on ontologies. The thinking process would be based on rules to decide how to adapt the system to the changing conditions of the environment. However, previous to applying the conclusions given, those should be validated against results obtained through the execution of a model of the system behaviour.

In order to predict the system performance in the design phase, the behaviour of the basic infrastructure of ambient intelligence systems will have to be analysed in depth. This infrastructure is mainly composed by the wireless sensors and the actor networks. We will study how to obtain reliable statistics in continuous observation processes and the performance analysis of such environment. Obtaining reliable statistics in continuous observation processes is needed due to the type of applications intended to

be studied since one of them is the ambient monitoring that needs this type of observation.

Finally, the project will be completed with the application of the proposed methodologies to several environments: the above mentioned of ambient monitoring and a conference management and control.

Referència: TSI2007-62986. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de tecnologies de serveis per a la societat de la informació.

Títol: *Seguridad en la Contratación Electrónica basada en Servicios WEB.*

Acrònim: SCONES-WEB.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: FERRER GOMILA, Josep L.

Categoria: TU (àrea de coneixement: Enginyeria Telemàtica)

Inici: 2007

Fi: 2010

Membres de l'equip

Categoria

Ferrer Gomila, Josep L.

TU

Huguet Rotger, Llorenç

CU

Payeras Capellá, Magdalena

TEU

Mut Puigserver, Macià

As.

Summary

The fundamental aim of this project is to design and to implement protocols for the electronic signature of contracts based on web services. In the electronic contracting, in a general way, each part has an element to exchange, but one part doesn't want to give his element without having the guarantee that he will receive the element of the other part (fairness). The parts should not be able to deny *a posteriori* their participation in the exchange: non-repudiation services should be integrated. The only viable solutions are those that have the existence and possible implication of a trusted third party (TTP). Then, existent ad-hoc solutions should be adapted for the scenario outlined by the web services, knowing that nowadays they are imposed with strength. This makes necessary to revise the interrelation with the proposals of standard, especially those related to security, of the web services (elaborated by groups like OASIS and W3C): SOAP, WS-family, ebXML, etc. In a second phase it should be carried out an extension of the work when multiple actors should act in the contracting (multiple signatories of the same contract, or when "middlemen" appear like they are the travel agencies in the purchase of an airplane note or a hotel room).

On the other hand, and continuing with the line undertaken in previous projects, we will have in mind the juridical mark that the European Directive and the Spanish law on electronic commerce establish. The contributed solutions will be fruit of the technical analysis of the legislation that affects to the approached problem, the electronic contracting based on web services.

Finally, and derived of the lacks that have been detected in previous works, the intervention of the multiple third parties that appear in the scenarios of electronic contracting (certification authorities, validation authorities, directory services, specific

TTPs for the signature of contracts, etc.) will be analyzed, with the objective of carrying out recommendations regarding their design and implementation, as well as the interrelation that exists among them. Aspects like the verifiability, computation and communications overhead, etc. will be analyzed.

Referència: TIN2007-67896. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de tecnologies informàtiques.

Títol: *Prototipos de interacción natural mediante interfaces enactivas basadas en entradas visuales.*

Acrònim: PINes.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: VARONA GÓMEZ, Javier.

Categoria: INVESTIGADOR CONTRACTAT.

Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|------------------|------------------------|
| Varona Gómez, Javier | Inv. | 1 |
| Manresa Yee, Cristina | Aj. | 1 |
| Jaume Capó, Antoni | Aj. | 1 |
| Palmer Rodríguez, Pedro | TEU | 0.5 |
| Mir Pozo, M. Luisa | TEU | 0.5 |
| López-Polin Hernanz, Cristina | Tèc. | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Muñoz Caballero, Carolina | | |

EDP del grup investigador de l'entitat sol·licitant: 4.5

Summary

Multimodal human-computer interfaces integrate input and output modalities, such as audio, speech, vision, gesture and touch. Enactive interfaces are related to an advance of the multimodal paradigm, a fundamental "natural interaction" concept which is not yet fully exploited in most of the existing human-computer interfaces. Enactive knowledge represents the kind of knowledge "learning by doing", based on the experience of perceptual responses to action, acquired by demonstration and sharpened by practice. Even if up to now HCI technologies have not fully exploited the potential of enactive knowledge, recent technological advances have created the possibility to significantly enhance naturally the interface perception by means of visual inputs, the so called Vision-Based Interaction (VBI). Computer Vision technology applied to the human-computer interface has notable success to date. However, its usability and technological transference stills more research work. In this project, our goal is the design and development of real-time robust vision algorithms for user body and face motion recognition for building enactive interfaces. Besides, we plan to make a set of natural interaction prototypes (NIPs) for testing the algorithm's usability in real cases.

Therefore, we could test the possible applications by the final users that would use them.

Referència: TIN2007-60440. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies informàtiques.
Títol: *Arquitectura semántica orientada a servicios.*
Acrònim: SOSA.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: JUIZ GARCÍA, Carlos.
Categoria: TU (àrea de coneixement: Arquitectura i Tecnologia de Computadors)
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------|------------------|------------------------|
| Juiz García, Carlos | TU | 1 |
| Lera Castro, Isaac | As. | 1 |
| Khouja, Mehdi | B | 1 |
| Santamaría Pérez, M. Luisa | TEU | 1 |
| Miró Julià, Margaret | TEU | 0.5 |

EDP del grup investigador de l'entitat sol·licitant: 4.5

Summary

In this last decade, a technological and social change, known as Ambient Intelligence (AmI), has been created due to the integration of computational devices in our daily life to speed up chores. The change was initiated by device's low cost and the increase in mobile user's abilities. It requires ubiquitous attention and demands a greater participation of all resources that surround us. The integration involves issues such as availability, security, context interpretation, etc. None the less, an issue not mentioned but relevant is man-machine interaction. Human's communication language is based on the semantics of its representation, however, machines use a syntactic language. This syntactic representation causes a deficiency in the interaction, interpretation and automation of expected services in intelligent environments.

Consequently, this project proposes the construction of a service oriented semantic architecture (SOSA). The originality of this architecture is the semantic representation of its knowledge. The communication process, the cooperation and the service description will be taken into account in order to increase interaction and all its underlying sub processes. This will allow the investigation of computational paradigms, such as automatic and evolutive learning in the area of artificial intelligence, in order to carry out service interpretations more adapted to the user's profile of the environment at any place and at any time.

SOSA's construction process will consist in the analysis of service requirements in AmI, the integration process of devices (cell phone, portable computer, sensors, PDA,...), man-machine interaction language and finally the improvement of automation and inference processes. Once SOSA is in place, we will proceed to its application to two concrete environments depending on EPO's interests. First of all, SOSA will be integrated to provide guided tours in museums, thus allowing more flexibility to visitors. And secondly, SOSA will be incorporated to residual water's treatment, thus

proving that the architecture also works in non-controlled environments that require a high degree of automation.

Referència: TIN2007-67993. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies informàtiques.
Títol: *Interfaces tangibles avanzadas en domòtica asistencial (ITADA)*
Acrònim: ITADA.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: PERALES LÓPEZ, Francisco José.
Categoria: TU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|------------------|------------------------|
| Perales López, Francisco José | TU | 1 |
| Buades Rubio, Josep M. | P. Col. | 0.5 |
| Palmer Rodríguez, Pere A. | TEU | 0.5 |
| Miró Julià, Margarita | TEU int. | 0.5 |
| Colom Muntaner, Guiem | TEU | 1 |
| Fiol Roig, Catalina | As. | 1 |
| Fiol Roig, Gabriel | CEU | 0.5 |
| Fontanet Nadal, Gabriel | TEU | 1 |
| González Hidalgo, Manuel | TU | 0.5 |
| Mas Sansó, Ramon | TU | 0.5 |
| Mascaró Oliver, Miquel | TEU | 0.5 |
| Tous Durán, Pedro | As. | 1 |
| Arellano Tavera, Diana | B | 1 |
| Rossi, Jessica | Tèc. | 1 |
| Cruz Berg, Alexander | Tèc. | 1 |
| Rochezcler Bez, Marta | Tèc. | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| De Miguel Sebastián, Pedro | Clínica Rotger | |
| Payeras Llompart, Bartolomé | Clínica Rotger | |

EDP del grup investigador de l'entitat sol·licitant: 12.5.

Summary

The project we present hopes to advance another step in the definition of new multimodal interaction paradigms between the computer and the final user. Nowadays, electronic communication among people at different levels and different environments (chat, GMS services, virtual immersive scenes) is a fact. In previous experiences VBI (Visual Based Interface) systems have been developed, since they are the main font of information and interaction with the environment. On the other hand, conventional haptic systems have been explored and implemented. This project pretends to enlarge the interface's multimodal degree of the tangible interface to include the study and application of senses such as hearing, taste, smell and their combination in a new design. Likewise, distributed intelligent agents will allow the proper modeling of the

system's behavior and its interaction with the user. The project's final application is the implementation of a domotic home assistance system for the elderly and disabled. Consequently, an important aspect to be considered is the implementation of reliable verification methods for the identification of the elderly or disabled and their caregivers. To this effect, a multi biometric module is included in the proposed project. Finally, the implementation of the virtual assistance methods in a robot that helps an elderly in certain chores is an interesting challenge that will demonstrate the feasibility of natural interfaces applied to mobile robotics.

As a basic application of the previous theoretical results, we propose the development of a tangible avatar in a domotic environment for the elderly's daily assistance and with tele-assistance functionalities in chronic cases.

Our experience in previous projects (TIN2004-07926, TIC2001-0931, TIC1998-0302-C02) include VBI systems that allow movement capture and the interpretation of the user's actions using intelligent agents. Therefore, this project's petition, is based on acquired experience in VBI and haptics, in order to advance to more portable and ubiquitous systems in the final paradigms of the natural interface. The man-home interaction will allow the creation of very important synergies in a wide range of fields. We will concentrate in the development of TTS-ARS tools, synesthetic systems and their combination in intelligent models that handle this multimodality. The tools and software used must adjust to actual standards and seek the highest level of portability and compatibility. At the same time, systems must be low cost or use standard devices avoiding complex virtual reality systems unless strictly needed by the elderly or disabled. Due to prior experience, the application of a methodology for requirement specification, analysis and design is very necessary in large projects that manage many physical and logical resources.

Referència: CSD2007/00004

Modalitat: Programa Consolider Ingenio 2010

Títol: *ARES: Team for Advanced Research on Information Security and Privacy*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: FERRER GOMILA, José L.

Categoria: TU (àrea de coneixement: Enginyeria Telemàtica).

Inici: 2008 **Fi:** 2012

Membres de l'equip

Categoria

| | |
|----------------------------------|-----|
| Ferrer Gomila, José L. | TU |
| Huguet Rotger, Llorenç | CU |
| Martínez Nadal, Apol·lònia | TU |
| Paniza Fullana, Antonia | TEU |
| Payeras Capellà, Maria Magdalena | TEU |
| Mut Puigserver, Macià | CON |

Investigadors d'altres entitats

Domingo Ferrer, Josep

Universitat Rovira i Virgili

Projectes del Govern Balear

Referència: PROGECIB-16A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Tecnologías de la información para la e-Contratación en el sector turístico (Turis-Tic).*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: FERRER GOMILA, Josep L.

Categoria: TU (àrea de coneixement: Enginyeria Telemàtica).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-23A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *XISPES: Xarxa Inalàmbrica d'altas Prestacions per l'entorn Sanitari.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: RIERA PALOU, Felip.

Categoria: Inv. Contr.

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Models no lineals aplicats al processament matemàtic d'imatges als sistemes dinàmics.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: COLL VICENS, Bartomeu.

Categoria: CU (àrea de coneixement: Matemàtica Aplicada).

Inici: 2007 **Fi:** 2008

DEPARTAMENT DE DRET PRIVAT

Referència: SEJ2006-04975. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Información sanitaria y autonomía del paciente (tratamiento de datos personales y consentimiento informado).*

Acrònim: ISAP.

Centre: Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: GRIMALT SERVERA, Pedro.

Categoria: TU (àrea de coneixement: Dret Civil).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-----------------------------------|------------------------|
| Grimalt Servera, Pedro | TU | 1 |
| Paniza Fullana, Antonia | TEU | 0.5 |
| Tur Faúndez, Maria Nélide | TU | 0.5 |
| Feliu Álvarez de Sotomayor, Sílvia | Aj. EU | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Osuna Carrillo de Albornoz, Eduardo | Universitat de Murcia | |
| Fernández Salmerón, Manuel | Universitat de Murcia | |
| Valero Torrijos, Julián | Universitat de Murcia | |
| Sánchez Martínez, Daniel | Universitat de Murcia | |
| Thibault Aranda, Javier | Universitat Autònoma de Barcelona | |

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

Nowadays, the sanitary activity is characterized by a much more institutionalized relationship, shared between different professionals. The problem is important: Information about patients can go towards multiple directions and data concerning health can be obtained not only from the person who provides them. As well, every day they are more frequent situations of distrust towards the sanitary professionals and the institutions.

There are multiple conflicts and they need a legal answer. In effect, the sanitary information constitutes an element of great value in the medical care field. But it is easy to accumulate, store and cross this information and it can suppose a risk for the privacy of the patient. Health data are characterized by their great sensitivity, so, they need a special protection, but allowing to conjugate the quality of the medical assistance with a suitable protection of the rights of the person.

Legal treatment of this problem in Spain is settled in Act 15/1999 of December 13th, on Data Protection, this Act describes data health like "specially protected", and in Act 41/2002, of November 14th, the rule which basically regulates the free will of the patient and his rights and duties about information and clinical documentation. Problems that

have been described cannot be analyzed separately. They require an integral and interdisciplinary treatment that allows to confront the different interests and to conjugate them to guarantee the protection of the rights of the patients and the sanitary professionals, involving an increase of the quality levels of the medical assistance.

From this perspective, the objectives are essentially: a).- fixing the legal system applicable to the processing of personal data concerning health, in general, and to case-histories in particular (including subjects like the rights of the patient, the rights and duties of the sanitary professionals, genetic data); b).- specific questions closely related to the previous idea like the sanitary or telemedicine card, the electronic prescription, etc.; c).- the free will of the patient and its incidences in the rights of the personality

Referència: SEJ2006-05872. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *El alojamiento turístico y sus especies: hacia la construcción de su estatuto jurídico público y privado.*

Acrònim: EAT.

Centre: Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: TORRES LANA, José Ángel.

Categoria: CU (àrea de coneixement: Dret Civil).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-----------------------------------|-------------------------------|
| Torres Lana, José Ángel | CU | 1 |
| Tur Faúndez, Mría Nélide | TU | 0.5 |
| Paniza Fullana, Antonia | TEU | 0.5 |
| Ferrer Tapia, Belén | As. | 1 |
| Garau Sobrino, Federico | TU | 0.5 |
| Feliu Álvarez de Sotomayor, Sílvia | Aj. EU | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| San Julián Puig, Verónica | Universitat de Navarra | |
| Pérez Guerra, Raúl | Universitat d'Almeria | |
| Ceballos Martín, Matilde | Universitat d'Almeria | |
| Rodrigues Masseno, Manuel D. | Instituto Politécnico de Beja | |
| Roca Fernández-Castanys, Maria L. | Universitat Autònoma de Barcelona | |

EDP del grup investigador de l'entitat sol·licitant: 4.

Referència: SEJ2006-03694. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Derecho de sociedades y nuevas tecnologías. En particular, su aplicación a la organización y funcionamiento interno de la sociedad y sus órganos colegiados.*
Centre: Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.
Investigadora responsable: MARTÍNEZ NADAL, Apol·lònia.
Categoria: TU (àrea de coneixement: Dret Mercantil).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--------------------------|------------------------|
| Martínez Nadal, Apol·lònia | TU | 1 |
| Flaquer Riutort, Joan | TU | 1 |
| Buades Feliu, Joan | As. | 1 |
| Pons Irazazábal, Fèlix | As. | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| De Gispert Pastor, Maria Teresa | Universitat de Barcelona | |
| Gual Dalmau, Maria Asunción | Universitat de Barcelona | |
| Font Ribas, Antoni | Universitat de Barcelona | |

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

The use of new technologies in Company Law, and in particular for the organization of the general meeting of shareholders and the board of directors, offers advantages to the company and its shareholders. But nowadays this also produces doubts about its juridical security, due to the lack of legislation and studies on the matter.

So, we consider it's necessary to study the legal admissibility, and the juridical consequences, of the use of new technologies in Company law.

We'll analyze questions such as electronic vote or virtual meetings. In order to propose solutions which can vary depending on the kind of company and also the kind of body (the general meeting of shareholder or the board of directors).

Referència: SEJ2006-10284. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Tratamiento integral de la violencia contra las mujeres y la ejercida en el ámbito intrafamiliar. Aspectos civiles, penales y procesales.*
Centre: Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.
Investigadora responsable: FERRER VANRELL, M. Pilar.
Categoria: CU (àrea de coneixement: Dret Civil).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------|------------------|------------------------|
| Ferrer Vanrell, M. Pilar | CU | 1 |
| Verdera Izquierdo, Beatriz | TU | 0.5 |
| Coca Payeras, Miquel | CU | 0.5 |
| Vila Ribas, Carme | TU | 0.5 |
| Ramon Ribas, Eduard | TU | 0.5 |
| Cardona Guasch, Olga | As. | 0.5 |
| Arrom Loscos, Rosa | CEU | 0.5 |
| Nadal Gómez, Irene | TU | 0.5 |

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

Domestic violence or produced within the family framework has different ways of becoming apparent: physical violence and psychological violence (limitations to freedom, verbal and emotional abuses) which is performed against women or the couple, against under aged or elder people.

All these ways of becoming apparent has to be tacked with preventive and amendments actions, but also with legislative measures. In recent times, the legislative, mainly through Act LO 1/2004, de 28 de diciembre de Medidas de Protección Integral contra la violencia de Género has given a important step in order to coordinate the Integral Statute which creates this Act through the Protection Order.

Therefore, on the basis of a strict analysis of the current legislation in force, both at state and regional level and the existing jurisprudence in the field of crimes and faults related to domestic violence, we pretend to adopt legal conclusions which will be translated into an action and proposal plan. It will also include measures adopted in order to make effective the Integral Statute that demands the attention to the victims of violence, not only for prevention, but also for his familiar and social rehabilitation at civil, criminal and social level. This project will treat on the legal aspects in civil, criminal and procedural law.

Referència: SEJ2006-03101. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Turismo residencial. Aspectos económicos y jurídicos.*
Centre: Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: MUNAR BERNAT, Pedro A.
Categoria: TU (àrea de coneixement: Dret Civil).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-------------------------|-------------------------------|
| Munar Bernat, Pedro A. | TU | 1 |
| Coca Payeras, Miquel | CU | 0.5 |
| Vila Ribas, Carme | TU | 0.5 |
| Llodrà Grimalt, Francesca | TU | 1 |
| Verdera Izquierdo, Beatriz | TU | 0.5 |
| Garau Vadell, Joan B. | TU | 0.5 |
| Martorell Cunill, Onofre | TEU | 0.5 |
| Robledo Camacho, Marco A. | TU | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Martos Calabrus, María A. | Universitat d'Almería | |
| Núñez Iglesias, Álvaro | Universitat d'Almería | |
| Botana García, Gema A. | Universitat Europea | |
| Lasarte Álvarez, Carlos | UNED | |

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

Residential tourism is characterized by a group of people, usually gathered into family unities that, in a determined temporary process, move to specific areas, normally traditional tourist destinies, linking themselves to those places through real-estate relationships, where they stay for a longer period than traditional tourists and eventually establishing their usual residence there.

This new tourist option is increasingly becoming important from an economic standpoint and it has generated a relevant number of studies and analysis concerning the socioeconomic aspects of this new figure.

Currently, and taking into account the importance of this new figure, it is necessary to face the study of the legal aspects of this new phenomenon, questioning which has to be the legal instrument for its regulation. We can not forget that in this process of regulation different rules apply: on one hand, administrative rules concerning the legal regime of those properties where stays take place; and, on the other hand, rules concerning the relationships between those who participate in the real-estate legal transaction.

The legal linkage which exists may be double: a) An important number of tourists buy a property in a vacation area, but the problem which arises has no relation with the purchase of a right to property, mainly after the accession of Spain to the European Union and the non appliance to EU nationals of restrictive national rules on national security concerning the acquisition of properties in strategic areas of the national territory; b) As a general rule, tourists rent a lodging. In this framework, different problems arise and to which it is necessary to define the legal regime applicable, is in relation to private legal relationships derived from

housing rental, either by Spanish citizens who live in those areas or by tourists who have bought a house and that only use it a period of time. Currently, it is under discussion which rule is applicable: it is not clear whether it is a rental contract regulated by the Spanish Civil Code or a temporary rental regulated by the Urban Rental Act. At the same time, at this moment, different state and regional acts have also an impact on the regulation of this figure.

Taking into account all the questions mentioned above, the aims of this research project are as follows:

- To identify the defining characters of this legal figure.
- To distinguish between the way of acquisition of the property and the way of renting a lodging.
- To analyze state and regional rules currently into force which has an impact on the regulation of residential tourism.
- Concerning the acquisition of the property, it is important to think about unifying the acquisition systems of the property in order to give a solution that foreigner face in Spain when they buy a property.
- To study the possibility of having a specific regulation for this kind of rental.
- To analyze solutions given by Comparative Law.
- To study the state and regional competence for enacting rules concerning this figure.
- To think about the possibility of enacting a directive on vacation lodging as an instrument for promoting the development of tourism and to make the free movement of persons within the EU real and effective.

At the same time, this legal analysis effort cannot forget residential tourism which is at the basis of the problem. In this sense, it is necessary to carry on an analysis in order to determine the extent and the economic implications of this phenomenon taking into account:

- A descriptive analysis of residential tourism.
- An analysis of tourist's behavior and characters.
- An economic analysis.

Referència: SEJ2006-11612/JURI. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *El nuevo Derecho Mercantil Internacional: nueva lex mercatoria y derecho uniforme.*
Centre: Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: ALCOVER GARAU, Guillem.
Categoria: CU (àrea de coneixement: Dret Mercantil).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|------------------------------|------------------|------------------------|
| Alcover Garau, Guillem | CU | 1 |
| Martínez Cañellas, Anselm M. | TU | 1 |
| Mateo Hernández, José Luis | TEU int. | 1 |
| Conde Tejón, Antonio | Aj. Dr. | 1 |
| Antich Ferrà, Amador | As. | 1 |
| Nadal Gómez, Irene | TU | 0.5 |
| Arbona Femenia, Miquel À. | As. | 1 |
| Arrom Loscos, Rosa | CEU | 0.5 |

EDP del grup investigador de l'entitat sol·licitant: 7.

Summary

The economic globalisation has created new needs of regulation in the international commercial community. In response to these needs, a new International Commercial Law is developed. The aim is to achieve a common law for every merchant notwithstanding his country of origin.

We intend to analyse this new International Commercial Law with this project, to study its sources, its content and its application. We will propose corrections and the increase of its content in two different ways: increase of specific issues and draft of a structure of this Law as a complete body of law.

These general purposes will be developed through these more specific ones:

Study of the content of Uniform Law:

- Actually in force (international contracts, transnational insolvency, e-commerce, international payments, international transport and international company law)
- Actually in process in international institutions. Analysis of advantages and disadvantages of the Uniform Law Drafts instruments and proposals of improvement.
- Proposal of improvement and creation of Uniform Law with regard to areas not dealt with at the present.

Study of the content of the new lex mercatoria:

- International commercial usages, their compilation and systematization in law principles.
- Proposals of adaptation or improvement of the soft law compilations.

Study of the sources of International Commercial Law:

- International public organisations (U.N or E.U.)
- Non government Organisations (soft law) (I.C.C)
- Proposal of the participation in the creation of the new law using the results of this Project.
- Convenience of applying a mixed system of legal sources in Spanish Domestic Law.

Verification of the application and efficiency of International Commercial Law.

- Advantages and disadvantages for Spanish merchants.
- Test of international and uniform application by national and foreign judges and tribunals. The same black letter rule is not enough, it must be applied internationally. If not, the reason must be analysed.
- Analysis of the application of International Commercial Law by national and international arbitrators.

- International ADR rules and procedural civil law in force.
- Proposal of improvement of our judicial system in the application of International Commercial Law.
Drafting of Principles of International Bankruptcy, Principles of International Company Law, Principles of International Contract Law and / or other more specific ones.

DEPARTAMENT DE DRET PÚBLIC

Referència: SEJ2006-03867. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Cooperación y confrontación en el diseño de un nuevo sistema de seguridad colectiva: detección y análisis de las nuevas pautas de regulación y de institucionalización.*

Acrònim: CCDNSSC.

Centre: Departament de Dret Públic. Edifici Gaspar Melchor de Jovellanos.

Investigadora responsable: HUESA VINAIXA, M. Rosario.

Categoria: CU (àrea de coneixement: Dret Internacional Públic i R. Internacionals).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-----------------------------------|------------------------|
| Huesa Vinaixa, M. Rosario | CU | 1 |
| Janer Torrens, Joan David | TU | 1 |
| Capellà Roig, Margalida | Aj. dr. | 1 |
| Rupérez Cornell, Pilar | TEU int. | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Fernández Tomás, Antonio | Universitat de Castilla-La Mancha | |
| Sánchez Legido, Ángel | Universitat de Castilla-La Mancha | |
| Forcada Bayona, Ignacio | Universitat de Castilla-La Mancha | |
| Ortega Terol, Juan Miguel | Universitat de Castilla-La Mancha | |
| Martínez Carmena, María | Universitat de Castilla-La Mancha | |
| Soroeta Licerias, Juan | Universitat del País Basc | |
| Alonso Moreda, Nicolás | Universitat del País Basc | |
| Abalde Cantero, Óscar | Universitat del País Basc | |
| Bollo Arocena, María Dolores | Universitat del País Basc | |
| Quel López, Javier | Universitat del País Basc | |

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

The research conducted up to now by the research team with the title "Human rights, international responsibility and collective security: intersection of systems" (BJU 2002-00559) has showed that it is not possible to face the restructuring of that system without taking into account the great human and socioeconomic challenges. However, in order to fulfil that objective the dialectic between cooperation and confrontation plays an important role. The starting hypothesis is that that confrontation in the approximation of the new challenges determines the appearance of new trends in the construction of the legal and institutional system of collective security which, necessarily, will have an impact on the features of the international legal order. It is time

to analyse the trends of renovation – or new creation – of the legal and institutional structures directed to safeguard the collective security under the influence of the relationship between cooperation and confrontation. Again, the relations between different systems will conduct the methodology of the research project which, based on the collective security system, will focus on the new dimensions of human rights, development cooperation, terrorism and armamentism. The study of the relationships between all those questions should allow the research team to reach reliable conclusions concerning the evolution of the new trends of regulation and institutionalization of the new international legal order of the XXI century.

The objective of the research project is, therefore, to give continuity to a relevant research line, conducted by a solid research team, which concerns a subject of scientific importance and daily relevance: the adaptation of the legal and institutional system of collective security to the new political, economic, ideologic, military and social challenges.

Referència: SEJ2006-15174-C03-02. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *El derecho fundamental de la no discriminación por razón de edad: derecho interno y comunitario.*
Acrònim: DISCRIMEDAD.
Centre: Departament de Dret Públic. Edifici Gaspar Melchor de Jovellanos.
Investigadora responsable: BALLESTER PASTOR, María Amparo.
Categoria: TU (àrea de coneixement: Dret del Treball i de la Seguretat Social).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|--------------------------------------|------------------|------------------------|
| Ballester Pastor, María Amparo | TU | 1 |
| Jurado Segovia, Ángel | Aj. | 0.5 |
| Llompарт Bennàssar, Magdalena | TEU | 0.5 |
| Monreal Bringsbaerd, Erik | TEU | 0.5 |
| Riera Vayreda, Carlos | TEU | 0.5 |
| Tarabini-Castellani Aznar, Margarita | TU | 0.5 |
| Pérez Marín, Inés | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

The starting point of the research project is the great relevance that the subject of age discrimination has from the perspective of fundamental rights. It is noticeable because of the large volume of European Community rules (article 13 ETC and Directive 2000/78) and internal Spanish rules (law 62/2003) passed in recent years. The project intends to analyse the contents of these rules and of the jurisprudence decisions directly or indirectly related with this fundamental right (for example, by referring to other fundamental rights with a similar scope) in order to give alternatives. Up until now the doctrine work has analysed the situation from an exclusively EU or an exclusively constitutional perspective. We will attempt to connect these studies to the Spanish Law System in order to detect possible E.U. illegalities or reasons for eventual unconstitutionality. Our principal objective is the configuration of a stable interuniversity research group with experience in the topic of the project. The research will be undertaken with a methodology of a multidisciplinary nature but strictly juridical. For this we will connect Labour Law with Constitutional Law and European Community Law. We are aiming for a perspective that, by gravitating towards universal juridical concepts such as non-discrimination, allows for a movement towards Comparative Law that makes the proposals of "*lege ferenda*" possible. It is hoped that the results of the investigation will serve to improve the labour conditions and employability of workers with labour integration problems due to their age which at the same time is an objective of the European Union programme for employment. It is intended that the results of the investigation will be useful as a tool for labour and social integration.

Referència: SEJ2007-67071. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Transposición de Decisiones Marco europeas y armonización del Derecho penal español.*
Centre: Departament de Dret Públic. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: GILI PASCUAL, Antoni.
Categoria: TU (àrea de coneixement: Dret Penal).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-------------------------|-------------------------------|
| Gili Pascual, Antoni | TU | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Carbonell Mateu, Juan Carlos | Universitat de València | |
| Guardiola García, Javier | Universitat de València | |
| Viana Ballester, Clara | Universitat d'Alacant | |

EDP del grup investigador de l'entitat sol·licitant: 1

Summary

The project intends to study the implementing problems of Framework decisions, with special regard to Spanish Penal Code, concretely studying three materia relating pluripersonal criminality:

- Organised crime,
- Fight against corruption, and
- Criminal responsability of corporations.

The objectives of this critical revision are not only to check the *status quaestionis*, but to find criteria for a better interpretation of the existing Law and /de lege ferenda / proposals in order to improve the regulation.

DEPARTAMENT D'ECONOMIA APLICADA

Referència: SEJ2005-08783-C04-03/ECON. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Imposición Óptima Aplicada: una aplicación de la microsimulación.*

Acrònim: IOTAMO.

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: SPADARO, Amedeo.

Categoria: TU (àrea de coneixement: Economia Aplicada).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--|------------------------|
| Spadaro, Amedeo | TU | 1 |
| Oliver Rullan, Francesc | TEU | 1 |
| Rosselló Villalonga, Joan Carles | TU | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Badenes Plà, Nuria | Universitat Complutense de Madrid | |
| Racionero Llorente, Maria del M. | Australina National University Canberra | |
| Del Rey Canteli, Elena | Universitat de Girona | |
| Arrondel, Luc | CNRS França | |
| Verdier, Thierry | Ecole des Hautes Etudes en Ciencias Sociales | |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

Several attempts were recently made at analyzing existing redistribution systems in several countries within the framework of optimal taxation theory. The basic question asked in that literature is whether it is possible to justify the most salient features of existing systems by some optimal tax argument. A key element when analyzing these issues, omitted in previous works, is the dynamical one. The economic problem behind this issue is that the agents' productivity (or any other characteristic that can influence the final outcome) evolves in time due to education decisions, learning by doing mechanisms, etc. It seems reasonable to think that this evolution is endogenous to the redistribution at each period. To our knowledge, although a lot of work has been reported on dynamical aspects of capital taxation [in line with Chamley (1986) or Judd (1985) for example], nothing seems to have been done in the direction of dynamical optimal taxation with endogenous productivities. Our research project follows this direction. The main objectives are two. First, to extend the knowledge about the effects of taxation and redistribution both from the efficiency and the equity point of view in a dynamic framework when abilities of agents are endogenous to redistribution. Second, to refine the empirical use of optimal tax theory for the analysis of real redistribution schemes.

The main interest of realizing the work described in our research project consist in having a theoretical and empirical instrument allowing for a better rationalization of the debate efficiency vs. equity. This debate has important implications from economic, social and political perspectives. This project will contribute to quantify and describe the microeconomic impact of alternative redistribution schemes.

Referència: SEJ2005-07781/ECON. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Modelización de procesos periódicos autorregresivos.*
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: SANSÓ ROSSELLÓ, Andreu.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--------------------------|-------------------------------|
| Sansó Rosselló, Andreu | TU | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Del Barrio Castro, Tomás | Universitat de Barcelona | |
| Pons Rotger, Gabriel | University of Copenhagen | |

EDP del grup investigador de l'entitat sol·licitant: 1.

Summary

The main purpose of this research project is to develop new methodological tools for the periodic autoregressive model. It has been shown in the literature how such stochastic process properly captures the dynamics of a wide range of seasonal economic time series. The representation of periodic processes through a multivariate model for the different seasons turns out to be very useful to discuss relevant issues like stationarity or forecasting. In addition, this multivariate treatment of the periodic autoregressive process allows extending well known methods for macroeconomic time series to periodic variables, i.e. cointegration analysis, or serial correlation common feature analysis.

The specific goals of the research project are organized in five blocks. The first part is devoted to the discussion of Johansen cointegration analysis when some observations are affected by outliers. Then, in the second part we attempt to provide statistical tests capable to detect outliers at periodically correlated time series. The third goal is to analyse the properties of the test for periodic integration of Boswijk and Franses (1996) when: 1) time series are contaminated by atypical observations and 2) when the structural breaks are present at deterministic component of the process. The fourth goal focuses in the study of cointegration relationship and common trends between periodic integrated processes. Finally, the last objective is to propose methods to restrict the periodic autoregressive model, mainly by means of reduced rank type restrictions like common deterministic component or serial correlation common features.

Referència: SEJ2007-65255. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *La fidelidad del turista como factor clave de competitividad en el modelo turístico de masas.*
Acrònim: FTFCCMTM.
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: ALEGRE MARTÍN, Joaquín.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---------------------------|------------------|------------------------|
| Alegre Martín, Joaquín | TU | 1 |
| Pou Garcías, Llorenç | TEU | 1 |
| Sard Bauzá, Maria | TEU | 1 |
| Cladera Munar, Magdalena | TEU | 1 |

EDP del grup investigador de l'entitat sol·licitant: 4

Summary

The main objective of this project is to study the concept of loyalty and place attachment to a tourist destination and their implications for the characteristics of the demand for tourism, specifically on tourist expenditure, and on the competitiveness of sun and sand mass tourist destinations. This project is aimed at developing theoretical issues of tourist analysis concerning loyalty, as well as some of the models of economic theory about the market structure. The empirical research focuses on the main competitive sun and sand mass European tourist destinations, focussing especially on Spanish coastal destinations. For that purpose the project is intended to conduct two databases. From the demand side, the analysis of the consumer behaviour requires to study: (1) the concept and measurement of loyalty and place attachment to a tourist destination, (2) the motivations of repeat tourists, (3) the determinants of loyalty and place attachment, and (4) the economic implications of loyalty. Concerning the concept of competitiveness, the project tries: (1) to obtain an index of competitiveness for the main sun and sand destinations based on satisfaction and tourists' motivations; (2) to determine the basic, excitement and performance factors, which may allow improving destinations competitiveness. From the supply side, the project is aimed at analysing the package tours characteristics of the main tour-operators in order to study the distribution of the package tour prices. Finally, demand and supply are linked through the comparison of the package tours prices distribution and the expenditure distribution afforded by tourists. The latter shall allow to analyse the efficiency of tourists choices, specially those of repeat tourists.

Referència: DEX-540000-2008-26. Ministeri d'Indústria, Turisme i Comerç.

Modalitat: Programa nacional de desenvolupament experimental.

Títol: *Gestión de destinos turísticos.*

Acrònim: GEDESTUR

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: JACOB ESCAURIAZA, Marta

Categoria: TEU (àrea de coneixement: Economia Aplicada).

Inici: 2008 **Fi:** 2011

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|---------------------------|------------------|
| Jacob Escauriaza, Marta | TEU |
| Costa Costa, Antòni | P. Col. |
| Aguiló Pérez, Eugeni | CU |
| Payeras Llodrà, Margarita | TU |

Projectes del Govern Balear

Referència: PROGECIB. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Nuevos enfoques en al análisis de la competitividad y sostenibilidad.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: REY-MAQUIEIRA PALMER, Javier.

Categoria: TU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Un enfoque estratégico de gestión de los beneficios económicos en los destinos turísticos de masas cuyo atractivo reside en sus recursos naturales.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigadora responsable: JUANEDA SAMPOL, Catalina.

Categoria: CU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-31A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Externalidades del Transporte Rodado en Economías Turísticas.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: ROSSELLÓ NADAL, Jaume.

Categoria: TEU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Anàlisi dels determinants dels nivells d'escolarització en l'ensenyament post-obligatori.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: ROSSELLÓ VILLALONGA, Joan.

Categoria: TU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2008

DEPARTAMENT D'ECONOMIA DE L'EMPRESA

Referència: SEJ2007-67895-C04-03. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Organización de le empresa, prácticas de gobierno y control familiar.*

Acrònim: FOGPFC.

Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: CRESPI CLADERA, Rafel.

Categoria: CU (àrea de coneixement: Economia Financera i Comptabilitat).

Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-----------------------------------|------------------------|
| Crespí Cladera, Rafel | CU | 1 |
| Pascual Gascó, Robert | TU int. | 1 |
| Calveras Maristany, Aleix | TU | 1 |
| Bru Martínez, Lluís | TU int. | 1 |
| Orfila Sintés, Francesca M. | Aj. EU | 1 |
| Pascual Fuster, Bartomeu | TU | 1 |
| Solà Belda, Carles | TU | 1 |
| Carretero Gómez, José M. | Aj. EU | 1 |
| Deyà Tortella, Bartomeu | TU | 1 |
| Massot Perelló, M. Magdalena | TU | 1 |
| Munar Muntaner, Esperança | CEU | 1 |
| Lozano Arnica, Gonzalo | TU | 1 |
| Vaello Sebastià, Antòni | Aj. | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Veredas Rojo, David | Universitat Lliure de Brussel·les | |

EDP del grup investigador de l'entitat sol·licitant: 13

Summary

The present research program encompasses the efforts of a relevant group of researchers interested in the study and development of the competitiveness of Spanish firms. This is a complex question to analyze if we take into account the heterogeneous set of factors that may influence firm competitiveness and the strong interactions between them. For this reasons it is very useful to coordinate a set of experienced researcher who, having a common knowledge base, provide a complementary perspective of the problem under analysis. In this sense this project integrates researchers that are experts in the analysis of different areas of the firm, who employ a wide array of analytical tools (e.g. game theory, micro econometrics, experiments) and who have developed complete databases, to produce rigorous theoretical and empirical research.

The joint research work done in the past has produced significant contributions to the knowledge base about the factors that determine firm competitiveness. The present coordinated research project seeks to continue with this research effort in order to

consolidate a research group that will be competitive in international forums. Given the complexity of the analysis involved in the past we have created several complementary tracks that this project attempts to develop further and extend with the incorporation of other related aspects. In particular we will explore five tracks around the factors that define firm competitiveness: the influence of technology and organizational innovation; the importance of human resources management; the role of the ownership structure, specially of stable owners; the relevance of stakeholders and the legal environment; entrepreneurship and family business.

The final goal is to advance in the knowledge of the interdependencies between technological change, human resource management, ownership structure and corporate governance practices, the firm's financial and legal environment, and the relationship with different stakeholders, and to assess their importance for firm success. Further, we seek to analyze how such interdependencies are modified and why, at the creation of the businesses, in different economic sectors, in different legal environments, with the presence of stable owners or in the case of family businesses. In doing so we also expect to add new new empirical evidence about the real situation of the Spanish firms and to formulate helpful recommendations for their managers.

Referència: SEJ2007-67910. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Externalidades del transporte rodado en economías turísticas (ETRET). Evaluación de políticas correctoras para su internalización.*
Acrònim: ETRET
Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: RIERA FONT, Antoni.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------|------------------|------------------------|
| Riera Font, Antoni | TU | 1 |
| Aguiló Pérez, Eugeni | CU | 1 |
| Palmer Tous, Teresa | TEU | 1 |
| Rosselló Nadal, Jaume | TEU | 1 |
| Capó Parrilla, Javier | TEU | 1 |
| Costa Costa, Antoni | Aj. EU | 1 |
| Bujosa Bestard, Àngel | B | 1 |
| Torres Figuerola, Catalina | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 8

Summary

The positive effect on the economic growth of tourist specialization has motivated the expansion of the sector in many regions. However, the overcrowding in destinations and the increase of the economic activity causes a significant increase in the mobility in the tourist enclaves because of the increase in road transport with the consequent increase in the associated externalities (congestion, traffic accidents, air pollution and noise).

These external costs leads at no-optimal activity levels and to the need of introducing mechanisms that incentive a most efficient use of the rolled transport. Nevertheless, to design and to evaluate corrective policies requires to identify and to quantify, previously, the main external costs linked to rolled transport and the determination of the relationship between these costs and the demand functions (for both residents and tourists).

Then, the main objective of the project is to evaluate the effects of a set of policies designed to the object of amending externalities linked to rolled transport in the region of the Balearic Islands, that because of the geographical characteristics (islands) and because of the high level of tourist development constitutes a very suitable laboratory to carry out the project.

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Innovación en el sector hotelero balear.*

Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.

Investigadora responsable: ORFILA SINTES, Francina.

Categoria: Aj. dr. (àrea de coneixement: Organització d'Empreses).

Inici: 2007 **Fi:** 2008

DEPARTAMENT DE FILOLOGIA CATALANA I LINGÜÍSTICA GENERAL

Referència: HUM2006-06108/FILO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Teoría y práctica de la narrativa experimental catalana (1970-1985): análisis y estudio contextual.*

Centre: Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.

Investigadora responsable: PONS JAUME, Margalida.

Categoria: TU (àrea de coneixement: Filologia Catalana).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|------------------|------------------------|
| Pons Jaume, Margalida | TU | 1 |
| Picornell Belenguer, Caterina Mercè | Aj. dr. | 0.5 |
| Rosselló Bover, Pere | CU | 0.5 |
| Muntaner González, Maria | B | 1 |
| Mas Vives, Joan | CU | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Martínez Gili, Raúl-David Université Paris III Sorbonne Nouvelle | | |

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

It is our aim in this project to investigate textual and contextual issues that led to the production of experimental narrative in Catalan between 1970 and 1985. Research will be based on *a)* analysis of a corpus of thirty novels, *b)* study and recovery of dispersed and/or unpublished narrative texts; *c)* testimony through interviews with experimental authors. With regard to production, this project intends to analyze works produced in a period which is unique because of the confluence of theory and practice: some novelists explicitly recognize the impact of critical discourses in their works (e.g. Biel Mesquida / Roland Barthes and Julia Kristeva) or approach criticism via translation (e.g. Quim Monzó / John Barth). The project will also study the historical and cultural frame that shapes and encourages narrative production: translation into Catalan of theoretical articles cultural projects in the margins of commercial publishing companies, and emergence of groups that generate their own critical production. The project intends to promote knowledge of this frame through *a)* a web page, *b)* a colloquium on experimentalism, and *c)* paper publishing (studies, text edition, testimonial documents).

Referència: HUM2007-66531. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Análisis traductológico y comparativo de la difusión contemporánea de Os Lusíadas, de Luiz de Camoes, en catalán y castellano.*
Centre: Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.
Investigador responsable: DOLS SALAS, Nicolau.
Categoria: TEU (àrea de coneixement: Filologia Catalana).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|------------------------------|------------------|------------------------|
| Dols Salas, Nicolau | TEU | 1 |
| Alegret Llorens, Juan | CU | 1 |
| Cuadrado Fernández, Perfecto | CU | 1 |

EDP del grup investigador de l'entitat sol·licitant: 3.

Participacions a altres projectes

Referència: CAMV-2007/03
Modalitat: Convocatòria d'ajuts a projectes de recerca.
Títol: *Terminologia artística en català a la Mallorca dels segles XVI al XVIII.*
Centre: Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.
Investigador responsable: MESQUIDA CANTALLOPS, Joan Antoni.
Categoria: TEU (àrea de coneixement: Filologia Catalana).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------------|------------------|------------------------|
| Mesquida Cantallops, Joan Antoni | TEU | 0.5 |
| Gambús Saiz, Mercè | TU | 0.5 |
| Villalonga Vidal, Andreu J. | TEU | 0.5 |
| Forteza Oliver, Miquela | Aj. | 0.5 |

EDP del grup investigador de l'entitat sol·licitant: 2.

Referència: CAMV-2007/04

Modalitat: Convocatòria d'ajuts a projectes de recerca.

Títol: *Localització, transcripció i edició de textos d'escriptors mallorquins d'entre els segles XIX i XX.*

Centre: Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.

Investigador responsable: ROSSELLÓ BOVER, Pere.

Categoria: CU (àrea de coneixement: Filologia Catalana).

Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|------------------|------------------------|
| Rosselló Bover, Pere | CU | 1 |
| Pons Pons, Damià | CU | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Arnau Segarra, Pilar | | |
| Perelló Femenia, Maria Antònia | | |

EDP del grup investigador de l'entitat sol·licitant: 2.

DEPARTAMENT DE FILOLOGIA ESPANYOLA, MODERNA I LLATINA

Referència: HUM2005-03913/FILO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Los textos como fuente de información pragmática: estudio de la gestualidad en la antigüedad romana (II).*

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

Investigadora responsable: FORNÉS PALLICER, M. Antònia.

Categoria: TU (àrea de coneixement: Filologia Llatina).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--------------------------|------------------------|
| Fornés Pallicer, M. Antònia | TU | 1 |
| Bosch Juan, M. Carme | CU | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Quetglas Nicolau, Pere J. | Universitat de Barcelona | |
| Puig Rodríguez-Escalona, Mercè | Universitat de Barcelona | |
| Cabré Lunas, Laura | Universitat de Barcelona | |
| González Páez, Carmen | Universitat de Barcelona | |
| Gorga López, Gemma | Universitat de Barcelona | |

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

This project is embedded within the pragmatical situations and, more precisely, in the field of gesture. The goal of the present application is to continue the research initiated in 2001 under the project "Texts as a source of pragmatical information: study of gesture in the Roman Antiquity" (BFF2001-0916), which aimed at undertaking a thorough analysis of gesture in the Roman Antiquity. The amount of information gathered in this project beat our expectations and we are therefore forced to apply for its continuation. The aim of the project we are applying for is, on the one hand, to finish the study of facial gesture (up to now only gesture of the lower part of the face has been analysed) and, on the other hand, to study hand gesture in order to draw up a repertoire which covers most gesture in the Roman Antiquity. A study on gesture survival up to now will also be carried out and this will allow us to determine the origin and meaning of gesture language so characteristic of the present western culture.

Referència: HUM2006-11654/FILO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Edición de poéticas y de materiales para el estudio de la recepción de la poesía española entre 1939 y 2000 (cotinuación).*

Acrònim: EPYMERPE-C.

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

Investigador responsable: DÍAZ DE CASTRO, Francisco J.

Categoria: CU (àrea de coneixement: Literatura Espanyola).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|---------------------------|-------------------------------|
| Díaz de Castro, Francisco J. | CU | 0.5 |
| Del Olmo Iturriarte, Almudena | TU | 0.5 |
| Payeras Grau, Maria | TU | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Jiménez Millán, Antonio | Universitat de Málaga | |
| Rovira Planas, Pere | Universitat de Lleida | |
| Celma Valero, Pilar | Universitat de Valladolid | |
| Lanz Rivera, Juan José | Universitat del País Basc | |
| Iravedra Valea, Araceli | Universitat de Granada | |

EDP del grup investigador de l'entitat sol·licitant: 1.5.

Summary

Culmination of the edition of poetics and materials for the study of the reception of Spanish poetry between 1939 and 2000.

Referència: HUM2006-11438/FILO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Edición de materiales para la autorrepresentación de la mujer en la poesía española (1960-1980).*

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

Investigadora responsable: PAYERAS GRAU, Maria.

Categoria: TU (àrea de coneixement: Literatura Espanyola).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------------|-------------------------|-------------------------------|
| Payeras Grau, Maria | TU | 0.5 |
| Díaz de Castro, Francisco J. | CU | 0.5 |
| Del Olmo Iturriarte, Almudena | TU | 0.5 |

EDP del grup investigador de l'entitat sol·licitant: 1.5.

Summary

This project aims to continue in time the one that was accepted in december 2003. For this reason the generic title is respected, and only modifies the dates that mark the chronological period of study, it's to say 20 years ahead: 1960-1980. Briefly, our project is to select, digitalise and edit poems concerning the woman's image projected by the authors that start their literary work in the period between 1960 and 1980, with the goal of making a database of textual "corpus".

Referència: HUM2007-62259. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Edición y estudio de textos bíblicos medievales en castellano.*

Acrònim: BIMECA.

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Lull.

Investigador responsable: ENRIQUE ARIAS, Andrés.

Categoria: TU int. (àrea de coneixement: Llengua Espanyola).

Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--------------------------|-------------------------------|
| Enrique Arias, Andrés | TU int. | 1 |
| Bernat Vistarini, Antonio | TU | 1 |
| García Moreno, Aitor | TU int. | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Matute Martínez, Cristina | Sant Louis University | |
| Davies, Mark | Brigham Young University | |
| Pato Maldonado, Enrique | Universitat de Montreal | |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The medieval Spanish bibles are a unique aspect of the Hispanic cultural heritage that has repercussions through a wide array of disciplines. One of the most interesting aspects of these texts is the rich linguistic data contained therein, as they constitute a fairly big textual corpus that encompasses a wide chronological range. The medieval Spanish bibles are also interesting because they are the only medieval texts for which we have several versions of the same content composed in different historical periods, a circumstance that facilitates the observation of linguistic variation and change across time. In spite of it all, to this date the language of the Spanish medieval translations of the Bible has not been the subject of systematic studies.

With the objective of facilitating the study of these texts the group coordinated by Andrés Enrique Arias at the Universitat de les Illes Balears has been developing since 2003 the Old Spanish Biblical Corpus. Once it is concluded by late 2007, this corpus will provide paleographic transcriptions of all the known biblical translations with the possibility of viewing digital images of the original manuscripts. The data from this corpus, thus, constitutes the ideal setting to study the language of Spanish biblical translations and in turn contribute new data to the study of Spanish historical linguistics. The aim of this project is making a significant contribution to the study of the language used in Spanish biblical translations through the systematic analysis of a number of variable morphosyntactic phenomena in the Old Spanish Biblical Corpus. This investigation focuses on four main aspects: a) defining the syntactic properties that characterize Old Spanish biblical texts, b) establishing the date and provenance of the manuscripts, c) establishing the precise relationship between the different existing

biblical versions in Old Spanish, and d) contributing to the study of morphosyntactic variation in medieval Spanish.

Referència: HUM2007-66053. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Contexto, contacto y nivel de competencia en la adquisición del inglés como lengua extranjera. Gradación en el desarrollo de habilidades orales y escritas a niveles medios.*

Acrònim: COLE.

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Lull.

Investigador responsable: JUAN GARAU, Maria.

Categoria: TU (àrea de coneixement: Filologia Anglesa).

Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-------------------------------|-------------------------------|
| Juan Garau, Maria | TU | 1 |
| Prieto Arranz, José Igor | TU | 1 |
| Salazar Noguera, Joana Adelaida | TU | 1 |
| Rallo Fabra, Lucrecia | TU | 1 |
| Calafat Ripoll, Catalina | As. | 0.5 |
| Catrain González, Magdalena | TEU | 0.5 |
| Borrull Cubo, Maria Nuria | TEU | 0.5 |
| Arnandiz Puig, Amalio | As. | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Jarvis, Scott H. | Ohio University (EEUU) | |
| Marcos Llinás, Mònica | University of Missouri (EEUU) | |

EDP del grup investigador de l'entitat sol·licitant: 6.

Summary

Within the framework of European strategies to promote multilingualism, two contexts of language acquisition stand out as having undeniable appeal, due to their linguistic, social and even political impact. These contexts include the Stay Abroad in the target-language country (SA), and bilingual education –or the educational strategy of adopting foreign languages to present curricular material (the Integrated Content and Language approach–ICL), both of which are currently in the national spotlight. The project at hand seeks to measure the benefits obtained in the SA and ICL contexts respectively in comparison with the FI (formal instruction) context, with respect to the acquisition of English. We aim to analyze groups of university students with advanced levels of English, and secondary students with intermediate levels, who also receive FI. The study builds upon a previous project in which a comparative analysis of the SA and FI contexts at the university level were used to measure the benefits of SA, identify variables of success, and measure middle-term effects. The present study is based on a hypothesis of *gradation*, which establishes a continuous typological line moving from the conventional, eminently formal, classroom context (FI), through the bilingual classroom which more closely approximates natural contexts of acquisition (ICL), to the Stay Abroad (SA) or natural immersion contexts. With the goal of testing this hypothesis, this project aims to expand its design with a new context, different

educational and linguistic levels, and different degrees of contact. To this end, first of all, it is proposed that data be collected first from a new type of university subject sample in the ICL context, a sample group never before studied in our country. Secondly, this project aims to analyze the factor of contact, or the degree of access to input, for a group of university subjects who complete a Stay Abroad of longer duration. Thirdly, it proposes to identify the influence of the subjects' level of English at the beginning of their Stay Abroad on the benefits they obtain, for which reason it will use a sample of secondary students with intermediate levels, to be compared to the university students with advanced levels. Finally, the same types of comparisons of the three acquisition contexts will be made for students at the secondary level. This mosaic of comparisons constitutes a new panorama of acquisition and will allow for generalizations to be drawn about the factors and circumstances that promote and impede the acquisition of languages.

Referència: HUM2007-61753. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Dramaturgias televisivas contemporáneas*.
Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Lull.
Investigador responsable: TRAPERO LLOBERA, Ana Patricia.
Categoria: TU (àrea de coneixement: Literatura Espanyola).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------------|-------------------------|-------------------------------|
| Trapero Llobera, Ana Patricia | TU | 1 |
| Fernández Morales, Marta | TU | 0.5 |
| Menendez Menendez, Isabel | | 1 |
| Roca Telleria, Matilde | TEU | 1 |
| Martorell Fiol, Martí | As. | 1 |

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

The project entitled *Contemporary dramaturgies in television* intends to analyze the mechanisms of construction of TV and film fiction, linking them to the existing dramatic paradigm. The theoretical bases of the project will be built upon the contribution of the fields of Narratology, Theater Studies and Cultural Studies as applied to mass media and their relationship with contextual and co-textual aspects. Special attention will be paid to the narrative strategies of videogames, particularly a set of this kind of products derived from pre-existing film and tv materials and launched in Northamerica with a wide global impact.

Lately we have witnessed not only the development of new patterns of script in film and television, but also the appearance of innumerable "poetics" -as the model of textual construction or the instructions to create that model are called in mainstream criticism- which elaborate on a series of hypothetical patterns that have gained the audience's approval. Although nowadays TV series -particularly the ones produced in the U.S.A.- have contributed to the consolidation of a group of long-running production companies and the appearance of some new ones, somehow dismantling the traditional hegemony of the studios, the film still industry continues to reflect upon its own condition in its scripts. This fact highlights the existence of a common thread that unites the two types of textual production (TV and film), which is nothing but the aforementioned dramaturgical model theory of theater.

DEPARTAMENT DE FILOSOFIA I TREBALL SOCIAL

Referència: HUM2006-12284/FISO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *El principio de precaución en la evaluación de riesgos.*

Acrònim: PPER.

Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.

Investigador responsable: LUJÁN LÓPEZ, José Luis.

Categoria: TU (àrea de coneixement: Lògica i Filosofia de la Ciència).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|------------------------|------------------------|
| Luján López, José Luis | TU | 1 |
| López Puertas, Ginés | As. | 0.5 |
| Todt, Oliver | Aj. Dr. | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Rodríguez Alcázar, Francisco J. | Universitat de Granada | |

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

The main purpose of this research project is to analyze and value the implications of the precautionary principle for risk assessment. These implications will be analyzed according to the type of methodological shifts involved in risk assessment. This shifts on standards of evidence; on modifications on rules of inference; on proposals to incorporate new evidence sources; on proposals of new lines of scientific research about risks; and on heuristic proposals

Referència: HUM2006-11482/FISO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *La comunidad judía de Amsterdam y Spinoza. Examen y edición de textos filosóficos escritos en castellano en la comunidad de Amsterdam del XVII contra Spinoza.*

Acrònim: JCA.

Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.

Investigador responsable: BELTRAN MUNAR, Miquel Antoni.

Categoria: TEU (àrea de coneixement: Filosofia Moral).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|------------------------------|------------------|------------------------|
| Beltran Munar, Miquel Antoni | TEU | 1 |
| Llinàs Bégon, Joan Lluís | As. | 1 |
| Fullana Pastor, Guillermina | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The aim is to study the philosophical treatises written in Spanish by some political and religious leaders of the Jewish community of Amsterdam during the XVIIth century. Some of these treatises were directly written against Spinoza through attacks to some of his followers (and also the excommunications which happened before Spinoza's own (it's the case of Uriel da Costa), we will try to understand the mechanisms of excommunication in the community of those who tried to recover the true traditions). Our intention is to prove that the leaders of the community tried to preserve political stability by renouncing to the principles of true orthodoxy, introducing religious dogmas not belonging to original Judaism. We'll do it through the research about the content of those treatises (works written by Menasseh ben Israel, Saul Leví Morteira, Abraham Gomes Sylveira, Orobio de Castro, Abraham Pereyra or Miguel de Barrios on philosophical matters). Such a research, followed by the edition of some of the manuscripts, as the "Certamen Philosophico contra Bredenburg", by Orobio de Castro, or some first editions, like "De la Fragilidad Humana", by Menasseh ben Israel, or the "Esfuerzo Harmonico", by Miguel de Barrios will allow us to prove that the ban against Spinoza was the result of the philosopher's fight against the voluntary misunderstanding that the leaders of the community instigated of the principles of Judaic law and religious orthodoxy, supplanted as their main interest by the desire of political stability.

Referència: HUM2005-07398/FISO. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de I+D+I del Ministeri de Ciència i Tecnologia.
Títol: *Edición crítica de la “Vida y doctrinas de los filósofos ilustres” de Diógenes Laercio, con traducción y estudios y comentarios filológicos y filosóficos.*
Acrònim: ECVDFIDLTECFE
Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.
Investigador responsable: CASADESÚS BORDOY, Francesc.
Categoria: TU
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--------------------------------|-------------------------------|
| Casadesús Bordoy, Francesc | TU | 1 |
| Bordoy Fernández, Antoni | CON | 1 |
| Pons Olivares, Daniel | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| González Escudero, Santiago | Universitat d'Oviedo | |
| de Dios Bares Partal, Juan | Universitat de València | |
| Zamora Calvo, José María | Universitat Autònoma de Madrid | |
| Domínguez García, Vicente | Universitat d'Oviedo | |
| Megino Rodríguez, Carlos | Universitat d'Oviedo | |
| Román Alcaá, Ramón | Universitat de Còrdoba | |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

This project aims to elaborate an edition with translation, commentaries and notes of the Diogenes Laertius' "Life and doctrines of the eminent philosophers". Moreover, it is aimed to make an exhaustive analysis which takes into account the following aspects: [a] a structural analysis of the book, [b] a study of the philosophical and [c] the comparison of the information given by Diogenes Laertius with other sources to establish reliable criteria. The book will be translated into Spanish and a computerized terminological index will be elaborated. Moreover, a database will be created and it will include the most relevant works of Diogenes Laertius, which will be sorted according to the main topics. The final aim is to obtain a complete and rigorous edition of this work, which is basic to know the Greek philosophy. It is important to remark that this work has not been scientifically studied in Spain yet. Our study will become a point of reference for other scholars.

DEPARTAMENT DE FÍSICA

Referència: CGL2005-05681/CLI. Ministeri de Ciència i Tecnologia.

Modalitat: Recursos naturals.

Títol: *Aplicación de técnicas de predicción por conjuntos a episodios meteorológicos de gran impacto en el mediterráneo occidental.*

Acrònim: ENSEMBLE.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: HOMAR SANTANER, Víctor.

Categoria: Inv. Contr. (àrea de coneixement: Física de la Terra).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-----------------------------------|------------------------|
| Homar Santaner, Víctor | P. Con | 1 |
| Ramis Noguera, Climent | TU | 0.5 |
| Martín García, Alberto | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Genovés Terol, Ana | Institut Nacional de Meteorologia | |
| Campins Pons, Joan | Institut Nacional de Meteorologia | |
| García-Moya Zapata, José A. | Institut Nacional de Meteorologia | |
| Santos Burguete, Carlos | Institut Nacional de Meteorologia | |

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

Each year, high impact weather episodes affect the Western Mediterranean basin and still numerical models do not provide reliable forecast to forecasters, even for short lead-times (0 to 48 hours). The problem of predicting these episodes is even more difficult when low frequency extreme phenomena such as torrential floods, large hail, strong winds or tornadoes are analyzed. The lack of good severe weather forecasts and the necessity to devote weather research resources to improve them is urged by international projects MEDEX and THORPEX of the World Research program, endorsed by the World Meteorological Organization. Despite the ever-improving quality of the models initial conditions datasets (derived from better observations and analysis techniques) uncertainties in the forecast system exist. How and why errors evolve in the short-term numerical forecast of high impact weather episodes are important questions that require the use of new methods to improve the estimation of potentially hazardous weather cases in the forecast.

The ENSEMBLE project suggests using ensemble prediction systems (EPS) to tackle this problem in the Western Mediterranean. The EPS have been used at the major weather prediction facilities in the world to account for the uncertainties in the medium-range numerical prediction (3 to 15 days). However, the generation, interpretation and

application of short-range mesoscale EPS is still currently explored. ENSEMBLE suggests exploring a set of EPS generation techniques focusing on extreme events in the Western Mediterranean, with special emphasis on techniques that use sensitivity fields from lineal adjoint models. On the other hand, several postprocessing techniques that allow one to customize the use of EPS to the statistical forecast of extreme low-frequency events, responsible of the greatest human activity perturbators, will be explored.

Furthermore, as an additional benefit from the proposed project, a climatology of sensitivity fields will be built, that will complement the existing MEDEX and MEDEXIB (from this same *Plan Nacional*) climatology of severe weather cases. Real-time scientific support for the special observations periods within MEDEX is also included in the ENSEMBLE work plan.

ENSEMBLE is aimed at improving the forecast of high-impact weather events by using ensemble prediction systems. The specific objectives of the project are: 1) Study the predictability and the sources of error in mesoscale numerical models in the Western Mediterranean, 2) Determine the optimal EPS generation method for the region, 3) Develop postprocessing techniques focused on severe weather in the region and 4) Implementation of the results in the INM operational framework, as well as in the UIB for academic and research purposes.

The ultimate beneficiaries of the results achieved in the project are the people threatened by severe weather episodes in the western Mediterranean basin. The new developments and conclusions obtained from the project will be directly transferred to the *Instituto Nacional de Meteorología* not only as a clear interested in the project but also as an active part in the research tasks. The use of probabilistic forecasts will be of considerable value to various economic sectors such as the energy, hydrologic, agriculture or aviation.

Referència: CGL2005-03918/CLI. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Diseño de técnicas dinámico-estadísticas para la predicción de precipitación y ciclones mediterráneos.*
Acrònim: PRECIOSO.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: ROMERO MARCH, Romualdo.
Categoria: TU (àrea de coneixement: Física de la Terra, Astronomia i Astrofísica).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-----------------------------------|------------------------|
| Romero March, Romualdo | TU | 0.5 |
| Alonso Oroza, Sergio | CU | 0.5 |
| Ramis Noguera, Climent | TU | 0.5 |
| De Luque Sölheim, Ángel Luis | Aj. | 0.5 |
| Fita Borrell, Lluís | B | 1 |
| Amengual Pou, Arnau | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Jansà Clar, Agustí | Institut Nacional de Metereologia | |
| Campins Pons, Joan | Institut Nacional de Metereologia | |
| Picornell Alou, M. Àngels | Institut Nacional de Metereologia | |
| Pons Reynés, M. Rosa | Institut Nacional de Metereologia | |

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

The western Mediterranean is a very cyclogenetic area and many of the cyclones developed or modified over that region are associated with high impact weather phenomena that affect the society of the coastal countries, very especially heavy precipitations. Both the international WWRP-WMO MEDEX project and the national MEDEXIB project, led by the Meteorological Centre of INM at the Balearic Islands (CMTIBAL) and the Meteorology Group of UIB, respectively, have formulated as their main objective the study of the structure and predictability of Mediterranean cyclones that produce hazardous weather and high social impact, by means of the construction of a dynamical climatology of cyclones and the assessment of the physical and dynamical factors that influence their genesis and evolution. Their final aim is to improve the short and mid-range numerical forecasts of cyclones based on the optimization of the observational resources and thus the construction of better initial states for numerical weather prediction models.

This new proposal (PRECIOSO) is complementary to the previous projects since it is also built from a better understanding of the physical and dynamical mechanisms that define the mediterranean precipitation and cyclones. But at the same time it is a natural continuation of the former projects, in that it puts the emphasis on probabilistic predictions rather than on deterministic ones, aware of the intrinsic uncertainty of any forecast system. It is also recognised the specific complexity of the precipitation variable, which spatial, temporal and quantitative details are so crucial for successful hydrologic simulations, a key tool in flood watching tasks. The specific objectives of the project are: a) Design of dynamical techniques for weather forecasting based on the generation of mesoscale ensembles using the non hydrostatic

MM5 model under varying physical parameterizations and initial conditions, b) Design of statistical techniques for the postprocess of meteorological numerical outputs in order to obtain improved precipitation fields (superensemble method, analogue procedure and neural network), c) Coupling of the HEC-HMS hydrological model to the different precipitation outputs, and d) Operational (daily) implementation of the above techniques in the computer systems of the group and dissemination of the results on the web at <http://mm5forecasts.uib.es>.

Despite the objectives of the project are constructed and tested taking as reference the cyclone and precipitation situations in the Mediterranean owing to its strong social impact, forecasting applications in contiguous regions and for other atmospheric circulation features are in fact considered in the proposed methodology. The real-time results that are pursued within the full prediction system and the expected benefits on the quality of the hydro-meteorological forecasts would remain entirely available to the Instituto Nacional de Meteorología in light of the agreement of scientific collaboration between the Ministerio de Medio Ambiente (which the INM belongs to) and the UIB, signed in July 2001, as well as to the agents involved in Civil Protection and similar tasks.

Referència: TEC2005-05712/MIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies electrònica i de comunicacions.
Títol: *Análisis estadístico de parámetros en circuitos digitales CMOS nanométricos: aplicación a métodos de diseño y test.*
Acrònim: ANESPA.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: SEGURA FUSTER, Jaume Agapit.
Categoria: CU (àrea de coneixement: Tecnologia Electrònica).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--------------------------|------------------------|
| Segura Fuster, Jaume Agapit | CU | 1 |
| Roca Adrover, Miquel Jesús | TU | 1 |
| Isern Riutort, Eugeni Miquel | TU | 0.5 |
| Bota Ferragut, Sebastià A. | TU | 0.5 |
| Rosselló Sanz, Josep Lluís | TEU | 0.5 |
| de Benito Crosseti, Carola | TEU | 1 |
| Alorda Ladaria, Bartomeu | P. col. | 1 |
| Rosales Palou, Marcos | B | 1 |
| Canals Guinand, Vicenç | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Hawkins, Charles | University of New Mexico | |
| Renovell, Michel | LIRM-CNRS | |
| Comte, Mariane | LIRM-CNRS | |

EDP del grup investigador de l'entitat sol·licitant: 7.5.

Summary

Technology scaling has surpassed the 100nm barrier and is now rapidly evolving to the 65nm technological node. One of the challenges of today's technology scaling is related to controlling geometric critical dimensions, not only from die-to-die. The impact of poor critical dimensions control results in parameter variations of devices and interconnect. Moreover, recent results point that the relative impact of within-die variations is of the same order than die-to-die variations. Within die variations have a significant impact on present design and test methods, since many of the physical-to-electrical relationships at the circuit level are not deterministic anymore. This poses important challenges in specific design steps (like critical path determination) and impacts the development of efficient test methods based on non-logical parameters. This is motivated by two main reasons: the lack of appropriated models to describe variation, and the difficulty in settling pass-fail limit regions in a noisy environment. The lack of appropriated statistical models has an impact on the development of appropriated design and test methods that must rely on worst-case desing techniques. The objective of this project is the development of efficient statistical models fort he key circuit parameters (design, power, and temperature) where the pas/fail region limit is settled according to such statistical models. Another objective of the project is to include the impact of noise mechanisms and environmental fluctuations (temparature and supply voltage) in the models to describe their effect on variation. Once the models are obtained they will be applied to the development of the parametric-based test methods.

Referència: MAT2005-00093. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de materials.

Títol: *Nuevas aleaciones ferromagnéticas con memoria de forma: interacciones magneto-elásticas, efectos microestructurales, estabilidad y características funcionales.*

Acrònim: NAFMEF.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: PONS MORRO, Jaume.

Categoria: TU (àrea de coneixement: Física Aplicada).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--|------------------------|
| Pons Morro, Jaume | TU | 1 |
| Cesari Aliberch, Eduard | CU | 1 |
| Seguí Palmer, M. Concepció | TU | 1 |
| Picornell Alou, Catalina | CEU | 1 |
| Santamarta Martínez, Rubén | Aj. | 1 |
| Kustov, Sergey | Inv. | 1 |
| Masdeu Mayans, Francesc | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Muntasell Pla, Joaquim | Universitat Politècnica de Catalunya | |
| Font Ferrer, Joan | Universitat Politècnica de Catalunya | |
| Chernenko, Volodymyr | Institute of Magnetism (Ucraïna) | |
| Ochin, Patrick | Centre d'Etudes de Chimie Métallurgique (França) | |

EDP del grup investigador de l'entitat sol·licitant: 7.

Summary

The proposed project involves the investigation of fundamental and functional properties of new ferromagnetic shape memory materials (FSMA). The fundamental part of research is concentrated on studying coupling between magnetic and elastic domain systems, using a new experimental approach based on simultaneous studies of non-linear mechanical and magnetic response of the FSMA to applied cyclic stress, and on the effects of a large variety of microstructural characteristics on the mobility of martensite boundaries. In parallel, the present project includes the development of new FSMA (mainly Ni-Fe-Ga and Co-Ni-Al) by an exhaustive study of microstructural modifications (generation of γ -phase precipitates, grain size and atomic ordering changes) introduced in these alloys after a variety of thermal treatments. The effect of these microstructures on the magnetic and martensitic transformations, and on the mechanical and functional properties (conventional and magnetic shape memory effects, superelasticity) will be also studied.

The fundamental part of the project will bring about a better understanding of the magnetic shape memory effect shown by these materials (which is directly related to the mobility of martensite variants). On its turn, thermal treatments suitable to generate microstructural features with positive effects on the magnetic or martensitic transitions and functional properties are expected to be found during the development of the new FSMA. Altogether brings about good expectations about transfer, at medium term, of

the results of the project to the improvement of the commercial applications of these materials.

Referència: FIS2005-02796. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de física.

Títol: *Información cuántica y dinámica electrónica en nanoestructuras.*

Acrònim: INDINA.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigadora responsable: CASAS AMETLLER, Montserrat.

Categoria: CU (àrea de coneixement: Física Atòmica, Molecular i Nuclear).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--|------------------------|
| Casas Ametller, Montserrat | CU | 1 |
| Garcias Gomila, Francesca | TU | 1 |
| Serra Crespí, Llorenç | TU | 1 |
| Puente Ferrà, Antoni | TU | 1 |
| Nazmitdinov, Rachid | Inv. | 1 |
| López Gonzalo, M. Rosa | Inv. | 1 |
| Sánchez Martín, David | Inv. | 1 |
| Batle Vallespir, Josep | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Plastino, Ángel Luis | Universitat Nacional de La Plata (Argentina) | |

EDP del grup investigador de l'entitat sol·licitant: 8.

Summary

The main purpose of the present project is to perform a systematic analysis of the time evolution of entangled states in bipartite and multipartite systems with and without interaction by a systematic survey of pure and mixed states in the Hilbert space of two-qudits (dimension $D \times D$) and N -qubits using several quantitative entanglement measures. The influence of the effect of different metrics on the Hilbert space in the state simulation will be analyzed, paying special attention to the case of indistinguishable particles (fermions and bosons). The effect of interaction with the environment will be analyzed a) for multipartite systems as a function of the qubit number, and b) in several quantum algorithms as they evolve with the number of iterations. The purity of entanglement will be used in spin particle systems as a measure of entanglement and we will consider as well their application to quantum phase transitions.

We shall investigate the use of coupled quantum dots acting as quantum gates by means of numerical simulations in coordinate space and real time. We shall study the coherence time of the entangled states obtained in these systems as well as the influence upon them of different items, namely a) the spin-orbit interaction, b) the magnetic field, and c) time dependent electric fields. In double quantum dots we shall analyze the collective modes and the corresponding symmetry restoring using the RPA theory and their extension to finite temperature. We will extend our study to the case where the Kondo correlations become important in the electronic transport. In double quantum dots we analyze the competition between the Kondo effect and the Ruderman-Kittel-Kasuya-Yoshida (RKKY) interaction in the presence of a magnetic field. We will compare our theoretical results with those experimentally obtained in, e.g., carbon nanotube quantum dots. We will also study the two-impurity Kondo problem when the contacts are superconductors and then a source of entangled states. We will propose a new setup composed by quantum dots to observe the multi-channel Kondo effect. The spintronic transport will be addressed by attaching real ferromagnets to a quantum dot in the Kondo regime when

the spin-orbit interaction is present. Our interest is not only focused on the linear and nonlinear conductance but also on the shot noise in hybrid (normal, ferromagnetic or superconducting contacts) multiterminal quantum dots in both Coulomb blockade and Kondo regimes. We will end up with the study of the influence of either vacuum fluctuations or collective bosonic excitations (magnons) in the Kondo effect (Fermi-Bose-Kondo model) and in two-level systems (qubits).

We hope that our results will shed some light on the applications of electronic nanostructures as quantum gates, which constitute a subject of great interest in the field of quantum computation and as elements of spintronic and low dimensional circuits.

Referència: TEC2006-04103/MIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies electrònica i de comunicacions.
Títol: *Técnicas de test predictivas para circuitos integrados CMOS análogos.*
Acrònim: PREDICT.
Centre: Departament de Física. Edifici Anselm Turmeda.
Investigador responsable: GARCIA MORENO, Eugeni.
Categoria: CU (àrea de coneixement: Tecnologia Electrònica).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------|------------------|------------------------|
| Garcia Moreno, Eugeni | CU | 1 |
| Bota Ferragut, Sebastià | TU | 0.5 |
| Isern Riutort, Eugeni | TU | 0.5 |
| Rosselló Sanz, Josep Lluís | TEU | 0.5 |
| Font Rosselló, Joan | TEU | 1 |
| Picos Gayà, Rodrigo | P. col. | 1 |
| Suinaga Portugués, Kay | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 5.5.

Summary

Among the difficult challenges for the next years cited in the International Technology Roadmap for Semiconductors (ITRS) of 2004, within the test chapter it is explicitly said that "Analog DFT (design for test) and BIST (built in self test) techniques must mature to simplify test interface requirements and slow ever increasing instrument capability trends". Our project is addressed to this and other related issues, by exploring the so-called predictive test technique. In the predictive test technique, deciding if a circuit is good or not is done on the basis of its functional characteristics, though they are not directly measured. They are predicted from measurements on test mode through a set of correlation functions obtained by simulation and statistical analysis. Therefore the tolerance bands can be established in a more realistic way than in the structural test, and it is also possible to classify the circuit according to the degree of accomplishment of its ideal functionality. This technique has the advantage over the functional test of being less demanding on test effort and test equipment capabilities, if the test mode and the test measurements are appropriately selected. The goal of this project is to evaluate the potentiality of this technique to be used in analog circuits, checking it against both structural and functional test techniques. We wish to propose application solutions combined with current supply monitoring. To evaluate it, we will use standard CMOS circuits (because this is the choice technology for integrated circuits), at first for RF applications (mixers and low noise amplifiers) but we aim to explore other possibilities (amplifiers and filters of low power and low supply voltage).

Referència: TRA2006-13318. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de medis de transport.
Títol: *Inspección autónoma de oleoductos, gasoductos, emisarios y cables submarinos.*
Acrònim: IOGECS.
Centre: Departament de Física. Edifici Anselm Turmeda.
Investigador responsable: CALVO IBÁÑEZ, Óscar Alberto.
Categoria: TEU (àrea de coneixement: Tecnologia Electrònica).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-------------------------------------|------------------------|
| Calvo Ibáñez, Óscar Alberto | TEU | 1 |
| Acosta Lazo, Gerardo | B | 1 |
| Curti, Hugo | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Lane, Dave | Heriot-Watt University (Regne Unit) | |
| Evans, Jonathan | Heriot-Watt University (Regne Unit) | |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The purpose of this project is to develop reliable tracking and inspection systems for submarine pipelines and cables, employing autonomous underwater vehicles (AUVs). Also, the vehicle is expected to perform debris field identification and mapping of fishing nets, anchors, mines, and others debris that can affect the installation security. Once these objects are recognized from the seabed, the AUV will have to modify trajectory, go around it, video tape the object and register the position and then return to the normal survey (re-planning). The interest on submarine pipeline and cable tracking in a complete autonomous and reliable way, without the need of a support vessel, is driven by the increasing need of the offshore oil and telecommunication companies to have their wells, pipes and cables laid in ultra deep waters, where the current remote operated vehicles, ROV are hard to use. The autonomous navigation, practically without human intervention, is a complex task due to unforeseen situations and the minimum communication capabilities when diving. Then, considering the multiple possible scenarios in an underwater world, artificial intelligence (AI) techniques will be used to cope with these unknown situations, where the only information of the seabed object is obtained from sonar. The project includes the integration and enhancement of planning and re-planning strategies developed within the context of a previous European Union Funded Project (Autotracker) with new ones to be designed under this proposed work plan. To test the different scenarios both a simulator along with, a low-cost platform to be built will be used as a local test-bed. The technology as well as the platform to be built will be very useful in future projects addressing contamination prevention and security in the seabed.

Referència: AYA2006-07637. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'astronomia i astrofísica.

Títol: *Sismología local y global de la atmósfera solar: un enfoque numérico.*

Acrònim: SISAS.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: BALLESTER MORTES, Josep Lluís.

Categoria: CU (àrea de coneixement: Astronomia i Astrofísica).

Inici: 2006 **Fi:** 2011

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------------|-------------------------|-------------------------------|
| Ballester Mortes, Josep Lluís | CU | 1 |
| Oliver Herrero, Ramon | TU | 1 |
| Carbonell Huguet, Marc | TU | 1 |
| Terradas Calafell, Jaume | Inv. | 1 |
| Arregui Uribe-Etxeberria, Íñigo | Inv. | 1 |
| Forteza Ferrer, Josep | B | 1 |
| Luna Bennàssar, Manuel | B | 1 |
| Soler Juan, Roberto | B | 1 |
| Díaz Media, Antoni J. | Inv. | 1 |

EDP del grup investigador de l'entitat sol·licitant: 8.

Summary

The main goal of the research proposal is to perform numerical simulations in order to study the time evolution of the oscillations of realistic magnetic structures of the solar atmosphere. We propose to develop two specific numerical codes, one devoted to local seismology and the second one to global seismology. These codes will be applied to different problems related with the oscillations of solar prominences and coronal loops, and from the obtained results we expect to extract useful information about the coronal heating and the values of different parameters of the solar corona such as magnetic field, magnetic Reynolds number, etc.

Referència: CGL2006-12474-C03-01. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Estudio de procesos en la capa límite atmosférica mediante simulación numérica explícita, de mesoscala y su verificación.*
Acrònim: TRANSCLA-SIM.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: CUXART RODAMILANS, Joan.
Categoria: Inv. Contr. (àrea de coneixement: Física de la Terra).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--------------------------------------|------------------------|
| Cuxart Rodamilans, Joan | Inv. | 1 |
| Mira Navarro, Antonio J. | B | 1 |
| Jiménez Cortés, Maria A. | Aj. | 1 |
| Alonso Oroza, Sergio | CU | 0.5 |
| Luque Solheim, Ángel | Aj. | 0.5 |
| Martínez Villagrasa, Daniel | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Conanglia Trivino, Laura | Universitat Politècnica de Catalunya | |
| Pino González, David | Universitat Politècnica de Catalunya | |
| Mahrt, Larry | Oregon State University | |
| Jonker, Harmen | Technical University of Delft | |
| Castellví Sentis, Francesc | Universitat de Lleida | |

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

The majority of the key atmospheric compounds for climate change have their sources in the surface of the Earth. This is the case of water, the aerosols and the gases generated through biological and human activities, such as CO₂, ozone, methane or others. The arrival of these species to the free atmosphere, where they act as global active elements of the climatic change, is modulated by the action, more spatially restricted, of the atmospheric boundary-layer (ABL). In this sense, the ABL can act enhancing the exchange –when the turbulence is strong and sustained- or inhibiting it –when the turbulence is weak or sporadic, and the vertical transport is small. The researchers joined for this action have been studying for long the different regimes of the ABL through direct observation, data analyses and numerical simulation. While continuing these studies, it is intended now to apply the available methodologies to the evaluation of the transport of greenhouse-effect gases, photochemical oxidants and aerosols. The main inhibitors to the vertical transport are the stably stratified layers, especially the thermal inversions, at the top of the diurnal convective ABL or of the large stratocumulus decks, or near the surface, as it happens in the nocturnal stable ABL. Concentrations of the components of interest will be measured, together with the usual atmospheric variables -with special emphasis on the pressure fluctuations, not well known to date- and their transport to the free atmosphere will be estimated through advanced data analysis methods. To establish hypotheses of the possible circulations high-resolution meteorological models will be used at the mesobeta scale, where emission and photochemical models will be included. To study the specific microscale physical phenomena. Large-Eddy Simulations will be performed, focussing particularly on the thermal inversions. To proceed, good initial data are necessary, both for the correct interpretation of the observed

conditions through the convenient data analyses as well as for the initialisation and verification of the models used.

Referència: BIA2007-60197. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de construcció.

Títol: *Comportamiento en servicio y capacidad resistente de piezas compuestas por varios hormigones construidas evolutivamente. Aplicación a forjados y vigas de edificación.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: CLADERA BOHIGAS, Antonio.

Categoria: P. col. (àrea de coneixement: Mecànica de Medis Continus i T. de les Estruct.).

Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------------|-------------------------|-------------------------------|
| Cladera Bohigas, Antonio | P. col. | 1 |
| De Juan Oliver, Catalina | As. | 1 |
| Juan Mas, Salvador | As. | 1 |
| Purroy Narvaiza, Fernando | As. | 1 |
| Ribas González, Carlos | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

The use of precast elements in the construction industry suppose a significant improvement in many aspects, for example, a reduction on execution periods, a decrease on work-related accidents and an increase on the final quality. However, these structures comprise very often elements made with reinforced and/or prestressed precast elements connected with a concrete cast in-situ, like in small tie-beams for composite floors, hollow-core slabs and inverted tee-beams. The behaviour of these elements is complex, because they are built with two different concretes and because of their evolutionary construction process. Moreover, the design models and procedures do not take into account these effects adequately, like for example for their shear design.

The global objective of the present research project is to develop a practical engineering tool for concrete elements with the cross section built in different phases, improving the comprehension of their serviceability behaviour and their collapse mechanisms. Thus, it will be necessary to consider the stress redistribution caused by the differential creep and shrinkage at transversal section level. It is proposed to study the response of these elements to shear loads and to analyse the shear at the interface between concretes cast at different times.

The main activities to develop in the proposed research project are: a) To develop a sectional analysis non-linear model which takes into account the shrinkage and creep effects in the different parts of the cross section. This model has to be able to reproduce the behaviour of the concrete join; b) To carry out two experimental campaigns: the first one on composite floor tie-beams and the second campaign on composite beams made with a precast element and in-situ concrete; c) To verify the model for service loads; d) To study the shear strength of the tested beams and to compare it with different models and shear procedures, to adapt the models if needed; e) To apply the non-linear model for simulate the building process of these elements.

Referència: FPA2007-60220. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de física de partícules.
Títol: *Detección de ondas gravitacionales: algoritmos de análisis de datos, agujeros negros binarios y materia oscura en Galaxias.*
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: BONA GARCIA, Carles.
Categoria: CU (àrea de coneixement: Física Teòrica).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---------------------------|------------------|------------------------|
| Bona Garcia, Carles | CU | 1 |
| Sintes Olives, Alicia | TU | 1 |
| Carot Giner, Jaume Jesús | TU | 1 |
| Apostolopoulos, Pantelis | Inv. | 1 |
| Masso Bennasar, Juan | TU | 1 |
| Stela Fiol, Joan | TU | 1 |
| Alic, Daniela | B | 1 |
| Trias Cornellana, Miquel | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 8.

Summary

We propose the study of the detectability of some compact sources of gravitational waves, both for Earth-based detectors (e.g. LIGO) and for LISA, analyzing the impact of the available theoretical and numerical models, and of the different data filtering techniques. Along this line, we will develop and implement new data analysis techniques, in particular for continuous sources (e.g. neutron stars or pulsars in the case of Earth-based detectors or binary systems in the case of LISA).

Allowing for the fact that the merger of black hole binary systems is the most likely source of gravitational waves to be detected by LIGO, we propose also to widen the range of the current binary-black-hole numerical simulations, by removing long term instabilities and by developing gauge conditions that allow to obtain more reliable results.

Another aspect of the project is the development of general relativistic models for axially symmetric galaxies, in order to determine more realistically the proportion of dark matter in the galactic halo, by fitting the observed profiles of rotation speeds.

Referència: FIT330100-2006-92. Ministeri d'Indústria, Turisme i Comerç.
Modalitat: MEDEA
Títol: *Contribución española al proyecto PARACHUTE (MEDEA + 2A701)*
Acrònim: PARACHUTE
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: SEGURA FUSTER, Jaume Agapit.
Categoria: CU (àrea de coneixement: Tecnologia Electrònica).
Inici: 2005 **Fi:** 2008

Membres de l'equip

| | |
|-----------------------------|---------|
| Segura Fuster, Jaume Agapit | CU |
| Oliver Codina, Gabriel | TU |
| Ortíz Rodríguez, Alberto | TU |
| Bota Ferragut, Sebastià A. | TU |
| Rosselló Sanz, Josep Lluís | TEU |
| de Benito Crosseti, Carola | TEU |
| Alorda Ladaria, Bartomeu | P. col. |
| González Cid, Yolanda | TEU |
| Canals Guinand, Vicenç | B |
| Burguera Burguera, Antonio | P. Col. |
| Guerrero Sastre, José | P. Col. |
| De Paul Bernal, Iván | PAS |
| Verd Martorell, Jaume | CON |

Referència: TSI020400-2008-22. Ministeri d'Indústria, Turisme i Comerç.

Modalitat: Subprograma AVANZA I+D. Acción estratégica de telecomunicaciones y para la sociedad de la información.

Títol: *Contribución española al proyecto PARACHUTE (MEDEA + 2A701)*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: SEGURA FUSTER, Jaume Agapit.

Categoria: CU (àrea de coneixement: Tecnologia Electrònica).

Inici: 2008 **Fi:** 2009

Membres de l'equip

| | |
|-----------------------------|---------|
| Segura Fuster, Jaume Agapit | CU |
| Bota Ferragut, Sebastià A. | TU |
| Rosselló Sanz, Josep Lluís | TEU |
| Alorda Ladaria, Bartomeu | P. col. |
| Verd Martorell, Jaume | CON |

Referència: CSD2007-00042. Ministeri de Ciència i Innovació.

Modalitat: Programa Consolider Ingenio 2010.

Títol: *Centro Nacional de Física de Partículas, Astropartículas y Nuclear.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: Pich Zardoya, Antonio (Univ. De València)

Responsable UIB: BONA GARCIA, Carles.

Categoria: CU (àrea de coneixement: Física Teòrica).

Inici: 2008 **Fi:** 2012

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|---------------------------------|--------------------------|
| Bona Garcia, Carles | CU |
| Sintes Olives, Alicia Magdalena | TU |
| Carot Giner, Jaume Jesús | TU |
| Casas Ametller, Montserrat | CU |
| Masso Bennasar, Juan | TU |
| Stela Fiol, Joan | TU |
| Mas Franch, Lluís | CU |
| Garcias Gomila, Francisca | TU |
| Nazmitdinov, Rashid | TU |
| Puente Ferrà, Antonio | TU |
| Serra Crespí, Llorens | TU |
| López Gonzalo, María Rosa | Contractat Ramón y Cajal |
| Sánchez Martín, David | Contractat Ramón y Cajal |

Participacions a altres projectes

Referència: Govern de Navarra.
Títol: *Efecto magnetocalórico en aleaciones con memoria de forma ferromagnéticas.*
Investigador de la universitat Pública de Navarra: responsable: LANDAZÁBAL BERGANZO, José.
Centre: Universitat Pública de Navarra.
Investigadores de la UIB: CESARI ALIBERCH, Eduard.
Categoria: CU (àrea de coneixement: Física Aplicada)
Inici: 2008 **Fi:** 2010

Referència: FIS2007-30874-E. Ministeri de Ciència i Innovació. Acció Complementaria del Pla Nacional d'Investigació Científica.
Títol: *Red Temática de Relatividad y Gravitación.*
Investigador principal (del País Vasc): LAZKOZ SÁEZ, Ruth.
Investigadores de la UIB: SINTES OLIVES, Alicia.
Categoria: TU (àrea de coneixement: Física Teòrica)
Inici: 2008 **Fi:** 2009

Projectes del Govern Balear

Referència: PROGECIB-43A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Millora de la sostenibilitat ambiental dels edificis hotelers mitjançant l'anàlisi del seu cicle de vida.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: MARTÍNEZ MOLL, Víctor.

Categoria: TEU (àrea de coneixement: Enginyeria Mecànica).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-32A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Desenvolupament d'una metodologia estandaritzada per al disseny de xarxes de senso-actuadors: especificació a la gestió eficient de recursos a l'entorn de l'hoteleria.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: ROSSELLÓ SANZ, Josep L.

Categoria: TEU (àrea de coneixement: Tecnologia Electrònica).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-2A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Detección de ondas gravitacionales y materia oscura.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigadora responsable: OLIVES, Alicia M.

Categoria: TU (àrea de coneixement: Física Teòrica).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Sistema autoguiat d'alta fiabilitat basat en hardware específic per a persones amb limitació motriu.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: SEGURA FUSTER, Jaume.

Categoria: CU (àrea de coneixement: Tecnologia Electrònica).

Inici: 2007 **Fi:** 2008

Referència: PCTIB-2005GC2-06. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a grups de recerca emergents i competitius.

Títol: *Fons d'ones gravitacionals.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: BONA GARCIA, Carles.

Categoria: CU (àrea de coneixement: Física Teòrica).

Inici: 2006 **Fi:** 2008

DEPARTAMENT D'INFERMERIA I FISIOTERÀPIA

Referència: PI05-1503. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

Títol: *Trabajadoras latinoamericanas inmigrantes como cuidadoras: globalización, promoción y acceso a la salud.*

Centre: Departament d'Infermeria i Fisioteràpia. Edifici Guillem Cifre de Colonya.

Investigador responsable: BOVER BOVER, Andreu.

Categoria: TEU (àrea de coneixement: Infermeria).

Inici: 2005 **Fi:** 2008

Membres de l'equip

Categoria

Bover Bover, Andreu

TEU

Gastaldo, Denise

Sáenz de Ormijana Hernández, Amaia

Juando Prats, Clara

Robledo Martín, Juana

Luengo González, Raquel

Izquierdo Mora, Dolores

Llabata Pérez, Paloma

Summary

In recent years the noticeable increase in immigration in Spain has been transforming our social reality, creating new challenges for the welfare and health care systems. It has also created new opportunities for the health promotion and protection of the population. Among the biggest groups and the less studied are how social determinants of health, prevention and health care of dependent individuals. In this study we will explore how social determinants of health, prevention and health care received influence the health status and well-being of Latin american immigrant women working like care givers in Spanish homes. This is a multi-site study, designed for 4 socio-linguistic zones in Spain: Balearic Islands and Catalonia, Basque Country, Madrid and Canary Islands. The methodology is both qualitative (96 semi-structured interviews) and quantitative (720 questionnaires SF-36) differentiating the following factors/variables: immigration status (resident or undocumented), visible minority or not, and presence or absence of family network. Participation in the study is voluntary and a consent form will be used with all participants. The appropriate ethics committee will review the project. For the analysis of qualitative data, discourse analysis will be used with the support of the software Atlas.ti 5.0. For the quantitative analysis, a descriptive analysis will be employed based on items of the SF-36 survey. The results will be shared with immigrant community groups, health care professionals, and academics.

Referència: PI06/90141. Avaluació de Tecnologies Sanitàries i Investigació de Serveis de Salut. Ministeri de Sanitat i Consum.

Títol: *Tabaquismo en enfermería comunitaria.*

Centre: Departament d'Infermeria i Fisioteràpia. Edifici Guillem Cifre de Colonya.

Investigador responsable: PERICÀS BELTRAN, Jordi.

Categoria: CEU (àrea de coneixement: Infermeria).

Inici: 2006 **Fi:** 2008

Membres de l'equip

Categoria

Pericàs Beltran, Jordi

CEU

Bennàsar Veny, Miquel

As.

González Torrente, Susana

Infermera Ib-Salut

Investigadors d'altres entitats

González Torrente, Susana

Ib-Salut

Summary

Primary health nurses are suitable to promote health among smokers. Nurses are not different from women in their age interval: 40-50% of nurses are active smokers. Smoking habit determinants seem to be: increased advertising specifically addressed to women, body weight control through tobacco and growing stress level in women and nurses. Despite the programs implemented in Spain and Balearic Islands, prevalence in smoking habit is growing among women, nurses and teenage girls. In Spain there are not qualitative research that could address non-smoking policies for nurses.

We propose a qualitative research aimed to identify determinants influencing the smoker condition in primary health nurses, trying to study in depth health determinants (individual and social), perhaps related to nurses as professionals and women, not reached by quantitative studies.

The aim is to identify this mentioned determinants such as self-stem, gender or labour conditions influencing the smoking acquisition, maintenance and cessation among primary health nurses working for Ib-Salut (Balearic Islands, Spain). We think that this knowledge will address more effective campaigns for smoking cessation among this population.

The design is qualitative exploratory critically oriented. Participants are women nurses developing their professional activity in primary health. Data collection will be through digital recording during the focus groups. Sample will be stratified in age percentages. We will conduct focus groups until data saturation. Data will be transcribed and coded. Rigour will be reached by saturation and triangulation (sources and researchers).

Referència: PI06/90156. Avaluació de Tecnologies Sanitàries i Investigació de Serveis de Salut. Ministeri de Sanitat i Consum.

Títol: *Promoción de los cuidados dirigidos a los familiares del paciente crítico a través de una investigación-acción participativa en una unidad de cuidados intensivos (UCI)*

Centre: Departament d'Infermeria i Fisioteràpia. Edifici Guillem Cifre de Colonya.

Investigador responsable: ZAFORTEZA LALLEMAND, Concepción.

Categoria: P. Col. (àrea de coneixement: Infermeria).

Inici: 2007 **Fi:** 2008

Membres de l'equip

Categoria

Zaforteza Lallemand, Concepción P. Col.

Investigadors d'altres entitats

| | |
|-----------------------------|---------|
| Abadía Ortiz, Ester. | IBSALUT |
| Alonso Carreño, Marta. | IBSALUT |
| Amorós Cerdá, Sylvia | IBSALUT |
| Crespí Capó, Magdalena | IBSALUT |
| García Mozo, Ana | IBSALUT |
| Garcías Fullana, Jerónima M | IBSALUT |
| Gastaldo, Denise | IBSALUT |
| Lastra Cubel, Pedro | IBSALUT |
| Moreno Mulet, Cristina | IBSALUT |
| Nieto González, Antonio | IBSALUT |
| Prieto González, Sylvia | IBSALUT |
| Sánchez Calvín, Celia | IBSALUT |

Summary

General Objective: To generate change to enhance care giving offered by nurses to family members of critically-ill patients in an ICU of a tertiary hospital of Balearic Islands and to transfer this initiative to another ICU of hospital in this same Autonomous Community.

Specific Objectives: (1) To understand how a reflexive process can promote the assessment of clinical practice and the creation of strategies to enhance nursing care. (2) To implement and evaluate a new care model for patients and their relatives through reflection-action group work. (3) To develop a theoretical model for changes in ICU clinical practice as means of transferring research results to other contexts. (4) To educate clinical nurses of two institutions in participatory-action research methodology as means to promote changes in clinical practice.

Methodology: participatory-action research methodology in 5 phases: (1) identification of current situation; (2) creation of an action plan; (3) implementation of change plan; (4) evaluation of the proposed plan and development of a model to other ICUs; (5) translation, adaptation and application of the model by another ICU. The project will be undertaken in a tertiary hospital of Balearic Islands' ICU and it will be translated to the context of another ICU. The participants are nurses and other ICU professionals who wish to integrate the project. Data will be collected through focus groups (17 in total),

fieldnotes, self-observation and evaluative observation in this unit. Change indicators are related to group culture: language, activities and professionals-relatives' relationships. Another indicator will be the incorporation of evidence-based practice into clinical activities regarding patients' relatives care. The analysis will be continuous and circular with deductive (based on empirical data) and inductive (based on the theoretical framework and literature review) processes. Rigour will be ensured through triangulation of methods and sources and through the meticulous report of the researchers' reflexivity process which guided methodological decisions.

Participacions a altres projectes

Referència: PI/060353. Ministeri de Sanitat i Consum.

Títol: *Género e incontinencia urinaria. Prevalencia del problema y evaluación de la efectividad de una intervención formativa de rehabilitación muscular del suelo pélvico.*

Investigadora responsable: MORENO CASBAS, Teresa.

Centre: INVESTEN. Institut Carles III.

Investigadores de la UIB:

Miró Bonet, Margalida.

Categoria: TEU (àrea de coneixement: Infermeria): Gallego Caminero, Gloria.

Categoria: TEU (àrea de coneixement: Infermeria)

Inici: 2007 **Fi:** 2009

DEPARTAMENT DE PEDAGOGIA APLICADA I PSICOLOGIA DE L'EDUCACIÓ

Referència: SEJ2005-06467/EDUC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Estandares e indicadores para analizar la calidad de vida del alumnado con necesidades educativas especiales asociadas a discapacidad en su proceso educativo.*
Acrònim: ACVANEE.
Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonya.
Investigador responsable: MUNTANER GUASP, Joan Jordi.
Categoria: CU (àrea de coneixement: Didàctica i Organització Escolar).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|-----------------------------|------------------|------------------------|
| Muntaner Guasp, Joan Jordi | CU | 1 |
| Forteza Forteza, M. Dolors | TU | 1 |
| Rosselló Ramon, M. Rosa | TU | 1 |
| Verger Gelabert, Sebastià | TEU | 1 |
| de la Iglesia Mayol, Begoña | P. Col. | 0.5 |
| Ferrer Cerdà, Elena | As. | 1 |

Nombre total d'investigadors de la UIB: 5.5.

Summary

To apply the concept of quality of life introduces a new perspective to analyze and to deepen in an integral education throughout the regulated educative process of the students with special educational needs associated to disabilities, as well as improvement of the educative supply for all the students in the context of the inclusive school.

By creating an instrument to evaluate the educative attention to the students with special educational needs associated with disabilities, from different positions that take into account all those implied in this process - teaching staff, administration, families, students, and also in the different stages of this process - Primary education, Secondary and Post-Secondary- it will allow us to know, in depth, the characteristics of the proposed training and it also gives us the opportunity to raise proposals of action which they lead towards the improvement of the educative performance for all, without exclusions.

Referència: SEJ2006-10413. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *El ciberplagio entre los estudiantes universitarios.*

Acrònim: CPEU.

Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonya.

Investigador responsable: SUREDA NEGRE, Jaume.

Categoria: CU (àrea de coneixement: Didàctica i Organització Escolar).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|-----------------------------|------------------|------------------------|
| Sureda Negre, Jaume | CU | 1 |
| Comas Forgas, Rubén L. | Tèc. | 1 |
| Oliver Trobat, Miquel | TEU | 0.5 |
| Urbina Ramírez, Santos | TEU | 0.5 |
| Cavanillas Múgica, Santiago | CU | 0.5 |
| Casero Martínez, Antonio | As. | 0.5 |
| Pastor Tous, Miquel | Tèc. | 1 |
| Serra Cifre, Bartomeu | CU | 0.5 |

EDP del grup investigador de l'entitat sol·licitant: 5.5.

Summary

Irruption of Information and Communication Technologies (ICT's) has provoked and eased important and substantial changes in the area of education and formative processes; some of these changes can not be considered as positive. It is the case of the Academic Cyber-plagiarism.

Adopt and present as own ideas, theories, hypothesis, texts, etc. from others it is not a new phenomenon; but the technologies associated to the society of information and communication –specially the internet- eases to an extent this morally questionable and academically incorrect practice. Research on this area –focused on the academic plagiarism amongst university students- it is the main aim of the present proposal, following some of the work developed so far in this field like:

Ercergovac, McCabe, Bowman, Roig, Anderson, Lathrop y otros (Ercegovac, 2005; McCabe, 2005, 2002, 2001; Bowman, 2004; Roig, 2001; Anderson, 1999; Lathrop, 2000, 2005). The projects aims to 2 main objectives: (1) analyze the characteristics, causes, extension and consequences of cyber-plagiarism amongst university students, (2) evaluate, design and test tools aimed to detect, prevent and correct this phenomenon. The second finality will be approached trough, on the one hand, a formative/educative perspective –based on the design and implementation of formative and awareness activities addressed to the university students and teachers staff-. On the other hand, we approach it trough the evaluation, development and test of anti-plagiarism software (prototype) that detects cases of plagiarism in academic works.

Referència: SEJ2006-12616/PSIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Desarrollo y cambio en las dificultades en la adquisición del lenguaje y su influencia en el aprendizaje de la lecto-escritura.*
Acrònim: DAL.
Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonya.
Investigadora responsable: AGUILAR MEDIAVILLA, Eva.
Categoria: AJ. DR. (àrea de coneixement: Psicologia Evolutiva i de l'Educació).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|--|--------------------------|------------------------|
| Aguilar Mediavilla, Eva | Aj. dr. | 1 |
| Rigo Carratalà, Eduard | CU | 0.5 |
| Pérez Castelló, Josep Antoni | TU | 0.5 |
| Sastre Vidal, Miquela | As. | 0.5 |
| Investigadors d'altres entitats | | |
| Aguilar Alonso, Ángel | Universitat de Barcelona | |

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

The aim of this project is the longitudinal studying of Specific Language Difficulties in bilingual Spanish-Catalan children. This wide aim is concreted in objectives. By one hand, we are interested in describe the linguistic (oral and writer) characteristics in these children, in addition to describe their development. By other hand we are also interested in found the possible causes of this difficulties taking into account a developmental and cognitive model. This way we hope find a deficit in cognitive variables, although we can not concrete if this difficulties will be specific of language abilities, as phonological memory or temporal processing, or general. Finally, we are interested in found predictors and signs that allow an early diagnosis, a specific intervention plan and a good prediction of the course of development.

The study will use mixed design with an ex-post-facto transversal dimension and a temporal one with three observational points. Data collected included a sample of language and the application of various test that measure cognitive and linguistic (oral and writer) abilities.

Participacions a altres projectes

Referència: 2008-1-FR1-GRU06-00260. Direcció General d'Educació i Cultura.
Modalitat: Programa sectorial Grundtvig.
Títol: *Asociación de Aprendizaje Grundtvig.*
Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonya.

Investigadora responsable: SALVÀ MUT, FRANCESCA

Categoria: TU (àrea de coneixement: Didàctica i Organització Escolar)

Inici: 2008 **Fi:** 2010

DEPARTAMENT DE PEDAGOGIA I DIDÀCTIQUES ESPECÍFIQUES

Referència: HUM2007-61420. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Cambios y continuidades en educación a través de la imagen: una mirada distinta sobre el proceso de renovación educativa. El caso de Baleares (1900-1939).*

Acrònim: IMAGEDUCA.

Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonya.

Investigador responsable: COMAS RUBÍ, Francesca.

Categoria: TU (àrea de coneixement: Teoria i Història de l'Educació).

Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---------------------------|------------------|------------------------|
| Comas Rubí, Francesca | TU | 1 |
| Sureda García, Bernat | CU | 1 |
| Janer Manila, Gabriel | CU | 1 |
| Motilla Salas, Xavier | Aj. | 1 |
| Mulet Gutiérrez, M. José | TU | 1 |

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

With this project we sought to locate, to study and to help to the conservation of the existent photographic documentation on education from beginnings of the XX century until the end of the Civil War, centering us, initially, in the context of the Balearic Islands. For other, using the image like documental source for the history of the education, we will try to contribute a vision different and/or complementary of what was the process of educational renovation (New Education) in Spain, as well as to develop new models for the exploitation of the image like historical- educational source, and not simply as illustrative resource.

Referència: SEJ2007-67306. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Prevención de conductas problema en la familia: programa de competencia parental para familias en situación de dificultad social.*
Acrònim: PROCOMFAM.
Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonya.
Investigador responsable: ORTE SOCÍAS, M. del Carmen.
Categoria: CU (àrea de coneixement: Teoria i Història de l'Educació).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|-----------------------------|------------------|------------------------|
| Orte Socías, M. del Carmen | CU | 0.5 |
| March Cerdà, Martí Xavier | CU | 0.5 |
| Ballester Brague, Luis | TU | 0.5 |
| Touza Garma, M. del Carmen | TEU | 0.5 |
| Oliver Torelló, José Luis | TEU | 0.5 |
| Pascual Barrio, María Belen | Aj. Dr. | 0.5 |
| Mestre Moya, M. Luisa | Tèc. | 0.5 |
| Fernández Coll, M. Cristina | As. | 0.5 |

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

This project aims to validate the efficacy of a program that may be used by professionals in preventive work within family life with high-risk populations, specifically to strengthen parental competence while preventing the development of inadapative behaviours in children.

Referència: SCO/1883/2005 Ministeri de Sanitat i Consum.
Modalitat: Pla nacional de drogues.
Títol: *Prevención del consumo de drogas en la familia: programa de competencia parental para drogodependientes en tratamiento.*
Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonya.
Investigador responsable: ORTE SOCÍAS, M. del Carmen.
Categoria: CU (àrea de coneixement: Teoria i Història de l'Educació).
Inici: 2005 **Fi:** 2008

Participacions a altres projectes

Referència: DEP2005-00231-C03-02/ACTI. Ministeri d'Educació i Ciència.
Títol: *Factores determinantes para la práctica Fis.-Dep. y asociaciones probabilísticas entre variables Fis.-Dep. y de salud. Tipologías de estilos de vida de la población adulta y detección de poblaciones.*
Investigador responsable: RUÍZ JUAN, Francisco.
Centre: Universitat d'Almeria.
Investigador de la UIB: PALOU SAMPOL, Pere.
Categoria: TEU (àrea de coneixement: Educació Física i Esportiva).
Inici: 2006 **Fi:** 2008

Projectes del Govern Balear

Referència: PROGECIB. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.
Títol: *Prevención de conductas problema en la familia: Programa de competencia parental para familias en situación de dificultad social.*
Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonya.
Investigador responsable: ORTE SOCÍAS, Carmen.
Categoria: CU (àrea de coneixement: Teoria i Història de l'Educació).
Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.
Títol: *II Congreso internacional y XXIV nacional de Educación Física.*
Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonya.
Investigador responsable: PALOU SAMPOL, Pere.
Categoria: TEU (àrea de coneixement: Educació Física i Esportiva).
Inici: 2007 **Fi:** 2007

DEPARTAMENT DE PSICOLOGIA

Referència: SEJ2005-00899/PSIC. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Dinámica no lineal de la ansiedad: nueva perspectiva en la evaluación y el tratamiento de los trastornos fóbicos.*

Acrònim: DiNLA.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigador responsable: LLABRÉS BORDOY, Jordi.

Categoria: TEU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--------------------------------------|------------------------|
| Llabrés Bordoy, Jordi | TEU | 1 |
| Bornas Agustí, F. Xavier | TU | 1 |
| Tortella Feliu, Miquel Rafael | CEU | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| López Jiménez, Ana | Universitat de Sevilla | |
| Noguera Batlle, Miquel | Universitat Politècnica de Catalunya | |
| Fullana Rivas, Miquel À. | Universitat Autònoma de Barcelona | |

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

Following our previous research on this area, the aim of this project is to expand the knowledge on the treatment of phobic disorders, specifically flying phobia. The focus will be on what we consider its least known aspect: the course or evolution of patients along the treatment. For this purpose, and with the dynamic systems theory as a background, we will use an innovative and rigorous methodology in Psychology, which specifically addresses the study of the process of change, i.e., the analysis of the evolution of systems in time and its dynamic features. The knowledge attained this way should be useful to develop an assessment protocol focused on therapeutic change and to improve the efficacy of the treatment.

Furthermore, among our more applied goals, we include the development of a self-applied CAFFT- the exposure-assisted computer program, developed by our group, which improves the treatment in terms of cost- benefit without decreasing its efficacy.

Referència: SEJ2006-13291. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Construcción y validación de un programa estandarizado para el tratamiento del tabaquismo. Influencia de las emociones negativas, las expectativas y la historia personal de la adicción tabáquica..*

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigador responsable: PÉREZ PAREJA, F. Javier.

Categoria: TU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------|------------------|------------------------|
| Pérez Pareja, F. Javier | TU | 1 |
| Palmer Pol, Alfonso Luis | TU | 1 |
| Cajal Blasco, Berta | TU | 1 |
| Sesé Abad, Albert | TEU | 1 |
| Montaño Moreno, Juan José | P. Col. | 1 |
| Jiménez López, Rafael | P. Col. | 1 |
| Terrassa Blázquez, Beatriu | As. | 1 |
| Gervilla García, Elena | As. | |

Investigadors d'altres entitats

Romo Taranchel, Ana Filomena
Tomás Barberán, Manuel Hospital Universitari Son Dureta
Castro Iglesias, Maria del C. Hospital Universitari Son Dureta

EDP del grup investigador de l'entitat sol·licitant: 7.

Summary

In the last years as much the scientific publications as the tobacco addiction researches have pointed out the effectiveness of the programs with psychological intervention based on the principles of the behavioral and cognitive therapy model. Equally, these findings highlight the predictive paper of some variable psicosociales for both the attainment of the ceasing or maintenance of the addictive behavior.

Based on this findings, the project that we present outlines the following objectives:

To build and validate a standardized for reduction of tobacco consumption based on behavioral and cognitive therapeutical techniques.

To determine the importance and the paper of the negative emotions (anxiety, depression/sadness and anger), the expectations and the personal history of the addictive behavior about the adherence to the treatment, the effectiveness of the treatment, their temporary generalization and the relapses.

To determine the differential profiles of the patients that more and better can benefit of the program and to elaborate alternatives for the patients that less benefit with it.

To use rigorous methodologies, innovators and appropriate to confront the analysis of behaviors so complex as the addictive behaviors and their relationship with other related human behaviors.

Referència: SEJ2007-61728. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Flexibilidad cognitiva en el envejecimiento normal: modelo computacional sobre la función del cortex prefrontal.*
Acrònim: MENTFLEX-III.
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.
Investigador responsable: BARCELÓ GALINDO, Francisco.
Categoria: TU (àrea de coneixement: Psicobiologia).
Inici:2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|----------------------------|------------------------|
| Barceló Galindo, Francisco | TU | 1 |
| Periáñez Morales, José Antonio | Aj. dr. | 1 |
| Sánchez Cubillo, Ignacio | As. | 0.5 |
| Andrés Benito, Pilar | Vis. | 0.5 |
| Adrover Roig, Daniel | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Koechlin, Etienne | Université Pierre et Marie | |

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

This research project will extend the results of a previous project (BSO2003-03885; running from 11/2003 to 11/2006) that was aimed to standardize a task-switching paradigm, the Madrid Card Sorting Test (*MCST*), for the neuropsychological assessment of cognitive flexibility in healthy young adults and elderly persons. The present project will combine fast functional (magnetoencephalography and high-density event-related potentials) and structural (magnetic resonance) brain imaging techniques in order to formulate and tryout a neuro-computational model of cognitive control in humans.

Our group has pioneered the study of the electrophysiological correlates of attentional set-shifting using the *MCST* as a task model for exploring the interaction between exogenous (*bottom-up*) and endogenous (*top-down*) attentional control in humans (Barceló, 1999, 2001, 2003; Barceló et al., 1997, 1998, 2000, 2002a, 2002b, 2003, 2004, 2006). Now we intend to functionally segregate the fronto-posterior neural network involved in the control of attentional set shifting by linking its various subprocesses to activity in different parts of this anatomical network based on new and past evidence (Barceló et al., in press; Deco & Rolls, 2005; Koechlin et al, 2003). The results will help us modelling the spatio-temporal neural dynamics of attentional control, will aid the neuropsychological assessment of age-related cognitive deficits and, more specifically, of those secondary to dysfunction in prefrontal cortex (Andrés, 2003). This general goal can be further decomposed into three specific aims: (1) formalization of a computational model of cognitive control in humans based on new and past neurofunctional evidence from the *MCST* and related task paradigms; (2) functional segregation of a fronto-posterior anatomical network for cognitive control in

young adults and elderly healthy people through a combination of fast functional (magnetoencephalography and high-density event-related potentials) and structural (magnetic resonance) brain imaging techniques; (3) evaluation of the explanatory and predictive (diagnostic) value of the model by comparing brain imaging results from young adults and elderly healthy people with those from patients who have suffered lesions in their prefrontal cortex.

Referència: SEJ2007-62312. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Dinámica de la actividad cerebral y la percepción del dolor en pacientes con dolor crónico.*

Acrònim: DYNAPAIN.

Centre: Departament de Psicologia. Edifici Beatriu de Pinós.

Investigador responsable: MONTOYA JIMÉNEZ, Pedro.

Categoria: TU (àrea de coneixement: Psicobiologia).

Inici: 2007 **Fi:** 2010

| Membres de l'equip | Categoria | Dedicació (EDP) |
|---|--|------------------------|
| Montoya Jiménez, Pedro | TU | 1 |
| Miranda García, Rubén | Aj. | 1 |
| Sitges Quirós, Carol | B | 1 |
| Alorda Quetglas, Catalina | Tèc. | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Campos Bueno, José J. | Universitat Complutense de Madrid | |
| Chialvo, Dante | Northwestern University Medical School | |
| Izquierdo Rodríguez, Raúl | Ministeri de Treball i Afers Socials | |
| García Herrera, Manuel | Ministeri de Treball i Afers Socials | |

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

This research project examines the dynamical features of the brain activity related to pain perception in chronic pain patients. We propose to analyze new parameters of brain activity using data from functional resonance magnetic imaging (fMRI) and EEG. These parameters should provide new information about the information processing deficits that are characteristic for chronic pain patients, particularly, when they are asked to rate their pain or to process some cognitive and affective aspects of pain perception. For this purpose, several experimental tasks are designed to evaluate cognitive functioning, affective processing and spontaneous pain perception. These tasks will provide new insights about the functioning of the brain as a complex system. Furthermore, the effects of a pain-reduction therapy on these behavioral and brain parameters will be also assessed.

Referència: SEJ2007-64374. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *La influencia del género y la educación artística en el juicio estético: respuestas comportamentales y cerebrales.*
Centre: Departament de Psicologia. Edifici Beatriu de Pinós.
Investigador responsable: MARTY BROQUET, Gisèle.
Categoria: CU (àrea de coneixement: Psicologia Bàsica).
Inici: 2007 **Fi:** 2010

| Membres de l'equip | Categoria | Dedicació (EDP) |
|--|------------------|------------------------|
| Marty Broquet, Gisèle | CU | 0.5 |
| Munar Roca, Enric | TU | 0.5 |
| Cela Conde, Camilo J. | CU | 0.5 |
| Rosselló Mir, Jaume | TEU | 0.5 |
| Ecudero López, Juan Tomás | TEU | 0.5 |
| Pérez Castelló, Josep Antoni | TU | 0.5 |
| Burges Cruz, Lucrecia | Prof. Aj. | 0.5 |
| Nadal Roberts, Marcos | As. | 0.5 |
| Capó Navarro, Miguel Ángel | As. | 0.5 |
| Revert Vidal, Xavier | As. | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Fernández González, Santiago Universidad Complutense de Madrid | | |

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

Our project focuses the study of the cognitive processes involved in aesthetic judgement and their neural correlates. Following an already successfully tested methodology, behavioural and brain responses to different visual stimuli will be studied. Specific objectives include: 1) To carry out magnetoencefalography (MEG) experiments able to identify neural correlates of aesthetic judgement of visual stimuli. 2) to contrast, by means of MEG, the existing differences in brain activity between groups of participants with different sex and different artistic education. 3) To analyse further cognitive processes involved in aesthetic judgements by means of recognition tests with groups of participants of different sex and different artistic education.. 4) To contribute to the development of a general explanatory model of the cognitive processes involved in aesthetic judgment, by means of the discussion of results obtained in objectives 2 and 3.

Referència: SEJ2007-63837. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *The effects on progressive muscular relaxation in the basal cortisol response of high and low neuroticism students.*
Acrònim: RECONe.
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.
Investigadora responsable: GARCÍA DE LA BANDA GARCÍA, Gloria.
Categoria: TEU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-----------------------------|------------------------|
| García de la Banda, Gloria | TEU | 1 |
| Fornès Vives, Joana | CEU | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Riesco Prieto, María | IB-SALUT | |
| Pérez Esteban, Gerardo | IB-SALUT | |
| Manuel Doctor, Ronald | California State University | |
| Belmonte Campayo, Mar | IB-SALUT | |

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

Traditionally, aberrant cortisol dynamics and personality traits have each been closely linked to mood and anxiety disorders. However, the nature and the underlying mechanisms of the relation between cortisol secretion and personality traits remain uncertain. In the present proposal we will expand and refine previous findings by means of examining the relation between neuroticism and diurnal salivary cortisol in young adults using separate convenience samples of high and low participants.

AIMS: The present project is designed to:

- obtain a basal cortisol secretion profile reliable and valid from each participant.
- study the role of neuroticism on two indices of diurnal cortisol of high and low neuroticism participants.
- explore the effect of progressive muscular relaxation on diurnal cortisol secretion of high and low neuroticism participants.

HYPOTHESIS:

- High neuroticism may be related to a dysregulation of the cortisol secretion.
- Progressive muscular relaxation may be an inexpensive intervention to regulate the HPA axis cortisol function.

To assess basal cortisol secretion profile, we will collect 6 samples per day in three consecutive days, twice during the same academic year from 80 university students recruited during first and second years of the research project. To evaluate neuroticism, we will use the EPQ-R and NEO-FFI questionnaires. In order to take in account other stressful events that may influence cortisol secretion, students will be asked about stressful live events and minor stressful events. Finally, we will administer Beck Anxiety Inventory and Beck Depression Inventory.

The second and third years, abbreviated progressive relaxation training (APRT) will be implemented. The APRT consists in a 45 minutes session of progressive muscular relaxation that involves tensing and relaxing 16 different muscle groups. The APRT will be practiced in groups during three consecutive days two times during the same academic year to the 80 university students recruited during first and second year of the research project.

Referència: 067/07. Ministeri de Treball i Afers Socials.

Modalitat: Institut de la dona.

Títol: *Profundizando en el análisis del mito del amor romántico y sus relaciones con la violencia contra las mujeres en la pareja: análisis cualitativo.*

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigadora responsable: BOSCH FIOL, Esperança.

Categoria: TU (àrea de coneixement: Psicologia bàsica).

Inici: 2008 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---------------------------|------------------|------------------------|
| Bosch Fiol, Esperança | TU | 1 |
| Ferrer Pérez, Victoria A. | TU | 1 |
| García Buades, M. Esther | TEU | 0,5 |
| Ramis Palmer, M. Carmen | C | 0,5 |
| Navarro Guzmán, Capilla | B | 1 |
| Escarrer Bauzá, Catalina | Tèc. | 0,5 |

EDP del grup investigador de l'entitat sol·licitant: 4,5

Summary

Research on attitudes towards domestic violence has determined the predominance of negative attitudes towards this violence in general population and also in specific groups.

But it was less that we know about general population attitudes towards behaviours considered "technically" abusive (or "hidden" or "covert" maltreatment), about social acceptance of these behaviours in partner relations or about love model and the love myths prevailing in general population. In our previous financed research project (Instituto de la Mujer, 2005) we have had occasion to analyse quantitatively these aspects.

In order to explore in depth these results and to have information more complete that allows us to make actions to improve the social awareness towards domestic violence in their more covert forms and to know the role of romantic love in this process, we propose this qualitative research.

Specifically, we propose a dual objective that includes, on the one hand, an analysis of attitudes towards covert forms of domestic violence and the social acceptance of such violence and of myths and romantic love model and, secondly, to explore the relationship between social perception of these elements and domestic violence. It will conduct focus groups to deepen the more qualitative aspects of these issues.

The intention is to help establish patterns that allow redefine certain aspects of the

couple relationship and love, including improvements to the sentimental education from adolescence to get sentimental more egalitarian relationships and satisfactory

Participacions a altres projectes

Referència: DEP2006-56013.

Títol: *Creació d'una xarxa temàtica sobre motivació, cooperació, compromís en l'esport infantil juvenil.*

Investigador responsable: CRUZ FELIU, Jaume.

Centre: Universitat Autònoma de Barcelona.

Investigador de la UIB: GARCÍA MAS, Alexandre.

Categoria: TU (àrea de coneixement: Psicologia Bàsica).

Inici: 2007 **Fi:** 2009

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: *Consolidación de un grupo interdisciplinario en investigación neurobiológica del dolor.*
Investigador responsable: MONTOYA JIMÉNEZ, Pedro.
Centre: Departament de Psicologia.
Categoria: TU (àrea de coneixement: Psicobiologia).
Inici: 2007 **Fi:** 2008

Referència: DGRDI-61/2007 AC. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: *III Congreso Nacional de Psicoterapias Cognitivas.*
Investigadora responsable: GARCÍA DE LA BANDA, Gloria.
Centre: Departament de Psicologia.
Categoria: TEU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).
Inici: 2008 **Fi:** 2008

DEPARTAMENT DE QUÍMICA

Referència: CTQ2005-00250/BQU. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Inhibición selectiva de enzimas que presentan el PLP como cofactor.*

Acrònim: ISE-PLP.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: MUÑOZ IZQUIERDO, Francisco.

Categoria: CU (àrea de coneixement: Química Física).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------|------------------|------------------------|
| Muñoz Izquierdo, Francisco | CU | 1 |
| Donoso Pardo, Josefa | CU | 1 |
| Frau Munar, Joan | TU | 1 |
| Vilanova Canet, Bartomeu | TU | 1 |
| Coll Parets, Miquel | As. | 1 |
| Garcias Llabrés, Rafael | Aj. | 1 |
| Salvà Salvà, Antoni | As. | 1 |
| Fenollar Ferrer, Cristina | | 1 |
| Adrover Estelrich, Miquel | Aj. | 1 |

EDP del grup investigador de l'entitat sol·licitant: 9.

Summary

In the present research project it is tried to study three PLP-dependent enzymes, aspartate aminotransferase (AAT), alanine racemase (ALR) and ornithine decarboxylase (ODC), in order to determine selective inhibitors of ALR and ODC. The specific inhibition of the ALR would allow the destruction of the bacteria without indirect effect, since the ALR is essential for the formation of the cellular wall of the bacteria and has not been detected in mammals. The inhibition of the ODC has demonstrated effective in the treatment of certain cancers and some parasite diseases. Some inhibitors of these enzymes have been described already, nevertheless all of them are general inhibitors, is to say cause the inhibition of most of the PLP-dependent enzymes, with the consequent not wished indirect effect. By means of MM and MD calculations it is tried to make the molecular modelling of the enzymatic active site and by means of calculations of quantum chemistry the theoretical mechanisms of inhibition will be studied, which will allow determining the structural characteristics of inhibitors. Finally the mechanisms of inhibition of the proposed molecules will be determined experimentally by stopped flow measurements.

Referència: MAT2005-05350. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de materials.

Títol: *Materials porosos para la detección, adsorción y depósito de gases.*

Acrònim: MINAMAT.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: OTERO AREÁN, Carlos.

Categoria: CU (àrea de coneixement: Química Inorgànica).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------------|-------------------------|-------------------------------|
| Otero Areán, Carlos | CU | 1 |
| Turnes Palomino, Gemma | TU | 1 |
| Rumori, Paolo | As. | 1 |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The study and development of materials having outstanding gas adsorption properties is a forefront issue of present-day research; triggered by strategic industrial and environmental applications, such as gas sensing, separation and storage. This research project aims at a detailed analysis of the adsorption of gas molecules (CO, CO₂, NO_x, H₂ and amines) on microporous (zeolites and active carbons) and nanostructured periodic porous materials (MCMs, SBAs and carbon replicas). Both, gas-solid interaction mechanism and thermodynamics of the adsorption of harmful gases, as well as for reversible hydrogen storage; a subject of current interest for the development of a sustainable (and clean) energy future.

Referència: CTQ2005-08989-C02-01/BQU. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències i tecnologies químiques.
Títol: *Diseño, síntesis y evaluación de estructuras supramoleculares funcionales: sensores, receptores y dispositivos moleculares.*
Acrònim: supramol2005.
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: DEYÀ SERRA, Pere M.
Categoria: CU (àrea de coneixement: Química Orgànica).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------|------------------|------------------------|
| Deyà Serra, Pere M. | CU | 1 |
| Costa Torres, Antoni | CU | 1 |
| Morey Salvà, Jeroni | TU | 1 |
| Frontera Beccarà, Antoni | Inv. | 1 |
| Rotger Pons, M. del Carme | Inv. | 1 |
| Quiñonero Santiago, David | Inv. | 1 |
| Vega Reynés, Manuel | Tèc. | 1 |
| Capó Cañellas, Magdalena | As. | 1 |
| Garau Rosselló, Carolina | B | 1 |
| Castilla Manjón, Ana María | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 10.

Summary

The evolution of supramolecular chemistry allows, nowadays, the access to well-defined complex structures from simple molecules, taking advantage of the intelligent mixing of covalent and noncovalent bonds. The present project is the result of the natural evolution of the preceding ones, insists in this line of research and pays special attention to the application of the new materials to diverse chemical processes. Three main objectives will be endeavored in a multidisciplinary way. The first objective focuses on the development of squaramide-based molecular sensors with application to molecular recognition and determination of oxoanions in aqueous media. The main challenges are both to achieve the solubility in water and the selectivity. The latter will allow the efficient incorporation of transducer elements which can convert a chemical phenomenon into a spectroscopical signal.

The second is the design and synthesis of self-assembled nanometric systems capable to perform technological application functions like molecular devices. The efficient use of metal-ligand interactions will allow the access to supramolecules with diverse topology with application as functional devices in different processes. The coordination of amines to metalloporphyrins and their application in charge-transfer processes, photo-induced energy and catalysis will be used to achieve this objective.

Finally, the knowledge learned by means of ab initio calculations regarding interaction between ions and π -systems should allow us to successfully study the additivity of the anion- π interaction using theoretical methods with the purpose of designing a new family of anion receptors. The theoretical results will be verified experimentally by synthesizing and testing the receptors in solution. In addition, the study of the interaction between cations and interesting structural materials (carbon, nanotubes, cyclophanes, etc) is another challenge in our way to the technologic application of such supramolecular structures (i.e. rechargeable batteries).

Referència: AGL2006-14146-C02-02/ALI. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.
Títol: *Secado intermitente de productos alimentarios: influencia de las variables de proceso en la calidad del producto final.*
Acrònim: SECINT.
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigadora responsable: ROSSELLÓ MATAS, Carme.
Categoria: CU (àrea de coneixement: Enginyeria Química).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|------------------|------------------------|
| Rosselló Matas, Carme | CU | 1 |
| Simal Florindo, Susana | TU | 1 |
| Femenia Marroig, Antoni | TU | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Frau Caldentey, Miquel | Govern Balear | |
| Cañellas Mut, Jaume | AFAIB | |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

Intermittent drying technology represents a new way to obtain high quality products. Thermal processing might ensure safety and extend the shelf life of food products, however, in the case of foods such as fruits and vegetables, it often leads to detrimental changes in their chemical composition, textural properties and organoleptic characteristics.

The main objective of this proposal is the design and application of optimisation tools (product quality) to the drying procedure of agri-food products (grapes, carrot and apple) by using intermittent drying technology.

The effects of applying intermittent drying on the food products will be compared with those obtained by means of conventional heat air-drying. This will be performed at the laboratory scale and, also, at the pilot plant level. The effects of using heat cycles on the final quality of the products will be assessed, both on the dehydrated and rehydrated materials. Techniques such as Nuclear Magnetic Resonance (NMR) will be used to determine the evolution of moisture profiles within the food product during drying and, from all these data, the diffusion coefficients will be calculated

With the obtained data the mass transfer process will be modelled and the operational conditions will be optimised as a function of different quality parameters related to the physico-chemical properties of the different products; for instance: water sorption capacity, textural properties of the dried and rehydrated products and observation of effects at microscopic level and the solid moisture profile during dehydration/rehydration.

Referència: CTQ2006-09339/BQU. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Diseño de nuevas moléculas derivadas de purinas y primidinas N-Sustituidas y estudio de su química de coordinación con iones metálicos: búsqueda de nuevas estructuras bioactivas.*

Acrònim: DNMDPPNEQCIMBNEB.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: TERRON HOMAR, Àngel.

Categoria: TU (àrea de coneixement: Química Inorgànica).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------------|-------------------------|-------------------------------|
| Terron Homar, Àngel | TU | 1 |
| García Raso, Ángel | TU | 1 |
| Fiol Arbós, Joan Jesús | TU | 1 |
| Cabot Bibiloni, Catalina | TU | 0.5 |
| Barceló Oliver, Miquel | B | 1 |
| Albertí Aguiló, Francesca M. | B | 1 |

EDP del grup investigador de l'entitat sol·licitant: 5.5.

Summary

Puric and pyrimidinic bases are present in a great amount of biological processes fundamental for cellular metabolism that content from energetic questions to the cellular duplication. By these reasons, the main aim of this research is the obtention of i) purine- $(\text{CH}_2)_x$ -purine, pyrimidine- $(\text{CH}_2)_x$ -pyrimidine and mixed systems because are non polar analogous of dinucleotides, ii) N^6 -alquiladenines, that are analogous of cytoquinines, iii) 5'-halouracils N-substituted, detected, a couple of them, as natural products present in sponges and other marine organisms and the study of their coordination derivatives with 3d metal ions (such as Cu(II), Zn (II),...) and 4d, 5d (Ru (III), Ir(III), Pt(II), Ag(I), among others) to explore the possibility to create new bioactive molecules.

Referència: CTQ2006-01851/BQU. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències i tecnologies químiques.
Títol: *Diseño y validación de nuevos sistemas de tratamiento de muestra directamente acoplados a espectrómetros de masas.*
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: MARCH ISERN, Joan Gabriel.
Categoria: TU (àrea de coneixement: Química Analítica).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-------------------------|-------------------------------|
| March Isern, Joan Gabriel | TU | 1 |
| Genestar Julià, Catalina | TU | 1 |
| Palou Franco, Josefina | TU | 1 |
| Simonet Suau, Bartomeu Miquel | Aj. dr. | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Mas Torres, Francesca | Govern Balear | |

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

This project involves the development of a new research topic which will allow important contributions in tools for sample treatment and in strategies for expanding the analytical potential and use of gas-mass spectrometer detectors.

Concretely, it is proposed the design of a modular chamber which integrates several units that can be directly coupled to mass spectrometer detectors. The chamber will allow the sample treatment, including dissolution, and analyte purification to be carried out in the same device. This will permit an important improving of the analytical procedure as most of required steps for analysis, both automatic or batch, will be simplified. The reagent consumption and residues generation will be also reduced. As a main novelty, the chamber will permit all the treatment process to be assisted by a difference of voltage which will allow an additional simplification.

The designed chambers can be coupled to a wide variety of detection systems. However, in order to obtained results of high quality, it is proposed the use of mass spectrometer detectors. The coupling of the chamber to liquid-mass spectrometer detector is expected to be simple as the solution coming from the chamber and containing the purified analytes can be directly introduced in the detector by using commercial interfaces (ESI and/or APCI). However, the chamber-gas-mass spectrometer coupling need a new and special interface, aspect which it is considerate an important contribution of this project. The proposed interface will allow the direct introduction of liquid solutions to gas-MS detectors. This will increase the analytical potential and use of gas-MS detectors which are widely used and implemented in routine laboratories.

Finally, after the validation of chambers and interface, several analytical applications involving samples and analytes of interest will be developed with the view to demonstrate the analytical potential and usefulness of these new tools. The proposed

methodologies will have important advantages as they will be faster, simpler to implement, will involve the use of low amounts of reagents and they will be robust. In this way, answers to the present demands of Analytical Chemistry will be satisfied.

Referència: CTQ2007-62952. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Sales ato de amonio de complejos tantánidos en catálisis enantioselectiva.*

Acrònim: SAA@LACATENA.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: SAA RODRÍGUEZ, José Manuel.

Categoria: CU (àrea de coneixement: Química Orgànica).

Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------------|-------------------------|-------------------------------|
| Saa Rodríguez, José Manuel | CU | 1 |
| Mansilla Casatejada, Javier | B | 1 |
| Shivarkar, Anandkumar B. | CON | 1 |

EDP del grup investigador de l'entitat sol·licitant: 3

Summary

The project entitled *#Ammonium lanthanide ate complexes for enantioselective catalysis#* (SAA@LA CATENA) is a step beyond the outskirts limits of project LA CATENA launched in 2005 (CTQ 2004-02375/BQU) whose main objective was to employ lanthanide salt complexes as catalysts for enantioselective synthesis both in conventional and non-conventional solvents such as water. This is, no doubt about it, a long-term project due to the actual reluctance of the fine-chemicals and pharmaceutical industries to make large moves in their production processes, unless the extra cost required is not well balanced with other economic advantages such as those resulting from new patents, from a reduction of production costs, from a reduction of environmental taxes, etc. The need for launching new research in this area is therefore mandated by clear-cut socio-economical reasons.

In scientific terms, the actual plan aims at demonstrating the usefulness of ammonium lanthanide (III) ate complexes as 1) enantioselective catalysts capable of working as phase transfer catalysts (PTC) and as 2) enantioselective catalysts able to work as ionic liquid catalysts (ILC). Under strict economics it is quite evident that PTC or ILC brings about advantages in dealing with such costly issues as separation, catalyst recycling and the use of water as solvent or cosolvent. In particular we propose to access ammonium ate lanthanide (III) complexes by means of direct complexation of chiral binaftoxide ammonium salts (internal salts abbreviated as $R_3N^+ \text{espaciador-binaftoldióxido-espaciador} + NR_3^-$ where plus and minus signs refer to charges on a unique neutral molecule) with lanthanide salts LnX_3 . Appropriate selection of the R_3N^+ moiety will bring about PTC or ILC properties to the catalysts. Complexation with LNx_3 will lead to octahedral complexes having relevant properties for efficiency as enantioselective catalysis, namely: a) chiral at the central lanthanide metal; b) by appropriate selection of the ammonium moieties we expect to reach the status of ionic liquid catalysts; c) being ate complexes these compounds should be resistant to hydrolysis, a *#sine qua non#*

requirement for enabling them as PTC or ILC; d) as for the case of Shibasaki's heterobimetallic catalysts our closely related ate complexes should behave as Lewis acid-Lewis Base (LALB) species capable of coordinating simultaneously to Nu and E thus a priori ideal candidates to promote bifunctional enantioselective catalysis; e) we would also like to explore the use of the above-mentioned chiral ammonium binaftoxides as enantioselective PTC and ILC.

Referència: CTQ2007-64331. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Desarrollo de métodos automáticos de análisis. Aplicación a planes de vigilancia ambiental.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: CERDÀ MARTÍN, Víctor.

Categoria: CU (àrea de coneixement: Química Analítica).

Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|----------------------------|------------------|------------------------|
| Cerdà Martín, Víctor | CU | 1 |
| Forteza Coll, Rafael | TU | 1 |
| Estela Ripoll, José Manuel | TU | 1 |
| Miró Lladó, Manuel | TU | 1 |
| Horstkotte, Burkhard | B | 1 |
| Ferrer, Laura | Tèc. | 1 |
| Serra Hernández, Antonio | B | 1 |
| Frias Téllez, Antònia | Tèc. | 1 |
| Coll Crespí, Miguel | B | 1 |
| Rosende Mustillo, María | B | 1 |
| Maya Alejandro, Fernando | | 1 |

EDP del grup investigador de l'entitat sol·licitant: 11

Summary

The goal of the project is to support two research lines which traditionally has been developed by our research group of Analytical Chemistry, Automation en Environment:

1. A basic research directed towards the development of new automatic flow methods of analysis, which will decrease the sample and reagents consumption, and will allow increasing the sample throughput. According with the current tendencies, we would like to implement mainly the multiconmuted flow techniques (SIA, LOV, MSFIA, MCFIA y MPFS) in order to achieve new analytical methods more sensible and selective. We would like specially to work with hyphenating multiconmuted flow techniques with some chromatographic ones (LOV-HPLC, MSFIA-HPLC, SIA-HPLC, LOV-CG-MS, MSFIA-CE), since the firsts allow an easy sample treatment, including pre and post column reaction, whereas the chromatographic techniques provide the necessary selectivity to the analytical procedures. Validation of the new proposed methods will be carried out applying them usually to the determination of parameters of environmental interest (air, water, solid wastes and radioactive isotopes)

2. A more applied research line, directed to provide some support to solve the analytical problems of a number of firms related with the environmental management (TIRME, MAC Insular, REC). We would specially consider the analytical problems posed by the urban solid wastes management, those coming from buildings demolition, and those related with electric and electronic retraining.

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitiu.

Títol: *Estudio de los mecanismos de inhibición de la formación de los AGEs asociados a los estados de hiper glucemia.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: FRAU MUNAR, Juan.

Categoria: TU (àrea de coneixement: Química Física).

Inici: 2007 **Fi:** 2008

Referència: PROGECIB-1A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitiu.

Títol: *Desenvolupament de nova metodologia analítica per a la determinació de contaminants prioritari als residus sòlids resultants del procés d'incineració.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: MIRÓ LLADÓ, Manuel.

Categoria: TU (àrea de coneixement: Química Analítica).

Inici: 2007 **Fi:** 2008

Referència: PROGECIB-5A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitiu.

Títol: *Diseño y aplicación de sistemas de análisis para la cuantificación de elementos traza en el océano.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: CERDÀ MARTÍN, Víctor.

Categoria: CU (àrea de coneixement: Química Analítica).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitiu.

Títol: *Estudio Experimental y teórico de unidades básicas viables para la construcción de receptores de aniones tóxicos frecuentemente presentes en el medio ambiente.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: QUIÑONERO SANTIAGO, David.

Categoria: INVESTIGADOR CONTRACTAT.

Inici: 2007 **Fi:** 2008

Referència: PROGEACIB-15A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitiu.

Títol: *Preparación e identificación de nuevos agentes terapéuticos de base escuaramida en modelos de membrana celular mediante un ensayo colorimétrico.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigadora responsable: ROTGER PONS, M^a del Carmen.

Categoria: INVESTIGADORA CONTRACTADA.

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-22A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Estudio de materiales porosos para facilitar el uso del hidrógeno como combustible.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigadora responsable: TURNES PALOMINO, Gemma I.

Categoria: TU (àrea de coneixement: Química Inorgànica).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Finançament d'investigadors convidats a la IB per a la consolidació de xarxes de recerca.*

Investigador responsable: MIRÓ LLADÓ, Manuel.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Categoria: TU (àrea de coneixement: Química Analítica).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Xarxa temàtica de processos alimentaris.*

Investigador responsable: ROSSELLÓ MATAS, Carmen.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Categoria: TU (àrea de coneixement: Enginyeria Química).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *2^{es} Jornadas de la Red temàtica de Catàlisi Asimètrica (Red CASI).*

Investigador responsable: SAA RODRÍGUEZ, José Manuel.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Categoria: CU (àrea de coneixement: Química Orgànica).

Inici: 2008 **Fi:** 2008

Referència: Conselleria d'Agricultura i Pesca del Govern de les Illes Balears.

Modalitat: Ajudes per a la investigació en matèria d'agricultura i pesca en l'àmbit de les Illes Balears.

Títol: *Estudio de las variables involucradas en el análisis sensorial de la ensaimada de Mallorca en vistas a mejorar la exactitud y precisión del análisis.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: ROSSELLÓ MATAS, Carme.

Categoria: CU (àrea de coneixement: Enginyeria Química).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Agricultura i Pesca del Govern de les Illes Balears.

Modalitat: Ajudes per a la investigació en matèria d'agricultura i pesca en l'àmbit de les Illes Balears.

Títol: *Viabilitat d'utilitzar excedents i subproductes agroalimentaris de les Illes Balears per a l'obtenció de bioetanol.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: FEMENIA MARROIG, Antoni.

Categoria: TU (àrea de coneixement: Enginyeria Química).

Inici: 2007

Fi: 2008

INSTITUT MEDITERRANI D'ESTUDIS AVANÇATS (IMEDEA)

Referència: CTM2005-05694-C03-01/MAR. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies mediambientals.

Títol: *Vanimedat (I): caracterización de la variabilidad del nivel del mar.*

Acrònim: VANIMEDAT-I.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: GOMIS BOSCH, Damià.

Categoria: TU (àrea de coneixement: Física de la Terra).

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|----------------------------------|------------------------|
| Gomis Bosch, Damià | TU | 1 |
| Monserrat Tomàs, Sebastià | TU | 0.5 |
| Marcos Moreno, Marta | Aj. | 0.5 |
| Pascual Ascaso, Ananda | Tèc. | 0.5 |
| Mir Calafat, Francesc | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Ruiz Valero, Simón | Collecte Localisation Satellites | |
| Larnicol, Gilles | Collecte Localisation Satellites | |

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

Sea-level variability has a significant environmental and socio-economic impact on coastal regions. Presently, most important risks come from two phenomena: the slow but continuous sea level rise derived from global warming, and eventual modifications in the nature and distribution of extreme events, derived from the expected increased storminess of climate. Further knowledge on both phenomena is required in order to predict their impacts and, if necessary, to set up mitigation strategies.

It is widely accepted that sea level has been rising during the past century at an average global rate of around 1-2 mm/yr, and climate models forecast that this ratio will accelerate during this century. It is also expected that sea level rise will not be uniform over the globe, but will depend on changes in the regional atmospheric forcing and the oceanic circulation. One of the priorities of present research is the quantification of the different processes underlying sea level rise: the ocean mass increase derived from the melting of ice sheets (a global scale phenomena), the volume increment derived from the warming of the oceans, referred to as the steric component, and the meteorological contribution (the two latter processes have a significant regional component). It is also important to determine the extent to which open ocean estimates (given by satellite altimetry or models) are representative of coastal sea level (measured by tide gauges). While this is still uncertain, it has clear practical implications on the extrapolations of open sea results towards the shores. Another topic under debate is whether the trends observed in the occurrence of extreme events is an indirect consequence of sea level rise or, instead, there are other climate processes yielding larger amplitudes extreme events with an increased frequency.

The general objective of this project is to study the decadal and interdecadal sea-level variability, with particular attention to sea level trends and extreme events. All it in the geographical context of the ocean and seas surrounding the Iberian peninsula. The project will make use of long tide gauge records, improved altimetric data sets and 44 years (1958-2001) of data derived from the HIPOCAS project (a downscaled re-analysis of meteorological and oceanographic fields). Of particular interest are the results of a barotropic sea-level model (HAMSOM) driven by wind and atmospheric pressure. The contribution of temperature and salinity changes in the water column will be assessed from the air-sea heat fluxes provided by the limited-area atmospheric model (REMO) used in HIPOCAS. Finally, the evaporation-precipitation budget of REMO will be useful to close the water budget in the Mediterranean.

The project has several specific objectives. The first one is to determine the spatial and temporal sea-level variability, devoting special attention to the consistency between coastal and open sea observations. To do this, we will take advantage of the complementariness of the data sets: while the altimetry reports the open sea variability with a convenient spatial resolution, tide gauge records mainly correspond to coastal sites and provide the time length requested to study the variability at decadal and interdecadal scales.

The second objective is to quantify the contribution, at a regional level, of the different mechanisms that drive sea-level variability. This will be achieved basing mainly on the results of numerical modelling. Namely, we aim at: i) quantifying the effect of atmospheric pressure and wind forcing on sea level from the analysis of sea-level residuals produced by the model HAMSOM. ii) Quantifying the contribution of the steric component (and the associated circulation patterns) from the results produced by a 3D baroclinic model (POLCOMS) forced by HIPOCAS heat fluxes; the numerical simulations will be compared with previous studies based on the analysis of historical hydrographic data and satellite sea surface temperature.

The third objective will be to estimate the ocean mass increase as the difference between total sea level and the two contributions previously determined. For the Mediterranean Sea, results will be compared with the precipitation-evaporation budget of HIPOCAS, with observations of mass fluxes across the Strait of Gibraltar and with data from the recent gravimetric mission GRACE, with the aim of determining the mass balance in the region.

Finally, the fourth objective will focus on the study of extreme events. Tide-gauge observations and models allow to examine sea-level extremes from a double standpoint: first, by comparing observations and numerical hindcasts, in order to assess the prediction capabilities of the numerical model; second, by investigating trends in the frequency and amplitude of extremes occurrence (which can take place simultaneously to the other trends referred above, in order to assess future coastal risks).

Referència: POL2006-11139-C02-01/CGL. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Contribución española al proyecto internacional 'synoptic antarctic shelf slope interactions study'. Caracterización espacial.*
Acrònim: ESASSI.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: GOMIS BOSCH, Damià.
Categoria: TU (àrea de coneixement: Física de la Terra).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|--|---------------------------|------------------------|
| Gomis Bosch, Damià | TU | 1 |
| Flexas Sbert, Maria del Mar | Inv. | 0.5 |
| Pascual Ascaso, Ananda | Tèc. | 0.5 |
| Montserrat Tomàs, Sebastià | TU | 0.5 |
| Arrieta López de Uralde, Jesús M. | Tèc. | 0.5 |
| Tovar Sánchez, Antonio | Inv. | 0.5 |
| Jordà Sánchez, Gabriel | Tèc. | 0.5 |
| Ruiz Valero, Simón | Tèc. | 0.5 |
| Orfila Foster, Alejandro | Inv. | 0.5 |
| Agawin, Nona Sheila | Inv. | 0.5 |
| Investigadors d'altres entitats | | |
| Marcos Moreno, Marta | Université de La Rochelle | |
| Orsi, Alejandro H. | Texas A&M University | |

EDP del grup investigador de l'entitat sol·licitant: 5.5.

Summary

This project is the Spanish contribution to the international initiative SASSI (*Synoptic Antarctic Shelf Slope Interactions study*), one of the core projects endorsed by the International Polar Year (IPY). This initiative was previously endorsed by the Spanish committee of the IPY, and therefore it fulfils the requirements and specific regulations of the call for proposals to be carried out in the framework of the International Polar Year.

SASSI proposes a joint strategy for the study of the shelf-slope interactions in the Southern Ocean. A major milestone is to obtain the first simultaneous sampling of the most relevant regions of the Antarctic continental shelf. The project has a dominant physical component, since it focuses on the spatial and temporal variability of coastal dynamics. However, it has also an interdisciplinary component which is actually bidirectional: on one hand, there are some biochemical parameters which provide a key indications on very relevant physical processes (e.g., CFSs on the ocean ventilation); on the other hand, there are physical processes that affect in a crucial way the coastal Antarctic ecosystems. Therefore, the interaction between physical and biochemical processes will underlay most of the objectives of the project.

The project can be summarized in a general objective: the characterization of the southern boundary of the Antarctic Circumpolar Current (ACCb) and the latitudinal variability of the Antarctic Slope Front (ASF). In particular, the project will focus on the exchange of heat,

fresh water and nutrients taking place between the oceanic regime of the ACC and the continental shelves of the South Scotia Ridge (SSR). This objective will be achieved through four specific objectives: 1) to study the ACCb and the associated nutrient and heat fluxes from the open ocean to the north shelf of the SSR; 2) to establish the limits and the variability of the ASF in the SSR region and to study its relationship with the ACCb; 3) to determine the transport of deep and intermediate waters across the SSR, evaluating the associated nutrient and heat fluxes across the Ridge; and 4) to quantify the abundance of bacteria and chlorophyll concentrations, as well as the CO₂ sequestration related to the regional hydrodynamics.

The methodology will base on an oceanographic survey to be carried out during the austral summer 2007-2008 on the Weddell-Scotia confluence zone. The sampling strategy will consist of the deployment of five moorings through the continental shelf of the SSR (to be recovered one year later) and of several transects of CTD/ADCP aimed to obtain hydrographic measurements and biological samples. The mooring component (the most difficult and costly part of the sampling) intends to investigate the temporal variability of the main processes, a crucial aspect that cannot be inferred from the extended in space but single in time view inferred from an oceanographic survey.

The project is presented as a coordinated project between two institutions: IMEDEA contributes with its long experience in the interpretation of physical and biochemical data retrieved from oceanographic surveys; the University of Málaga (which includes staff from ICM-Barcelona), contributes with its experience in the deployment of moorings and the interpretation of the derived data sets. The two groups will jointly participate in the study of most processes, producing the complementary view (spatial or temporal) derived from the respective applied methodologies.

Referència: CGL2006-04325/BOS. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Hacia una integración de parámetros demográficos y genéticos en el análisis de viabilidad de poblaciones (PVA) en ecología y conservación.*
Acrònim: DIAGNOS.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: ORO DE RIVAS, Daniel.
Categoria: Investigador.
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|--|------------------|----------------------------------|
| Oro de Rivas, Daniel | Inv. | 1 |
| Tavecchia, Giacomo | Inv. | 1 |
| Igual Gómez, José M. | Tèc. | 1 |
| Martínez Abraín, Alejandro | Inv. | 1 |
| Louzao Arsuaga, Maite | B | 1 |
| Sanz Aguilar, Ana | B | 1 |
| Investigadors d'altres entitats | | |
| Genovart Millet, Meritxell | | Universita di Ferrara |
| Laneri, Karina | | Universitat Nacional de La Plata |
| Mínguez Díaz, Eduardo | | Universitat Miguel Hernández |

EDP del grup investigador de l'entitat sol·licitant: 6.

Summary

The challenges raised by the current loss of biodiversity due to human activities (including the effects of the global change) have lead ecologists to develop and test new appropriate tools to study population dynamics in space and time and predict future population trajectories. These predictions must provide estimates of population extinction probability, usually through model projections. The reliability of these estimates depends on the accuracy of the model parameters (demographic and genetics) for a specific population. From here, the importance of precise demographic estimates and supplementary information on genetic quality for a given population. These outputs will provide wildlife managers a population diagnosis and a solid base for conservation plans.

Matrix models including environmental and demographic stochasticity will be used to obtain a mathematical description of the population and as base for population viability analyses (PVA). Parameters will be obtained by capture-recapture analyses of individual-based data as well through molecular techniques. Bayesian methods for statistical inference and Monte Carlo simulation will also be examined for complex models to achieve a greater precision in estimates. We will consider species of vertebrates (birds and reptiles) that have been already followed by the research group with different conservation problems: critically endangered species, recently reintroduced populations, 'pest'-species, for which control programs have started, and

species under threat because of hunting activity. The species considered are also at the top of the food chain of different ecosystems (terrestrial, marine and costal) and, as consequence, can be regarded as bio-indicator of habitat quality at larger scale.

Referència: CGL2006-09719/BOS. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Pseudomonas stutzeri* como organismo modelo en especiación bacteriana.
Acrònim: PSTUTZERI.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: LALUCAT JO, Jordi.
Categoria: CU (àrea de coneixement: Microbiologia).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---------------------------|------------------|------------------------|
| Lalucat Jo, Jordi | CU | 0.5 |
| Bennàsar Figueras, Antoni | Contr. dr. | 0.5 |
| Gomila Ribas, Margalida | B | 1 |
| Amat Masanet, Margalida | As. | 1 |

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

Pseudomonas stutzeri is a relevant bacterial species in Microbial Ecology, due to their relevant physiological and biochemical properties. Strains of the species participate actively in the C cycle (as biodegrader), in the N cycle (as denitrifier and dinitrogen fixer), others are able to obtain energy in the S metabolism, and others might be able to use unusual P sources. The species is phylogenetically well defined, but at the same time, it is the species with the highest genetic diversity described so far.

Main objective of the study is the characterization of the possible mechanisms in leading *P. stutzeri* to its diversification in genomic groups (called genomovars), to their colonization potential of new ecological niches, and to the speciation process in this phylogenetic coherent branch, due to the selection of these new ecotypes.

Referència: CTM2005-01434. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies mediambientals.

Títol: Macroalgas marinas invasoras en las islas Baleares: evaluación de riesgos y efectos en comunidades bentónicas.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: TERRADOS MUÑOZ, Jorge.

Categoria: Científic titular del CSIC.

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació</u> |
|----------------------------------|-------------------------|-------------------------|
| Terrados Muñoz, Jorge | Científic titular | 1 |
| Marbà Bordalba, Núria | Científic titular | 0.5 |
| Ballesteros Segarra, Enric | Inv. | 0.5 |
| Deudero Company, Salud | Contr. dr. | 0.5 |

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

The introduction of alien species is a main process driving biodiversity loss in the Mediterranean. The presence of six of the eight marine macroalgae known to behave as invasive species in mediterranean benthic communities has been recorded in the Balearic Islands during the last fifteen years. The project aims (1) to evaluate the progress of the invasion of exotic marine macroalgae in the coasts of the Balearic islands, (2) to estimate the relative contribution of sexual reproduction and vegetative fragmentation to the maintenance of *Caulerpa* spp populations, and elucidate the relationship between genetic diversity and clonal structure of *Caulerpa* spp, to evaluate the effects of the colonization by invasive macroalgae (3) on the species composition, richness, and diversity of the invaded macroalgae and seagrass communities, (4) on the growth and demographic balance of seagrasses, and on the physico-chemical properties of the sediment of the invaded seagrass beds, (5) to estimate the transfer of matter from *Caulerpa* spp. to benthic invertebrates using caulerpenine as tracer, and (6) to test if lack of herbivores, physical stability of the substratum, and the presence of turf-forming filamentous macroalgae facilitate the invasion by exotic macroalgae.

Referència: CTM2005-00283. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies mediambientals.

Títol: Efectos indirectos emergentes en los sistemas depredador/presa: El caso de la dinámica de población de peces litorales explotados por la pesca recreativa.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: PALMER VIDAL, Miguel.

Categoria: CON

Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|--|-----------------------|------------------------|
| Palmer Vidal | Con. | 1 |
| Morales Nin, Beatriz | Inv. | 0.5 |
| Saborido Rey, Juan Francisco | Tec. | 0.5 |
| Moranta Mesquida, Joan | Tec. | 0.5 |
| Ruiz Pérez, Mauricio | Tec. | 0.5 |
| Garabana Barro, Dolores | Tec. | 0.5 |
| Investigadors d'altres entitats | | |
| Grau Jofre, Antoni Maria | Govern Balear | |
| Tomas Olague, Javier | Universitat de Bergen | |
| Grau Jofre, Amalia | Govern Balear | |
| Pastor Gracia, Elena | Govern Balear | |
| Riera Munuera, Francisco | Govern Balear | |

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

Fisheries have traditionally been considered as an inexhaustible resource that can be exploited in a sustainable way until an equilibrium between the produced net biomass and the removed biomass is reached. But littoral fisheries and recreational fishing are a conventional predator/prey system with emerging properties and indirect effects, whose magnitude should not be underestimated.

The impact of recreational fishing on the Mediterranean littoral equals that produced by professional fishing. It affects directly the mortality not only of target species, but also that of species captured accidentally. Besides, recreational fishing switches on a cascade of indirect effects affecting all trophic levels of the ecosystem. This is due to changes in trophic level of the exploited species affect other secondary consumers and the primary producers. The nature and magnitude of these indirect effects are unknown but presumably very relevant.

Our proposal focuses specifically on those indirect effects that affect the prey's population dynamics. On the one hand, we consider the indirect effects related to changes in the entire littoral fish community. On the other hand, we evaluate those produced by changes occurred in life history at the level of the individual. All these indirect effects produce emerging responses, in the sense of being unpredictable if only

the populational level is considered (i.e., if it is intended only to model the dynamics of an isolated species that, besides, does not manifest any response in front of predation pressure)

The general goal of this proposal is to evaluate the importance of these indirect effects and to produce a model of the population dynamics of littoral fishes exploited by recreational fishing with the following characteristics: 1) it must be multi-scale (that is, it must consider explicitly the indirect effects related to different scales of organization of the ecosystem); 2) it must be age-explicit (that is, it must consider explicitly the individual age and the demographic structure); and 3) it must be spatially-explicit (must consider the environmental heterogeneity).

Participacions a altres projectes

Referència: TEC2006-13887-C05-03/TCM. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies electrònica i de comunicacions.
Títol: *Desarrollo de técnicas de Banda-Ultra-Ancha mediante pulsos generados por diodos láser: aplicación a las comunicaciones ópticas inalámbricas.*
Investigador responsable: LÓPEZ HERNÁNDEZ, Francisco José.
Centre: Universitat Politècnica de Madrid.
Investigador de la UIB: BALLE MONJO, Salvador.
Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2006 **Fi:** 2009

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: *Divulgació a les aules: la recerca polar.*
Investigador responsable: GOMIS BOSCH, Damià.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Categoria: TU (àrea de coneixement: Física de la Terra).
Inici: 2007 **Fi:** 2008

INSTITUT UNIVERSITARI D'INVESTIGACIONS EN CIÈNCIES DE LA SALUT (IUNICS)

Referència: PI05-1886. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Tratamiento cognitivo conductual de pacientes con transtorno de somatización abreviado (SSI, 4,6) en atención primaria.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigadora responsable: GILI PLANAS, Margalida.
Categoria: TU (àrea de coneixement: Psicologia Social).
Inici: 2005 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|-----------------------------|------------------|
| Gili Planas, Margalida | TU |
| Roca Bennàsar, Miquel Àngel | TU |
| Robles González, Rosa M. | Inv. |
| Giner Jiménez, Daniel | Inv. |
| Vicens Caldentey, Catalina | |
| Bestard Reus, Francesca | |
| Quintana Torres, Lourdes J. | |
| Arenas Abad, Arturo J. | |
| Llull Serrandel, Maria M. | |
| Mateu Sabater, Catalina | |

Summary

To evaluate the effectiveness and feasibility of a treatment programme for patients who are diagnosed of abridged somatization disorder in primary care and their consequences in different levels: clinical aspects (decrease of symptomatology, improve of quality of life) and economic aspects (decrease of number of visits to specialist doctors and medication consume, decrease of costs). To analyse the efficacy of an intervention programme applied in two ways: individual and group therapy. To compare this study with a study carried out previously in New Jersey, USA by prof. Escobar and his staff.

Referència: MTM2006-07773. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de matemàtiques.
Títol: *Comparación de grafos en biología molecular y celular.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: ROSSELLÓ LLOMPART, Francesc A.
Categoria: CEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|--|-------------------------|-------------------------------|
| Rosselló Llompart, Frances A. | CEU | 1 |
| Alberich Martí, Ricardo | TEU | 1 |
| Llabrés Segura, Mercè | TEU | 1 |
| Mir Torres, Arnau | TU | 0.5 |
| Miró Julià, Josep J. A. | CEU | 1 |
| Rocha Cárdenas, Jairo | Contr. dr. | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Valiente Feruglio, Gabriel Universitat Politècnica de Catalunya | | |

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

This is a project in the field of computational biology and bioinformatics. Its main goals are:

To develop methods to compare graph models of three-dimensional structures of RNA molecules and proteins; metabolic pathways; and phylogenetic trees and networks.

To assess and analyze these methods both mathematically and by their biological significance.

To implement these methods as computer tools that will be available to the scientific community through the Web.

Referència: PI060371. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Papel de FoxO3a en el desarrollo de linfomas no-Hodkin y su potencial como diana de nuevos fármacos antitumorales.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigadora responsable: FERNÁNDEZ DE MATTOS, Sílvia.
Categoria: Inv. Contr.
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|-----------------------------|------------------|
| Fernández de Mattos, Sílvia | Inv. |
| Rodríguez Díaz-Pavón, José | |
| Villalonga Smith, Priam | Inv. |
| Mut Sanchis, Pilar | |

Summary

FoxO transcription factors participate in the control of cell cycle progression and apoptosis, and are negatively regulated by the PI3K/AKT pathway. Their role in the IKK/NFkB pathway has also been recently described. When active, FoxOs induce cell cycle arrest and apoptosis, acting as potent tumour suppressors.

The PI3K/AKT pathway is essential for proliferation of hematopoietic cells and for immune homeostasis, and is involved in the development of hematological neoplasia. Indirect evidence points to a central role of FoxO3a in lymphomagenesis, although this has not been fully investigated yet. Signals emanating from oncoproteins altered in non-Hodgkin lymphomas (NHL) converge on FoxO3a, and at the same time FoxO3a targets are frequently involved in the pathogenesis of these tumours. We thus aim to investigate the potential role of FoxO3a as a relevant target in NHL using a double strategy:

- Investigating the role of FoxO3a inactivation in transformation and survival of NHL cells. We will analyse the activation state of FoxO3a and its regulators and targets, correlating the results with cell proliferation and survival.
- Analysing the effects of active drugs in different subtypes of NHL on FoxO3a activity, in order to validate the hypothesis that restoring FoxO3a activity could be essential for the antitumour effects of these drugs. We will also use novel active drugs targeted to key molecular lesions of several types of lymphomas, such as HDIs, proteasome inhibitors and Hsp90 inhibitors, as recent data strongly suggest that these drugs may modulate FoxO3a activity.

Referència: PI060680. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Interrelaciones entre excitotoxicidad y neuroinflamación en la esclerosis lateral amiotrófica.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigadora responsable: LLADÓ VICH, Jerònia.
Categoria: Contr. dr. (àrea de coneixement: Biologia Cel·lular).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|---------------------------|------------------|
| Lladó Vich, Jerònia | Contr. dr. |
| Olmos Bonafé, Gabriel | TU |
| Tur Campos, Silvia | |
| Tolosa Pardo, Eulalia | |

Summary

Amyotrophic lateral sclerosis (ALS) is a neurodegenerative disease characterized by the selective death of motoneurons. Many of the pathogenetic mechanisms are still unknown and this is a limiting factor in the development of new therapies that could ameliorate the course of the disease.

Besides glutamate excitotoxicity, the neuroinflammatory response is emerging as a relevant contributor to the motoneuron loss in ALS. High levels of circulating proinflammatory cytokines such as tumor necrosis factor- α (TNF α) have been described both in human patients and in animal models of ALS.

We hypothesize that TNF- α , acting on different CNS cells, would have a facilitatory role on glutamate-mediated excitotoxicity, directly potentiating glutamate transmission and promoting motoneuron death. This would be very relevant in ALS pathophysiology. We aim to study the relationship between excitotoxicity and the neuroinflammatory response because the latter would be responsible for the activation of additional pathways for motoneuron degeneration.

We will use rat spinal cord *in vitro* cultures, which maintain the interactions between neurons and glia in order to address the following main objectives: 1) The direct effects of proinflammatory cytokines on motoneurons, and 2) The possible exacerbation of glutamate-excitotoxicity associated to alterations in the function of glutamate receptors and/ or transporters induced by high levels of proinflammatory cytokines.

Referència: PI060266. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Papel del estrés oxidativo en la respuesta de la célula cancerosa al tratamiento antitumoral y su modulación por hormonas sexuales y elementos pro-/antioxidantes.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigadora responsable: ROCA SALOM, Maria Pilar.
Categoria: TU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|-----------------------------|------------------|
| Roca Salom, Maria Pilar | TU |
| Oliver Oliver, Jordi | TEU |
| Lladó Sampol, Isabel | TEU |
| Fernández de Mattos, Sílvia | Inv. |
| Villalonga Smith, Priam | Inv. |
| Guevara de Bonis, Rocío | B |

Summary

The present research proposal aims to better understand the mechanisms regulating the role of oxidative stress in cell proliferation and apoptosis induction in different cancer cell types. Furthermore, we also want to determine the impact of sexual hormones (17 β -estradiol and testosterone) and pro-oxidant and antioxidant agents (usually present in the diet) on the response to anticancer chemotherapeutic agents. The specific objectives of this proposal are the following:

1. Characterize the redox state of different hormone-sensitive cancer cell lines covering both early and late stages of the disease progression.
2. Determine the effect of different chemotherapeutic agents on cell viability, mitochondrial function and oxidative stress-sensitive signaling pathways in different hormone-sensitive cancer cell lines covering both early and late stages of the disease progression.
3. Analyze the impact of sexual hormones and pro-/antioxidants on ROS production and activation of ROS-sensitive signaling pathways, and its consequences on the responsiveness to chemotherapeutic agents in cancer cells.

In order to develop this research proposal both normal and transformed cell lines will be used. These cell lines are derived from sexual hormone-sensitive tumors (breast and prostate cancer), and from a diet-sensitive cancer, the colorectal carcinoma. For breast and prostate cancer, cell lines with and without estrogen or androgen receptors will be compared. For the colorectal carcinoma, cell lines in different stages of cancer process development will be compared.

Referència: AGL2007-62806-ALI. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.
Títol: *Bases científicas de la actividad biológica y antioxidante de una bebida funcional de almendra (intervención nutricional en afectados de porfiria y controles).*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: PONS BIESCAS, Antoni.
Categoria: TU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-------------------------------|------------------------|
| Pons Biescas, Antoni | TU | 1 |
| Tur Marí, Josep A. | TU | 0.5 |
| Tauler Riera, Pedro | Aj. | 1 |
| Llompert Alabern, Isabel | As. | 1 |
| Fuentespina Vidal, Emilia | Tèc. | 1 |
| Riesco Prieto, M. del Tránsito | Tèc. | 1 |
| Ferrer Reynés, Miguel David | B | 1 |
| Sureda Gomila, Antonio | B | 1 |
| Romaguera Bosch, M. Adoración | B | 1 |
| Prieto Almirall, Rafael Maria | TEU | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Murcia Tomás, María Antonia | Universitat de Murcia | |
| Martínez Tomé, Magdalena | Universitat de Murcia | |
| Jiménez Monreal, Antonia María | Universitat de Murcia | |
| Roche Collado, Enrique | Universitat Miguel Hernández | |
| Micol Molina, Vicente | Universitat Miguel Hernández | |
| Palacín Pahí, Clara | Fundació Hospital Son Llatzer | |

EDP del grup investigador de l'entitat sol·licitant: 9.

Summary

The content of phytosterols, phospholipids, inositol phosphates, protein and vitamin E in almonds has favoured the design of an isotonic and energetic beverage rich in vitamins E and C, whose production procedure allows to maintain the natural antioxidant activity of almonds and oranges. We expect to scientifically demonstrate the functionality and beneficial effects of the continuous consumption of this functional beverage on the situation of chronic oxidative stress and its clinical manifestations in porphyria patients and in health controls. In previous projects we have established the conditions in which the biological activity of antioxidants in almonds and oranges are maintained during the beverage processing; now we expect to assess the impact of the beverage production procedure on the activity of almond phytosterols and inositol phosphates as well as to optimise their content of the functional beverage. Also, we will to know: the bioassimilation and distribution of the beverage phytosterols, inositol

phosphates and antioxidants in plasma, lymphocytes, neutrophils and erythrocytes of healthy individuals and of patients affected by variegate porphyria; to establish the positive and negative effects of the continuous consumption of the functional beverage on the capacity of immune system cells to generate free radicals, on the endogenous mechanisms of free radicals elimination, on the cellular and plasmatic oxidative damage and on the lymphocytes apoptosis linked to oxidative stress in healthy individuals and in patients affected by variegate porphyria; to determine “in vivo” the existence of direct or indirect effects of nutritional antioxidants on the expression, level, activity, secretion, and transformation of antioxidant and pro-oxidant enzymes as well as porphyrin metabolism enzymes in healthy individuals and in patients affected by variegate porphyria. All these will allow us to assess the benefit/risk balance of the consumption of this functional beverage. These objectives will be achieved through the performance of a nutritional intervention with the participation of healthy individuals as controls and patients affected by variegate porphyria. This will be a double-blinded trial with either the almond-based beverage enriched with antioxidants or the functional beverage poor in antioxidants. This beverage and its production procedure have been patented in Spain, the European Union, and the United States of America.

Referència: 2007/032. Pla nacional de drogues. Ministeri de Sanitat i Consum.
Títol: *Regulación de las vías apoptóticas extrínseca en la corteza prefrontal de adictos crónicos fallecidos por sobredosis de cocaína o heroína.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: GARCÍA SEVILLA, Jesús Andrés.
Categoria: CU (àrea de coneixement: Farmacologia).
Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|---------------------------|------------------|
| García Sevilla, Jesús A. | CU |

Summary

This project will investigate the regulation of the extrinsic (Fas receptor, FADD, caspase-8, FLIP) and intrinsic (Bcl-2, Bax, cytochrome c, AIF) apoptotic pathways (immunodetection of proteins by Western blot analysis) in the prefrontal cortex (Brodmann's area 9) of three groups of chronic addicts (presumably with neuroplasticity already developed): (1) “Pure” opiate addicts (death by heroin or methadone overdose; detection of opiates and metabolites in blood and hair; non-detection of cocaine in blood and hair; documented medical history of opiate addiction), (2) “Pure” cocaine addicts (death by cocaine overdose; detection of cocaine and metabolites in blood and hair; non-detection of opiates in blood and hair; documented medical history of cocaine addiction), and (3) “Mixed” cocaine/opiate addicts (death by mainly cocaine overdose; detection of cocaine and opiates in blood and hair; documented medical history of mixed addiction). Similar brain samples from healthy subjects (death mainly by violent causes) will be used as control groups. The results of this study will provide new information on the controversial role of drugs of abuse in inducing neuronal death in the human brain.

Referència: MD07/00279. Ministeri de Sanitat i Consum.
Títol: *Género, trastornos mentales y utilización de recursos sanitarios en atención primaria (AP)*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigadora responsable: GILI PLANAS, Margalida.
Categoria: TU (àrea de coneixement: Psicologia Social).
Inici: 2008 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|-----------------------------|------------------|
| Gili Planas, Margalida | TU |
| Roca Bennàsar, Miquel Àngel | TU |

Summary
GENDER, MENTAL DISORDERS AND USE OF PRIMARY CARE HEALTH SERVICES
Objectives: To analyze the potential determinants of gender differences in the use of services in primary care; To determine the sociodemographic characteristics that influence a high frequent use of primary health care services; To analyze the effect of gender on mediating variables in the use of primary health care services; To analyze the impact that the presence of physical symptoms and chronic diseases exercises on major use of health services; To analyze the effect of mental disorders on major resource utilization of health care services; To analyze the role of depressive, anxious and somatization symptoms in frequent attenders and gender differences according to these symptoms.
Methodology: Two-phase descriptive study in three primary health care centers in Majorca. Duration: 12 months.
Study population: frequent attenders of primary care, aged 18 or over who have signed an informed consent to participate. The sample will be distributed by 50% men and 50% women. The total sample size is estimated to be about 400 frequent attenders. A stratified random sampling will be carried out by each health care center. The control group will be composed of a sample of 200 normal attenders patients.
Variables of study: age, gender, marital status, employment status, medical and psychopathological history, mental and /or physical illness diagnosis, psychological well-being, use of health care services.
Instruments: For the first phase, the GHQ-28 will be administered and those who pass the 5/6 cut-off-point will be interviewed by SCAN (Schedules for clinical Assessment in Neuropsychiatry) in a second phase.

Referència: RD06/0045/1004. Ministeri de Sanitat i Consum.
Títol: *Alimentación saludable en la prevención primaria de enfermedades crónicas: la red PREDIMED.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigadora responsable: TUR MARÍ, Josep Antòni.
Categoria: TU (àrea de coneixement: Fisiologia).
Inici: 2008 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|--|------------------------------|
| Tur Marí, Josep Antòni | TU |
| Pons Biescas, Antòni | TU |
| Pich Solé, Jordi | TU |
| Tauler Riera, Pedro | Aj. |
| Sureda Gomila, Antòni | As. |
| Ferrer Reynés, Miguel David | B |
| <u>Investigadors d'altres entitats</u> | |
| Llompert Alabern, Isabel | Hospital Son Dureta |
| Fuentespina Vidal, Emilia | Hospital d'Inca |
| Riesco Prieto, Maria del Tránsito | Hospital Son Dureta |
| Murcia Tomás, María Antonia | Universitat de Múrcia |
| Martínez Tome, Magdalena | Universitat de Múrcia |
| Jiménez Monreal, Antonia M ^a | Universitat de Múrcia |
| Micol Molina, Vicente | Universitat Miguel Hernández |
| Roche Collado, Enrique | Universitat Miguel Hernández |

Summary

Significance: A low-fat diet model (LFD) has been the usual recommendation in public health to attain a model of healthy eating. Nonetheless, both the best epidemiologic evidence and the recent Women's Health Initiative-Dietary Modification Trial have consistently shown the lack of effectiveness of such a model (LFD).

Alternative paradigms should be tested. The model of Vegetable-source Lipids-rich Healthy Eating (VLHE) seems the most promising because of its strong support in mechanistic data and findings from observational epidemiology. However this alternative model has not been tested in a large trial using hard end-points (clinical events).

Background: The PREDIMED trial started in 2003 and it was funded by the budget of the ISCIII for Research Networks (RTIC 03/140). This trial was cooperatively conducted by a Network integrating 16 centers during 2003-06. During that period of time, 5,205 participants were included in the trial, out of the target of 9,000 estimated to be needed. In 2007, eleven from the original centers, plus other 2 new centers that would provide help in the recruitment and research tasks were applying for a new PREDIMED Network (RETIC). Finally, on 2008, **The Research Group on Community Nutrition and Oxidative Stress (NUCOX-IB)** joined to the PREDIMED Network (RETIC RD06/0045/1004).

Hypotheses (objectives): A model of VLHE represents a highly effective preventive intervention with high potential for acceptability against cardiovascular disease (coronary heart disease or stroke) representing at least a 20 percent relative risk reduction. This model (VLHE) can also reduce the incidence of cancer of the most prevalent types (breast, colorectal, lung and stomach), diabetes, and total mortality.

Methods: The core of our Network is the design and implementation of a randomized primary prevention trial of chronic disease (cardiovascular disease as the primary end-point and cancer, diabetes or total mortality as secondary end-points). This trial has 3 arms: 2 intervention groups (VLHE supplemented with Virgin Olive Oil [VOO] and VLHE supplemented with a diversity of tree nuts [TN]) plus a control group allocated to LFD. The intervention consists in individual and group sessions of nutritional education with periodicity of each 3-month in conjunction with the supply of a variety of educational and self-help tools and includes the free provision of key food items (VOO and TN).

In connection with this core work, the tasks of all the centers are integrated and coordinated in the development of related research lines, assessing intermediate markers of risk, mechanistic studies, investigations in subsamples and nutrigenomics research to better understand how a model of VLHE can help to prevent the occurrence of cardiovascular disease, cancer or diabetes.

The specific work of the NUCOX-IB Group is to measure antioxidant and prooxidant endogenous agents, as well as energy related polymorphisms, in PREDIMED subjects.

Referència: 070110. Fundació La Marató de TV3.

Títol: Dinàmica cerebral del processament cognitiu i afectiu en pacients amb fibromiàlgia.

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigadora responsable: MONTOYA JIMÉNEZ, Pedro.

Categoria: TU (àrea de coneixement: Psicobiologia).

Inici: 2008 **Fi:** 2010

Membres de l'equip

Categoria

| | |
|-----------------------------|-----|
| Montoya Jiménez, Pedro José | TU |
| Miranda García, Rubén | Aj. |
| Sitges Quirós, Carolina | TU |
| Alorda Quetglas, Catalina | As. |

Investigadors d'altres entitats

| | |
|---------------------------|--|
| Campos Bueno, José Javier | Universitat Complutense |
| Izquierdo Rodríguez, Raúl | Institut Nacional de la Seguritat Social |

Summary

Fibromyalgia (FM) is a chronic pain syndrome characterized by abnormal pain processing, as well as by cognitive (attention, memory deficits) and affective complaints (depression, fatigue). Previous research has consistently demonstrated that FM patients display a generalized enhancement of sensitivity and hyperalgesia to various stimuli, as well as an altered brain processing of painful and non-painful somatosensory information. Nevertheless, little is known about brain activity involved in cognitive and affective information processing among these patients. The main objective of the present research project is to analyze if cognitive dysfunction and affective disturbances in FM patients could be related to a disruption of some brain mechanisms involved in pain processing. Moreover, this project aims to apply a new approach for the study of

brain activity using neuroimaging techniques and theoretical concepts from the theory of nonlinear complex networks. The main novelty of the present approach is that brain activity will be examined as a fully interconnected network. Cognitive function and affective processing in FM patients and healthy controls will be analyzed using standardized, neuropsychological tasks. It is expected that a) brain activity elicited during these tasks, and b) the topological, functional and scaling properties of such a complex network will be altered in FM patients when compared to healthy controls.

Referència: FIS PI04/0196

Títol: *Neuroquímica, Farmacología y Genética de la depresión, 2. Regulación molecular y farmacológica de los Alfa2A-adrenoceptores y receptores 5-HT_{2A} en plaquetas de pacientes con depresión mayor.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: GARCÍA SEVILLA, Jesús Andrés.

Categoria: CU (àrea de coneixement: Farmacologia).

Inici: 2004 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>EDP</u> |
|---------------------------|------------------|------------|
| García Sevilla, Jesús A. | CU | 1 |
| Miralles Socias, Antonio | TU | 1 |
| Esteban Valdés, Susana | TU | 1 |

EDP del grup investigador de l'entitat sol·licitant: 3.

Referència: RD06/001/0003

Títol: *Mecanismos moleculares y vías de señalización en el proceso adictivo a opiáceos. RETICS: Red de Trastornos adictivos.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: GARCÍA SEVILLA, Jesús Andrés.

Categoria: CU (àrea de coneixement: Farmacologia).

Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|----------------------------|------------------|
| García Sevilla, Jesús A. | CU |
| Miralles Socias, Antonio | TU |
| Esteban Valdés, Susana | TU |
| Boronat Moreiro, Assumpció | |
| Davison Calabría, Andrés | Contr. |
| Ramos Miguel, Alfredo | Contr. |

Referència: CTQ2006-05640/BQU. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Estudio de los mecanismos de calcificación de los tejidos blandos. Cálculos renales papilares. Calcificaciones cardiovasculares.*

Acrònim: EMCTB.

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: GRASES FREIXEDAS, Felicià.

Categoria: CU (àrea de coneixement: Química Analítica).

Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|-------------------------|-------------------------------|
| Grases Freixedas, Felicià | CU | 1 |
| Costa Bauzà, Antònia | TEU | 1 |
| Prieto Almirall, Rafel M. | TEU | 1 |
| Hierro Riu, Ferran | Tèc. | 1 |
| Isern Amengual, Bernat | B | 1 |
| Sanchis Cortés, Maria del P. | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| García González, Ramón | IBSALUT | |
| Ramis Barceló, Margalida | Govern Balear | |
| Pieras Ayala, Enrique C. | IBSALUT | |

EDP del grup investigador de l'entitat sol·licitant: 6.

Summary

Calcium oxalate monohydrate papillary renal calculi, in spite of their important incidence (12,9% of all renal calculi), are a calculi type still with an unknown ethiology, and consequently, their treatment is not clear. The formation of this renal calculi type is initiated by calcification processes of the papillary urothelium, beginning in occasions through hydroxyapatite deposits. In this project we plan to study in depth all the factors and mechanisms that induce the formation of papillary renal calculi, as well as the role that the inhibitors of the crystallization exert in each situation.

Cardiovascular calcifications constitute an alteration with serious consequences, affect to a very wide population's sector and they are also associated to aging processes. Their development implies hydroxyapatite formation through a mechanism that in some aspects resembles the beginnings of the formation of papillary renal calculi. In this project it is planned to study the formation and development mechanisms of cardiovascular calcifications, especially referring to the role of inhibitors.

Projectes del Govern Balear

Referència: PROGECIB-3C. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.
Títol: *Bases moleculares y desarrollo de terapias moleculares y celulares.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: ESCRIBÁ RUIZ, Pablo
Categoria: TU (àrea de coneixement: Biologia Cel·lular).
Inici: 2007 **Fi:** 2009

Referència: PROGECIB-12A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.
Títol: *Linfomes no-Hodgkin: Identificació de dianes implicades en la progressió tumoral i en la resposta a nous fàrmacs antitumorals.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigadora responsable: FERNÁNDEZ DE MATTOS, Silvia.
Categoria: INVESTIGADOR CONTRACTAT
Inici: 2007 **Fi:** 2009

Referència: PROGECIB-1C. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.
Títol: *Envel·liment saludable: Factors implicats en la millora de la qualitat de vida.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: GRASES FREIXEDAS, Fèlix.
Categoria: CU (àrea de coneixement: Química Analítica).
Inici: 2007 **Fi:** 2009

Referència: PROGECIB-4C. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.
Títol: *Estudio de la aparición, prevalencia, diseminación y virulencia de Pseudomonas con metalo-B-lactamasas.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: ALBERTÍ SERRANO, Sebastián.
Categoria: TEU (àrea de coneixement: Microbiologia).
Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: *Estudi epidemològic a la difusió de resultats.*
Investigador responsable: GRASES FREIXEDAS, Fèlix.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Categoria: CU (àrea de coneixement: Química Analítica).
Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: *Desenvolupament d'assajos preclínics amb el suport de Pfizer: Estudi del potencial del nou antitumoral SU11248 en Glioblastomes.*
Investigador responsable: VILLALONGA SMITH, Priam.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Categoria: INVESTIGADOR CONTRACTAT.
Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: *Desenvolupament d'assajos preclínics amb el suport Dr. Roche: Estudi del potencial del nou antitumoral Erlotinib en Glioblastomes.*
Investigador responsable: VILLALONGA SMITH, Priam.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Categoria: INVESTIGADOR CONTRACTAT.
Inici: 2008 **Fi:** 2008

Institut de Física Interdisciplinària de Sistemes Complexos (IFISC)

Referència: FIS2007-60327. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de física.

Títol: *Física interdisciplinària de sistemes complejos.*

Acrònim: FISICOS.

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2012

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--|------------------------|
| San Miguel Ruibal, Maximino | CU | 1 |
| Toral Garcés, Raúl | CU | 1 |
| Hernández García, Emilio | Prof. Inv. | 1 |
| Matías Muriel, Manuel | Cient. Tit. | 1 |
| Colet Rafecas, Pere | Cient. Tit. | 0.5 |
| Mirasso Santos, Claudio | TU | 0.5 |
| Sintes Olives, Tomàs Miquel | TEU | 1 |
| Martínez Eguiluz, Víctor | Inv. | 1 |
| López Sánchez, Cristóbal | Inv. | 1 |
| Zambrini, Roberta | Inv. | 1 |
| Sciré, Alessandro | B | 0.5 |
| Gomila Villalonga, Damià | Aj. | 0.5 |
| Pigolotti, Simone | Contr. dr. | 1 |
| Vázquez, Federico | Inv. | 1 |
| Castelló Llobet, Xavier | B | 1 |
| Herrada Mederer, Evaristo Alejandro | B | 1 |
| Gomes da Silva, Iacyel | B | 1 |
| González Avella, Juan Carlos | B | 1 |
| Komin, Niko | B | 1 |
| Chembo Kouomou, Yanne | B | 1 |
| Tessone, Claudio Juan | B | 1 |
| Bacelar, Flora | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Cerdá Pino, Juan José | Frankfurt Institute for Advanced Studies | |
| Manjarrez López, Elías | Inst. Fisiología Univ. Aut. Puebla, Mexi | |
| Pipa, Gordon | Frankfurt Institute for Advanced Studies | |
| Sorel, Marc | University of Glasgow, UK | |
| Centola, Damon | I. Quantitative Social Sci., Harvard U. | |

Summary

Building upon previously funded projects (PB94-1167 for 5 years, BFM2000-1108: CONOCE and FIS2004-00953: CONOCE2) we aim to develop interdisciplinary and strategic research from a common background of studies in Nonlinear Physics and Complex Systems, with methodologies taken from Statistical Physics, Dynamical Systems Theory and Computational Methods. The research is organized in a unifying transverse line of exploration and fundamental nature Transversal line : Complex systems: Statistical and Nonlinear Physics and 4 targeted research lines which focus on more specific fields:

Line 1: Nonlinear Optics, Quantum Optics and Dynamics of Optoelectronic Devices:

Line 2: Fluid dynamics, Biofluids and Geophysical Fluid

Line 3: Biophysics and Nonlinear Phenomena in Ecology and Physiology

Line 4: Dynamics and collective phenomena in social systems Our general scientific objectives are two-fold:

a) Exploring: contribute to the development of concepts and methods for the understanding of generic non-linear phenomena in complex systems

b) Transferring: interdisciplinary transfer of this body of knowledge to the strategic targeted research

sub-lines 1-4.

Referència: TEC2006-10009/MIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies electròniques i de comunicacions.
Títol: *Dispositivos fotónicos para comunicaciones basadas en caos.*
Acrònim: PhoDeCC.
Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).
Investigador responsable: COLET RAFECAS, Pere.
Categoria: Científic titular.
Inici: 2006 **Fi:** 2009

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|------------------------------|------------------------|
| Colet Rafecas, Pere | Cient. Tit. | 0.5 |
| Mirasso Santos, Claudio | TU | 0.5 |
| Gomila Villalonga, Damià | Aj. dr. | 1 |
| Sciré, Alessandro | Inv. | 1 |
| Jacobo, Adrián | B | 1 |
| Pérez López, Antonio | B | 1 |
| <u>Investigadors d'altres entitats</u> | | |
| Fisher, Ingo | Vrije Universiteit Brussel | |
| Dankaert, Jan | Vrije Universiteit Brussel | |
| Larger, Laurent | University of Franche-Compté | |

EDP del grup investigador de l'entitat sol·licitant: 6.

Summary

The encryption of information using chaotic carriers is a novel technique that can complement and offer an additional level of security to the technique of software encryption. Chaos based communications requires the use of opto-electronic devices operating in a chaotic regime. The definitive applicability of this technique in real optical communication systems will depend on the degree of security that can offer as well as on its robustness and on the compactness of the emitter and receiver systems. The objective of this project is to study the dynamics of new devices with useful properties for the optical communications based on chaos. Is to say that we look for devices that offer a higher degree of security than that obtained at the moment with simpler devices, that are robust and compact and that allow the use of encoding techniques that go beyond the traditional ones which have been used up to now.

Referència: FIS2007-30844-E. Ministeri d'Educació i Ciència.
Modalitat: Acció Complementària. Govern Espanyol
Títol: *Dinàmica no lineal en flujos atmosféricos y oceánicos.*
Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).
Investigador responsable: LÓPEZ SÁNCHEZ, Cristobal.
Categoria: Contr. dr. (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2008 **Fi:** 2008

| <u>Membres de l'equip</u> | <u>Categoria</u> |
|----------------------------------|-------------------------|
| López Sánchez, Cristobal | Contr. dr. |
| Turiel Martínez, Antonio M. | |
| Mancho Sánchez, Ana M. | TU |
| Hernández García, Emilio | |

Referència: CGL2008-06245-C02-02
Modalitat: Programa nacional I+D+I
Títol: *Sistemas complejos en ambientes fluidos advectivos caóticos.*
Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).
Investigador responsable: PIRO PERUSIN, Oreste.
Categoria: TU (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2008 **Fi:** 2009

Referència: CAC-2007-52. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'equipament i infraestructures d'investigació científica i tecnològica.
Títol: *Red e-Ciencia en España.*
Acrònim: E-Ciencia.
Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).
Investigador responsable: MATÍAS MURIEL, Manuel.
Categoria: INV. (àrea de coneixement: Física Aplicada).
Inici: 2008 **Fi:** 2009

| <u>Membres de l'equip</u> | |
|--|-------------------------------------|
| Matías Muriel, Manuel | INV. |
| Altres entitats | |
| ACUALSA | Universitat d'Almeria |
| ARCO | Universitat d'Extremadura |
| ARCOS.UC3M | Universitat Carlos III de Madrid |
| ATC.UC | Universitat de Cantabria |
| GAC.USC | Universitat de Santiago de |
| Compostela | |
| GEA | Universitat d'Extremadura |
| GIDS.UPM | Universitat Politècnica de Madrid |
| Grup d'Arquitectura de Computadors | Universitat de A Coruña |
| Grup de Grid i Computació d'altres prestacions | Universitat Politècnica de |
| Valencia | |
| IFCA-GRID | CSIC |
| ISG.UPV | Euskal Herriko Unibertsitatea |
| Nano-bio spectroscopy group | Universitat del País Vasc |
| PRHLTG.UPVLC | Universitat Politècnica de Valencia |
| QCyCAR-UCLM | Universitat de Castilla-La Mancha |
| RAAP.UCLM | Universitat de Castilla-La Mancha |

REBIUN
SCompBio-CNIO
TIC.CIEMAT Centre d'investigacions energètiques mediambientals y tecnològiques.

CRUE
Fundación Carlos III

Referència: PIE 2008501047. Ministeri de Ciència i Innovació.

Modalitat: Programa d'ajuts per a la incorporació de personal investigador a les Escales Científiques del CSIC.

Títol: *Efectos cuánticos en sistemas complejos.*

Acrònim: ECuSCo.

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: ZAMBRINI, Roberta.

Categoria: Cient. Tit. (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2008 **Fi:** 2009

Referència: FIS2008-01155-E/FIS. Ministeri de Ciència i Innovació.

Modalitat: Programa nacional de projectes d'investigació.

Títol: *Dinámica y fenómenos colectivos en sistemas socioeconómicos.*

Acrònim: SOCIONET

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2008 **Fi:** 2009

Membres de l'equip

Categoria

San Miguel Ruibal, Maximino

CU

Investigadors d'altres entitats

Wio, Horacio

Universitat de Cantabria

Sánchez, Ángel

Universitat Carlos III de Madrid

Díaz-Guilera, Albert

Universitat de Barcelona

Arenas, Alex

Universitat Rovira i Virgili

Masoliver, Jaume

Universitat de Barcelona

Villarroel, Javier

Universitat de Salamanca

Floria, Mario

Universitat de Saragossa

Muñoz, Miguel A.

Universitat de Granada

Pastor-Satorras, Romualdo

Universitat Politècnica de

Catalunya

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Sol·licitud de subvenció puntual inicial de posada en marxa de l'IFISC.*

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2008

Referència: PCTIB-2005GC4-05. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a grups de recerca emergents i competitius.

Títol: Física Interdisciplinària

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2006 **Fi:** 2009

Referència: QULMI. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a grups de recerca emergents i competitius.

Títol: Luz cuántica en microdispositivos (quantum light in microdevices).

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: ZAMBRINI, Roberta.

Categoria: INV. (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2008

Centre de Recerca Econòmica

Projectes del Govern Balear

Referència: PROGECIB-31A. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.
Títol: Externalitats del transport rodat en economies turístiques.
Centre: Centre de Recerca Econòmica (UIB-Sa Nostra).
Investigador responsable: ROSSELLÓ NADAL, Jaume.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2007 **Fi:** 2008

Laboratori de Sistemàtica Humana

Referència: HUM2007-64086. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Las raíces de la naturaleza humana. Hacia un replanteo sistemático del género Homo.*

Acrònim: HNR.

Centre: Laboratori de Sistemàtica Humana. Edifici Ramon Llull.

Investigador responsable: CELA CONDE, Camilo J.

Categoria: CU (àrea de coneixement: Filosofia Moral).

Inici: 2007 **Fi:** 2010

| <u>Membres de l'equip</u> | <u>Categoria</u> | <u>Dedicació (EDP)</u> |
|---|--|------------------------|
| Cela Conde, Camilo J. | CU | 0.5 |
| Marty Broquet, Gisèle | CU | 0.5 |
| Nadal Roberts, Marcos | As. | 0.5 |
| Capó Navarro, Miguel Ángel | As. | 0.5 |
| Burges Cruz, Lucrecia | Aj. Dr. | 0.5 |
| Miquel Novajra, Alejandro | TU | 0.5 |
| Gomila Benejam, Antoni | TU | 0.5 |
| Munar Roca, Enric | TU | 0.5 |
| <u>Investigadors d'altres entitats</u> | | |
| Gayon, Jean | Université de la Sorbonne | |
| Call Balaguer, Josep | Max Planck Institute for Evolutionary An | |
| Wuketits, Franz | University of Vienna | |
| Ruiz Altaba, Cristian | Govern Baler | |
| Ayala, Francisco J. | Universitat de Califòrnia (Irvine) | |
| Collard, Mark | University of British Columbia | |

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

There is currently no agreement on the number of species that should be included within the genus *Homo*, nor about the phylogenetic relations among them. The proposals range from suggesting the existence of a highly variable single species to the inclusion of more than seven different species. Given that these perspectives are grounded on different paradigmatic perspectives of the concept of species and human evolution, it seems improbable that a clarification of the genus *Homo* will be brought about by physical evidence. Hence, here we suggest an approach to this problem based on: (i) the analysis of the epistemological scope of the categories of species and genus and their use in the study of the evolutionary lineages of humans and other organisms, (ii) the clarification and analysis of the implicit assumptions underlying the procedures used in taxonomy and systematics, (iii) the introduction of a series of parsimony criteria that should be respected by any proposal in human systematics, (iv) the utilisation of the methodology so obtained for a general reinterpretation of the phylogeny of the

genus Homo and (v) the study of the role played in this evolution by some of the functional apomorphies of Homo sapiens: language, morals, and aesthetics.

UNIVERSITAT DE LES ILLES BALEARS

Referència: Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Difusió de reportatges sobre projectes de recerca dels grups, departaments i instituts de la UIB.*

Centre: Vicerectorat d'Investigació. Edifici Son Lledó.

Investigador responsable: SERVERA BARCELÓ, Mateu.

Categoria: TU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2007 **Fi:** 2008

ACCIONS INTEGRADES

Referència: HF2006 0164

Títol: *Anàlisis y restauración de imágenes digitales.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: COLL VICENS, Bartomeu.

Categoria: CU (àrea de coneixement: Matemàtica Aplicada).

Inici: 2007 **Fi:** 2008

Referència: HU2006 0021

Títol: *Destination rejuvenation strategies: Policies and Measures.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: JUANEDA SAMPOL, Catalina.

Categoria: CU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2008

Referència: HA2006 0078

Títol: *Discourse traditions analysis of old spanish biblical texts with the tradisc program.*

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

Investigador responsable: ENRIQUE ARIAS, Andrés.

Categoria: TU (àrea de coneixement: Llengua Espanyola).

Inici: 2007 **Fi:** 2008

Referència: HP2006 0074

Títol: *Relativistic Elasticity.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: CAROT GINER, Jaume.

Categoria: TU (àrea de coneixement: Relativitat i Cosmologia).

Inici: 2007 **Fi:** 2008

Referència: HF2006 0163

Títol: *Arselio: Desarrollo de sondas fluorescentes para la determinación de arsénico y selenio.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: CERDÀ MARTIN, Víctor.

Categoria: CU (àrea de coneixement: Química Analítica).

Inici: 2007 **Fi:** 2008

Referència: HH2006 0031

Títol: *Transported in Chaotic environmental Flows.*

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: LÓPEZ SÁNCHEZ, Cristobal.

Categoria: Contr. dr. (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2008

Referència: HA2007 0042

Títol: *Gravitational wave templates for binary black hole coalescence.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigadora responsable: SINTES OLIVES, Alícia Magdalena.

Categoria: TU (àrea de coneixement: Física Teòrica).

Inici: 2008

Fi: 2009

ACCIONS ESPECIALS I COMPLEMENTÀRIES

Referència: AGL2004-22480-E.

Títol: *Native perennial forage plants for sustainability of farming systems in the western mediterranean.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: CIFRE LLOMPART, Josep.

Categoria: P. col. (àrea de coneixement: Producció Vegetal).

Inici: 2005 **Fi:** 2008

Referència: TEC2006-28105-E

Títol: *PICASSO. Photonic integrated components applied to secure chaos encoded optical*

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: MIRASSO SANTOS, Claudio Rubén.

Categoria: TU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2006 **Fi:** 2009

Referència: HUM2006-27383-E

Títol: *II Jornada de terminología y servicios lingüísticos: nuevos retos para los profesionales en la comunicación especializada.*

Centre: Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.

Investigadora responsable: CALAFAT VILA, Rosa.

Categoria: TU (àrea de coneixement: Filologia Catalana).

Inici: 2007. **Fi:** 2008.

Referència: FIS2006-28405-E

Títol: *Renovación red temática de relatividad y gravitación, ACO0602536.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigadora responsable: SINTES OLIVES, Alícia Magdalena.

Categoria: TU (àrea de coneixement: Física Teòrica).

Inici: 2007. **Fi:** 2008.

Referència: SEJ2006-28072-E

Títol: *XV Foro de finanzas.*

Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: PASCUAL GASCO, Roberto.

Categoria: TU int. (àrea de coneixement: Economia Financera i Comptabilitat).

Inici: 2007. **Fi:** 2008.

Referència: DPI2006-28345-E

Títol: *AUTOMAR: Investigación en automática y robótica para la industria marítima (Renovación).*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: OLIVER CODINA, Gabriel.

Categoria: TU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).
Inici: 2007. **Fi:** 2008.
Referència: HUM2006-27972-E
Títol: *XIV Interuniversity Workshop on Philosophy and Cognitive Science.*
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.
Investigador responsable: GOMILA BENEJAM, Antoni.
Categoria: TU (àrea de coneixement: Psicologia Bàsica).
Inici: 2007. **Fi:** 2008.

Referència: SEJ2006-28095E
Títol: *VIII Simposio de PSicolingüística.*
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.
Investigador responsable: GOMILA BENEJAM, Antoni.
Categoria: TU (àrea de coneixement: Psicologia Bàsica).
Inici: 2007. **Fi:** 2008.

Referència: FFI2008-01604-E
Títol: *V Seminario Mente, Arte y Moralidad: Libertad y Responsabilidad Moral.*
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.
Investigador responsable: GOMILA BENEJAM, Antoni.
Categoria: TU (àrea de coneixement: Psicologia Bàsica).
Inici: 2008 **Fi:** 2009

Referència: CGL2006-27870-E
Títol: *IV Jornadas de Geomorfología Litoral. Mallorca 2007.*
Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.
Investigador responsable: FORNÓS ASTÓ, Joan J.
Categoria: TU (àrea de coneixement: Estratigrafia).
Inici: 2007 **Fi:** 2008

Referència: MAT2006-28193-E
Títol: *Development and characterisation of new ferromagnetic shape memory alloys.*
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: CESARI ALIBERCH, Eduard.
Categoria: CU (àrea de coneixement: Física Aplicada).
Inici: 2007 **Fi:** 2010

Referència: DEP2006-28536-E
Títol: *II Congreso internacional y XXIV nacional de educación física.*
Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonya.
Investigador responsable: PALOU SAMPOL, Pere.
Categoria: TEU (àrea de coneixement: Educació Física i Esportiva).
Inici: 2007 **Fi:** 2008

Referència: TIN2006-27672-E
Títol: *AALIVE Ambient Assitive for Living Virtual Environments.*
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: PERALES LÓPEZ, Francisco.
Categoria: TU (àrea de coneixement: C. de la Computació i Intel·ligència Artificial).
Inici: 2007 **Fi:** 2008
Referència: TIN2007-29683-E
Títol: *Internet basada en servicios y aplicaciones distribuidos (INTERESAD).*
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: JUIZ GARCÍA, Carlos.
Categoria: TU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).
Inici: 2007 **Fi:** 2008

Referència: CGL2007-28783-E
Títol: *ESASSI Fondeos en la Antàrtida.*
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: GOMIS BOSCH, Damià.
Categoria: TU (àrea de coneixement: Física de la Terra).
Inici: 2007 **Fi:** 2009

Referència: PCI2005-A7-356
Títol: *Inspección Autónoma Submarina.*
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: CALVO IBÁÑEZ, Oscar.
Categoria: TEU (àrea de coneixement: Tecnologia Electrònica).
Inici: 2006 **Fi:** 2009

Referència: SEJ2007-30292-E/ECON
Títol: *III Congreso de la Asociación hispano-portuguesa de economía de los recursos naturales y ambientales.*
Centre: Centre de Recerca Econòmica.
Investigador responsable: RIERA FONT, Antoni.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2007 **Fi:** 2008

Referència: AGL2006-27837-E/ALI
Títol: *Identificación y prevención de efectos sobre la salud inducidos por la dieta y el estilo de vida en niños.*
Centre: Laboratori de Biologia Molecular, Nutrició i Biotecnologia.
Investigador responsable: PICÓ SEGURA, Catalina.
Categoria: CEU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2007 **Fi:** 2011

Referència: FIS2007-29087-E
Títol: EDEN-AC Ecological diversity and evolutionary networks.
Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).
Investigador responsable: HERNÁNDEZ GARCÍA, Emilio.
Categoria: TU (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2007 **Fi:** 2010

Referència: ECI2007-29029-E

Títol: OntoPDE.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: BONA GARCIA, Carlos.

Categoria: CU (àrea de coneixement: Física Teòrica).

Inici: 2008 **Fi:** 2009

Referència: CGL2007-29820-E

Títol: Meteorologia del Mediterráneo Occidental.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: CUXART RODAMILANS, Joan.

Categoria: Contr. dr. (àrea de coneixement: Física de la Terra).

Inici: 2008 **Fi:** 2009

Referència: CGL2007-29825-E

Títol: *Red ibérica para la investigación y desarrollo de aplicaciones en base a los modelos atmosféricos MM5/WRF.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: ROMERO MARCH, Romualdo.

Categoria: TU (àrea de coneixement: Física de la Terra).

Inici: 2008 **Fi:** 2008

Referència: PCI2006-A7-0618

Títol: *Estudios teóricos y espectroscópicos sobre la adsorción de gases en sólidos porosos periódicos.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: OTERO AREÁN, Carlos.

Categoria: CU (àrea de coneixement: Química Inorgànica).

Inici: 2007 **Fi:** 2008

Referència: DPI2007-29949-E

Títol: *Red temàtica de control inteligente 07.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: CALVO IBÁÑEZ, Oscar.

Categoria: TEU (àrea de coneixement: Tecnologia Electrònica).

Inici: 2007 **Fi:** 2009

Referència: FIS2007-29083-E

Títol: *Pattern Resilience (PATRES)*

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2010

Referència: TIN2007-29674-E
Títol: *XI Jornadas de tiempo real.*
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: LLAMOSÍ CASAS, Alberto.
Categoria: CU (àrea de coneixement: C. de la Computació i Intel·ligència Artificial)
Inici: 2008 **Fi:** 2008

Referència: CGL2007-29817-E
Títol: *Marine and terrestrial ecological-economic resilience (MATER)*
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: HENDRIKS, Iris.
Categoria:
Inici: 2008 **Fi:** 2008

Referència: CTQ2007-30911-E
Títol: *2ª Jornadas Red de Catàlisis Asimétrica (Red CASI)*
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: SAA RODRÍGUEZ, José Manuel.
Categoria: CU (àrea de coneixement: Química Orgànica).
Inici: 2008 **Fi:** 2009

Referència: CTQ2007-30845-E
Títol: *Electronic Structure: principles and Applications. ESPA2008*
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: MUÑOZ IZQUIERDO, Francisco.
Categoria: CU (àrea de coneixement: Química Física).
Inici: 2008 **Fi:** 2008

Referència: SEJ2007-30661-E
Títol: *First Conference of the international association for tourism economics.*
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: AGUILÓ PÉREZ, Eugeni.
Categoria: CU (àrea de coneixement: Economia Aplicada).
Inici: 2008 **Fi:** 2009

Referència: FFI-01534-E
Títol: *XXXII Congreso Internacional de la Asociación Española de Estudios Anglo-Norteamericanos.*
Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Lull.
Investigador responsable: JUAN GARAU, Maria.
Categoria: TU (àrea de coneixement: Filologia Anglesa).
Inici: 2008 **Fi:** 2009

Referència: CTM2008-00915-E

Títol: *Cianobacterias: predominio en el funcionamiento del desierto oceánico.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: AGAWIN ROMUALDO, Nona Sheila.

Categoria: CON

Inici: 2008 **Fi:** 2009

Referència: FFI2008-00268-E

Títol: *I Congreso Internacional de Filosofía Griega.*

Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.

Investigador responsable: CASADESÚS BORDOY, Francesc.

Categoria: TU

Inici: 2008 **Fi:** 2008

Referència: AAEE0012/08

Títol: *Difusió i explotació del projecte COL.diesis, el color se transforma en sonido.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Ramon Llull.

Investigador responsable: VARONA GÓMEZ, Xavier.

Categoria: Inv. Contr.

Inici: 2008 **Fi:** 2009

ALTRES ACCIONS

Projecte: Acció COST 858.

Títol: *Biotic and abiotic stress: grapevine defense mechanism and grape development.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: MEDRANO GIL, Hipólito.

Categoria: CU (àrea de coneixement: Fisiologia Vegetal).

Inici: 2003 **Fi:** 2009

Referència: Projecte AECL.

Títol: *Desarrollo de métodos automáticos para la especiación de compuestos nitrogenados y fosforados. Aplicación al análisis de aguas residuales.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: CERDÀ MARTÍN, Víctor.

Categoria: CU (àrea de coneixement: Química Analítica).

Centre d'aplicació: Laboratorio de Espectroscopia Molecular. Departament de Química. Facultad de Ciencias. Universidad de Los Andes. Núcleo de la Hechicera. Mérida. Venezuela.

Referència: II-05-051 EC.

Títol: *X-ray diffraction study of membrane structure-modifying lipids: interest in the modulation of blood pressure by lipid therapy.*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

Investigadora responsable: BARCELÓ MAIRATA, Francesca M.

Categoria: TU (àrea de coneixement: Bioquímica i Biologia Molecular).

Organisme: Deutches Electronen-Synchrotron.

Inici: 2005 **Fi:** 2008

Referència: Projecte AECL.

Títol: *Diseño de un sistema de reconstrucción 3D mediante cámaras estereoscópicas y luz estructurada. SKN3D*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: ABÁSULO GUERRERO, María José.

Categoria: P. Col. (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

Centre d'aplicació: Universitat Nacional de "La Plata" (UNLP), Argentina.

Inici: 2007 **Fi:** 2008

Referència: PIE200775010

Títol: *Física Estadística y No lineal: Dinámica y Redes Complejas en Sistemas Biológicos y Sociales.*

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: MARTÍNEZ EGUILUZ, Víctor.

Categoria: Cient. Tit. (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2008

Referència: PIF06-059

Títol: OCEANTECH. Herramientas avanzadas para el estudio de la dinámica oceánica y la gestión medio-ambiental.

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: LÓPEZ SÁNCHEZ, Cristobal.

Categoria: CON (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2008

Referència: Projecte AECI A/011457/07. Programa de Cooperació amb Iberoamèrica.

Títol: *Alineamiento de estructuras de proteínas.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: ROSSELLÓ LLOMPART, Francesc.

Categoria: CEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

Centre d'aplicació: Universitat de les Illes Balears i Universitat Nacional de Quilmes (Argentina)

Inici: 2008 **Fi:** 2009

Referència: A/9260/07. Agència Espanyola de Cooperació Internacional i Desenvolupament.

Modalitat: Programa de Cooperació Interuniversitària i Investigació Científica.

Títol: *Calidad de servicios Web.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: PUIGJANER TREPAT, Ramon.

Categoria: CU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).

Inici: 2008 **Fi:** 2009

ÍNDEX D'ABREVIACIONS

Aj.: Ajudant/a
Aj. EU: Ajudant/a d'Escola Universitària
Aj. U: Ajudant/a d'Universitat
AGR: Programa nacional d'investigació i desenvolupament agrari
ALI: Programa nacional de tecnologia d'aliments
AMB: Programa nacional d'I+D en medi ambient
ANT: Programa nacional d'investigació a l'Antàrtida.
As.: Associat/associada
B: Becari/becària
B (reinc.): Becari/becària postdoctoral de reincorporació
BIO: Programa nacional de biotecnologia
C: Col·laborador/a
CEU: Catedràtic/a d'Escola Universitària
Cient. Tit.: Científic Titular
CLI: Programa nacional d'I+D sobre el clima
CON: Contractat / contractada
Contr. dr.: Contractat doctor
CSIC: Consell Superior d'Investigacions Científiques
CU: Catedràtic/a d'Universitat
EDP: Equivalent de dedicació plena
EDP=1: dedicació única
EDP=0.5: compartida a dos projectes
EDP=0.33: compartida a tres projectes
EJC: Equivalent de jornada completa
FD: Fons FEDER
FIS: Fons d'Investigació Sanitària
HID: Programa nacional de recursos hídrics
IMPIVA: Institut per a la Modernització dels Processos Industrials de València
INV.: Investigador / Investigadora
Inv. Contr.: Investigador contractat / Investigadora contractat
MAR: Programa nacional de ciència i tecnologia marines
MAST: Marine Sciences and Technologies
MAT: Programa nacional de materials
MEC: Ministeri d'Educació i Ciència
PB: Programa bàsic (Programa sectorial de promoció general del coneixement)
PETRI: Projecte d'Estímul a la Transferència de Resultats d'Investigació
P. Col.: Professor/a col·laborador/a
PM: Programa de medicina
Prof. Aj.: Professor/professora ajudant
Prof. Inv.: Professor d'Investigació
PS: Programa sectorial
P1: Projectes d'investigació bàsica no orientada
P2: Projectes d'investigació bàsica orientada
P3: Projectes d'investigació aplicada
P4: Projectes d'I+D en cooperació

RACE: Research and Technology Development in Advanced Communications Technologies

SC: Programa sectorial d'I+D agrari i alimentari del MAPA

SM: Projecte simplificat d'investigació en biomedicina

Tèc.: Tècnic

TEL: Programa nacional d'aplicacions i serveis telemàtics

TEU: Titular d'Escola Universitària

TIC: Programa nacional de tecnologies de la informació i de les comunicacions

TU: Titular d'Universitat

UE: Unió Europea

UNESCO: United Nations Educational Scientific and Cultural Organization

Visitant: Professor/a visitant

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