European Research Council

Oficina de Projectes Europeus de Recerca
VNIVERSITAT DE VALÈNCIA

Paterna, 20 de enero de 2016

Horizon 2020: Estructura

Excellent Science

European Research Council
Future Emerging Technologies
Marie Sklodowska-Curie Actions
European Research Infraestructures, including e-Infrastructures

Industrial Leadership

Leadership in Enabling and Industrial
-Technologies Inormation and Communication Technologies
-Nanotechnologies, Advanced Materials,Advanced Manufacturing and Processing, and Biotechnology
-Space
Access to risk finance
Innovation in SMEs

Societal Challenges

Health, Demographic Chamge and Wellbeing
Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy
Secure, Clean and Efficient Energy
Smart, Green and Integrated Transport
Climate Action, Environment, Resource Efficiency and Raw Materials
Europe in a changing world – Inclusive, innovative and reflective societies
Secure societies –Protecting freedom and security of Europe and its citizens

Presupuesto en Ciencia Excelente

ERC	13.094,81
FET	2.695,99
MSCA	6.162,26
Infrastructures	2.488,01

TOTAL 24.441,07

ERC
European Research Council
http://erc.europa.eu/

El Consejo Europeo de Investigación

- Fue creado en 2007
- Tiene un gran prestigio entre la comunidad científica
- Muy competitivas (tasa de éxito ronda el 12%)
- Más de 5.000 proyectos ya han recibido financiación
- El Consejo propone a sus expertos independientes.

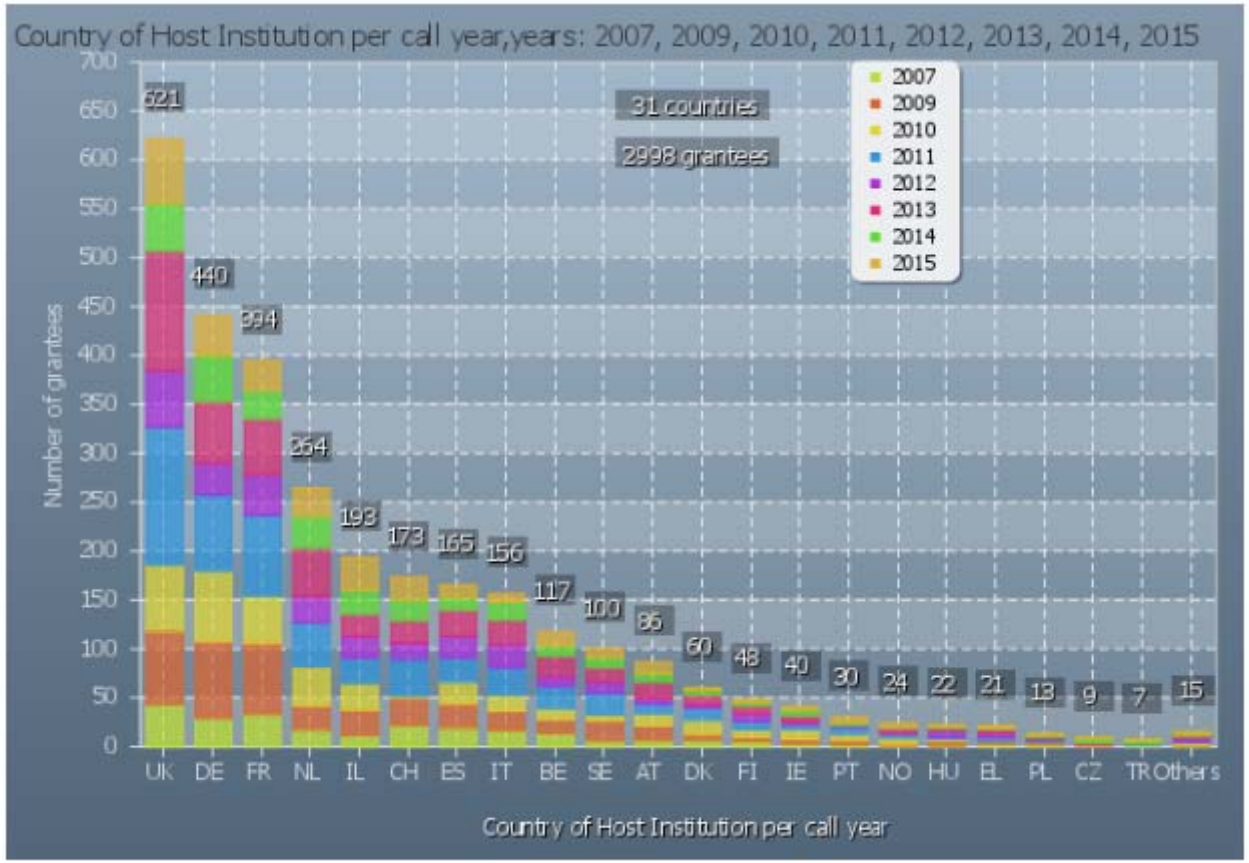
ERC Call	Applications received	Of which		
		Evaluated*	Funded	Success rates (%)**
Starting Grant 2007	9,167	8,787	299	3.4
Starting Grant 2009	2,503	2,392	245	10.2
Starting Grant 2010	2,873	2,767	436	15.8
Starting Grant 2011	4,080	4,005	486	12.1
Starting Grant 2012	4,741	4,652	566	12.2
Starting Grant 2013	3,329	3,266	300	9.2
Consolidator Grant 2013	3,673	3,604	313	8.7
Starting Grant 2014	3,273	3,204	375	11.7
Consolidator Grant 2014	2,528	2,485	372	15.0
Starting Grant 2015	2,920	2,862	291	10.2
Starting & Consolidator Grant total	39,087	38,013	3,683	10.9
Advanced Grant 2008	2,167	2,034	282	13.9
Advanced Grant 2009	1,584	1,526	245	16.1
Advanced Grant 2010	2,009	1,967	271	13.8
Advanced Grant 2011	2,284	2,245	301	13.4
Advanced Grant 2012	2,304	2,269	319	14.1
Advanced Grant 2013	2,408	2,363	291	12.3
Advanced Grant 2014	2,287	2,250	192	8.5
Advanced Grant total	15,043	14,654	1,901	13.2
Proof of Concept 2011	151	139	51	36.7
Proof of Concept 2012	143	120	60	50.0
Proof of Concept 2013	292	279	67	24.0
Proof of Concept 2014	442	426	120	27.5
Proof of Concept 2015	204	197	89	45.2
Proof of Concept total	1,232	1,161	387	34.6
Synergy Grant 2012	710	697	11	1.6
Synergy Grant 2013	449	427	13	3.0
Synergy Grant total	1,159	1,124	24	2.1

* Ineligible and withdrawn proposals not taken into account

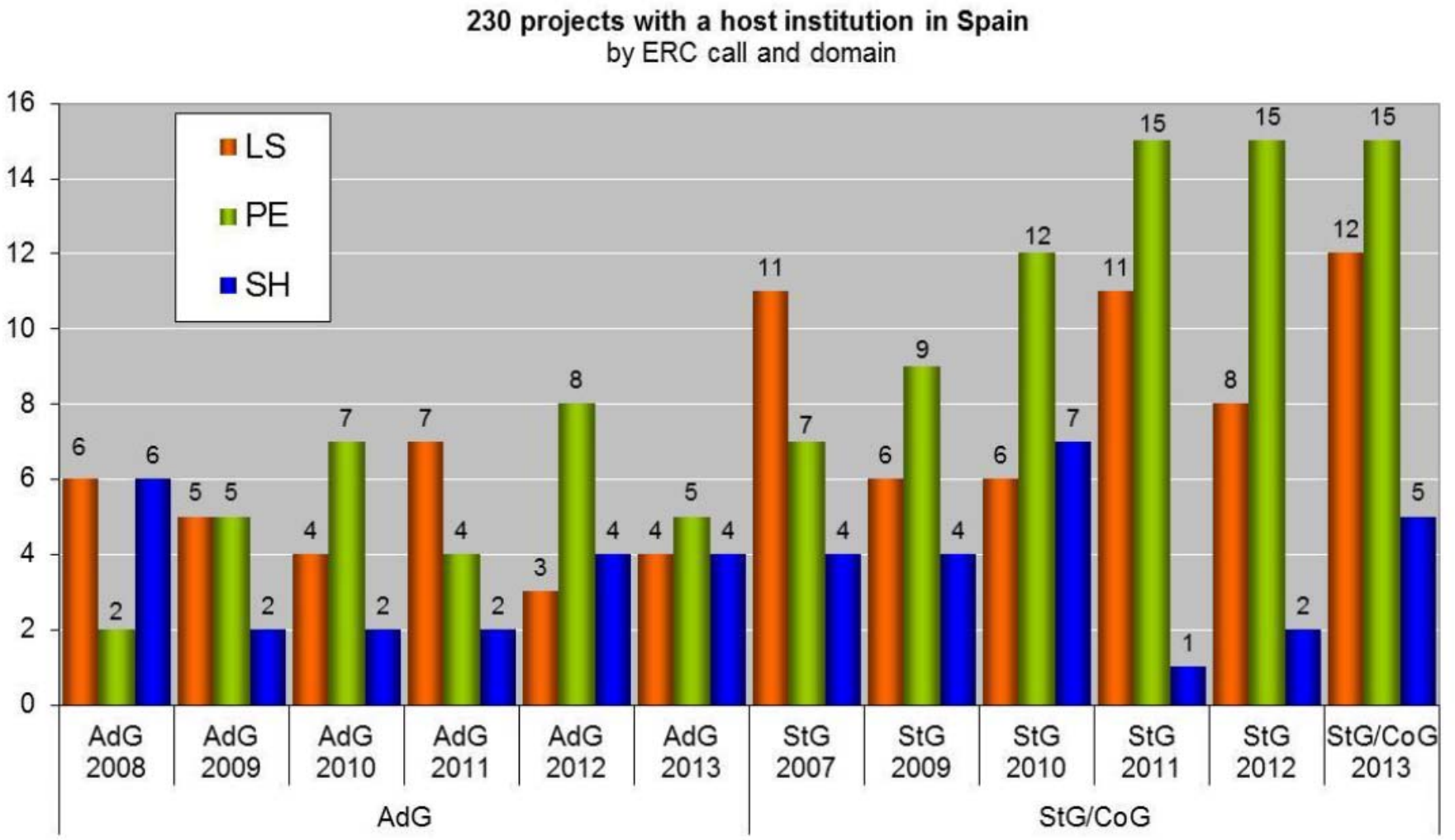
** Basis: evaluated proposals

data as of 04/12/2015

Distribución por países.



Proyectos financiados en España a 12 de enero de 2015.



Objetivo

The fundamental activity of the ERC is to provide attractive, long-term funding to support **excellent investigators** and their research teams to pursue ground-breaking, high-gain/ high-risk research. Research funded by the ERC is expected to lead to advances at the frontiers of knowledge and to set a clear and inspirational target for frontier research across Europe.

***Scientific excellence is the sole criterion* on the basis of which ERC frontier research grants are awarded**

http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/erc/h2020-wp16-erc_en.pdf

No hace falta un consorcio. Para eso hay otras convocatorias.
La ERC se concede al investigador principal.

No hay prioridades. Bottom-up.

Financian al 100%

1.500.000€+500.000 adicionales

ERC Starting Grants

Support top researchers with 2 to 7 years of experience after their PhD

Grants amount to up to €2 million for five years

ERC Consolidator Grants

Support top researchers with 7 to 12 years of experience after their PhD

Grants amount to up to €2.75 million for five years

2.000.000€+7500.000 adicionales

ERC Advanced Grants

Open to excellent established researchers who have a recent research track-record which identifies them as leaders in their respective field of research

Grants amount up to €3.5 million for five years

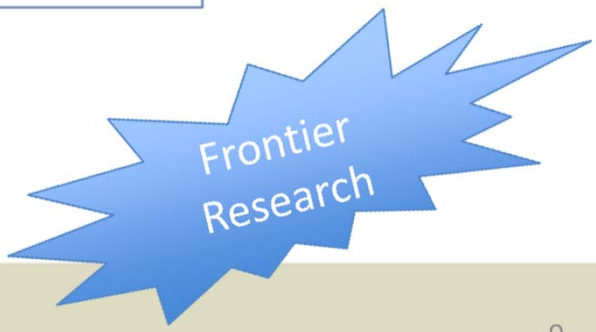
2.500.000€+1.000.000 adicional

ERC Proof of Concept

For ERC grant holders only

Bridging gap between research - earliest stage of marketable innovation

Grants amount up to €150,000



	Starting Grant	Consolidator Grant	Advanced Grant
Specific Eligibility Criteria	Principal Investigator shall have been awarded his/her first PhD ≥ 2 and ≤ 7 years prior to 1 January 2016	Principal Investigator shall have been awarded his/her first PhD > 7 and ≤ 12 years prior to 1 January 2016	none

The reference date towards the calculation of the eligibility period should be the date of the actual award according to the national rules in the country where the degree was awarded.

However, the effective elapsed time since the award of the first PhD taken into consideration for eligibility can be reduced in the following properly documented circumstances.

For maternity, the effective elapsed time since the award of the first PhD will be considered reduced by 18 months for each child born before or after the PhD award. For paternity, the effective elapsed time since the award of the first PhD will be considered reduced by the documented amount of paternity leave actually taken for each child born before or after the PhD award.

For long-term illness[11], clinical training or national service the effective elapsed time since the award of the first PhD will be considered reduced by the documented amount of leave actually taken by the Principal Investigator for each incident which occurred after the PhD award.

Calendario

Indicative summary of main calls from the 2016 budget[1]

	Starting Grant	*Consolidator Grant*	*Advanced Grant*
Call identifier	ERC-2016-StG	ERC-2016-CoG	ERC-2016-AdG
Call Opens	29 July 2015	15 October 2015	24 May 2016
Deadline	17 November 2015	2 February 2016	1 September 2016
Budget million EUR (estimated grants)	485 (335)	605 (335)	540 (235)
Planned dates to inform applicants	29 April 2016 1 September 2016	1 July 2016 1 December 2016	16 January 2017 16 March 2017
Indicative date for signature of grant agreements	1 January 2017	1 April 2017	16 July 2017

[1]These opening dates and call deadlines are indicative. The Director of the European Research Council Executive Agency may open it up to one month prior to or after the envisaged opening date. The Director may delay the envisaged deadline by up to two months. The budget amounts for 2016 are subject to the availability of the appropriations provided for in the draft budget for 2016 after the adoption of the budget for 2016 by the budgetary authority or if the budget is not adopted as provided for in the system of provisional twelfths

Institución de acogida

- Se espera que sea la única entidad legal que participe.
- Debe estar establecida en un estado miembro o asociado.
- Contratará al investigador al menos durante el tiempo que dure el proyecto.
- Como parte de la propuesta se adjunta en pdf una carta (existe un modelo) que firma el representante legal de la institución. En nuestro caso el Vicerrector/-ora de Investigación.

Dedicación al proyecto

Starting: Mínimo 50% de su tiempo de trabajo debe desarrollarse en un estado miembro o asociado y como mínimo el 50% del tiempo debe dedicarse al proyecto ERC.
Consolidator: Mínimo 50% de su tiempo de trabajo debe desarrollarse en un estado miembro o asociado y como mínimo el 40% del tiempo debe dedicarse al proyecto ERC.
Advanced: Mínimo 50% de su tiempo de trabajo debe desarrollarse en un estado miembro o asociado y como mínimo el 30% del tiempo debe dedicarse al proyecto ERC

Restricciones

A Principal Investigator may submit proposals to different ERC frontier research grant calls made under the same Work Programme, but only the first eligible proposal will be evaluated.

*A Principal Investigator whose proposal was evaluated as **category A** in the Starting, Consolidator or Advanced Grant calls for proposals under Work Programme 2015 may submit a proposal to the Starting, Consolidator or Advanced Grant calls for proposals made under Work Programme 2016.*

*A Principal Investigator whose proposal was evaluated as **category B** at step 2 in the Starting, Consolidator or Advanced Grant calls for proposals under Work Programme 2015 may submit a proposal to the Starting, Consolidator or Advanced Grant calls for proposals made under Work Programme 2016.*

*A Principal Investigator whose proposal was evaluated as **category B** at step 1 in the Starting, Consolidator or Advanced Grant calls for proposals under Work Programme 2015 may not submit a proposal to the Starting, Consolidator or Advanced Grant calls for proposals made under Work Programme 2016.*

*A Principal Investigator whose proposal was evaluated as **category C** in the Starting, Consolidator or Advanced Grant calls for proposals under Work Programmes 2014 or 2015 may not submit a proposal to the Starting, Consolidator or Advanced Grant calls for proposals made under Work Programme 2016.*

A Principal Investigator whose proposal was rejected on the grounds of a breach of research integrity in the calls for proposals under Work Programmes 2014 or 2015 may not submit a proposal to the calls for proposals made under Work Programme 2016.

A researcher may participate as Principal Investigator or Co-Investigator[14] in only one ERC frontier research project at any one time[15].

25 Panels 3 Domains

Life Sciences

- LS1 Molecular and Structural Biology and Biochemistry
- LS2 Genetics, Genomics, Bioinformatics and Systems Biology
- LS3 Cellular and Developmental Biology
- LS4 Physiology, Pathophysiology and Endocrinology
- LS5 Neurosciences and Neural Disorders
- LS6 Immunity and Infection
- LS7 Diagnostic Tools, Therapies and Public Health
- LS8 Evolutionary, Population and Environmental Biology
- LS9 Applied Life Sciences and Non-Medical Biotechnology

Social Sciences and Humanities

- SH1 Markets, Individuals, and Institutions
- SH2 The Social World, Diversity and Common Ground
- SH3 Environment, Space and Population
- SH4 The Human Mind and its Complexity
- SH5 Cultures and Cultural Production
- SH6 The Study of the Human Past

Physical Sciences and Engineering

- PE1 Mathematics
- PE2 Fundamental Constituents of Matter
- PE3 Condensed Matter Physics
- PE4 Physical and Analytical Chemical Sciences
- PE5 Synthetic Chemistry and Materials
- PE6 Computer Science and Informatics
- PE7 Systems and Communication Engineering
- PE8 Products and Processes Engineering
- PE9 Universe Sciences
- PE10 Earth System Science

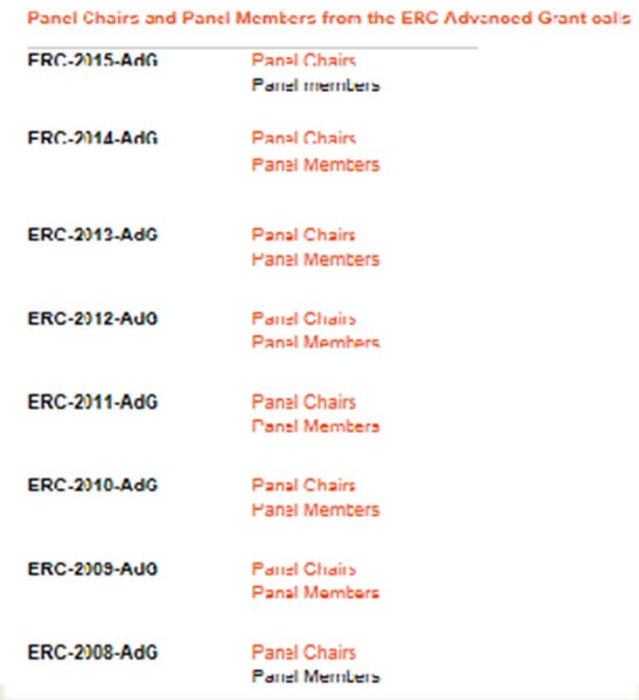
Si no estamos seguros del panel al que vamos a enviar la propuesta, podemos

- Ver quienes forman parte de los paneles desde el siguiente enlace: https://erc.europa.eu/evaluation-panels
- Cada panel lo component entre 12 y 15 miembros y uno es el Panel Chair.

- Ver dónde publican y dónde publicamos nosotros.

- Revisar los proyectos financiados en cada panel para Averiguar en cual será major entendida la propuesta.

Además de seleccionar el Panel es fundamental hacer una buena selección de las palabras clave porque de ellas depende que nuestra propuesta llegue a las manos más adecuadas.


Panel Chairs and Panel Members from the ERC Advanced Grant calls

ERC-2015-AdG	Panel Chairs Panel members
ERC-2014-AdG	Panel Chairs Panel Members
ERC-2013-AdG	Panel Chairs Panel Members
ERC-2012-AdG	Panel Chairs Panel Members
ERC-2011-AdG	Panel Chairs Panel Members
ERC-2010-AdG	Panel Chairs Panel Members
ERC-2009-AdG	Panel Chairs Panel Members
ERC-2008-AdG	Panel Chairs Panel Members

¿Qué necesito?

+

¿Soy un candidato competitivo?

No importa la edad, la nacionalidad ni donde estoy ahora mismo, pero…

STARTING
Potencial de independencia y madurez

Early achievements track record

In the Track record (see "Proposal description" below) the applicant Principal Investigator should list (if applicable):

1. ***Up to five publications*** *in* ***major international peer-reviewed multi-disciplinary scientific journals*** *and/or in the* ***leading international peer-reviewed journals, peer-reviewed conferences proceedings and/or monographs*** *of their respective research fields, highlighting those without the presence as co-author of their PhD supervisor, and the number of citations (excluding self-citations) they have attracted;*

2. ***Research monographs and any translations thereof;***

3. ***Granted patent(s);***

4. ***Invited presentations to peer-reviewed, internationally established conferences and/or international advanced schools;***

5. ***Prizes/ Awards/ Academy memberships.***

CONSOLIDATOR Ya deben mostrar independencia y madurez

Early achievements track record

In the Track Record (see "Proposal description" below) the applicant Principal Investigator should list (if applicable):

1. ***Up to ten publications*** *in* ***major international peer-reviewed multi-disciplinary scientific journals*** *and/or in the* ***leading international peer-reviewed journals, peer-reviewed conferences proceedings and/or monographs*** *of their respective research fields, highlighting those without the presence as co-author of their PhD supervisor, and the number of citations (excluding self-citations) they have attracted;*

2. ***Research monographs and any translations thereof****;*

3. ***Granted patent(s)****;*

4. ***Invited presentations to peer-reviewed, internationally established conferences*** *and/or* ***international advanced schools****;*

5. ***Prizes/ Awards/ Academy memberships***

Ten-year track record

In the Track Record (see "Proposal description" below) the applicant Principal Investigator should list (if applicable):

1. ***Up to ten representative publications, from the last ten years, as main author*** *(or in those fields where alphabetic order of authorship is the norm, joint author) in* ***major international peer-reviewed multi-disciplinary scientific journals*** *and/or in the* ***leading international peer-reviewed journals and peer-reviewed conferences proceedings*** *of their respective research fields, also indicating the number of citations (excluding self-citations) they have attracted;*

2. ***Research monographs and any translations thereof****;*

3. *Granted* ***patents****;*

4. ***Invited presentations to peer-reviewed, internationally established conferences*** *and/or* ***international advanced schools****;*

ADVANCED

ADVANCED

Thus, in most fields, Principal Investigators of Advanced Grant proposals will be expected to demonstrate a record of achievements appropriate to the field and at least matching one or more of the following benchmarks:

10 publications as senior author (or in those fields where alphabetic order of authorship is the norm, joint author) in major international peer-reviewed multidisciplinary scientific journals, and/or in the leading international peer-reviewed journals and peer-reviewed conferences proceedings of their respective field;

3 major research monographs, of which at least one is translated into another language. This benchmark is relevant to research fields where publication of monographs is the norm (e.g. humanities and social sciences).

Other alternative benchmarks that may be considered (individually or in combination) as indicative of an exceptional record and recognition in the last 10 years:

***5 granted patents**;

***10 invited presentations in well-established internationally organised conferences and advanced schools**;

***3 research expeditions** led by the applicant Principal Investigator;

***3 well-established international conferences or congresses** where the applicant was involved in their organisation as a member of the steering and/or organising committee;

*International recognition through scientific or artistic **prizes/awards** or membership in well-regarded Academies or artefact with documented use (for example, architectural or engineering design, methods or tools);

*Major contributions to **launching the careers of outstanding researchers**;

***Recognised leadership in industrial innovation**.

¡¡¡Hay que convencer!!!

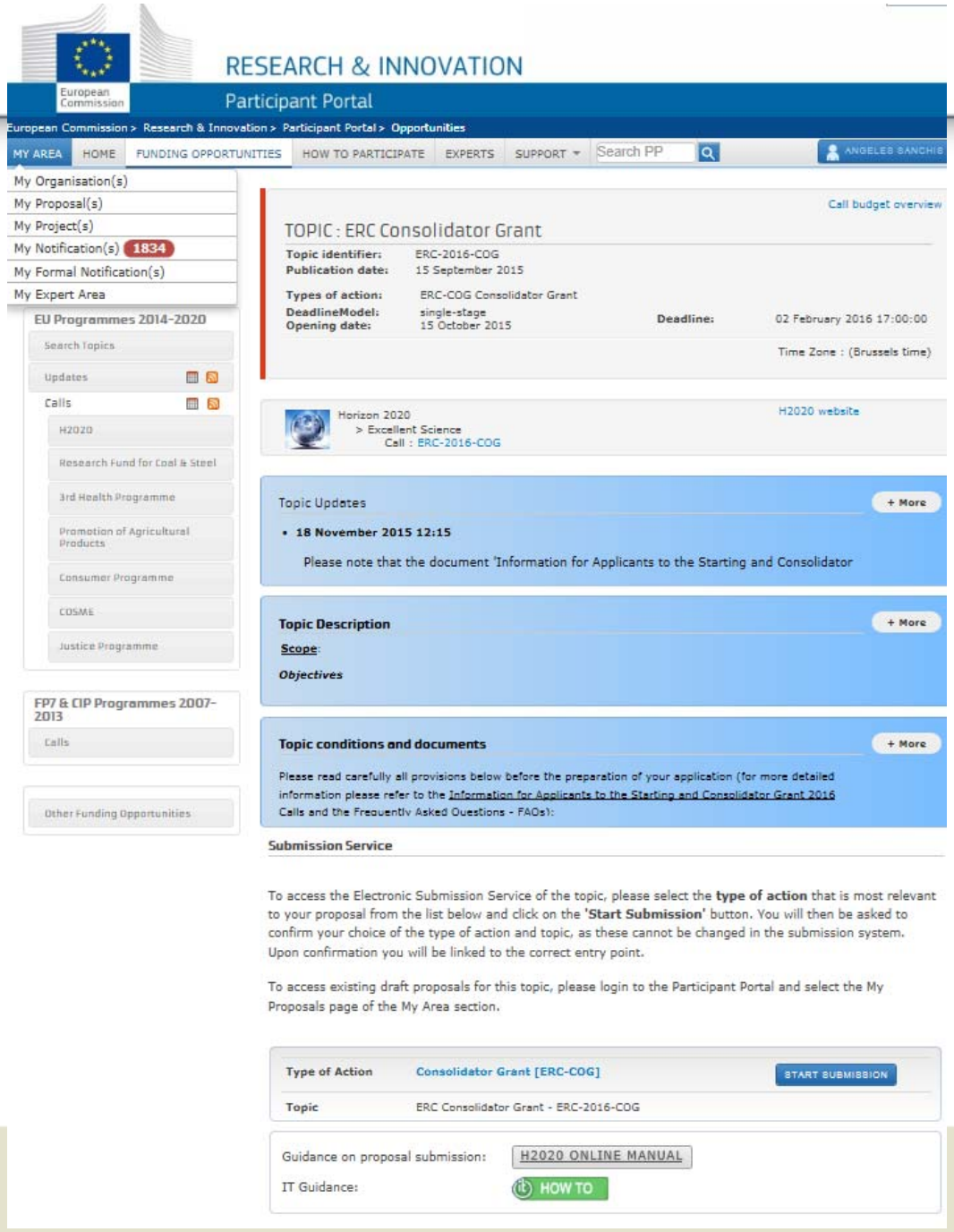
Importante:
No tenemos que limitarnos a enumerar. Podemos explicar en el cv y en el Track record la importancia de una determinada publicación, el impacto que ha tenido una estancia en nuestra carrera o qué significa tener una Ramón y Cajal en España a un evaluador que puede ser finlandés.

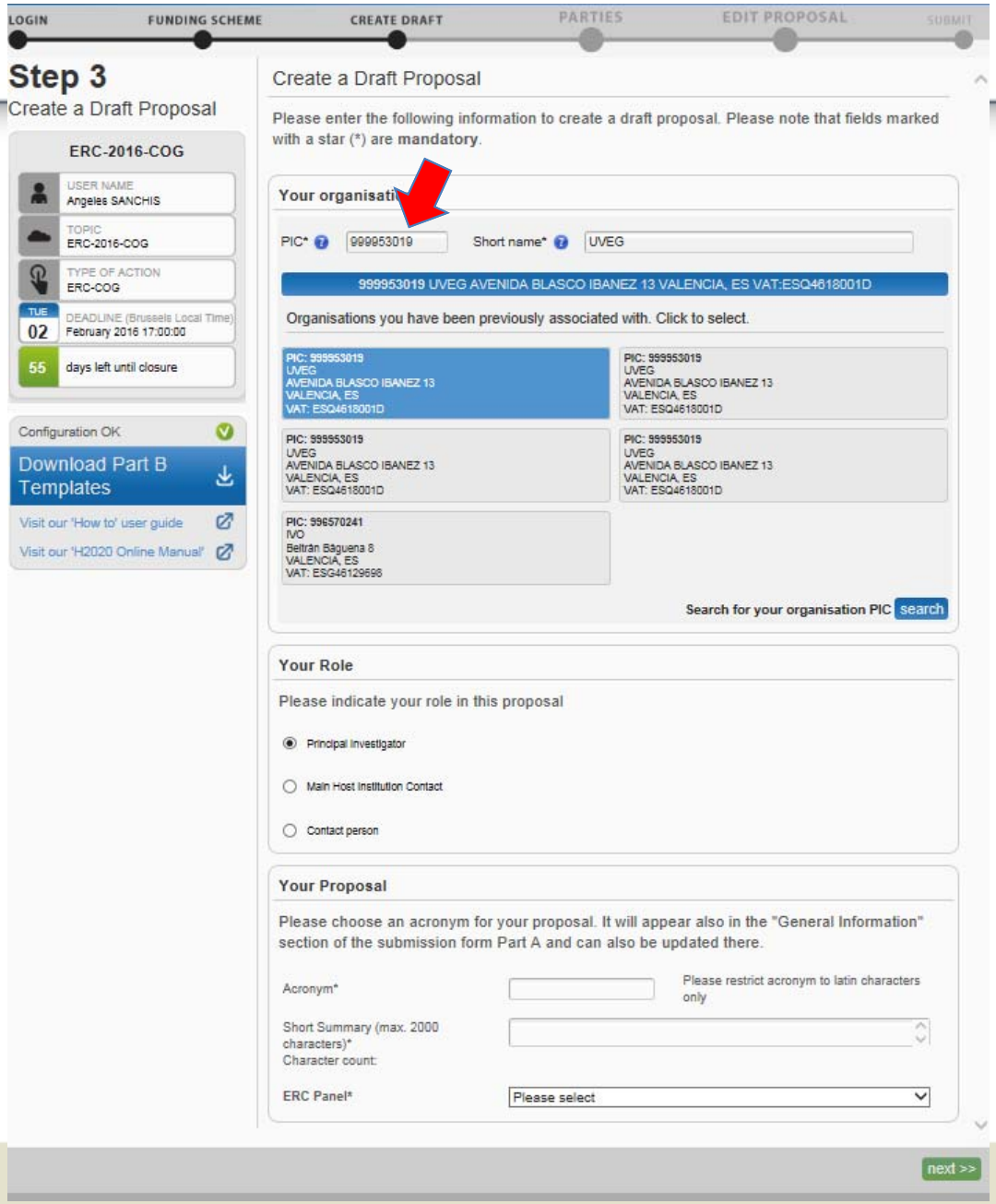
¿Mi propuesta es *ground-breaking*?

¿Proponemos un reto importante?
¿Hasta que punto son novedosos los objetivos y van más allá del estado del conocimiento?
¿Es *high risk / high gain*?

Presentación de una propuesta

Como presentar una propuesta




LOGIN
FUNDING SCHEME
CREATE DRAFT
PARTIES
EDIT PROPOSAL
SUBMIT
Step 3
Create a Draft Proposal
ERC-2016-COG
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Angeles SANCHIS
TOPIC
ERC-2016-COG
TYPE OF ACTION
ERC-COG
TUE
02
DEADLINE (Brussels Local Time)
February 2016 17:00:00
55
days left until closure
Configuration OK
Download Part B Templates
Visit our 'How to' user guide
Visit our 'H2020 Online Manual'
Create a Draft Proposal
Please enter the following information to create a draft proposal. Please note that fields marked with a star (*) are mandatory.
Your organisati
PIC*
999953019
Short name*
UVEG
999953019 UVEG AVENIDA BLASCO IBANEZ 13 VALENCIA, ES VAT:ESQ4618001D
Organisations you have been previously associated with. Click to select.
PIC: 999953019
UVEG
AVENIDA BLASCO IBANEZ 13
VALENCIA, ES
VAT: ESQ4618001D
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UVEG
AVENIDA BLASCO IBANEZ 13
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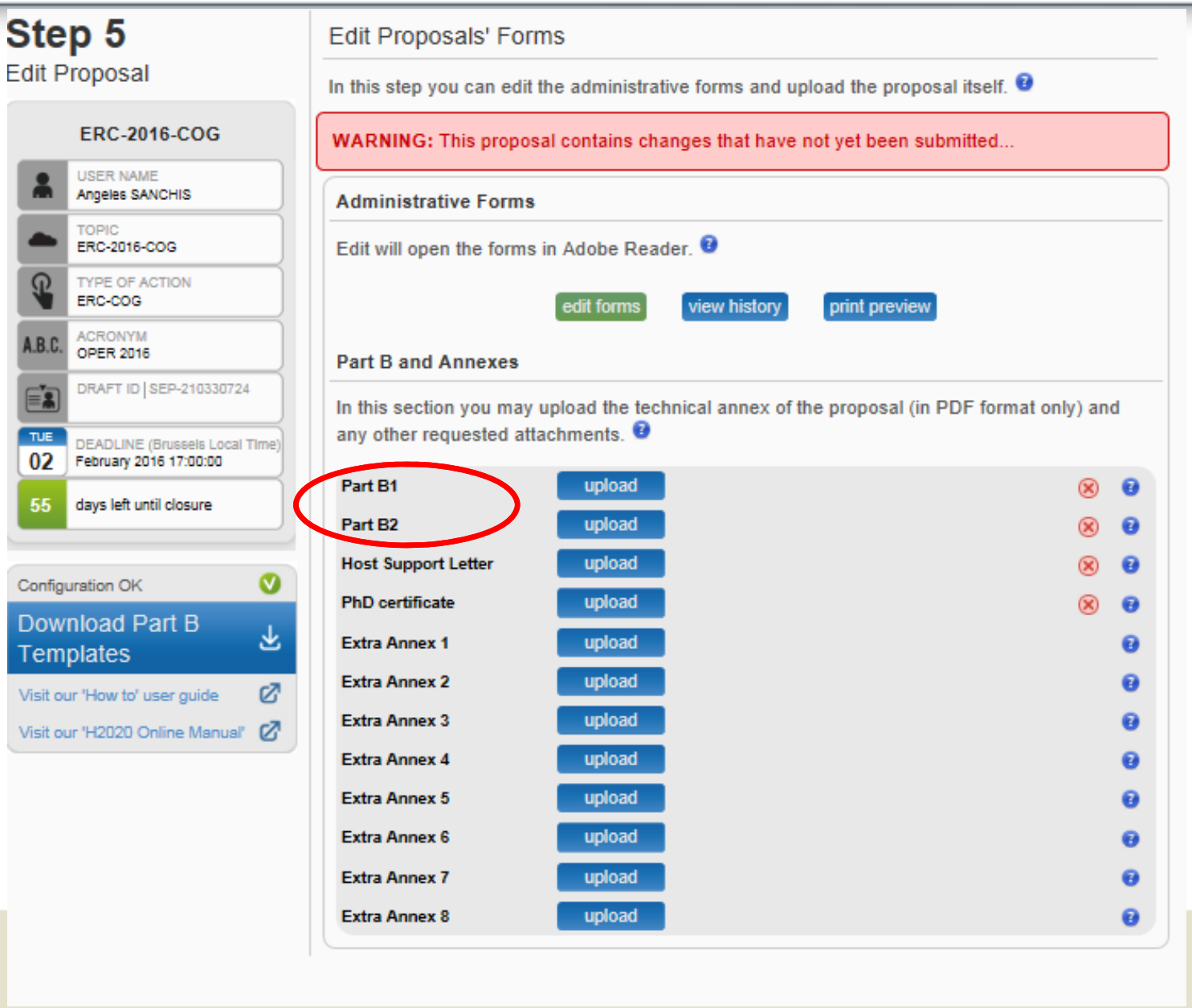
VALENCIA, ES
VAT: ESQ4618001D
PIC: 996570241
IVO
Beltrán Báguena 8
VALENCIA, ES
VAT: ESQ46129696
Search for your organisation PIC
search
Your Role
Please indicate your role in this proposal
Principal Investigator
Main Host Institution Contact
Contact person
Your Proposal
Please choose an acronym for your proposal. It will appear also in the "General Information" section of the submission form Part A and can also be updated there.
Acronym*
Please restrict acronym to latin characters only
Short Summary (max. 2000 characters)*
Character count:
ERC Panel*
Please select
next >>


Step 5
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Angeles SANCHIS
TOPIC
ERC-2016-COG
TYPE OF ACTION
ERC-COG
ACRONYM
OPER 2016
DRAFT ID | SEP-210330724
TUE
02
DEADLINE (Brussels Local Time)
February 2016 17:00:00
55
days left until closure
Configuration OK
Download Part B Templates
Visit our 'How to' user guide
Visit our 'H2020 Online Manual'
Edit Proposals' Forms
In this step you can edit the administrative forms and upload the proposal itself.
WARNING: This proposal contains changes that have not yet been submitted...
Administrative Forms
Edit will open the forms in Adobe Reader.
edit forms
view history
print preview
Part B and Annexes
In this section you may upload the technical annex of the proposal (in PDF format only) and any other requested attachments.
Part B1
upload
Part B2
upload
Host Support Letter
upload
PhD certificate
upload
Extra Annex 1
upload
Extra Annex 2
upload
Extra Annex 3
upload
Extra Annex 4
upload
Extra Annex 5
upload
Extra Annex 6
upload
Extra Annex 7
upload
Extra Annex 8
upload

Horizon 2020

Call: ERC-2016-COG

(Call for proposals for ERC Consolidator Grant)

Topic: ERC-2016-COG

Type of action:

()

Proposal number: SEP-210330724

Proposal acronym: OPER 2016

Deadline Id: ERC-2016-COG

Table of contents

Financiación

100% de los Costes Directos y Costes Indirectos (se calculan como el 25% de los Costes Directos).
Contactar con la OPER para elaboración/revisión del presupuesto.

Envío de la propuesta

- Debe enviarse antes del cierre de la convocatoria.
- Puede enviarse tantas veces como sea necesario (por eso no necesitamos el ultimo día). La última versión será la version que será evaluada.
- Se envía tanto la parte administrative (Part A) como la parte científica (Part B1 y B2) y los anexos (carta de apoyo firmada por la institución, título de Doctor para StG y CoG, documentos que prueben la extensión de la eligibilidad cuando sea necesario).

Aunque la evaluación sea en 2 fases

Part B1
Propuesta en 5 p.
CV 2p.
Track Record 2p.

Part B2
Propuesta completa 15 p.

Elements of the Evaluation Report

The Evaluation Report of any proposal comprises three components:
1. The decision of the panel (A, B or C grade plus ranking range).
2. A comment by the panel, written by the 'lead reviewer' or another Panel Member, and approved by the panel.
3. The comments from the individual reviews given by reviewers and Panel Members prior to the panel meeting.

ERC EN LA UVEG

ACRÓNIMO	INVESTIGADOR	CONVOCATORIA
SPINMOL	Eugenio Coronado	AdG2009
CAMAP	Miguel Ángel Aloy	StG2010
VIRMUT	Rafael Sanjuán	StG2011
SACCO	Robert Montes	StG2012
NEXT	J.J.Gómez-Cadenas	AdG2013
DECRESIM	Alejandro Gaita	CoG2014
SEDAL	Gustavo Camps	CoG2014

SPINMOL

Project reference: 247384
Funded under: FP7-IDEAS-ERC

Magnetic Molecules and Hybrid Materials for Molecular Spintronics

From 2010-03-01 **to** 2015-02-28, closed project

Project details

Total cost:	**Topic(s):**
EUR 1 679 700	ERC-AG-PE5 - ERC Advanced Grant - Materials and Synthesis
EU contribution:	**Call for proposal:**
EUR 1 679 700	ERC-2009-AdG
Coordinated in:	**Funding scheme:**
Spain	ERC-AG - ERC Advanced Grant

Objective

"In this project we intend to design new magnetic molecules and new classes of magnetic molecular materials which, conveniently nanostructured, can be of interest in molecular spintronics, quantum computing and, in general, in nanomagnetism. The project pretends to cover either the development of molecule-based materials with interesting spintronic properties (molecule-based spintronics), as well as the design and study of magnetic molecules of interest in unimolecular spintronics and quantum computing. The objectives will be the following: - Use of molecule-based magnets for the preparation of multilayered spintronic structures (molecular spin valves) - Design of molecule-based magnetic materials exhibiting multifunctional properties (ferromagnetic superconductors, magnetic multilayers and magnetic/conducting multilayers) - Nanopatterning of magnetic nanostructures on surfaces via a molecular approach. - Chemical control of quantum spin dynamics and decoherence in single-molecule magnets based on magnetic polyoxometalates with the aim of developing qu-bits based on these inorganic molecules. - Positioning and addressing magnetic polyoxometalates on surfaces. An unconventional strategy of this project is the use of purely inorganic building blocks, as well as of inorganic magnetic molecules to design these magnetic materials, instead of using metal-organic molecular systems. This purely inorganic molecular building-block approach will benefit from the robustness of this kind of molecules and materials. Another characteristic feature of this project is the combination of top-down and bottom-up approaches for the processing of the molecules / materials. Thus, the project will exploit the advantage of using lithographic techniques (high throughput, easy scalability, etc.) in combination with the chemical bottom-up design of the molecular system, for the nanopatterning of the materials and the positioning of the molecules on surfaces with nanoscale accuracy."

CAMAP

Project reference: 259276
Funded under: FP7-IDEAS-ERC

CAMAP: Computer Aided Modeling for Astrophysical Plasmas

From 2011-03-01 **to** 2017-02-28, ongoing project

Project details

Total cost:	**Topic(s):**
EUR 1 497 000	ERC-SG-PE9 - ERC Starting Grant - Universe sciences
EU contribution:	**Call for proposal:**
EUR 1 497 000	ERC-2010-StG_20091028
Coordinated in:	**Funding scheme:**
Spain	ERC-SG - ERC Starting Grant

Objective

"This project will be aimed at obtaining a deeper insight into the physical processes taking place in astrophysical magnetized plasmas. To study these scenarios I will employ different numerical codes as virtual tools that enable me to experiment on computers (virtual labs) with distinct initial and boundary conditions. Among the kind of sources I am interested to consider, I outline the following: Gamma-Ray Bursts (GRBs), extragalactic jets from Active Galactic Nuclei (AGN), magnetars and collapsing stellar cores. A number of important questions are still open regarding the fundamental properties of these astrophysical sources (e.g., collimation, acceleration mechanism, composition, high-energy emission, gravitational wave signature). Additionally, there are analytical issues on the formalism in relativistic dynamics not resolved yet, e.g., the covariant extension of resistive magnetohydrodynamics (MHD). All these problems are so complex that only a computational approach is feasible. I plan to study them by means of relativistic and Newtonian MHD numerical simulations. A principal focus of the project will be to assess the relevance of magnetic fields in the generation, collimation and ulterior propagation of relativistic jets from the GRB progenitors and from AGNs. More generally, I will pursue the goal of understanding the process of amplification of seed magnetic fields until they become dynamically relevant, e.g., using semi-global and local simulations of representative boxes of collapsed stellar cores. A big emphasis will be put on including all the relevant microphysics (e.g. neutrino physics), non-ideal effects (particularly, reconnection physics) and energy transport due to neutrinos and photons to account for the relevant processes in the former systems. A milestone of this project will be to end up with a numerical tool that enables us to deal with General Relativistic Radiation Magnetohydrodynamics problems in Astrophysics."

VIRMUT

Project reference: 281191
Funded under: FP7-IDEAS-ERC

Variability in the mutation rate of RNA viruses

From 2012-01-01 **to** 2016-12-31, ongoing project

Project details

Total cost:	**Topic(s):**
EUR 1 432 021	ERC-SG-LS8 - ERC Starting Grant - Evolutionary, population and environmental biology
EU contribution:	**Call for proposal:**
EUR 1 432 021	ERC-2011-StG_20101109
Coordinated in:	**Funding scheme:**
Spain	ERC-SG - ERC Starting Grant

Objective

"RNA viruses are the fastest evolving entities in nature. Such rapid evolution is explained by their mutation rates, which are orders of magnitude higher than those of DNA organisms. The error-prone replication of RNA viruses also has public-health implications related to pathogenesis, antiviral research, or viral emergence. However, current mutation rate estimates vary by more than 100-fold across different RNA viruses and sometimes over one order of magnitude for the same virus, and the causes of this variation remain poorly understood. Here, we plan to investigate variability in the mutation rate of RNA viruses at different levels. First, polymorphic sites in viral polymerases could produce populations with heterogeneous mutation rates, and the spread of genotypes with altered mutation rates might influence viral fitness and disease progression. Second, spontaneous mutations might occur preferentially at some regions of the viral genome, and these mutational hotspots could match genome regions where the selective pressure imposed by the host is strongest, thereby increasing viral adaptability. Third, RNA viruses with different types of genomes, such as single-stranded versus double-stranded RNA or sense versus anti-sense genome polarity might differ in their susceptibility to nucleic-acid damage or host-mediated editing and thus, in their mutation rate. Fourth, RNA viruses with larger genomes might have evolved increased replication fidelity to compensate for their greater genetic load. To address these issues, we will use several biomedically relevant and/or model viruses, including HIV-1, hepatitis C virus, a rotavirus, a coronavirus and a bacteriophage. The experimental procedures will include in vitro replication fidelity assays, ex vivo infections using cell cultures, and analysis of patient samples by next-generation sequencing. This thorough and multilevel approach may reveal previously unrecognized mechanisms for generating diversity in RNA viruses."

SACCO

Project reference: 309416
Funded under: FP7-IDEAS-ERC

Signals for accommodative responses in humans

From 2012-11-01 **to** 2017-10-31, ongoing project

Project details

Total cost:

EUR 1 384 200

EU contribution:

EUR 1 384 200

Coordinated in:

Spain

Topic(s):

ERC-SG-LS7 - Applied life sciences, biotechnology and bioengineering: agricultural, animal, fishery, forestry/food sciences; biotechnology, chemical biology, genetic engineering, synthetic biology, industrial biosciences; environmental biotechnology.

Call for proposal:

ERC-2012-StG_20111109

Funding scheme:

ERC-SG - ERC Starting Grant

Objective

"Long-term objectives are to identify optical signals that control accommodation and emmetropization of the eye, and to identify the mechanisms that mediate the optical signals. A primary goal is to determine whether accommodation responds to the wavefront characteristics of light [defocus and higher-order aberrations (HOAs)], without feedback from change in defocus astigmatism or HOAs. Accommodation, pupillary responses and aberrations will be monitored by an imaging simulator that incorporates Hartmann-Shack wavefront sensing, adaptive optics and Hirschberg x-y eye tracking. Adaptive optics and Badal optics will compensate for the refractive error of the eye, alter or remove HOAs, and remove feedback from changes in accommodation and/or HOAs. Accommodation will be driven by defocus with normal HOAs present or removed. To determine whether accommodation responds to wavefront aberration per se, or simply to the shape or skewing of blur, aberrations will be removed while simulation of defocus targets are imaged on the retina, with and without the effects of HOAs on the blur. Standard model that accommodation operates as a closed-loop negative feedback system to maximize the contrast retinal image, will be tested by using adaptive optics to remove defocus, astigmatism and HOAs and by establishing a closed feedback loop between accommodation and target contrast. An alternative hypothesis that accommodation responds to wavefront defocus rather than blur of the retinal image, will be tested by driving accommodation with defocus without feedback from blur, in the absence of HOAs. A final experiment will determine whether the pupil changes independently of lenticular accommodation to provide better acuity in the presence of spherical aberration. Better understanding of the optical signals and mechanisms that the eye used to detect myopic and hyperopic defocus may lead to early detection of individual at risk for developing myopia, and new treatments to prevent/reduce myopia"

NEXT

Project reference: 339787
Funded under: FP7-IDEAS-ERC

Towards the NEXT generation of bb0nu experimets

From 2014-02-01 **to** 2019-01-31, ongoing project

Project details

Total cost:	**Topic(s):**
EUR 2 791 771	ERC-AG-PE2 - ERC Advanced Grant - Fundamental constituents of matter
EU contribution:	**Call for proposal:**
EUR 2 791 771	ERC-2013-ADG
Coordinated in:	**Funding scheme:**
Spain	ERC-AG - ERC Advanced Grant

Objective

"Neutrinoless double beta decay is a hypothetical, very slow radioactive process whose observation would establish unambiguously that massive neutrinos are Majorana particles --- that is to say, identical to their antiparticles ---, which implies that a new physics scale beyond the Standard Model must exist. Furthermore, it would prove that total lepton number is not a conserved quantity, suggesting that this new physics could also be the origin of the observed asymmetry between matter and antimatter in the Universe.

In recent years, many innovative ideas have been put forward to improve the sensitivity of \bbonu\ experiments. In general, these propositions have sought to increase the number of experimental signatures available to reject backgrounds while attempting to use isotopes and detector techniques which can be more easily scaled to large masses.

The objective of this project is to realize the NEXT experiment, an innovativedetector based on a high-pressure xenon gas (HPXe) TPC that will run at the Laboratorio Subterr\'aneo de Canfranc (LSC), in Spain.

Our primary goal is to complete the construction and commissioning of a 150 kg HPXe TPC (NEXT-100) by 2014, and start a physics run in 2015 that can improve the present bound set by the EXO experiment and perhaps discover the Majorana nature of neutrinos. In addition, we will carry out an R\&D program focused in demonstrating the scalability of the technology to the ton scale."

DECRESIM

Project reference: 647301
Funded under: H2020-EU.1.1.

A Chemical Approach to Molecular Spin Qubits: Decoherence and Organisation of Rare Earth Single Ion Magnets

From 2015-08-01 **to** 2020-08-01, ongoing project

Project details

Total cost:	**Topic(s):**
EUR 1 827 375	ERC-CoG-2014 - ERC Consolidator Grant
EU contribution:	**Call for proposal:**
EUR 1 827 375	ERC-2014-CoG
Coordinated in:	**Funding scheme:**
Spain	ERC-COG - Consolidator Grant

Objective

"Coordination Chemistry and Molecular Magnetism are in an ideal position for the rational design of Single-Molecule Magnets which can be used as molecular spin qubits, the irreducible components of any quantum technology. Indeed, a major advantage of molecular spin qubits over other candidates stems from the power of Chemistry for a tailored and inexpensive synthesis of systems for their experimental study. In particular, the so-called Lanthanoid-based Single-Ion Magnets, which are currently the hottest topic in Molecular Magnetism, have the potential to be chemically designed, tuning both their single-molecule properties and their crystalline environment. This will allow the independent study of the different quantum processes that cause the loss of quantum information, collectively known as decoherence. The study of quantum decoherence processes in the solid state is necessary both to lay the foundations for next-generation quantum technologies and to answer some fundamental questions.
The goals of this project are:
#1 To unravel the mechanistic details of decoherence in molecular spin qubits based on mononuclear lanthanoid complexes. This study will stablish criteria for the rational design of single spin qubits.
#2 To extend this study to the coupling between two or more spin qubits. This will allow us to explore the use of polynuclear lanthanoid complexes to achieve quantum gates or simple algorithms.
#3 To extrapolate to infinite systems formed by the complex organization of spin qubits. This exploratory goal will permit us to move beyond zero-dimensional systems, thus facilitating the advance towards complex quantum functions.
"

HORIZON 2020

SEDAL

Project reference: 647423
Funded under: H2020-EU.1.1.

Statistical Learning for Earth Observation Data Analysis.

From 2015-09-01 **to** 2020-09-01, ongoing project

Project details

Total cost:	**Topic(s):**
EUR 1 716 954	ERC-CoG-2014 - ERC Consolidator Grant
EU contribution:	**Call for proposal:**
EUR 1 716 954	ERC-2014-CoG
Coordinated in:	**Funding scheme:**
Spain	ERC-COG - Consolidator Grant

Objective

SEDAL is an interdisciplinary project that aims to develop novel statistical learning methods to analyze Earth Observation (EO) satellite data. In the last decade, machine learning models have helped to monitor land, oceans, and atmosphere through the analysis and estimation of climate and biophysical parameters. Current approaches, however, cannot deal efficiently with the particular characteristics of remote sensing data. In the coming few years, this problem will largely increase: several satellite missions, such as the operational EU Copernicus Sentinels, will be launched, and we will face the urgent need to process and understand huge amounts of complex, heterogeneous, multisource, and structured data to monitor the rapid changes already occurring in our Planet.

SEDAL aims to develop the next generation of statistical inference methods for EO data analysis. We will develop advanced regression methods to improve efficiency, prediction accuracy and uncertainties, encode physical knowledge about the problem, and attain self-explanatory models learned from empirical data. Even more importantly, we will learn graphical causal models to explain the potentially complex interactions between key observed variables, and discover hidden essential drivers and confounding factors. This project will thus aboard the fundamental problem of moving from correlation to dependence and then to causation through EO data analysis. The theoretical developments will be guided by the challenging problems of estimating biophysical parameters and learning causal relations at both local and global planetary scales.

The long-term vision of SEDAL is tied to open new frontiers and foster research towards algorithms capable of discovering knowledge from EO data, a stepping stone before the more ambitious far-end goal of machine reasoning of anthropogenic climate change.

Documentación

Programa de Trabajo
http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/erc/h2020-wp16-erc_en.pdf
Guide for Peer Reviewers
http://ec.europa.eu/research/participants/data/ref/h2020/other/experts_manual/h2020_peer-review_erc-stg-cog-adg_en.pdf

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