



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: RAMOS ALMEIDA, CRISTINA DIOSCORA
Referencia: RYC-2014-15779
Área Científica: Física y Ciencias del Espacio
Correo Electrónico: cra@iac.es

Título:

Feeding and hiding the monster: triggering and obscuring the central engine of active galaxies

Resumen de la Memoria:

My main research topic is the study of active galactic nuclei (AGN) and their host galaxies. In particular, my scientific interests are the dusty torus of the AGN unified model, the AGN star formation connection and the triggering of AGN in galaxies.

As part of the CanariCam Science Team (CCST), we are publishing the overall majority of the scientific papers based on data from this mid-infrared instrument on the 10.4 m Gran Telescopio CANARIAS (GTC). Works based on individual sources have been published, and now our aim is to derive statistically significant results based on the whole sample of AGN that will be observed (~100 objects). In particular, I will focus on the modelling of the infrared spectral energy distributions with torus models, to test the validity of the AGN unified scheme, and will study nuclear star formation on scales of <100 pc.

I have also done significant work on the triggering of luminous AGN, and now my aim is to confirm the hypothesis that galaxy interactions trigger these powerful active galaxies, by quantifying the amount and distribution of cold gas in these objects using data from the Herschel Space Observatory and ALMA.

My research has been presented in several contributions at international conferences, including a review talk entitled "Testing the AGN unification model in the IR" at the 40th COSPAR Scientific Assembly, held in Moscow in Aug 2014 and four invited talks at the workshop "Mid-infrared Astronomy & CanariCam", Valencia, July 2013; at the XI Reunión Científica de la Sociedad Española de Astronomía (SEA) in Teruel, Sep 2014; at the conference "Unveiling the AGN/galaxy evolution connection", which will be held in Puerto Varas, Chile, in March 2015 and at the Guillermo Haro 2015 Workshop, that will take place in Puebla, Mexico, in July 2015.

Thanks to my expertise in AGN, I am/have been SOC of 7 international conferences to date, two of them as the event organizer as well: I am co-chair of the Special Session "Galaxy studies in the mid-infrared from space and ground", which will be part of the EWASS 2015 in Tenerife; and in July 2013 I was co-chair of the international workshop "The triggering mechanisms for AGN" held at the Lorentz Center, in Leiden, The Netherlands, proposed and then accepted in competitive call, and allocated a final budget of 18.304 euros.

Resumen del Currículum Vitae:

I obtained my PhD at the Universidad de La Laguna in 2009, and I was awarded an Extraordinary Prize in the Science Division. Then I moved to The University of Sheffield, in the United Kingdom, as a postdoctoral research associate (2009-2011), and after that, I was awarded a postdoctoral fellowship at the Instituto de Astrofísica de Canarias (IAC; 2011-2013).

One of my major achievements has been the award of a Marie Curie Intra-European fellowship of the European Commission (PIEF-GA-2012-327934), which I started in January 2014 and will finish in December 2015. The total budget associated to this grant, which I am the manager of, is 166.336 euros. Besides, since January 2014 I am the PI of one of the IAC research groups and its associated internal project: "Activity phenomena in galaxies: a 3D perspective from the nucleus to the outskirts", with an estimated budget of 6000 euros for 2015.

At my institution I am supervising the PhD thesis of Ismael García Bernete, entitled "A high-spatial resolution study of the extended emission of Seyfert galaxies", which started in October 2013 and will finish by September 2017. I am also assistant professor of one of the modules of the Master in Astrophysics at the Universidad de La Laguna and I have been co-supervisor of the Summer project of a master student last year.

My publication record at the moment includes 50 refereed papers, 15 of them as first author, which at the moment have 682 citations, giving an h-index of 15. Apart from that, I am co-author of six more papers which are currently submitted to different journals (ApJ and MNRAS).



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: PALENCIA CORTEZON, ENRIQUE
Referencia: RYC-2014-15247
Área Científica: Física y Ciencias del Espacio
Correo Electrónico: enrique.palencia.cortezon@gmail.com

Título:

palenciaHEP

Resumen de la Memoria:

My professional career is characterized by the continuous presence at the most important particle physics laboratories: I have spent seven years at Fermilab and four at CERN. My five most relevant achievements are the following:

Studies of the Top quark

I have become an expert in the physics of the top quark production and properties. I have analyzed data samples with top quarks in the final state both in the CDF and CMS experiments. The measurements I have performed have been crucial since they have served not only to establish the agreement of the experimental results with the Standard Model (SM) predictions but also to provide analysis techniques later used in other areas as, for example, in the discovery of the Higgs boson.

Calibration and development of b tagging techniques

I developed and implemented for Run II CDF data the Jet Probability b-jet tagging algorithm. This is a very useful tool, based on the track impact parameter information provided by the silicon detector, that is used to discriminate heavy flavour jets, and it is crucial to enhance the presence of top quark signal in the data sample. This work was essential later on for the evidence of the existence of the Higgs boson since thanks to the use of this tagger, the most sensitive analysis increased noticeably their sensitivity (see more below).

Higgs searches at CDF

I was one of the main authors in the search of the SM Higgs boson produced in association with a W boson (where the W boson decays leptonically and the Higgs decays to a pair of b quarks) using the Matrix Element (ME) and Boosted Decision Tree (BDT) techniques at CDF (Phys. Rev. D 85, 072001 (2012)). I also worked in the combination of the Neural Network with the ME+BDT analysis for the WH searches (Phys. Rev. Lett. 103, 101802 (2009)) which led to a few percent improvement with respect to the single analysis.

Independent thinking and leadership qualities

I have proven capacity for conducting independent research, both individually and as part of small, middle or large-size collaborations. I have initiated and promoted novel research activities mainly in the areas of physics analysis and in the development of high-level analysis tools (b-tagging techniques, Particle Flow event reconstruction, ...).

My leadership capabilities materialized in coordination tasks conducted in the most challenging context of very large scientific collaborations as are the particle physics collider experiments CDF and CMS. My leadership skills have been extensively proven by taking responsibilities in many projects: convener in the b-tagging group at CDF, contact person between the Top Physics Analysis Group at CMS and the Physics Validation and Data Quality Monitoring, and the b-tagging Physics Object group, leader of the tt-jets and tt+MET working sub-group...

Thanks to all these abilities, I obtained a COFUND-CERN fellowship in 2010, which are awarded exclusively to the top 10% of applicants to the CERN fellowship programme.

Mentoring

The mentoring of students has always been an integral part of my research as I have had a very rewarding experience in my interactions with students performing physics analysis, developing object reconstruction algorithms, or contributing to the running of the detector. I have supervised four PhD students (two at CDF and two at CMS) and 3 summer students (one at CDF and two at CMS)).

Resumen del Currículum Vitae:

During my professional career I have worked in the following positions:

- 2002-2003: Technical student at CERN (ATLAS experiment).
- 2003-2007: Ph.D. student at IFCA, based at Fermilab (CDF experiment).
- 2007-2010: Fermilab Research Associate at Fermilab (CDF experiment).
- 2010-2013: COFUND-CERN Fellowship, awarded exclusively to the top 10% of applicants to the CERN fellowship programme (CMS experiment).
- 2014-2014: Postdoctoral Researcher at IFCA
- 2014-now: Postdoctoral researcher "Fundacion Clarin", ranked in the top 1 position by ANEP.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

And my main contributions have been:

- Precision measurements in top physics at CDF and CMS (first top cross section measurements, single top observation, precise top mass measurement...)
- Development of a new b tagging technique at CDF
- Higgs searches at CDF (most sensitive analysis)
- SUSY searches at CMS
- Detector operation (on call expert of the data acquisition system at CDF)

The scientific output of this works is reflected in the ~20 articles that I have published as main author and the ~40 papers where I strongly contributed, out of a total of ~660 papers. Moreover, I have a large number of internal reports, which reflect my participation and personal contributions to these ~60 publications. As a result of my leadership positions in the CDF and CMS projects, I have been selected to give many talks in international conferences (Moriond-EW, PLHC, APS, EPS, HCP…), and selected for important leadership positions.

Also, the mentoring of students and a rich and solid outreach plan has always been an integral part of my research. I have had a very rewarding experience in my interactions with students performing physics analysis, developing object reconstruction algorithms, or contributing to the running of the detector. And I have participated in different outreach activities (tour guide, colloquiums ...).

Finally, my current expertise in top physics, both in the lepton plus jets and dilepton channels, at CMS will be of invaluable help for my short-medium project: searches for new physics at LHC with top events in the final state.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: FERNANDEZ SANCHEZ, EVA MARIA

Referencia: RYC-2014-15261

Área Científica: Física y Ciencias del Espacio

Correo Electrónico: emfernandez@fisfun.uned.es

Título:

Estudio mediante cálculos de primeros principios de las propiedades estructurales, electrónicas y termodinámicas de nuevos materiales.

Resumen de la Memoria:

Mi trabajo de investigación está enfocado al estudio de las propiedades de diversos materiales por medio de métodos de simulación de primeros principios. Los estudios teóricos basados en simulaciones proporcionan una amplia información sobre las propiedades del sistema en cuestión, permitiendo comparar y verificar sus resultados con los obtenidos experimentalmente, proporcionando así una visión más completa del problema. Además, estos estudios son esenciales para el diseño de nuevos materiales con propiedades específicas de potencial interés.

Actualmente estoy trabajando en dos campos de investigación con el objetivo común de buscar nuevos materiales para aplicaciones en catálisis.

- El estudio de las propiedades estructurales y electrónicas de agregados nanométricos para aplicaciones en catálisis.
- El estudio de la interfase líquido-sólido y el problema de mojado en una superficie rugosa.

En el primero de ellos sabemos que las propiedades de los agregados son muy diferentes de las que presenta el mismo material en su fase extensa debido a que cada átomo añadido (o incluso cada electrón) puede cambiar drásticamente sus propiedades. Además, las propiedades de estos agregados dependen de su composición, de forma que introduciendo un átomo dopante se pueden obtener materiales con propiedades específicas. El CO es un gas tóxico muy difícil de detectar y que puede producir la muerte rápidamente. El CO se emite a la atmósfera como consecuencia de la quema parcial de combustibles fósiles. Para reducir su emisión es necesaria la elección de un buen catalizador. Por otro lado, el sistema energético mundial está basado en el uso de combustibles fósiles. Para reducir esta dependencia es necesario el uso de energías renovables como el hidrógeno que es una fuente de energía no contaminante pero difícil de almacenar. Los dos principales objetivos de esta línea de investigación son buscar nuevos materiales que sean catalizadores eficientes para la oxidación del CO (principalmente agregados de oro dopados con metales de transición) y estudiar la adsorción y la capacidad de almacenamiento de hidrógeno de agregados de aluminio puros y dopados con vanadio.

Ya dentro del segundo campo de investigación, el problema de mojado tiene gran interés tecnológico debido al hecho de que el fluido moje o no moje la superficie es una de las principales causas que influyen en la calidad de un catalizador. El no disponer de un hamiltoniano con capacidad de predicción dificulta que se puedan aportar ideas para desarrollar nuevos catalizadores con mayor capacidad de mojado y que permitan disminuir su volumen, lo que implicaría una mayor eficiencia y un menor coste. Para abordar este trabajo he considerado un fluido adsorbido sobre una superficie plana y en una situación de mojado total, he estudiado como afecta la pared a la interfase líquido-vapor en función de la anchura de la capa líquida. Emplearé la experiencia adquirida en este proceso para extraer potenciales en una situación de mojado parcial donde se puedan formar gotas en contacto con la superficie.

Por último me gustaría tener la posibilidad de estudiar la estructura de la interfase líquido vapor en nanofluidos adsorbidos sobre superficies, y en particular, el problema de mojado. En concreto quiero ver cómo afecta el tamaño de las nanopartículas y su concentración a la capacidad de mojado del nanofluido.

Resumen del Currículum Vitae:

Licenciada en Física por la Universidad de Valladolid en 2001. En 2002 inicié mi carrera investigadora con una beca de Formación de Personal Universitario (FPU) para realizar el doctorado en el departamento de Física Teórica, Atómica y Óptica en la Universidad de Valladolid. En 2005 obtuve el grado de doctora en Física (Cum Laude) con la Tesis titulada **◆ Reactividad frente a O₂ y CO de agregados nanométricos de metales nobles libres y soportados sobre alúmina: Estudio a partir de primeros principios ◆** (premio extraordinario de doctorado). Durante el periodo doctoral realicé estancias tanto en centros españoles como extranjeros con una duración de entre 2 semanas y 3 meses y asistí a numerosos cursos (6) y congresos nacionales (5) e internacionales (13). Publiqué 13 artículos basados en los resultados de dicha Tesis, entre los que destaca PRB 70, 165403 (2004) por las citas recibidas (actualmente tiene más de 315 citas). En 2008 me concedieron el **◆ Premio Real Sociedad Española de Física ◆ Fundación BBVA para Investigadores noveles en Física Teórica ◆** en su 21 edición (año 2007).

Entre marzo de 2006 y marzo de 2008 realicé una estancia postdoctoral en el grupo **◆ Center for Atomic-scale Materials Design ◆** (uno de los grupos teóricos más importantes en catálisis) dirigido por el Prof. Jens K. Nørskov en la Universidad Técnica de Dinamarca con el resultado de un artículo publicado en la revista *Angewandte Chemie Int. Ed.* (índice de impacto 10.031). A continuación (de marzo de



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

2008 a octubre de 2012) trabajé como investigadora en el Instituto de Ciencia de Materiales de Madrid (Consejo Superior de Investigaciones Científicas), inicialmente bajo un contrato JAE-Doc dentro del marco Junta para la Ampliación de Estudios y posteriormente con un contrato postdoctoral de la Comunidad de Madrid, con el Profesor Enrique Chacón, donde estudié la interfase líquido-vapor en una situación de mojado total. Actualmente, desarrollo mi labor investigadora, en el departamento de Física Fundamental de la Universidad Nacional de Educación a Distancia (UNED) con un contrato postdoctoral competitivo de la UNED.

Hasta la fecha he publicado 34 artículos (21 como primer autor y 11 como segundo), 18 de ellos en revistas que están dentro del 25% de las de mayor índice de impacto en su área de conocimiento, y un capítulo de un libro. En total tengo más de 900 citas y un índice de Hirsch $h = 14$. He participado activamente en 11 proyectos de investigación, de los cuales 1 fue financiado por el Ministerio de Ciencia, Tecnología e Innovación de Dinamarca (Danish Research Agency), 6 por el ministerio de Ciencia y Tecnología (uno de ellos dentro del marco **Acciones Integradas** con Alemania), 1 por la Junta de Castilla y León y 1 por la Comunidad de Madrid. Tengo numerosas contribuciones a conferencias nacionales e internaciones, 30 de ellas presentadas personalmente de las cuales 8 son presentaciones orales y una es una contribución oral invitada. Además, tengo la acreditación positiva por parte de la ANCECA de **Profesor Ayudante Doctor**, **Profesor Contratado Doctor** y **Profesor de Universidad Privada**.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: DANNERBAUER, HELMUT
Referencia: RYC-2014-15686
Área Científica: Física y Ciencias del Espacio
Correo Electrónico: helmut.dannerbauer@univie.ac.at

Título:

Heavily Dust Obscured Star Forming Galaxies in the Early Universe

Resumen de la Memoria:

My scientific interests focus on key aspects of characterizing the molecular gas content, the primary ingredient of star formation, and the dust emission, proportional to the rate of star formation, of both ordinary and intense star-forming galaxies in the distant universe within the framework of observational cosmology. Furthermore, I am investigating the environmental dependency of dusty starbursts (high-density fields vs. blank fields). This research area has been recently complemented by FIR/mm studies of nearby galaxies serving as a local reference sample for future studies of high-z galaxies. In these topics, I have made a number of significant discoveries and breakthroughs: 1) discovery of large molecular gas reservoirs in ordinary, star-forming galaxies in the distant universe (already in the pre-ALMA era), 2) showing that the molecular gas in these galaxies is low-excited similar to the Milky-way, 3) finding for the first time distant starbursts at redshifts beyond $z=4$, 4) revealing galaxy overdensities around massive dusty starbursts, and 5) tracing the cosmic web through massive, dusty starbursts around large scale structures.

I am member of several, internal collaborations such as the two Herschel collaborations H-ATLAS, HerMES or CALIFA. Within these collaborations I am leading important subprojects. E.g. I am leading the CO follow-up efforts within the CALIFA collaboration. At my current place, the University of Vienna, I supervise(d) a number of bachelor, master and PhD thesis students, thus demonstrating my leading qualities in the field of teaching as well.

In addition, I have gained in-depth experience in IR-space missions such as Herschel and JWST, and the related instrumental issues for several years during my scientific career. Currently, I am a member of the METIS (MIR instrument for the E-ELT) science team focusing on extragalactic science, and involved in activities for the Science Ground Segment of the EUCLID mission.

I am certainly willing and keen on continuing on the science topics described above but also open for new routes and collaborations to understand better different modes of star formation both at low and at high-redshift. The main research topics I will work on as a Ramon y Cajal fellow are 1) Census of the Molecular Gas Reservoir in Nearby Galaxies selected from the CALIFA survey, 2) Quantifying the Very High-Redshift Tail of SMGs ($z>4-6$) and 3) Dusty Starbursts in High Density Fields at the Peak Epoch of Galaxy Formation and Evolution. I will use mainly current mm-facilities like ALMA, APEX, IRAM telescopes and future ones such as JWST-MIRI to work on these topics, supported by data from space missions such as Spitzer and Herschel. My mm-expertise is complemented by sophisticated knowledge of imaging and spectroscopy in the optical/near-infrared.

Although I have not yet worked in Spain, I have already close connection to the Spanish astronomical community due to my work on the well-known CALIFA survey and the collaboration with Prof. Ismael Perez-Fournon on dusty starbursts at the most extreme redshifts. The new aspect I would bring is my expertise in mm-interferometric observations of high-z infrared galaxies. I hope to contribute to the development on high-z galaxies with leadership and participation in large multi-wavelength programs, as the Spanish community is still small on this topic.

Resumen del Currículum Vitae:

EDUCATION: Currently, I am an University-Assistant (senior postdoctoral level) at the University of Vienna, Department of Astrophysics within the newly established chair 'Formation and Evolution of Galaxies' of Prof. Bodo Ziegler. In addition to independent research I am conducting at this department, I am involved in the teaching activities including supervision of students and giving lectures. I carried out my Ph.D.-thesis Identification of Sources in MAMBO 1.2mm Deep Fields from May 2000 until May 2004 at MPE, Garching (advisor: Prof. R. Genzel), obtaining the degree in January 2005. During my time at MPIA (June 2004 - September 2009) as Research Associate, I worked mainly on the calibration of the infrared spectrometer and camera PACS both on the qualification and the flight model, on-board on the Herschel space observatory launched in 2009 (member of the PACS Instrument Control Center). Between October 2009 and August 2011, I worked as a postdoc at CEA Saclay, focusing on science with Herschel and IRAM facilities.

RESEARCH INTERESTS: High-z infrared galaxies, high-z massive disk-like galaxies, high-z (proto-)clusters, nearby galaxies, galaxy formation and evolution, sub/mm astronomy, calibration of (MIR/FIR) ground-/space-based instruments.

PROJECTS: I am PI of about 40 accepted proposals at telescope facilities world-wide such as IRAM, APEX, ATCA, Herschel, ESO (VLT, NTT,



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIÉNTIFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

WFI), KECK, SUBARU, Spitzer and Calar Alto and at different wavelengths such as optical/near-infrared, IR, mm and radio. I have been in a number of large, international collaborations such as the Herschel focused consortia H-ATLAS, PEP, HerMES or GOODS-H. I am leading efforts of an international team of more than 20 scientists with APEX-LABOCA on galaxy (proto)clusters in the early universe.

TEACHING: At Vienna, I give different type of classes such as practice courses, seminars and lectures, - each semester one to three courses. Since September 2011 I have supervised two PhD-students, three master students and seven bachelor students.

PUBLICATIONS: In total, I am author of 93 refereed publications (incl. one Science and one Nature paper), eight of them first author. These publications obtained 4900 citations (10 of them with more than 100 citations), thereof 277 on first author papers. My hirsch-index is 39 and my m-index 3.9. In the past years, my work has been promoted in several press releases such as the very recent ESO PR on 15 October 2014 on my most recent first author paper.

CONFERENCES: I have given 4 invited and 17 contributed talks at international meetings and have been invited 19 times for colloquia. Furthermore, I have been one of the main organizers (member of the SOC and co-chair of the LOC) of the IAU Symposium 309 'Galaxies in 3D Across the Universe' at Vienna, taking place from 7-11 July 2014, and I am one of the editors of the proceedings.

COMMITTEES AND SOCIETIES: I have assumed several institutional responsibilities at MPIA, CEA and my current place such as Representative of the Academic staff of our department, thus member of our faculty conference, and of the postdoc/non-permanent staff at MPIA, and I have served the community at several occasions such as member of the ESO TAC during four periods in 2011-2012, Since December 2012, I have been the secretary of the Austrian Society for Astronomy and Astrophysics.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: ARES GARCIA, SAUL
Referencia: RYC-2014-16643
Área Científica: Física y Ciencias del Espacio
Correo Electrónico: saul@math.uc3m.es

Título:

Biología de sistemas del desarrollo embrionario

Resumen de la Memoria:

I started my career working on statistical mechanics of surface growth, and moved to apply the same methods to DNA thermal melting. This led me to a bigger interest in Biological Physics, and for my postdoc I moved to Dresden, where a strong community of experimental biologists and theoretical physicists work together, giving rise to a style of science that has already been referred to as **Dresden System Biology**. Since then, my main research interests are the application of nonlinear dynamics and statistical physics to biological problems, especially problems related to embryonic development. The system where I have made more contributions is the vertebrate segmentation clock, the biological clock that regulates the patterning into segments of the body axis of vertebrate animals. These segments are the precursors to vertebrae and ribs. Working with this system I have performed research of coupled oscillators, genetic networks and morphogen gradients. In the study of coupled oscillators, important topics have been the effect of time delay and oscillator mobility in the coupling. Extensive use of data analysis techniques has been necessary to bring together theory and experiment. I have applied the experience on Biology obtained from working on the segmentation clock to other problems, like neurogenesis in the retina and the brain, and cellular differentiation in filaments of cyanobacteria.

Finally, my interest to understand correctly biological data in order to model it better has driven me to an ultimate step of my career evolution: working on experimental synthetic biology. I spent three years at the Spanish National Center of Biotechnology designing and studying theoretically genetic networks that then building and characterizing them in the bacteria *E. coli*. This has made me familiar with a number of experimental biology techniques, and also aware of the traps and limitations that data from these experiments can offer to a theoretical scientist. My experimental experience has boosted my understanding of biological phenomena and methods and my ability to communicate and discuss with biologists. Currently I am back to a theoretical position, combining teaching and research at the Mathematics Department of Universidad Carlos III de Madrid. I also work for the Spanish-speaking physics community as editor (**subdirector**) of the *Revista de Física*, the popular physics magazine of the Spanish Physical Society.

Resumen del Currículum Vitae:

Apellidos: Ares García; Nombre: Saúl. Fecha de nacimiento: 17/7/1977. Sexo: Varón. Nacionalidad: Española.

Profesor Ayudante Doctor en el Departamento de Matemáticas de la Universidad Carlos III de Madrid, desde 1/9/2014. Dirección: Avenida de la Universidad 30, 28911 Leganés (Madrid). Correo-e: saul@math.uc3m.es Tfno. 91624 9977.

Líneas de investigación: Biología de Sistemas, Desarrollo Embrionario y Neurogénesis, Formación de Patrones Biológicos, Redes Genéticas, Dinámica No Lineal, Mecánica Estadística, Biología Sintética experimental.

Licenciatura: Física (orientación Física Fundamental), Universidad Complutense de Madrid, 1995-2000. Doctorado: Departamento de Matemáticas, Universidad Carlos III de Madrid, 2001-2005. Director de tesis: Angel Sánchez. Título de la tesis doctoral: Modelos de Superficies e Intercaras: Transiciones de Fase, Desorden y Aplicaciones, defendida el 5/7/2005. Becas disfrutadas: Fundación Carlos III, FPU, FPI. Postdocs: Departamento de Física Biológica del Instituto Max Planck de Física de Sistemas Complejos (MPIPKS) en Dresde, Alemania, 1/9/2005-30/9/2011; contratado JAE-Doc en el Centro Nacional de Biotecnología **CSIC** en Madrid, 1/10/2011-31/8/2014. Estancias en centros de investigación: IMEDEA, Palma de Mallorca (2001); École Normale Supérieure de Lyon (2004); Los Alamos National Laboratory (2004).

Subdirector de la Revista Española de Física desde septiembre de 2014. Experiencia docente: Certificado de Aptitud Pedagógica (CAP), 100 horas lectivas profesor ayudante de álgebra (Universidad Carlos III), clases teóricas y prácticas en programas de doctorado y máster. Actualmente impartiendo 170 horas/año de docencia de grado y máster. Acreditación ANECA: ayudante y contratado doctor. Presentaciones en congresos y centros externos: 68 (37 son charlas). Proyecto como IP: Physics of development: pattern formation in embryos and cyanobacteria (FIS2012-32349, 2013-2015), 21.000 euros. Participación en Center for Advancing Electronics Dresden, proyecto financiado por la Fundación Alemana de Investigación Científica (DFG) con 28.100.000 euros. Organización de un congreso internacional para el que se recaudaron 7.000 euros de fuentes de financiación europeas. Revisor para 22 revistas especializadas,



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

incluyendo: Physical Review Letters, Scientific Reports, PLoS ONE, PLoS Computational Biology, Development, Genetics.

Publicaciones: Mecánica Estadística de Crecimiento de Superficies: 3 artículos. Teoría de números: 1 artículo. Biofísica del ADN: 4 artículos. Segmentación del embrión en vertebrados: 4 artículos. Teoría de osciladores acoplados: 4 artículos. Neurogénesis: 1 artículo, 1 manuscrito disponible. Reviews: 5 artículos, 1 manuscrito disponible. Diferenciación de cianobacterias: 1 artículo disponible. Revistas más destacadas en las que se ha publicado: Science, Cell, PLoS Biology, Current Biology, Physical Review Letters (3 artículos), Nano Letters, Development (3 artículos). Manuscrito disponible de un review invitado por Reviews of Modern Physics.

Web: <http://gisc.uc3m.es/~saul/>



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: PALACIOS CAÑAS, ALICIA

Referencia: RYC-2014-16706

Área Científica: Física y Ciencias del Espacio

Correo Electrónico: alicia.palacios@uam.es

Título:

Time-resolved electron and nuclear dynamics through femto- and atto-second imaging by means of Free Electron Lasers (FEL), synchrotron radiation and ultrashort pulses in atoms and molecules.

Resumen de la Memoria:

My research expertise lies in the area of Atomic and Molecular Physics and concerns the study of laser-matter interactions. More specifically, my scientific interests are focused on attosecond science, developing and implementing theoretical ab initio methods to achieve a real time tracking of ultrafast electronic and nuclear dynamics in ionization and excitation processes when atoms and small molecules are exposed to ultrashort radiation sources. In the last two decades, this field has undoubtedly acquired significance with the advent of new laser technologies that allow for high-intensity UV and XUV pulsed lasers. The worldwide investments in new Free Electron Lasers (FEL) and X-FEL facilities [Nature Comm. 3762 (2014); Nature Photonics, 706 (2014)], as well as progresses in high harmonic generation techniques [Science 314, 443 (2006); Reviews of Mod. Phys. 81, 163 (2009)], require solid theoretical support to understand the underlying physics triggered by pulsed radiation, nowadays reaching the sub-femtosecond and attosecond time scales [Attosecond Physics, pp.69. Springer Berlin Heidelberg, 2013]. In this context, my post-doctoral training provided me with wide experience on developing new theoretical methods and high-performance computing to describe these problems. In particular, during my stay in the Lawrence Berkeley National Lab (LBNL, CA, USA), I gained a deep knowledge of time-dependent numerical approaches in atomic physics. In the last few years, I have extended this knowledge and explored new methods to treat more complex systems. The number of recent publications in high impact journals demonstrates the quality and novelty of my current work, which includes pure theoretical studies (A. Palacios PNAS 111, 3973 (2014)) and a number of projects in collaboration involving state-of-the-art experiments using ultrashort pulses [see for instance Science 346, 336 (2014); PNAS 111, 912 (2014); PRL 110, 213002 (2013)]. Moreover, during my career, the scope of my research has broadened through several international collaborations with both theoretical (Prof. P. Decleva in Trieste, Italy; Prof. H. Bachau in Bordeaux, France; Prof. C. W. McCurdy in LBNL, USA) and experimental groups, giving me the opportunity to explore related topics, such as photoionization of small molecules subject to synchrotron radiation or new time-dependent approaches in multielectron atomic targets such as Beryllium.

Resumen del Currículum Vitae:

Ph.D. in Theoretical and Computational Chemistry with European Mention in 2006, financially supported by the Spanish Ministry of Education and Science with a 4-year Ph.D. FPU Fellowship and awarded with Premio Extraordinario de Doctorado, Universidad Autónoma de Madrid (UAM). Post-doctoral Fellowship at Lawrence Berkeley National Laboratory (LBNL, Berkeley, CA, U.S.A.) from May 2006 to September 2009. Post-doctoral Fellowship (Beca MEC Postdoc/Fullbright) from the Spanish Ministry of Education and Science (2007-2009). Juan de la Cierva contract in the area of Physics (Física y Ciencias del Espacio) in UAM from 2009-2012. Currently, my research is supported by a temporary post-doctoral position as Profesor Ayudante doctor.

My scientific training includes a number short stays: two pre-doctoral stays at CELIA -Université Bordeaux I (France), in 2003 and 2004; and a short post-doctoral stay in 2006 at the same institution. 1 month in LBNL, Berkeley, in 2010. And short visits to University of Antwerpen and Università di Trieste. My research interests can be summed up as: Ab initio calculations for the description of time-dependent processes, at femto- and attosecond time scales, on atoms and molecules subject to ultrashort intense laser pulses. My research work has led to 42 peer-reviewed publications: 1 Science, 2 PNAS, 7 Physical Review Letters, 9 Phys. Rev. A, 6 J. Phys. B, 2 Chem. Phys. Chem., 3 J. Chem. Phys., 1 Phys. Lett. A, 1 Chem. Phys., 1 PCCP, 1 J. Chem. Phys. A, 2 J. Elec. Spect., 2 J. Phys. Conf. Ser., 2 Theo. Chem. Acc. and 2 book chapters. 17 publications as a first author. Quality indexes (sources: Web of Science/Google Scholar) among 40 with available citation data: H Index: 13/15; total number of cites: 510/644; average citations per article: 13.10; first publication in 2004; with an average of 5 authors per publication. I was awarded with a Marie Curie IRG (2010-2014) in the FP7 European framework as Fellow Researcher and with a project for computational time in the Barcelona Supercomputing Center in the RES, Red Española de Supercomputación (2011). Besides, I had the financial support of other 12 research projects, as participant researcher: 1 by Department of Energy (DOE) in U.S.A., 3 by European Science Foundation (COST Actions) and 3 European projects in the FP7 framework (1 ERC-Advanced Grant, 1 ITN and 1 ERA-NET Chemistry Action), and 5 of them by Spanish Ministry of Science. During my career I have attended 27 international conferences, including 11 invited talks in the most prestigious congresses in my field such as ICPEAC-2013 (600 participants), DAMOP-2012 (800 participants), Frontiers in Optics 2012/Laser Sciences (1700 participants) and ECAMP-2011 (700 participants). I have also presented 3 oral and more than 15 poster communications as first author. I supervised two Master Thesis, in 2013 and 2011 and I am currently supervising/co-supervising 3 PhD thesis works (A. González-Castrillo, D. Ayuso and D. Jelovina). Accredited by ACAP to the positions of contratado doctor, contratado doctor de univ. privada y ayudante doctor. Among other merits, it is worth to mention: Community



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

**AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2014**

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Services as referee in international journals, dissemination activities for the general audience (journal "dinamo"), more than 500 hours of Teaching at Bachelor and Master level, and experience in high performance computing.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: CAMPANARIO PALLAS, FRANCISCO
Referencia: RYC-2014-16061
Área Científica: Física y Ciencias del Espacio
Correo Electrónico: francisco.campanario@ific.uv.es

Título:

Advanced and Precision Phenomenology at LHC

Resumen de la Memoria:

Search for new physics signals at the CERN LHC frequently involves multi-particle final states, consisting of jets, leptons, photons and missing energy. Meaningful searches for these signatures require not only a very good knowledge of the expected signal, but also of all the SM backgrounds yielding identical final state signatures. Since leading-order calculations are affected by large uncertainties, next-to-leading (NLO) order corrections are necessary in order to confront the high experimental precision. For a long time, these corrections were available only for at most three final state particles. The current frontier of complexity is NLO calculations of 2 \rightarrow 4 reactions.

In this framework, I have developed "state of the art" general purpose software libraries for the automation of precision theoretical predictions for multileg production processes at the LHC. I am a worldwide leader expert on multiboson production (VV, VVV) and also in multijet plus Higgs signals. These processes are of pivotal relevance to understand the electro-weak (EW) sector of the SM and possibly to get hints of physics beyond the SM. During this time, contributing to the \blacklozenge Multileg NLO revolution \blacklozenge , I have presented outstanding results for relevant processes at the LHC, listed in the so-called \blacklozenge experimental wish-list \blacklozenge , including the EW and GF Higgs plus 3 jet production processes and results for the important VVjj production processes.

Furthermore, I am a leader expert on the precision frontier beyond NLO and as a leader researcher, I have developed new methods to go beyond NLO and presented results for several diboson production processes, which are of major relevance for the LHC community both as a SM background to Higgs measurements or as a signal to measure triple gauge couplings.

I have also performed advanced phenomenological studies, e.g., studying the sensitivity to find new physics through anomalous couplings in WHj, WZj and W gamma j production or the possibility to distinguish the CP properties of the Higgs boson via gluon fusion.

Finally, I am main developer of the Monte Carlo (MC) event generators VBFNLO, HJETS++, have contributed relevantly to the release of the MC program PHOKHARA9.0, and have experience in the B meson physics field, with relevant works using effective field theories.

Resumen del Currículum Vitae:

Present Position:

since March 2013 IEF Marie Curie at IFIC (CSIC-Universitat de Valencia)

Education:

2004 PhD Degree at the University of Siegen and 2005 PhD at the University of Valencia

2002 Advanced Studies Degree at the University of Valencia

2000 Degree in Physical Science at the University of Valencia

Postdoctoral Research Experience in Theoretical and Particle Physics:

Jul 2009- Feb 2013 Research Personnel at Karlsruhe Institute of Technology (KIT)

Oct 2005- Jul 2009 University of Karlsruhe

Nov 2004- Sep 2005 University of Toronto

Sep 2004 -Oct 2004 University of Karlsruhe

PhD Research Experience in Theoretical and Particle Physics:

Apr-Aug 2004 University of Siegen.

Oct 2001-Mar 2004 University of Karlsruhe.

Sep 2000-Sep 2001 University of Valencia

Jul 2000 -Aug 2000 Summer student at Mainz University



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Grants:

Mar 2013-Feb 2015 Marie Curie Intra-European Fellowship under grant agreement PIEF-GA-2011-298960
Jul 2007 - Jun 2009 Excellence Postdoctoral Fellowship, Regional Ministry of Education, Generalitat Valenciana
Jan-Jun 2007 Postdoctoral Fellowship, University of Valencia.
Sept-Oct 2004 Postdoctoral Fellowship from the \blacklozenge Graduate School of High Energy and Astroparticle Physics \blacklozenge , University of Karlsruhe (Germany)
Oct 2002-Dec 2003 PhD Fellowship from the \blacklozenge Graduate School of High Energy and Astroparticle Physics \blacklozenge , University of Karlsruhe (Germany)
Oct 2001-Sep 2002 Marie Curie Training Fellowship

Scientific Production:

h-index 18, Cites: 1102 (source inspires)
32 Review articles (1 under review)
2 PRL, 7 JHEP, 2 EPJC, 14 PRD, 3 PLB, 2 NPB, 1 EPL, 1 Comput.Phys.Commun
11 Proceeding Articles
3 Scientific Documents (release notes and manual of MC VBFNLO program)
1 Chapter of a book (to be published in NPB proceedings supplement)

Supervision of PhD and Master Students:

2014-2016 PhD Robin Roth (1 Article in preparation)
2011-2014 PhD Matthias Kerner (5 Articles)
2013 Master Robin Roth (1 Article)
2013 Master Nicolas Kaiser (1 Article)
2012 Bachelor Max Loeschner
2008-2010 PhD Ch. Englert (4 Articles)
2007-2009 PhD Michael Kubocz (3 Articles)

Conferences and Seminars:

More than 40 talks presented at seminars and international conferences. 11 Invited talks. e.g., the experimental ATLAS workshop at Harvard University, DIS2013 in Marseille, and International AQGC workshop at Dresden 2013.

Leading activities in:

VBFNLO and PHOKHARA MC event generators.
VBFNLO+LOOPSIM: Beyond NLO QCD

Other merits:

Participant of the new Spanish network \blacklozenge SuperB: Flavor Physics \blacklozenge and the European network \blacklozenge LHCPhenoNet \blacklozenge
Signer participant of the project \blacklozenge Fundamental Interactions and their Experimental Implications \blacklozenge funded by FEDER and Spanish MICINN under grant FPA2008-02878 for the period 2006-2008, 2008-2010 and 2010-2012.
Referee of JHEP, EPJC, PRD, IJMPA and Foundations of Physics.
Nov 2011 - Apr 2012 Organizer of the institute's research seminar at KIT.
Jun 2009-Feb 2013 Assistance in oral examinations for Bachelor and Master Degree, KIT
Oct 2000-Jun 2001 C.A.P. (Pedagogical Aptitude Course): Training for teaching at High School (300 hours \blacklozenge including teaching activities at High school).
Outreach activities at the Museum of Science of Valencia. Guided tours for \blacklozenge The largest scientific experiment ever made"



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: GUERRERO SANCHEZ, CARLOS

Referencia: RYC-2014-15271

Área Científica: Física y Ciencias del Espacio

Correo Electrónico: carlosguerrero@us.es

Título:

Nuclear physics with neutron beams at CERN and other facilities

Resumen de la Memoria:

Following my graduation in Physics at the Universidad de Granada (UGR) and the University of California Santa Barbara (UCSB) in 2003, and after a short training period in the field of astrophysics (at UGR and CSIC-IAA), I joined the Nuclear Innovation Group at CIEMAT (Madrid, ES) in 2004 with a FPI Grant to do my PhD in the field of nuclear data experiments for nuclear technology. During my PhD work I mounted, commissioned and exploited the n_TOF Total Absorption Calorimeter (TAC) at CERN, using it for a set of challenging capture cross sections experiments on actinides. The work, finished in 2008 and awarded with the Best PhD Prize by ENEN, included instrumentation, simulation and analysis developments.

In 2009 I moved to CERN (Geneva, CH) for an overall 5 years postdoctoral period in which I have been the Run and Analysis Coordinator of the n_TOF facility: a neutron beam line used by the more than 100 members of the n_TOF Collaboration for experiments in astrophysics, nuclear technology and basic physics. Initially I focused in measurements of actinides, including even fissile nuclei, for nuclear technology but lately I have been more interested in the challenge of developing new techniques for producing and measuring unstable isotopes of interest in astrophysics that have never been achieved to date. This period has been highly enriching regarding not only physics and instrumentation but also giving me the opportunity to manage all the aspects of a CERN facility and of a large international team of physicists. In this period I have also participated in experiments at other European facilities such as GSI (DE), ILL (FR) and BRR (HU).

In 2013 I was granted a Juan de la Cierva at the Universidad de Sevilla where I work since January 2014 leading my own research projects: the EC-FP7 NeutAndalus and the Spanish MINECO Proyectos I+D Branching@CERN and Explora Ciencia aStar@ILL. With these projects I continue my previous research line at CERN with neutron beam measurement, but also get involved in the development of a neutron beam line at the Centro Nacional de Aceleradores CNA (ES). Last, I have started getting interested in medical physics and I have been already involved in related experiments at CNA (ES), CERN (CH) and CNAO (IT).

Summarizing, in these years I have:

- published more than 40 peer-reviewed papers (8 of them as first author in PRC, EPJ-A, NDS and NIM-A),
- lead my own projects (total budget of 148 k€): 1 European and 1 Spanish (another one is now under evaluation),
- supervised four PhD theses (two were defended in 2014 at U. Manchester and T.U. Wien, and two are ongoing),
- been Spokesperson of 7 experiments approved by the CERN INTC Committee,
- given more than 30 talks, 11 of them as Invited Speaker (for instance at CGS-2011, ND-2013 and CPAN-2014),
- been referee for NIM-A, EPJ-A and NED.

Resumen del Currículum Vitae:

EDUCATION:

- 2005/08. PhD Physics by the UCM (Madrid, Spain)
- 2004/05. MSc Nuclear Physics by the UCM (Madrid, Spain)
- 2001/02. Senior year of BSc Physics at UCSB (Santa Barbara, USA)
- 1998/03. BSc Physics by the UGR (Granada, Spain)

RESEARCH POSITIONS:

- 2014/18. Marie Curie CIG Fellow at U. Sevilla (ES)
- 2014/17. Juan de la Cierva Fellow at U. Sevilla (ES)
- 2010/13. CERN Fellow (CH)
- 2009/10. Project Associate at CERN (CH)
- 2004/08. PhD student (FPI Grant) at CIEMAT (ES)

TEACHING:

- 2014/15. Universidad de Sevilla (ES)



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

- 2012/14. International University of Geneva IUG (CH)

AWARDS, GRANTS, PROJECTS AND OTHER MERITS:

- 2015/17. Project leader (IP) of the Spanish FPA \diamond aStar@ILL \diamond project (38.000 EUR) [under evaluation]
- 2014/17. Project leader (IP) of the EU \diamond NeutAndalus \diamond project (100.000 EUR)
- 2014. Project leader (IP) of the Spanish \diamond Branching@CERN \diamond project (10.000 EUR)
- 2012/14. Referee for EPJ-A, NIM-A and NED
- 2009/13. Run & Analysis Coordinator of the n_TOF Collaboration at CERN
- 2011. Best Oral Contribution at ANIMMA-2011
- 2008. Best PhD by the European Nuclear Education Network (ENEN)
- 2006. Best MSc by the Spanish Nuclear Society (SNE)

SUPERVISION OF PHD THESIS:

- 2014/17. J. Lereendegui, Universidad de Sevilla (ES)
- 2011/15. M. Vermeulen, "Neutron radiative capture in ^{236}U for the Th/U fuel cycle", UoY (York, UK) (expected 2015)
- 2010/14. C. Weiss, "A CVD Diamond Detector for (n,a) Cross-Section Measurements", TUW (Vienna, AU) (June 2014)
- 2011/14. T. Wright, "High-precision measurement of the $^{238}\text{U}(n,g)$ cross section with the Total Absorption Calorimeter (TAC) at n_TOF", UoM (Manchester, UK) (March 2014)

PUBLICATIONS IN PEER-REVIEWED JOURNALS (as 1st author):

Of a more than 40 publications, this is the list of those where I am the first author:

- C. Guerrero et al., \diamond Correction of dead-time and pile-up in a detector array for constant and rapidly varying counting rates \diamond , NIM-A (In Press)
- C. Guerrero et al., "Investigation of neutron-induced reactions at n_TOF: an overview of the 2009-2012 experimental program", NDS 119, 5-9 (2014)
- C. Guerrero et al., "Performance of the neutron time-of-flight facility n_TOF at CERN", EPJ-A 49:27 (2013)
- C. Guerrero et al., \diamond Measurement and resonance analysis of the ^{237}Np neutron capture cross section \diamond , PRC 85 044616 (2012)
- C. Guerrero et al., \diamond Simultaneous measurement of neutron-induced capture and fission reactions at CERN \diamond , EPJ-A 48:29 (2012)
- C. Guerrero et al., \diamond Monte Carlo simulations of the n_TOF Total Absorption Calorimeter \diamond , NIM-A 671, 108-117 (2012)
- C. Guerrero et al., \diamond Study of photon strength functions of actinides: the case of ^{235}U , ^{238}Np and ^{241}Pu \diamond , JKJP 59, 1510-1513 (2011)
- C. Guerrero et al., "The n_TOF Total Absorption Calorimeter for neutron capture measurements at CERN", NIMA-A 608, 424-433 (2009)
- C. Guerrero et al., "Analysis of the BC501A neutron detectors signals using the true pulse shape", NIM-A 597, 212-218 (2008)

SCIENTIFIC TALKS (only the most important as Invited Speaker):

- "Physics with fast neutron beams for Science and Applications", CLPU Users Meeting, ES (12/2014)
- "The CERN n_TOF neutron beam lines", RD51 Coll. Workshop, CH (10/2013)
- "Physics at the new CERN neutron beam line", ERINDA Workshop, CH (10/2013)
- "Overview of n_TOF", ATHENA Workshop, DE (March 2013)
- "Investigation of Neutron-Induced Reactions at n_TOF", ND-2013, USA (2013)
- \diamond An overview of neutron capture



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: NESSERIS , SAVVAS
Referencia: RYC-2014-15843
Área Científica: Física y Ciencias del Espacio
Correo Electrónico: savvas.nesseris@unige.ch

Título:

Going beyond Einstein: Tests of gravity at cosmological scales

Resumen de la Memoria:

My main research topic is cosmology and in particular the study of the accelerated expansion of the universe at late times, with particular interest on analyzing cosmological data and using them to test dark energy models and modifications of General Relativity (GR). The latter are well-motivated by high energy physics (Quantum Gravity and String Theory) and have specific signatures, e.g. a time and scale dependent Newton's constant or a different evolution of the matter density perturbations, compared to GR.

In order to test the aforementioned models I use a variety of data: the Type Ia Supernovae, the Baryon Acoustic Oscillations, the Cosmic Microwave Background, the growth rate of matter perturbations and others. I have also systematically studied these data sets themselves in order to test whether they are contaminated with outliers (points not belonging to the set) or plagued with systematics, thus giving misleading results which we mistakenly interpret as non-standard Dark Energy models. I have explored these issues in several highly cited publications over the years, but specifically one of my papers on the topic of data set consistency, currently has ~254 citations.

Another aspect in my research is the goal to create or implement novel analysis methods to reconstruct the expansion history of the Universe directly from the data (I was the first to use Genetic Algorithms in cosmology) and techniques, known as null tests, that can test the basic consistency relations of the standard cosmological model, e.g. the ratio of the angular diameter to the luminosity distance which has a specific form in the standard cosmological model. In total, my scientific results have been published in 39 refereed articles, of which 19 as first author, and have gathered more than 1820 citations (6 papers with >100 citations and 1 with >250), with an h-index of 19.

I have a strong international experience as I have joined some of the most renowned universities in Europe, ie in Copenhagen, Madrid and Geneva. I am also a member of the Dark Energy Survey (DES) and the Physics of the Accelerating Universe (PAU) surveys, where I lead the efforts in the creation of likelihood codes for the analysis of the cosmological data. Specifically, I work in the DES-SV (Science Validation) and WP5 (Working Package 5) likelihood analysis groups. My efforts are specifically focused in the creation of likelihood codes to analyze the data of the surveys and test for discrepancies from GR that might indicate new physics. Currently, I have also joined the Euclid survey and contribute my skills at a technical and administrative level.

Finally, I have an active network of 20 international collaborators from institutes in Spain, Japan, Italy, UK, Australia, Switzerland, Denmark, Greece and elsewhere and I have also presented my work in several conferences, workshops and institutes as an invited speaker over the years. I also serve as referee for Physical Review D, for which I was recently named "Outstanding Referee for 2014", but also for other journals as well. My theoretical expertise combined with my data analysis skills, my out of the box thinking, leadership qualities and international experience will be definitely an asset for Spain, given its huge investment in the surveys (DES) and (PAU).

Resumen del Currículum Vitae:

I received my PhD (2004-2008) in Theoretical Physics ("Summa cum laude") at the University of Ioannina in Greece and after my thesis I moved at the famous Niels Bohr Institute in Copenhagen (2008-2011), where I applied for and won a prestigious grant from the Danish Research Council (FNU), with a budget of ~200,000€. Afterwards, I moved (2011-2014) to the Instituto de Física Teórica (IFT) at the Universidad Autónoma de Madrid, where I was a member of the Dark Energy Survey (DES) and the Physics of the Accelerating Universe (PAU) surveys and in both I led the efforts in the creation of likelihood codes for the analysis of the cosmological data as part of the DES-SV (Science Validation) and WP5 (Working Package 5) likelihood analysis groups. This important work led to an offer (2014), which I accepted, to join as senior researcher the University of Geneva in order to become a member of the Euclid survey and contribute my skills at a technical and administrative level.

My research is focused on cosmology and in the study of the accelerated expansion of the universe at late times, with particular interest on analyzing cosmological data and using them to test dark energy models and covariant modifications of General Relativity. My scientific results have been published in 39 refereed articles, of which 25 as first author, and have gathered more than 1820 citations (6 papers with >100 citations and 1 with >250) with an average of 50 citations per paper (published) and an h-index of 19 according to the database InspireHEP. I already have a solid network of 20 active collaborators from institutes in Spain, Japan, Italy, UK, Australia, Switzerland, Denmark, Greece and elsewhere and I have presented my work in several (~20) international conferences, workshops and institutes over the years. I also serve as referee for Physical Review D, for which I was recently named "Outstanding Referee for 2014", the Journal of



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Cosmology and Astroparticle Physics (JCAP), the Monthly Notices of the Royal Astronomical Society (MNRAS), the Int. J. Mod. Phys. D (IJMPD) and Physics Letters B (PLB).

I am actively involved in mentoring young researchers and recently I co-supervised Mr. Manuel Trashorras, who presented his Masters' thesis at the IFT in September 2014 with the topic related to late time predictions of Higgs inflation. Also, for the last two years I taught the courses "Modern Cosmology" (2013) and "Advanced Cosmology" (2014) in the Masters' class at the IFT in Madrid and I co-organized a very successful school on "Cosmology Tools" that attracted more than 35 international PhD students. Previously, I have organized workshops on specific topics and conferences on more broader themes, both in Denmark and in Greece.

Among other things, I am fluent in several computer languages (Fortran 90/95, C, C++, Mathematica, C#, CUDA) and I have created many publicly available computer codes. On my webpage (<http://www.uam.es/savvas.nesseris>) I maintain an educational portal with many detailed and well documented code examples that can help both students and researchers alike, to understand important issues and methods in statistics and in the analysis of cosmological data. My page has received ~930 unique visitors in the period June 2011-February 2015, with ~25% coming from Spain and ~10% coming from the USA and 5% from Germany and Italy.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: AGUNDEZ CHICO, MARCELINO
Referencia: RYC-2014-16277
Área Científica: Física y Ciencias del Espacio
Correo Electrónico: marcelino.agundez@gmail.com

Título:

Astrochemistry: from interstellar clouds to stars and planets

Resumen de la Memoria:

My main research line is placed within the context of Astrochemistry, an area of science that focuses on the types of molecules present in the different astronomical regions, the chemical pathways leading to their formation, and their use as a tool to derive physical conditions and unveil a variety of astrophysical processes and phenomena.

Within this context of astrochemistry I have studied the chemical composition and physical state of some of the astronomical environments that populate the cycle from interstellar clouds to stars and planets, such as the ejecta from dying stars, which feed the interstellar medium with new processed material; cold dense clouds, which are the sites of formation of stars; protoplanetary disks, which are the germ of planetary systems, as well as comets in our solar system and the atmospheres of planets orbiting stars other than our Sun.

During my research career I have covered the study of these astronomical regions from a highly interdisciplinary approach, involving chemistry, physics, and astronomy.

Resumen del Currículum Vitae:

I received the bachelor's degree in Chemistry in 2003 from the Universidad de Valladolid and the Ph.D. in Astrophysics and Cosmology from the Universidad Autónoma de Madrid in 2009 (special doctorate award).

I have co-authored 55 publications in peer review journals, 20 of them as first author, with a total number of citations around 1400 and a H index of 19 (as seen in NASA ADS). Highlighted among them are a publication in Nature as second author, an invited review in Chemical Reviews as first author, and various publications which report the discovery of up to 9 new molecules in space, among them 4 of the 6 molecular anions currently known in space.

I have presented my research studies in more than 40 international conferences and workshops. I have been requested as referee in various peer review journals in the areas of Astronomy and Chemistry, as reviewer of research projects to be funded by Fondecyt (Comisión Nacional de Investigación Científica y Tecnológica de Chile), and as a member of the Herschel Observing Time Allocation Committee by ESA.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: KLEMM , KONSTANTIN
Referencia: RYC-2014-16796
Área Científica: Física y Ciencias del Espacio
Correo Electrónico: klemm@tbi.univie.ac.at

Título:

Networks and non-linear dynamics in socio-biological systems

Resumen de la Memoria:

Konstantin Klemm's research is in the theory of complex networked systems. Tools from statistical physics, dynamical systems and algorithmic graph theory are employed to tackle fundamental questions about the interplay between structure of interactions, local rules and macroscopic behaviour. Motivation and applications arise, on the one hand, from biochemical interactions in living cells. While conceptually simple as state-discrete iterated maps, Boolean networks are a successful and highly accurate modeling approach to such biological systems with many degrees of freedom. Questions of evolvability, stability under structural and dynamical perturbations as well as the relevance of noise have been addressed, with contributions by the applicant, and will be investigated further. Similar questions arise in social systems with processes of collective information diffusion and opinion formation. Again such phenomena have coarse-grained descriptions as, e.g., spin-spin interactions in models of Ising or voter type.

Resumen del Currículum Vitae:

- * PhD in Theoretical Physics (2004) from the Niels Bohr Institute, University of Copenhagen, Denmark.
- * More than 40 peer-reviewed publications
- * Total citations above 1100, h-index 16 in Web of Science [Google Scholar: above 2100, h-index 17]
- * Articles published in PNAS, Physical Review Letters (5) and further physics and interdisciplinary science journals of high impact
- * Advisor for three completed and three ongoing PhD theses. Advisor for two completed master theses.
- * PI on European research project
- * co-PI in two national (German) research projects
- * Held positions
 - Leipzig University (Bioinformatics)
 - University of Vienna (Computer Science, Theoretical Chemistry)
 - Nazarbayev University, Astana (Science and Technology)



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: CAVALCANTI SANTOS, DANIEL

Referencia: RYC-2014-15429

Área Científica: Física y Ciencias del Espacio

Correo Electrónico: dcavalcanti@gmail.com

Título:

Quantum correlations: from mathematical characterization to experimental applications

Resumen de la Memoria:

I am a theoretical physicist working on quantum information science, quantum optics, and quantum foundations. My research ranges from foundational questions, such as the characterization of quantum correlations, to more applied subjects, as the experimental implementation of quantum information protocols. I have worked on different subjects like the role of quantum correlations in spin chains, the use of optical setups for quantum communication, and the use of light-matter interaction for foundation experiments. I am especially interested in connecting theoretical results with real experimental applications and frequently collaborate with experimentalists.

My research history started already during my under graduation, when I achieved my first original result, published in PRA. During my master studies, I conducted several projects related to the study of entanglement, a phenomenon that makes that two or more quantum system have their properties strongly correlated. This kind of correlations cannot be explained by classical physics and was identified as the main resource behind the advantage of quantum information, communication and computation protocols. During my Masters studies I worked both on the mathematical characterization of entanglement and its role in atomic systems, and published 7 papers on these subjects.

During my PhD studies in the group of A. Acín at ICFO I focused on entanglement theory and on the quantum-to-classical transition. More specifically I have studied how the interaction with the environment and experimental noise wash out the quantum features of a system. I concluded my PhD in only 2 years and published another 7 papers during this period.

Due to my fruitful PhD studies, I was offered a postdoctoral position at ICFO to conduct a more foundational research in nonlocality. During this period I participated in a European project (QAP) and co-supervised a PhD student. The study of nonlocality can be considered a major subject in my career. Nonlocality was first proposed as a way of proving that the predictions of quantum mechanics are incompatible with any classical explanation. This result had a huge impact on the understanding of quantum phenomena and has recently been identified as the main ingredient in protocols within a framework that is called device-independent quantum information.

I have contributed to the understanding of nonlocality from many perspectives and co-authored a review paper on this subject published by Reviews of Modern Physics. I have written 25 research papers on this subject (3 Nat. Comms. and 6 PRLs).

I worked at the Center for Quantum Technologies (CQT) in Singapore from 2010 to 2013, first as a postdoc in Valerio Scarani's group, and then as an independent researcher. There, besides conducting research I acted as an assistant teacher in a graduate course and co-supervised a PhD student. As a result of this co-supervision two papers were published in PRL, one of them being highlighted as an editor's suggestion.

Since October 2013 I have been employed as a senior postdoc researcher at ICFO (Barcelona), where besides research I am responsible for the supervision of two PhD students and have participated and managed a European grant (SIQIS).

Resumen del Currículum Vitae:

Research Interests: Quantum Information, Quantum Optics, Entanglement Theory, Bell Non-locality, Foundations of Quantum Mechanics, Decoherence.

Education

2006-2008. PhD in Physics - Univ. Barcelona/ICFO (Spain).

2004-2006. MSc in Physics - UFMG (Brazil).

1999-2004. BSc in Physics - UFMG (Brazil).

Professional Experience

- Research fellow at ICFO, Spain. 2013-present.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

- Research Fellow under the explorative initiatives program in the Centre for Quantum Technologies (CQT), Singapore. July 2011- Sep 2013.
- Postdoc position in the group of Prof. Valerio Scarani at CQT, Singapore. Jan 2010- Jul 2011.
- Postdoc position in the group of Prof. Antonio Acín at ICFO, Spain. Oct 2008 - Nov 2009.

Long-term research visits:

- Visiting researcher in the group of Prof. Antonio Acín at ICFO, Spain. October 2012- August 2013.
- Visiting researcher in the Federal University of Minas Gerais (UFMG), Brazil, under the program of the Brazilian government for international visitors PVE. Aug 2011-Mar 2012.

Reviewer:

- Referee for several top-quality journals including PRL, PRX, and Nat. Comm.
- Grant reviewer for the Polish National Research Foundation.

Teaching and supervision:

- Co-supervision of 4 PhD students and 2 MSc students in 3 different Universities (ICFO, NUS, UFMG).
- Teacher of two graduate courses, one at UFMG (Brazil) and another at NUS (Singapore).

Publications:

- 49 peer-reviewed articles including 3 in Nat. Comm. and 11 in Phys. Rev. Lett.
- 2 commissioned review papers (Rev. Mod. Phys. and Rep. Prog. Phys.).
- Total citations: 1069 in Web of Science and 1627 in Google Scholar.
- H index: 15 in Web of Science and 20 in Google Scholar.
- 4 highly cited papers according to the Essential Science Indicator (Web of Science).

Presentations:

21 talks in international events and institutions, including two invited conference talks.

Participation in international projects:

- Participation in two European projects, QAP and SIQS.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: LIBESKIND , NOAM
Referencia: RYC-2014-16078
Área Científica: Física y Ciencias del Espacio
Correo Electrónico: nlibeskind@aip.de

Título:

Dwarf galaxies caught in the local cosmic web

Resumen de la Memoria:

Since completing my doctorate, I have focused on using numerical simulations to study some of the basic predictions of the current paradigm of cosmology known as the LCDM model. I have made significant contributions to three different areas: 1) the study of small dwarf galaxies and how they can be used to probe the nature of dark matter (DM); 2) the formation of galaxies like Milky Way (MW) 3) the link between galaxies and the large scale structure of the universe: the cosmic web.

My first papers on dwarfs addressed one of the main problems in understanding our Galaxy. The satellite dwarfs of the MW are not distributed uniformly around it. Instead they all sit on a massive spinning pancake-like structure. Furthermore, my collaborators and I discovered that the satellites for which proper motions exist, appear to be corotating. Recently a similar situation was discovered around M31 and around Centaurs A (in prep). These peculiar set ups appear to be in direct disagreement with predictions of the LCDM paradigm, which indicate that substructures are isotropically distributed around galaxies. The disagreement comes from the fact that simulations examine DM clumps, while observers image satellite galaxies. There is unfortunately not a one-to-one relation between the two.

I have addressed this issue by examining the subtleties of how DM substructures are populated with galaxies and how these are accreted. My main contributions have been to put forward the idea that satellite galaxies are beamed towards their hosts along preferred directions that are determined by the interplay between the cosmic web and the galactic neighborhood. The channeling of satellite galaxies may resolve the problems that pester the LCDM model. It may also help resolve problems related to the satellite luminosity function. In my current research I am examining how the beaming of satellite galaxies depends on environment or epoch. I have also been looking at observations of dwarfs in the local flow field to check if my theories can be verified or falsified using state of the art survey data. The results of such a study promise to help probe fundamental physics regarding the interplay between DM substructures and luminous galaxies.

In the process of understanding the importance of how satellite galaxies are accreted, my collaborators and I developed a new method to quantify the large scale structure of the cosmic web. The method is a dynamical technique (versus the pre-existent geometric ideas) and thus better suited to problems related to kinematics. In a series of papers, I was able to illicit fundamental properties of how the cosmic web affects galaxy formation, including how galaxies spin, and how they are shaped. These fundamental properties of galaxies were unknown to correlate to the larger scales in the ways we discovered. Our work has opened up a new framework of how to investigate galaxy formation, namely in the context of the cosmic velocity field.

The future direction of my work is two fold: to probe further the nature of satellite accretion and dwarf galaxy formation and in the process to reveal in greater detail the formation history of the Local Group. The challenge presented by galaxies in our immediate neighborhood promises to reveal either new fundamental aspects of galaxy formation on these small scales or that the paradigm needs a revision.

Resumen del Currículum Vitae:

Publications: I have authored 35 papers that have been published in the most prominent peer-reviewed journals of my field. For most of these journals (MN, MNL, ApJ, ApJL) I also frequently act as a referee. My papers are well cited and my h-index is 17.

Grants: I have received a number of grants from funding agencies for research, conferences, students and travel. These include: being the PI of a three year German national research foundation (DFG) project (EUR145k); being the chair of the SOC for a Lorentz Center workshop at Leiden University (EUR26k); being the chair of the SOC for a major international conference in Potsdam on dwarf galaxies (DFG funding: EUR17k); funds from the DFG and the Indian Department of Science and Technology for two Indian students to come to Potsdam (EUR10k); collaboration grant from the German Academic Exchange Service (DAAD) to set up a collaboration with the USA (EUR10k); ERC prize from the Leibniz society (EUR10k), grant for travel to Argentina from the DAAD (EUR3k). Two of my post-docs were funded by individual fellowships (the Minerva and Golda Meir fellowships). During my PhD I received a Joint-Industry Fund grant and I was a commonwealth scholar at Cambridge University.

Mass media and outreach: I have been featured numerous times in the mass media, including on the BBC website and German print



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

media. Due to my ability to explain complicated ideas to the public, I have appeared on German television (Deutsche Welle) and on the sky at night (BBC). I was also featured in a documentary produced by the journal Nature in debate with two Nobel laureates (on youtube). I have authored an article for Scientific American on my work (March 2014). I have given public lectures in both German and English.

Teaching: I have supervised students from the masters to the Postdoc level. At the moment this includes one PhD student and one Postdoc. I also lecture (or have lectured) courses on General Relativity, Cosmology, Astronomy, and Astrophysics at both Potsdam and the Humboldt University in Berlin. One of my courses (general relativity and cosmology) has resulted in a book deal to be finalized in 2015, for which a draft has already been produced.

Conferences and Colloquia: for the past decade I have spoken at, on average, 3 conferences per year about my work. I have been invited around 10 times to give highlight or review talks and have been asked to chair conference sessions. I have been invited to give colloquia and public lectures at numerous universities including Harvard, New Mexico State University, New York University, Bonn, Durham, Madrid, Strasbourg, Geneva, Haifa and Jerusalem (to name a few). I have spent extended research visits at UC Santa Barbara (one month full funding), the Aspen Center for Physics and the Hebrew University (one month full funding). I organized a parallel session at the Royal Astronomical Society's NAM as well as large international conferences in Leiden and Potsdam.

Education and positions: Bsc from University College London (2001, first class) and Masters in Mathematics from Cambridge University (2002 with Honors). Phd was awarded by Durham University (2008) under the supervision of Prof Carlos Frenk and Prof Shaun Cole. I worked for nearly two years at the Hebrew University in Jerusalem, before coming to Potsdam, first as a Minerva fellow than as the PI of a DFG project.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: GONZALEZ MARTINEZ, ANTONIO JAVIER

Referencia: RYC-2014-16909

Área Científica: Física y Ciencias del Espacio

Correo Electrónico: agonzalez@i3m.upv.es

Título:

Dedicated High-Resolution Cost-Effective Positron Emission Tomography Systems

Resumen de la Memoria:

The main line of research of the candidate Antonio González has been the design and construction of dedicated Positron Emission Tomography (PET) systems. He has been the first researcher in the world developing two PET scanners, one for small animals and another for early breast cancer detection, based on the novel idea of continuous crystals. The candidate has explored the capabilities of these crystals to accurately determine the 3D impact position of photons within the scintillator, including their depth of interaction. Antonio González scientifically coordinated an FP6 project called MAMMI that the European Commission is advertising due to its highly positive successful. The project resulted on two breast dedicated prototypes that were clinically validated.

The candidate belongs to the CSIC (JAEDOC position) and plans to extend his main line of research working with the new solid state photodetectors, called Silicon Photomultipliers (SiPMs). Antonio González has currently focused his research work at the Institute for Instrumentation in Molecular Imaging (I3M) to design improved gamma ray detectors based on SiPMs with area coverage similar to the one of Photomultiplier Tubes (5x5cm²). This is a unique research since other groups do not attempt for such detector dimensions. The candidate is currently leading a team formed by two PostDocs, 1 PhD student, 1 Master student and two technicians (electronics and mechanics). He is the scientific coordinator of a new FP7 project (MindView) developing a brain PET, Magnetic Resonance (MR) compatible, to study schizophrenic disorders. He is, in addition to scintillators and photosensors, researching in readout electronics collaborating with groups at the University of Valencia and Polytechnic University of Valencia. He is extensively working with one of the pioneers in the design of gamma ray detectors, Prof. Majewski at the University of Virginia. The current development is expected to be the first brain dedicated PET system capable to acquire simultaneous PET and MR images.

Resumen del Currículum Vitae:

Antonio J. González Martínez is a researcher at the Spanish National Research Council (CSIC) under a JAEDOC contract, working on the development of molecular imaging systems, in particular hybrid Positron Emission Tomography (PET) and Magnetic Resonance (MR), since 2012 (Trans. Nucl. Science 60, 592, (2013), NIM A, 731, 288, (2013)).

Antonio J. González obtained his Physics Degree in 2002 at the University of Valencia. In 2005 obtained the Physics Doctorate at the University of Heidelberg in Germany with the qualification of Magna Cum Laude. The work was carried out at the Max Planck Institute for Nuclear Physics in Heidelberg with a scholarship of the Max Planck Society, under the supervision of Prof. Ullrich. This work resulted in highly impacting contribution such as several Physical Review Letters and Physics Review A (Phys. Rev. Lett. 94, 203201 (2005); Phys. Rev. A 73, 052710 (2006), Radiat. Phys. Chem. 75, Pag. 1771 (2006), Phys. Rev. Lett. 97, pag. 103002 (2006) o Phys. Rev. Lett 95, pag. 183001 (2005)).

During the PostDoc stage, Antonio J. González has developed dedicated PET systems and has scientifically coordinated two EU projects (FP6 and FP7). He developed a PET system for small animal PET based on monolithic scintillators. The system is currently commercialized with 35 installed systems worldwide (NIM A 571, 1, 26 (2007), Medical Physics 40 051906 (2013), Meas. Sci. Technol. 20, 104011 (2009)). The first EU project, called MAMMI 2007-2010, reached a very important success that the EU Commission is advertising it as a model project. Two dedicated PET systems were constructed and clinically validated for early breast cancer detection and therapy assessment (Current Medical Imaging Review 8, 144 (2012), Med. Phys. 39, 5393 (2012), NIM-A 648, S75 (2011)). The second EU project started in September 2013 with the aim of construct the first simultaneous brain PET-MR scanner, high-resolution, to study schizophrenic disorders.

Antonio J. González participated both in National and International projects as the aforementioned EU projects. He has been invited to give plenary talks to talk about the MAMMI system development and, intensively now, about MindView. In between 2008-2010 he was suggested to give progress report talks at the European Association for Nuclear Physics and was chairman of the New Instrumentation session.

Antonio J. González is coordinating a CDTI project involving the companies Oncovision, Pymematica and General Electric to develop a head PET insert. In 2012 filed a European patent and two more in 2014 involving PET high performance detectors and their RF shielding. He is first author of about 9 peer-reviewed publications and co-author of 35 more, several as second author due the importance contribution and PhD work supervising. He is co-author of about 15 conference proceeding. He has an h-index of 12.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

He has directed 4 PhD theses and is currently supervising one more concerning about the design of a gamma ray detector, MR compatible.

He has also organized few international conference events, pointing out the co-chair position at the IEEE NSS-MIC, hold in Valencia-2011. In this meeting, 2500 attended among physicist and technical engineers. Recently, he has been part of the international board of the Advance Molecular Imaging (Low Dose Screening) conference hold in Mallorca (September 2013).



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: SOLER JUAN, ROBERTO JOSE

Referencia: RYC-2014-14970

Área Científica: Física y Ciencias del Espacio

Correo Electrónico: roberto.soler@uib.es

Título:

Magnetohydrodynamic Seismology of the Solar Atmosphere

Resumen de la Memoria:

The researcher's main research lines are "Magnetohydrodynamic Seismology of the Solar Atmosphere" and "Dynamics of Partially Ionized Plasmas".

Magnetohydrodynamic seismology of the solar atmosphere: The solar atmosphere is a natural laboratory where the behavior and properties of plasmas can be studied under extreme conditions that cannot be realized on Earth with present-day technology. Understanding the plasma in the solar atmosphere is a necessary prerequisite for our understanding of laboratory plasmas and other astrophysical plasmas beyond our reach. Solar atmospheric magnetohydrodynamic (MHD) seismology refers to the study of the physical conditions in solar atmospheric magnetic and plasma structures by the investigation of the properties of MHD waves present in those structures. The aim is to increase our knowledge about the complicated structuring and dynamics of the solar atmospheric medium. The reason why solar atmospheric structures can be probed from their oscillations is that the properties of these oscillations are entirely determined by the plasma conditions and the magnetic field configuration. This technique, conceptually similar to Earth seismology or helio-seismology, demands the solution of two problems. On the one hand, the direct problem involves the computation of MHD wave properties in prescribed theoretical models of atmospheric structures. On the other hand, the inverse problem implies the inference of unknown physical parameters by comparing the observed wave properties with the theoretical predictions. The researcher has actively worked on the field of MHD seismology with special focus on seismology of solar prominences and coronal loops. He has published 25 peer-reviewed articles on this topic, which include studies on global MHD oscillations of solar prominences, MHD waves in the fine structure of prominences, and MHD waves in coronal and chromospheric waveguides.

Dynamics of partially ionized solar plasmas: The degree of plasma ionization in the lower solar atmosphere, i.e., in the photosphere and chromosphere, and in solar prominences is extremely low and significant deviations from the classical MHD description for fully ionized plasmas are expected. Performing a realistic description of plasma dynamics of those regions of the Sun necessarily implies the use of multi-fluid plasma theory that appropriately accounts for the effects due to partial ionization and particle interactions. The researcher has explored the impact of partial ionization on MHD waves and instabilities in solar prominences and in the chromosphere. First, the single-fluid approximation was adopted, meaning that a strong coupling was assumed between the various species forming the plasma. The influence of ion-neutral collisions on the propagation and damping of MHD waves was investigated. Subsequently, the single-fluid approximation was abandoned and a fully multi-fluid theory was used. The impact of multi-fluid effects on MHD waves and interchange instabilities, as the Kelvin-Helmholtz and the Rayleigh-Taylor instabilities, was explored. The researcher has published 14 peer-reviewed articles on this research line.

Resumen del Currículum Vitae:

Roberto Soler is a Doctor in Physics (May 2010) by the Universitat de les Illes Balears (UIB, Spain), with the PhD thesis "Damping of Magnetohydrodynamic Waves in Solar Prominence Fine Structures". From October 2010 to September 2012 he was a Marie Curie Postdoctoral Fellow at the Centre for Mathematical Plasma Astrophysics of the KU Leuven (Belgium). In October 2012 he returned to UIB as a Postdoctoral Researcher. Since 30 April 2014 he is a "Juan de la Cierva" Fellow at UIB. His main research lines are Magnetohydrodynamic Seismology of the Solar Atmosphere and Dynamics of Partially Ionized Plasmas. The researcher is author of 41 articles in international peer-reviewed journals. He is the first (main) author in 68% of those articles, and 95% of the articles are published in journals of the first quartile (Q1) according to the Journal Citation Reports. He is also author of 7 papers in conference proceedings and of 1 book chapter. His publications have attracted 401 citations according to the Thomson Reuters Web of Science, and his h-index is 12. He has made 46 contributions to national and international conferences and has been invited to give 3 invited talks in international conferences. He has been a member of the LOC of 1 national and 1 international conferences. The researcher has participated in 3 projects of the Spanish Plan Nacional de I+D+i (one of them in evaluation), in 1 European FP7 Research and Training Network, and in 1 Marie Curie Intra-European Project, among other competitive projects. He is or has been a member of 4 teams of the International Space Science Institute (Bern, Switzerland). He is also a member of 2 international research networks. The researcher has made research visits to the University of Oslo (Norway), the University of St Andrews (Scotland), the KU Leuven (Belgium), and the Lockheed Martin Solar and Astrophysical Lab (CA, USA). Concerning his teaching activity, the researcher gives the subject Solar Magnetohydrodynamics: Applications in the Master of Advanced Physics and Applied Mathematics of the UIB. He is the supervisor of a PhD Thesis and has been a member of a PhD



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

**AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2014**

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

committee. In addition, he has frequently participated in outreach and public dissemination activities.



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Nombre: MATEU BARREDA, VICENT
Referencia: RYC-2014-16022
Área Científica: Física y Ciencias del Espacio
Correo Electrónico: vicent.mateu@univie.ac.at

Título:

Física de Precisión a Altas Energías

Resumen de la Memoria:

Trayectoria

El Dr. Mateu cursó sus estudios universitarios en la UVEG, (1998-2003), nota media de 3.59 sobre 4. Durante este tiempo obtuvo una beca de colaboración. Tras licenciarse se le concedió una beca de Introducción a la Investigación (CSIC) de 4 meses. Se doctoró (cum Laude) en el IFIC con un contrato FPU, dirigido por A. Pich (2004- 2008). Contratado como investigador postdoctoral en el MPI de Munich durante 3 años (2008-2010). En 2010 se le concedió un proyecto Marie Curie de 3 años de duración. Los 2 primeros años (2011-2012) fueron de estancia en el MIT y el tercero (2013) en el IFIC. Desde Diciembre de 2014 el Dr. Mateu trabaja como asistente en la Universidad de Viena, con un contrato de 6 años de duración, en donde imparte asignaturas de la licenciatura, 60 horas por semestre.

Línea de investigación

La investigación del Dr. Mateu ha profundizado en distintos aspectos de la física de partículas, a nivel fenomenológico y teórico. Ésta se ha centrado en problemas que involucran hadrones (ligeros o pesados), el quark top y las interacciones fuertes, desde el enfoque de las teorías efectivas. Tras doctorarse ha trabajado más activamente en cálculos de precisión para procesos a energías altas que involucran jets, desarrollo de nuevas herramientas teóricas, y la determinación de parámetros fundamentales, tales como las masas de los quarks y la constante de acoplamiento fuerte (α_S). Durante la tesis los intereses del candidato se focalizaron en problemas hadrónicos a bajas energías.

1) Física hadrónica a bajas energías: Estudio del Pentaquark como estado ligado pion-Kaon-Nucleon. Determinación de α_S a partir del estudio de las desintegraciones de hiperones. Incorporación de la fuente tensorial en el formalismo de teoría chiral de perturbaciones (ChPT). Descripción de la desintegración radiativa del pion. Estudio simultáneo de los correladores vectoriales y tensoriales. Cálculo de correcciones radiativas en correladores. Estimación de constantes de baja energía del Lagrangiano de ChPT. Cálculo de constantes de desintegración vectorial y tensorial para los mesones vectoriales.

2) Física de precisión para fenomenología de colisionadores (línea principal): Determinación de α_S con gran precisión mediante fits a la distribución de thrust (τ), y su primer momento, C-parameter (C) [y sus momentos, w_{ip}] y Heavy-Jet-Mass (HJM) [w_{ip}]. Los cálculos incorporan resumación a N³LL, y elementos de matriz a tres loops, además de efectos no-perturbativos tratados desde primeros principios, correcciones de masas de quarks y efectos de QED. Estas predicciones son las más precisas hasta la fecha. Estudio de los efectos de las masas de los hadrones en las correcciones no-perturbativas de las secciones eficaces con jets. Cálculo de las contribuciones de los quarks pesados (primarios y secundarios) a las distribuciones de τ , C (w_{ip}) y HJM (w_{ip}). Extracción de las masas del bottom y top de distribuciones de event-shapes (w_{ip}). Determinación de la shape function de thrust (w_{ip}).

3) Determinación de las masas del charm y bottom: Cálculo de la función de polarización vectorial para quarks pesados a dos y tres loops, mediante técnicas de Padé. Estos resultados han sido usados para determinar con gran precisión la masa de los quarks mediante reglas de suma de QCD. Se estudia de manera detallada todas las fuentes de error teórico y experimental.

Resumen del Currículum Vitae:

Méritos Universitarios

El Dr. Mateu obtuvo una calificación de 3.59 sobre 4 en la Licenciatura en Física, gracias a lo que consiguió el Primer Premio Nacional Fin de Carrera (MEC), el Premio de Promoción de la UVEG y la Mención de Calidad al Rendimiento Académico.

Becas y Contractos

El Dr. Mateu obtuvo una beca de colaboración predoctoral y una Beca FPU para la realización de la tesis (MEC), así como una beca de Introducción a la Investigación (CSIC). Se le han concedido tres contratos Marie Curie: de 3 meses (Marie Curie Training Site) para una



MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2014

Turno de acceso general

SECRETARÍA DE ESTADO
DE INVESTIGACIÓN
DESARROLLO E INNOVACIÓN

SECRETARÍA GENERAL
DE CIENCIA, TECNOLOGÍA
E INNOVACIÓN

DIRECCIÓN GENERAL
DE INVESTIGACIÓN
CIENTÍFICA Y TÉCNICA

SUBDIRECCIÓN GENERAL
DE RECURSOS HUMANOS
PARA LA INVESTIGACIÓN

Escuela Internacional en Trento, 1 año [Early Stage Researcher (ESR)] para la Universidad de Karlsruhe, y de 3 años [International Outgoing Fellowship (IOF)] para el MIT (fase de ida) e IFIC (fase de retorno); contratos postdoctorales de 18 meses en el MPI y 6 años en la Universidad de Viena, y una "Eigen Stelle" Alemana (DFG) en el MPI (12 meses).

Investigación

El Dr. Mateu ha publicado 36 trabajos: 20 artículos y 16 proceedings, una tesina y una tesis doctoral de gran relevancia, citadas en 769 ocasiones, con una media de 38.3 citas por trabajo publicado. Artículos con más citas: 208, 97, 65, 60, 49... Los resultados han sido presentados por el candidato en 33 congresos (15 invitaciones), y 23 veces en seminarios en Universidades y Centros de Investigación. Ha coorganizado dos congresos internacionales, uno de ellos el EPS meeting. Ha asistido a 10 escuelas internacionales. Ha codirigido una tesina y codirige dos tesis. También ha sido organizador de los seminarios de la Universidad de Viena y del MIT. Sus determinaciones de las masas de los quarks y de α_S han sido incluida en el PDG.

Docencia

50 horas en la UVEG (Física Cuántica y Teoría Cuántica de Campos), 180 horas en la Universidad de Viena (Partículas Elementales I y II, Electrodinámica Clásica y Mecánica Cuántica). Tutoriales teóricos en dos ediciones del TAE y en la escuela de FLAVIANet.

Proyectos de investigación

El Dr. Mateu ha participado en 14 proyectos de investigación: 3 de ellos europeos, 2 como investigador principal, 1 concedido por el MIT, 5 nacionales (resto regionales).

Colaboraciones internacionales

El Dr. Mateu ha realizado estancias de 3 meses en ECT* (Italia), IPPP (Inglaterra) y UCSD (EEUU); postdocs de 3 años en el MPI (Alemania), 2 años en el MIT (EEUU) y 1 año en el IFIC; y estancias de una semana de duración en las Universidades de Barcelona, Praga, Berna, MIT, Seattle y Viena (dos veces). Ha colaborado con científicos de todo el mundo: San Diego (A. Manohar), Valencia (A. Pich, J. Portolés, G. Rodrigo, G. Chachamis), Múnich (O. Catà), Barcelona (M. Jamin), UCH (I. Rosell), Shiraz (S.M. Zebarjad), Viena (A. Hoang, B. Dehnadi, M. Praisser, I. Jemos), Mainz (M. Fickinger), Harvard (M. Schwartz), MIT (I. Stewart, R. Abbate, D. Kolodrubetz, J. Thaler), DESY (M. Butenschön, P. Pietrulewicz), LBNL (J. Prouty) y Oxford (S. Gritshacher).

Otros méritos

Concesión del Premio de la RSEF en la categoría de Investigadores Novel en Física Teórica 2014

Referee para JHEP, PLB, NPA y JPG

Evaluador de la fundación croata para la ciencia

Short-listed para una plaza tenure track en la universidad de Viena

Conocimiento de Español, Catalán, Inglés, Italiano y Alemán

Moderador del curso online del MIT sobre teorías efectivas

Participación en la Olimpiada Nacional de Física, campeón de la fase provincial