

## Física Atómica, Molecular y Nuclear

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**Áreas de conocimiento:** Física Atómica, Molecular y Nuclear

**Directora:** Carmen García Recio

**Secretario:** Fernando Arias de Saavedra Alías

**Página web:** <http://www.ugr.es/~famn>

**Profesorado:** CU: 11, PTU: 4, PDI Contratado y Otros: 4.

### Tesis leídas

- Gravedad Estocástica: una Aplicación de la Teoría de la Información a un Sistema Físico Relativista  
Doctorando: Julio Angulo Ibáñez  
Directores: José Miguel Angulo Ibáñez y Juan Carlos Angulo Ibáñez  
Fecha de lectura: 18 Julio 2018

### Grupos de Investigación.

- FQM220 ESTRUCTURA ATOMICA Y NUCLEAR  
- Responsable: FRANCISCO JAVIER GÁLVEZ CIFUENTES
- FQM387 FÍSICA FUNDAMENTAL Y APLICACIONES  
- Responsable: ANTONIO M. LALLENA ROJO
- FQM225 FÍSICA NUCLEAR A ENERGÍAS INTERMEDIAS  
- Responsable: JOSE ENRIQUE AMARO SORIANO
- FQM020 FÍSICA Y QUÍMICA DE LA INFORMACIÓN  
- Responsable: JUAN CARLOS ANGULO IBÁÑEZ
- FQM381 Nanoestructuras, propiedades cuánticas y aplicaciones tecnológicas  
- Responsable: ELVIRA ROMERA GUTIÉRREZ

### Dirección y participación en Proyectos I+D

- 2019 Actualización y mantenimiento del Cluster de computación PROTEUS, , 01/01/2019-31/12/2019  
Investigador ELVIRA ROMERA GUTIÉRREZ
- 2019 Física hadrónica, nuclear y astropartículas, , 01/01/2018-31/12/2020  
Investigador/a JOSE ENRIQUE AMARO SORIANO  
Investigador/a MARÍA CARMEN GARCÍA RECIO  
Investigador ENRIQUE RUIZ ARRIOLA  
Investigador/a LORENZO LUIS SALCEDO MORENO
- 2019 'FISICA HADRONICA, NUCLEAR Y ASTROPARTICULAS', Competitivo, 01/01/2018-31/12/2020  
Responsable ENRIQUE RUIZ ARRIOLA
- 2019 'NOLINEALIDAD Y CONTROL E INCERTIDUMBRE CUANTICAS.', Competitivo, 01/01/2018-31/12/2020  
Responsable MARIA ROSARIO GONZÁLEZ FÉREZ
- 2019 CATEDRA NEUTRONES PARA MEDICINA (FUNDACION ACS), Competitivo, 08/05/2018-31/12/2018  
Responsable JOSÉ IGNACIO PORRAS SÁNCHEZ

### Publicaciones en revistas

- 2019 Artículo: Neutrino-Oxygen CC0pi scattering in the SuSAv2-MEC model, Journal of Physics G: Nuclear and Particle Physics, 46, 1, 015104-1-015104-19  
JOSE ENRIQUE AMARO SORIANO
- 2019 Artículo: Fractal behavior of the trajectories of the foot centers of pressure during pregnancy, Biomedical Physics & Engineering Express, 5, , 025008-  
ANTONIO M. LALLENA ROJO  
MARTA ANGUIANO MILLÁN
- 2019 Artículo: Realistic spectral function model for charged-current quasielastic-like neutrino and antineutrino scattering cross sections on <sup>12</sup>C, Physical Review C - Nuclear Physics, 99, , 014610-1-014610-13  
JOSE ENRIQUE AMARO SORIANO
- 2019 Artículo: EBT3 film calibration in the Bragg peak region for proton beams below 5 MeV, Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms, 444, , 117-124  
ANTONIO M. LALLENA ROJO
- 2019 Artículo: Schwinger-Dyson equations and line integrals, Journal of Physics A: Mathematical and Theoretical, 52, 3, 035201-1-035201-23  
LORENZO LUIS SALCEDO MORENO
- 2019 Artículo: Baryonic susceptibilities, quark-diquark models and quark-hadron duality at finite temperature, Physical Review D, 99, 7, 074020-1-074020-17  
ENRIQUE RUIZ ARRIOLA

LORENZO LUIS SALCEDO MORENO

- 2019 Artículo: Renormalization of vector fields with mass-like coupling in curved spacetime, European Physical Journal C. Particles and Fields, 79, , 438-1-438-15

LORENZO LUIS SALCEDO MORENO

MARÍA CARMEN GARCÍA RECIO

- 2019 Artículo: Two-nucleon emission in neutrino and electron scattering from nuclei: the modified convolution approximation, Annals of Physics, 388, , 323-349

JOSE ENRIQUE AMARO SORIANO

- 2019 Artículo: Low energy peripheral scaling in nucleon-nucleon scattering and uncertainty quantification, Journal of Physics G: Nuclear and Particle Physics, 45, 3, 035107-

ENRIQUE RUIZ ARRIOLA

JOSE ENRIQUE AMARO SORIANO

RODRIGO NAVARRO PÉREZ

- 2019 Artículo: Preparation and characterization of  $^{33}\text{S}$  samples for  $^{33}\text{S}(n,\alpha)^{30}\text{Si}$  cross-section measurements at the n\_TOF facility at CERN, Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 890, , 142-147

JOSÉ IGNACIO PORRAS SÁNCHEZ

- 2019 Artículo: Singlet vs. triplet interelectronic repulsion in confined atoms, Chemical Physics Letters, 702, , 106-110

ENRIQUE BUENDÍA ÀVILA

FRANCISCO JAVIER GÁLVEZ CIFUENTES

- 2019 Artículo: Measurement and resonance analysis of the  $^{33}\text{S}(n,\alpha)^{30}\text{Si}$  cross section at the CERN n\_TOF facility in the energy region from 10 to 300 keV, Physical Review C: Covering Nuclear Physics, 97, , 064603-1-064603-10

JOSÉ IGNACIO PORRAS SÁNCHEZ

- 2019 Artículo: Quasielastic charged-current neutrino scattering in the scaling model with relativistic effective mass, Physical Review D, 97, 11, 116006-1-

ENRIQUE RUIZ ARRIOLA

JOSE ENRIQUE AMARO SORIANO

- 2019 Artículo: An application of information theory to stochastic classical gravitational fields, Physica A: Statistical Mechanics and its Applications, 499, , 129-141

JUAN CARLOS ANGULO IBÁÑEZ

- 2019 Artículo: Information measures and topological-band insulator transitions in 2D-Dirac materials under external circularly polarized lasers, and static electric and magnetic fields, Physica A: Statistical Mechanics and its Applications, 511, , 174-181

ELVIRA ROMERA GUTIÉRREZ

JUAN CARLOS BOLÍVAR FERNÁNDEZ

- 2019 Artículo: Laser-induced alignment of weakly bound molecular aggregates, Physical Review A, 98, , 053412-1-053412-10

MARIA ROSARIO GONZÁLEZ FÉREZ

- 2019 Artículo: Fidelity as a marker of topological phase transitions in 2D Dirac materials, International Journal of Quantum Chemistry, 118, 17, e25674-

ELVIRA ROMERA GUTIÉRREZ

JUAN CARLOS BOLÍVAR FERNÁNDEZ

- 2019 Artículo: Rényi-Fisher entropy product as a marker of topological phase transitions, Physica A: Statistical Mechanics and its Applications, 498, , 66-73

ELVIRA ROMERA GUTIÉRREZ

JUAN CARLOS BOLÍVAR FERNÁNDEZ

- 2019 Artículo: Overcoming Diffusion-Limited Biosensing by Electrothermoplasmonics, ACS PHOTONICS, 5, 9, 3673-3679

RAÚL ALBERTO RICA ALARCÓN

- 2019 Artículo: Coarse graining pion-pion scattering, European Physical Journal C. Particles and Fields, 78, 11, 878-1-878-30

ENRIQUE RUIZ ARRIOLA

- 2019 Artículo: On the upper limit for the energy of epithermal neutrons for Boron Neutron Capture Therapy, Radiation Physics and Chemistry, 156, , 240-244

FERNANDO ARIAS DE SAAVEDRA ALÍAS

JOSÉ IGNACIO PORRAS SÁNCHEZ

PABLO TORRES SÁNCHEZ

- 2019 Artículo: Global Superscaling Analysis of Quasielastic Electron Scattering with Relativistic Effective Mass, Physical Review C: Covering Nuclear Physics, 98, 2, 024627-

ENRIQUE RUIZ ARRIOLA

JOSE ENRIQUE AMARO SORIANO

- 2019 Artículo: MOTIONAL STUDIES OF ONE AND TWO LASER-COOLED TRAPPED IONS FOR ELECTRIC-FIELD SENSING APPLICATIONS, Journal of Modern Optics, 65, , 613-621  
DANIEL RODRÍGUEZ RUBIALES  
JUAN MANUEL CORNEJO GARCIA  
RAÚL ALBERTO RICA ALARCÓN
- 2019 Artículo: A DOUBLE PAUL TRAP SYSTEM FOR THE ELECTRONIC COUPLING OF IONS, The European Physical Journal Special Topics, 227, , 445-456  
DANIEL RODRÍGUEZ RUBIALES  
RAÚL ALBERTO RICA ALARCÓN
- 2019 Artículo: Positive representations of complex distributions on groups, Journal of Physics A: Mathematical and Theoretical, 51, 50, 505401-1-505401-40  
LORENZO LUIS SALCEDO MORENO

#### Capítulos de libros (con ISBN)

- 2019 Título Capítulo: Charged-Current Quasielastic (anti)neutrino cross sections on  $^{12}\text{C}$  with realistic spectral functions including meson exchange contributions, Titulo Libro: Nuclear Theory: HERON PRESS, SOFIA, , 2018,  
JOSE ENRIQUE AMARO SORIANO

#### Contribuciones en congresos

- 2019 Poster en Jornada: Dosimetry with EBT3 films in the Bragg peak region for low energy protons, II Workshop Español de Protonterapia, 15/03/2018, Escuela Superior de Ingeniería, Universidad de Sevilla, Jornada  
ANTONIO M. LALLENA ROJO
- 2019 Sesión plenaria en Taller de trabajo: Information-theoretic quantifiers of electron correlation in atomic systems, Quantum structures & Quantum information theory, 08/10/2018, Cagliari (Italia), Taller de trabajo  
JUAN CARLOS ANGULO IBÁÑEZ
- 2019 Sesión plenaria en Congreso: Thermal correlators in the hadron resonance gas: a dual Hagedorn distance, 10th International Winter Workshop "Excited QCD 2018", 11/03/2018, KOPAONIK- RASKA (SERBIA), Congreso  
LORENZO LUIS SALCEDO MORENO  
ENRIQUE RUIZ ARRIOLA
- 2019 Poster en Congreso: Information-Theoretical Space from Simple Atomic and Molecular Systems to Biological and Pharmacological Molecules, Entropy 2018: From Physics to Information Sciences and Geometry, 14/05/2018, Barcelona (España), Congreso  
JUAN CARLOS ANGULO IBÁÑEZ
- 2019 Comunicación en congreso: On the upper limit for the energy of epithermal neutrons for BNCT, 18th International Congress on Neutron Capture Therapy, 28/10/2018, TAIPEI, TAIWÁN, Congreso  
FERNANDO ARIAS DE SAAVEDRA ALÍAS  
JOSÉ IGNACIO PORRAS SÁNCHEZ  
PABLO TORRES SÁNCHEZ
- 2019 Ponencia en Jornada: Towards laser cooling of a single  $^{40}\text{Ca}^+$  ion in a 7-T Penning trap for single-ion detection, Exploring the Quantum Limit with Laser-Cooled Ions in Penning Traps, 01/07/2018, Hannover (Alemania), Jornada  
DANIEL RODRÍGUEZ RUBIALES
- 2019 Sesión plenaria en Congreso: Fluctuations and correlations in thermal QCD, 21st International Conference on Quantum Chromodynamics, 02/06/2018, Montpellier, Congreso  
ENRIQUE RUIZ ARRIOLA  
LORENZO LUIS SALCEDO MORENO