



## Física Atomica, Molecular y Nuclear

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**Áreas de conocimiento:** Física Atomica, Molecular Y Nuclear

**Director:** Jose Ignacio Porras Sanchez

**Secretario:** Jose Enrique Amaro Soriano

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

**Profesorado:** CU: 7, PTU: 9 ,PTEU: 0, PDI Contratado y Otros: 3.

### Tesis leídas

- Statistical error analysis of the nuclear force

Doctorando: Rodrigo Navarro Pérez

Director: Enrique Ruiz Arriola y José Enrique Amaro Soriano

Fecha de lectura: 24 de Febrero de 2015

- "Modelo de fuentes virtuales para cálculos Monte Carlo en radioterapia externa con haces de fotones"

Doctorando: Wilfredo González Infantes

Director: Antonio M. Lallena Rojo

Fecha: 29 de Abril de 2015

### Grupos de Investigación.

**FQM220 ESTRUCTURA ATOMICA Y NUCLEAR**

- Responsable: ENRIQUE BUENDÍA ÀVILA

**FQM225 FÍSICA NUCLEAR A ENERGÍAS INTERMEDIAS**

- Responsable: JOSE ENRIQUE AMARO SORIANO

**FQM020 FÍSICA Y QUÍMICA DE LA INFORMACIÓN**

- Responsable: JUAN CARLOS ANGULO IBÁÑEZ

### Dirección y participación en Proyectos I+D

- 2015 Physics of the fundamental interactions, Plan Nacional de Altas Energias, Spanish MICINN, 01/01/2015-31/12/2016

Investigador/a MEGIAS FERNANDEZ, EUGENIO

- 2015 INFORMACION Y COMPLEJIDAD EN SISTEMAS MULTIELECTRONICOS. APLICACIONES FISICAS, BIOTECNOLOGICAS Y FARMACOLOGICAS, Ministerio de Economía y Competitividad, 01/01/2015-31/12/2017

Responsable ANGULO IBÁÑEZ, JUAN CARLOS

- 2014 Estudio de nuevas rutas para la produccion de radioisótopos de uso en medicina, de la obtención de radioisótopos emergentes y de las posibles aplicaciones médicas de nuevos radioisótopos, Ministerio de Ciencia e Innovacion. Campus de Excelencia Internacional CEIBioTIC Granada, 02/06/2014-31/12/2014

Responsable PORRAS SÁNCHEZ, JOSÈ IGNACIO

Responsable ARIAS DE SAAVEDRA ALÍAS, FERNANDO

- 2014 Estudio de propiedades del grafeno. Aspectos teóricos y aplicaciones en biosensores., Proyectos CEI BIOTIC 2014, 28/05/2014-31/12/2014

Investigador/a RUIZ ARRIOLA, ENRIQUE

- 2014 PROPIEDADES ELECTRÓNICAS DEL GRAFENO CON APLICACIONES EN DISPOSITIVOS Y BIOTECNOLÓGICAS, Proyectos de excelencia JUNTA DE ANDALUCÍA, 30/01/2014-30/01/2017

Investigador/a RUIZ ARRIOLA, ENRIQUE

- 2014 Aspectos de Física Hadrónica a Energías Intermedias, GENIL, 01/04/2014-31/01/2015

Responsable ALBERTUS TORRES, CONRADO

Participante RUIZ SIMÓ, IGNACIO LUIS

- 2014 Non Perturbative Physics at Finite Temperature: Field Theory and Holography, Marie Curie Intra-European Fellowship, 01/10/2014-

Responsable MEGIAS FERNANDEZ, EUGENIO

- 2014 Física Teorica, Generalitat de Catalunya, 01/01/2014-31/12/2016

Investigador/a MEGIAS FERNANDEZ, EUGENIO

### Publicaciones en revistas

- 2015 Artículo: Non extensive thermodynamics for hadronic matter with finite chemical potentials, Physica A: Statistical Mechanics and its Applications, 421, , 15-24

MEGIAS FERNANDEZ, EUGENIO

- 2015 Artículo: Error analysis of nuclear forces and effective interactions, Journal of physics. G, Nuclear and particle physics, 42, , 034013-1-034013-18

AMARO SORIANO, JOSE ENRIQUE

NAVARRO PÉREZ, RODRIGO



- RUIZ ARRIOLA, ENRIQUE
- 2015 Artículo: Minimally nonlocal nucleon-nucleon potentials with chiral two-pion exchange including  $\delta$  resonances, *Physical review. C. Nuclear physics (Print)*, 91, , 024003-1-AMARO SORIANO, JOSE ENRIQUE  
NAVARRO PÉREZ, RODRIGO  
RUIZ ARRIOLA, ENRIQUE
  - 2015 Artículo: Meson-exchange currents and quasielastic predictions for charged-current neutrino-C12 scattering in the superscaling approach, *PHYS REV D*, 91, , 073004-AMARO SORIANO, JOSE ENRIQUE
  - 2015 Artículo: Low-energy chiral two-pion exchange potential with statistical uncertainties, *Physical review. C. Nuclear physics (Print)*, 91, , 054002-1-054002-16  
AMARO SORIANO, JOSE ENRIQUE  
NAVARRO PÉREZ, RODRIGO  
RUIZ ARRIOLA, ENRIQUE
  - 2015 Artículo: Parity violating asymmetry with nuclear medium effects in polarized deep inelastic electron scattering, *Nuclear physics. A (Print)*, 940, , 138-157  
RUIZ SIMÓ, IGNACIO LUIS
  - 2015 Artículo: Superscaling in electron-nucleus scattering and its link to CC and NC QE neutrino-nucleus scattering, *AIP conference proceedings*, 1663, , 090002-1-090002-5  
AMARO SORIANO, JOSE ENRIQUE
  - 2014 Artículo: error analysis of nuclear matrix elements, *Few-body systems*, 55, 8-10, 977-981  
AMARO SORIANO, JOSE ENRIQUE
  - 2014 Artículo: Coulomb and spin-orbit interactions in random-phase approximation calculations, *Physical Review C*, 89, 1, 014309-1-014309-11  
ANGUIANO MILLÁN, MARTA  
LALLENA ROJO, ANTONIO M.
  - 2014 Artículo: Quality indexes based on water measurements for low and medium energy x-ray beams: A theoretical study with PENELOPE, *MED PHYS*, 41, 1, 012101-1-012101-8  
ANGUIANO MILLÁN, MARTA  
CHICA VILLEGAS, URIEL ODIEMA  
LALLENA ROJO, ANTONIO M.  
VILCHES PACHECO, MANUEL
  - 2014 Artículo: Monte Carlo study for designing a dedicated 'D'-shaped collimator used in the external beam radiotherapy of retinoblastoma patients, , 41, , 011714-  
LALLENA ROJO, ANTONIO M.  
LALLENA ROJO, ANTONIO M.
  - 2014 Artículo: A study of self consistent Hartree-Fock plus Bardeen-Cooper-Schrieffer calculations with finite-range interactions, *Journal of physics. G, Nuclear and particle physics*, 41, 2, 025102-1-ANGUIANO MILLÁN, MARTA  
LALLENA ROJO, ANTONIO M.
  - 2014 Artículo: Sulfur-33 as a cooperative capturer for BNCT, *Applied radiation and isotopes*, 88, 203, 205-PORRAS SÁNCHEZ, JOSÉ IGNACIO
  - 2014 Artículo: Design and analysis of demand-adapted railway timetables, *JOURNAL OF ADVANCED TRANSPORTATION*, 48, 2, 119-137  
ZARZO ALTAREJOS, ALEJANDRO
  - 2014 Artículo: Railway Rapid Transit Timetables with Variable and Elastic Demand, *Procedia - Social and Behavioral Sciences Journal*, 111, , 538-548  
ZARZO ALTAREJOS, ALEJANDRO
  - 2014 Artículo: General Purpose MOSFET for the dosimetry of electron beams used in intra-operative radiotherapy, *Sensors and Actuators A:Physical*, 210, , 175-181  
LALLENA ROJO, ANTONIO M.
  - 2014 Artículo: Coarse-grained NN potential with chiral two-pion exchange, *Physical review. C. Nuclear physics (Print)*, 89, , 024004-1-024004-10  
AMARO SORIANO, JOSE ENRIQUE  
NAVARRO PÉREZ, RODRIGO  
RUIZ ARRIOLA, ENRIQUE
  - 2014 Artículo: The Polyakov loop in various representations in the confined phase of QCD, *Physical review. D, Particles, fields, gravitation, and cosmology*, 89, , 076006-1-076006-38  
MEGIAS FERNANDEZ, EUGENIO  
RUIZ ARRIOLA, ENRIQUE  
SALCEDO MORENO, LORENZO LUIS
  - 2014 Artículo: Leptonic CP violating effective action for Dirac and Majorana neutrinos, *JHEP*, 2014, 08, 156-1-156-48  
GARCÍA RECIO, MARÍA CARMEN  
SALCEDO MORENO, LORENZO LUIS



- 2014 Artículo: triton binding energy with realistic statistical uncertainties, *Physical Review C*, 90, , 047001-1-04701-5  
AMARO SORIANO, JOSE ENRIQUE  
NAVARRO PÉREZ, RODRIGO  
RUIZ ARRIOLA, ENRIQUE
- 2014 Artículo: bootstrapping the statistical uncertainties of NN scattering data, *Physics letters. B (Print)*, 738, , 155-159  
AMARO SORIANO, JOSE ENRIQUE  
NAVARRO PÉREZ, RODRIGO  
RUIZ ARRIOLA, ENRIQUE
- 2014 Artículo: How bosonic is a pair of fermions?, *Applied Physics B*, 117, 3, 785-796  
BOUVRIE MORALES, PETER ALEXANDER
- 2014 Artículo: Entanglement and the Born-Oppenheimer approximation in an exactly solvable quantum many-body system, *European Physical Journal D*, 68, , 346-  
BOUVRIE MORALES, PETER ALEXANDER
- 2014 Artículo: Relativistic effects in two-particle emission for electron and neutrino reactions, *Physical review. D, Particles, fields, gravitation, and cosmology*, 90, 3, 033012-  
ALBERTUS TORRES, CONRADO  
AMARO SORIANO, JOSE ENRIQUE  
RUIZ SIMÓ, IGNACIO LUIS
- 2014 Artículo: A generalized complexity measure based on Rényi entropy, *European Physical Journal D*, 68, , 212-  
ANGULO IBÁÑEZ, JUAN CARLOS
- 2014 Artículo: Relativistic global and local divergences in hydrogenic systems: A study in position and momentum spaces, *Physical Review A*, 90, 4, 042511-  
ANGULO IBÁÑEZ, JUAN CARLOS
- 2014 Artículo: Study of confined many electron atoms by means of the POEP method, *Journal of Physics B - Atomic, molecular and optical physics*, 47, , 185002-1-185002-8  
BUENDÌA ÀVILA, ENRIQUE  
GÀLVEZ CIFUENTES, FRANCISCO JAVIER
- 2014 Artículo: Explicitly correlated wave functions for atoms and singly charged ions from Li through Sr: Variational and Diffusion Monte Carlo results, *Chemical Physical Letters*, 615, , 21-25  
BUENDÌA ÀVILA, ENRIQUE  
GÀLVEZ CIFUENTES, FRANCISCO JAVIER  
MALDONADO JIMÉNEZ, PABLO
- 2014 Artículo: Angular distribution in two-particle emission induced by neutrinos and electrons, *Physical review. D, Particles, fields, gravitation, and cosmology*, 90, 5, 053010-  
ALBERTUS TORRES, CONRADO  
AMARO SORIANO, JOSE ENRIQUE  
RUIZ SIMÓ, IGNACIO LUIS
- 2014 Artículo: Partial Wave Analysis of Chiral NN Interactions, *Few-body systems*, 55, 8-10, 983-987  
AMARO SORIANO, JOSE ENRIQUE  
NAVARRO PÉREZ, RODRIGO  
RUIZ ARRIOLA, ENRIQUE
- 2014 Artículo: Statistical error analysis for phenomenological nucleon-nucleon potentials, *Physical review. C. Nuclear physics (Print)*, 89, 6, 064006-  
AMARO SORIANO, JOSE ENRIQUE  
NAVARRO PÉREZ, RODRIGO  
RUIZ ARRIOLA, ENRIQUE
- 2014 Artículo: Second-order partition function of a non-interacting chiral fluid in 3+1 dimensions, *Journal of High Energy Physics*, 11, 005, -  
MEGIAS FERNANDEZ, EUGENIO
- 2014 Artículo: Insight into the informational-structure behavior of the Diels-Alder reaction of cyclopentadiene and maleic anhydride, *J MOL MODEL*, 20, , 2361-2373  
ANGULO IBÁÑEZ, JUAN CARLOS
- 2014 Artículo: Pauli effects in uncertainty relations, *Chemical Physical Letters*, 614, , 1-4  
ESQUIVEL OLEA, RODOLFO OCTAVIO

#### Contribuciones en congresos

- 2014 Comunicación en Jornada: Fuerzas Nucleares: La precisión que tenemos y la precisión que necesitamos, *Jornadas Científicas del Instituto Carlos I*, 10/04/2014, , Jornada  
NAVARRO PÉREZ, RODRIGO
- 2014 Comunicación en congreso: Toxicity and boron uptake of carboranyl-containing porphyrin-cored dendrimers, *16th International Conference on Neuron Capture Therapy*, 17/06/2014, , Congreso  
PARRAS SÀNCHEZ, JOSÈ IGNACIO



- 2014 Comunicación en congreso: 2p-2h excitations in neutrino scattering: angular distribution and frozen approximation, 16th International Workshop on Neutrino Factories and Future Neutrino Beam Facilities, 25/08/2014, GLASGOW - REINO UNIDO, Taller de trabajo  
RUIZ SIMÓ, IGNACIO LUIS  
AMARO SORIANO, JOSE ENRIQUE  
ALBERTUS TORRES, CONRADO
- 2014 Comunicación en congreso: Neutrino-nucleus CCQE-like scattering, 37th International Conference on High Energy Physics, 02/07/2014, - Valencia, España, Congreso  
RUIZ SIMÓ, IGNACIO LUIS  
NIEVES PAMPLONA, JUAN M.
- 2014 Poster en Congreso: Relativistic effects and Meson Exchange Currents in two-particle emission with neutrinos, 9th International Workshop on Neutrino-Nucleus Interactions in the Few-GeV region, 19/05/2014, Surrey, Reino Unido, Taller de trabajo  
RUIZ SIMÓ, IGNACIO LUIS  
ALBERTUS TORRES, CONRADO  
AMARO SORIANO, JOSE ENRIQUE
- 2014 Comunicación en congreso: Quark-hadron duality at finite temperature, 54th Cracow School of Theoretical Physics, 12/06/2014, , Congreso  
MEGIAS FERNANDEZ, EUGENIO  
RUIZ ARRIOLA, ENRIQUE
- 2014 Poster en Congreso: Toxicity and boron uptake of carboranyl-containing porphyrin-cored dendrimers, International Conference on Neutron Capture Therapy., 09/06/2014, , Congreso  
PORRAS SÀNCHEZ, JOSÈ IGNACIO
- 2014 Comunicación en congreso: Quark Hadron Duality at Finite Temperature, 54th Cracow School of Theoretical Physics, 12/06/2014, Zakopane (Polonia), Congreso  
RUIZ ARRIOLA, ENRIQUE  
MEGIAS FERNANDEZ, EUGENIO  
SALCEDO MORENO, LORENZO LUIS
- 2014 Comunicación en congreso: Heavy Mesons in Nuclear Matter and Nuclei, 4th International Conference on Hadron Physics, 01/07/2014, Canakkale (Turquía), Congreso  
SALCEDO MORENO, LORENZO LUIS
- 2014 Comunicación en congreso: Building train schedules from frequency maps, VIII ALIO/EURO Workshop on Applied Combinatorial Optimization, 08/12/2014, , Congreso  
ZARZO ALTAREJOS, ALEJANDRO
- 2014 Comunicación en congreso: Frequency dependence of anomalous transport in field theory and holography, QCD@Work, International Workshop on QCD, theory and experiment, 16/06/2014, , Congreso  
MEGIAS FERNANDEZ, EUGENIO
- 2014 Comunicación en congreso: Nonextensive thermodynamics with finite chemical potentials and protoneutron stars, QCD@Work, International Workshop on QCD, theory and experiment, 16/06/2014, Giovinazzo (Bari - Italy), Congreso  
MEGIAS FERNANDEZ, EUGENIO
- 2014 Conferencias impartidas: Polyakov loop spectroscopy in the confined phase of gluodynamics and QCD, 17th International Conference in Quantum Chromodynamics (QCD 14), 30/06/2014, Montpellier, France, Congreso  
MEGIAS FERNANDEZ, EUGENIO
- 2014 Comunicación en congreso: Polyakov loop spectroscopy in the confined phase of gluodynamics and QCD, 17th International Conference in Quantum Chromodynamics (QCD 14), 30/06/2014, Montpellier, France, Congreso  
SALCEDO MORENO, LORENZO LUIS  
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