



Javier Roca Maza

Curriculum Vitae

Personal Information

Family name Roca Maza
Given name Javier
Address Via Augusto Anfossi 32, I-20135 Milan
Cell Phone (+39) 338 117 00 94
e-mail xavier.roca.maza@gmail.com
Date of birth 3rd of June 1978
Place of birth Barcelona
Citizenship Spanish

Present position

Assistant Professor

Description In the Italian system this position is known as "Ricercatore a Tempo Determinato-lettera B". This position is a tenure track that will end in March 2020 with an upgrade to Associate Professor since I am already qualified (2014) by the Italian system as Associate Professor in the area of "Theoretical physics of fundamental interactions".

Institution University of Milan
Physics Department
Office Via Celoria 16, I-20133 Milan
Sezione Fisica del Nucleo, LITA building
1st floor, room number A/1/C8
e-mail xavier.roca.maza@mi.infn.it
e-mail Javier.Roca@unimi.it
Phone (+39) 02 503 17 225

Via Augusto Anfossi 32 – Milan, Italy 20135

 (+39) 338 117 00 94 •  (+39) 02 503 17 225
 xavier.roca.maza@gmail.com •  www.mi.infn.it/~jroca/

Fax (+39) 02 503 17 487
Website www.mi.infn.it/~jroca/

Education

2009 Course on Pedagogical Aptitude (CAP)
Institution University of Barcelona, Spain

PhD Thesis

2005–2010 University of Barcelona, Spain

Title *Isospin asymmetry in stable and exotic nuclei*

Supervisors Prof. Xavier Viñas i Gausí and Prof. Mario Centelles i Aixalà

Grade “Excel.lent Cum Laude”

Description Physical properties of nuclei, such as the mass, neutron and proton distributions, collective excitations, fission properties, etc. are influenced by the isospin dependence of the nuclear strong interaction. The symmetry energy and its density dependence account for the effects observed in nuclei with proton-neutron differences. Therefore, the accurate characterization of this property entails profound consequences in studying the nucleus. It also impacts on diverse areas in physics such as nuclear astrophysics among others. The experimental situation has changed considerably in recent years. The advent of new techniques to synthesize and perform experiments with exotic nuclei has allowed this change that is only at the beginning. This situation have motivated the studies presented along this Thesis where some aspects of the isospin dependence of the nuclear force have been investigated. Our aim was to understand the effects that such dependence produce on different nuclear observables of both, stable and exotic nuclei.

Stage From September to December 2007 at the Physics Department of the Florida State University. Collaboration project with Prof. Jorge Piekarewicz.

Advanced Studies Diploma Thesis

2005–2007 University of Barcelona, Spain

Title *Cooling by approximation to a N_2 thermal bath*

Supervisor Prof. Eduard Vives

Grade “Excel.lent”

Description Hardware and software set up of a cooling system by approximation to a nitrogen thermal bath. That is a fully automatic device which allow the measurement of different thermodynamical properties of the material under study as a function of the temperature. From room temperature to nearly 77 K.

2005–2007 University of Barcelona, Spain

Title *ESEN–Elastic Scattering of Electrons by Nuclei*

Supervisor Prof. Francesc Salvat

Grade “Excel.lent”

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Description Modification of the *ELSEPA* code for the calculation of elastic electron scattering by stable and exotic nuclei and analysis of scattering observables with modern microscopic nuclear mean-field models.

Master Degree in Physics

2000–2004 University of Barcelona, Spain

Average Grade “Notable”, ~ 7.6 in a scale from 0 to 10

Fellowships

2006–2010 Training University Lecturers (FPU) studentship (2 years) and contract (2 years) from the Spanish government for the accomplishment of my PhD courses and thesis.

2005 Studentship from the Spanish Government for the collaboration with the *Departament d'Estructura i Constituent de la Matèria* at the University of Barcelona.

This collaboration was developed within the framework of the research project entitled: *Static and Dynamic Properties of Correlated Bosonic and Fermionic Systems*.

2000–2004 Studentship from the Spanish government (providing full support for the University tuition).

Languages

Spanish **Native**

Catalan **Native**

English **Fluent**

Italian **Fluent**

spoken and written

spoken and written

Research

Research positions

2013–Present Assistant Professor

Institution University of Milan, Physics Department

2012–2013 PostDoc position. Research Grant.

Institution University of Milan, Physics Department

2010–2012 PostDoc position. Fellowship for foreign researchers.

Institution *Istituto Nazionale di Fisica Nucleare* (INFN), Milan section

2010 PostDoc position. Contract (6 months).

Institution University of Barcelona. Physics Department.

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Publications summary

- Year of 1st publication 2008
- Source Web of Science: 33 publications, 1 chapter in a book (see list of publications below with links to the original publication), and over 20 conference proceedings.
- h-index 19
- Citation stats. over 1600 citations; over 45 citations per publication on average. 2 highly cited papers and 5 papers with more than 100 citations.
- Invitations Chapter in the book “Neutron Star Crust” edited J. Piekarewicz and C. Bertulani and published by Nova Publishers 2013 [P17]
Review in the European Physical Journal A [P21]
Review in Progress in Particle and Nuclear Physics [P35]
Special issue on “Emerging Leaders” in Journal of Physics G [P34].

Conference and seminars summary

13 seminars and 37 conferences (most of them invited talks, see list below with link to the original slides)

Organization of conferences

[Nuclear Structure and Astrophysical Applications](#) - September 19th-20th 2017 Milan
[IVth Topical Workshop on Modern Aspects in Nuclear Structure](#) - 19-25 February 2018 Bormio

Projects

Participation as a researcher in a PRIN project from 2008-2012 (funds from Ministero dell'Istruzione dell'Universita e della Ricerca, local responsible P.F. Bortignon), ENSAR2 project from 2016-2020 (funds from European Research Council, local responsible G. Colo), MI31 project from 2010-2011 and STRENGTH project from 2012-2019 (funds from Istituto Nazionale di Fisica Nucleare, responsables E. Vigezzi and A. Gargano, respectively).

Editor

2017 - Present: [Member of the International Editorial Board](#) of Journal of Physics Communications. (doi:10.1088/issn.2399-6528)

Reviewer

Nature, Physical Review Letters, Europhysics Letters, Physical Review C, Nuclear Physics A, Chinese Physics C, Journal of Physics G, among others.

Awards

- 2011 *Special Mention* in the Dissertation Award in Nuclear Physics (2009-2011) of the Nuclear Physics Division of the European Physical Society.

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Brief Research Biography

I started my research activity in 2005 together with my DEA studies. In 2010, when I finished my PhD, I moved to Milan INFN section and University of Milan where I obtained a tenure track in 2013. Currently and during my PhD I focused on different aspects in theoretical Nuclear Physics. My expertise ranges from the study and proposal of new nuclear effective interactions; to the use and development of many-body techniques that may allow for a better description of nuclei, from ground state to collective excitations. Those techniques are based on Density Functional Theory, also employed in other fields in physics such as condensed matter, and on Nuclear Field Theory developed by the Copenhagen-Milan groups. The ultimate goal is to be able to describe both static and dynamic properties of nuclei within a single model and for the whole nuclear chart.

I have been also working on parity conserving elastic electron scattering by exotic nuclei due to its revitalized interest in experimental projects in Japan (RIKEN) and Germany (GSI) and in parity violating elastic electron scattering in nuclei that can be easily connected to the weak charge density in nuclei and, thus, to the neutron distribution. In parity violating experiments is fundamental to measure with high precision the polarization degree of the electron beam after the scattering process. For that reason, I have been collaborating with the “Mott” experimental group at JLab (USA) and provide them with state-of-the-art calculations of spin polarization functions for the kinematics and atoms of interest, useful for the calibration of the Mott polarimeter.

Academic

Qualifications

2014–2018 Italian Qualification for Associate Professor in the area 02/A2–Theoretical physics of fundamental interactions. ([see official web](#))

Teaching

2014–Present Electromagnetism (teaching assistant, 50 hours/year)

Department Physics

Institution University of Milan

2013–2014 Fundamentals of Physics (responsible of the course, 50 hours/year)

Department Computer science

Institution University of Milan

2009 Teaching to the 2nd course of “ESO” (basic physics) during my Course on Pedagogical Aptitude

Institution IES Les Corts, Barcelona, Spain

2008–2010 Teaching assistant for the course of *Laboratori de Termodinàmica* (Physics), Subject of the degree in Physics

Institution University of Barcelona.

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Supervision

2010-Present Advisor/Co-advisor of 4 Master and 15 Bachelor [thesis](#). Helped in the supervision of the PhD thesis of Dr. Brenna.

List of Publications

- P1** *Impact of the symmetry energy on the outer crust of non-accreting neutron stars*
Authors X.Roca-Maza and J.Piekarewicz
Journal Phys. Rev. C **78** 025807
Year 2008
- P2** *Nuclear symmetry energy probed by neutron skin thickness of nuclei*
Authors M. Centelles, X. Roca-Maza, X. Viñas, M. Warda
Journal Phys. Rev. Lett. **102** 122502
Year 2009
- P3** *Neutron skin thickness in droplet model with surface width dependence: indications of softness of the nuclear symmetry energy*
Authors M. Warda, X. Viñas, X. Roca-Maza, M. Centelles
Journal Phys. Rev. C **80** 024316
Year 2009
- P4** *Analysis of bulk and surface contributions in the neutron skin of nuclei*
Authors M. Warda, X. Viñas, X. Roca-Maza, M. Centelles
Journal Phys. Rev. C **81** 054309
Year 2010
- P5** *Origin of the neutron skin thickness of ^{208}Pb in nuclear mean-field models*
Authors M. Centelles, X. Roca-Maza, X. Viñas, M. Warda
Journal Phys. Rev. C **82** 054314
Year 2010
- P6** *Theoretical study of elastic electron scattering off stable and exotic nuclei*
Authors X.Roca-Maza, M. Centelles, F. Salvat, X. Viñas
Journal Phys. Rev. C **78** 044332
Year 2008
- P7** *Neutron skin of ^{208}Pb , nuclear symmetry energy, and the parity radius experiment*
Authors X. Roca-Maza, M. Centelles, X. Viñas, M. Warda
Journal Phys. Rev. Lett. **106** 252501

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Year 2011

P8 *Relativistic mean field interaction with density dependent meson-nucleon vertices based on microscopical calculations*

Authors X. Roca-Maza, X. Viñas, M. Centelles, P. Ring and P. Schuck

Journal Phys. Rev. C **84** 054309

Year 2011

P9 *Influence of the symmetry energy on the giant monopole resonance of neutron-rich nuclei*

Authors M. Centelles, S.K. Patra, X. Roca-Maza, B.K. Sharma, P.D. Stevenson, X. Viñas

Journal J. Phys. G **37** 075107

Year 2010

P10 *Garvey-Kelson Relations for Nuclear Charge Radii*

Authors J. Piekarewicz, M. Centelles, X. Roca-Maza, X. Viñas

Journal Eur. Phys. J. A **46** 379-386

Year 2010

P11 *Low-lying dipole response: isospin character and collectivity in ^{68}Ni , ^{132}Sn and ^{208}Pb*

Authors X. Roca-Maza, G. Pozzi, M. Brenna, K. Mizuyama and G. Colò

Journal Phys. Rev. C **85** 024601

Year 2012

P12 *Electric dipole polarizability and the neutron skin*

Authors J. Piekarewicz, B. K. Agrawal, G. Colò, W. Nazarewicz, N. Paar, P.-G. Reinhard, X. Roca-Maza and D. Vretenar

Journal Phys. Rev. C **85** 041302(R)

Year 2012

P13 *Second-order equation of state with the full Skyrme interaction: toward new effective interactions for beyond-mean-field models*

Authors K. Moghrabi, M. Grasso, X. Roca-Maza and G. Colò

Journal Phys. Rev. C **85** 044323

Year 2012

P14 *Constraints on the symmetry energy and neutron skins from experiments and theory*

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Authors M. B. Tsang, J. R. Stone, F. Camera, P. Danielewicz, S. Gandolfi, K. Hebeler, C. J. Horowitz, Jenny Lee, W. G. Lynch, Z. Kohley, R. Lemmon, P. Möller, T. Murakami, S. Riordan, X. Roca-Maza, F. Sammarruca, A. W. Steiner, I. Vidaña, and S. J. Yennello

Journal Phys. Rev. C **86** 015803

Year 2012

P15 *A new Skyrme interaction with improved spin-isospin properties*

Authors X.Roca-Maza, G. Colò and H. Sagawa

Journal Phys. Rev. C **86** 031306(R)

Year 2012

P16 *Localized form of Fock terms in nuclear covariant density functional theory*

Authors Haozhao Liang, Pengwei Zhao, Peter Ring, Xavier Roca-Maza, and Jie Meng

Journal Phys. Rev. C **86** 021302(R)

Year 2012

P17 *The Impact of the Nuclear Symmetry Energy on the Structure and Composition of the Outer Crust*

Authors X. Roca-Maza, T. Garía, M. Centelles and J. Piekarewicz

Chapter "Neutron Star Crust". Nova Publishers. ISBN: 978-1-62081-960-9.

Year 2012

P18 *Electron scattering in isotonic chains as a probe of the proton shell structure of unstable nuclei*

Authors X. Roca-Maza, M. Centelles, F. Salvat, X. Viñas

Journal Phys. Rev. C **87** 014304

Year 2013

P19 *Giant Quadrupole Resonances in ^{208}Pb , the nuclear symmetry energy and the neutron skin thickness*

Authors X. Roca-Maza, M. Brenna, B. K. Agrawal, P. F. Bortignon, G. Colò, Li-Gang Cao, N. Paar, and D. Vretenar

Journal Phys. Rev. C **87** 034301

Year 2013

P20 *Electric Dipole Polarizability in ^{208}Pb : correlations suggested by the Droplet Model*

Authors X. Roca-Maza, M. Brenna, G. Colò, M. Centelles, X. Viñas, B. K. Agrawal, N. Paar, J. Piekarewicz, and D. Vretenar

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Journal Phys. Rev. C **88** 024316
Year 2013

P21 *Density dependence of the symmetry energy from neutron skin thickness in finite nuclei*

Authors X. Viñas, M. Centelles, X. Roca-Maza and M. Warda
Journal Eur. Phys. Jour. **A** 50, 27
Year 2014

P22 *Influence of the single-particle structure on the nuclear surface and the neutron skin*

Authors M. Warda, M. Centelles, X. Viñas, and X. Roca-Maza
Journal Phys. Rev. C **89** 064302
Year 2014

P23 *Information content of the weak-charge form factor*

Authors P.-G. Reinhard, J. Piekarewicz, W. Nazarewicz, B.K. Agrawal, N. Paar, X. Roca-Maza
Journal Phys. Rev. C **88** 034325
Year 2013

P24 *Regularization of zero-range effective interactions in finite nuclei*

Authors Marco Brenna, Gianluca Colò, and Xavier Roca-Maza
Journal Phys. Rev. C 90, 044316 (2014)
Year 2014

P25 *Covariance analysis for Energy Density Functionals and instabilities*

Authors X. Roca-Maza, N. Paar, and G. Colò
Journal J. Phys. G: Nucl. Part. Phys. 42 034033
Year 2015

P26 *Covariance analysis of finite temperature density functional theory: symmetric nuclear matter*

Authors A. Rios and X. Roca-Maza
Journal J. Phys. G: Nucl. Part. Phys. 42 034005
Year 2015

P27 *Constraints on the neutron skin and symmetry energy from the anti-analog giant dipole resonance in ^{208}Pb*

Authors Li-Gang Cao, X. Roca-Maza, G. Colò, and H. Sagawa

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Journal Phys. Rev. C 92, 034308 (2015)
Year 2015

P28 *Outer crust of a cold non-accreting magnetar*

Authors D. Basilico, D. PeÑasa Arteaga, X. Roca-Maza, and G. Colò
Journal Phys. Rev. C 92, 035802 (2015)
Year 2015

P29 *The neutron skin thickness from the measured electric dipole polarizability in ^{68}Ni , ^{120}Sn , and ^{208}Pb*

Authors X. Roca-Maza, X. Viñas, M. Centelles, B. K. Agrawal, G. Colò, N. Paar, J. Piekarewicz, D. Vretenar
Journal Phys. Rev. C 92, 064304
Year 2015

P30 *Model dependence of the neutron-skin thickness on the symmetry energy*

Authors C. Mondal, B. K. Agrawal, M. Centelles, G. Colò, X. Roca-Maza, N. Paar, X. Viñas, S. K. Singh, and S. K. Patra
Journal Phys. Rev. C 93, 064303
Year 2016

P31 *Second-order equation of state with the Skyrme interaction: Cutoff and dimensional regularization with the inclusion of rearrangement terms*

Authors C. J. Yang, M. Grasso, X. Roca-Maza, G. Colò, and K. Moghrabi
Journal Phys. Rev. C 94, 034311
Year 2016

P32 *Fully self-consistent study of charge-exchange resonances and the impact on the symmetry energy parameters*

Authors X. Roca-Maza, Li-Gang Cao, G. Colò, and H. Sagawa
Journal Phys. Rev. C 94, 044313
Year 2016

P33 *Theoretical calculations for precision polarimetry based on Mott scattering*

Authors X. Roca-Maza
Journal Eur. Phys. Lett., 120 33002.
Year 2017

P34 *Towards a self-consistent dynamical nuclear model*

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Authors X Roca-Maza, Y F Niu, G Colò and P. F. Bortignon
Journal J. Phys. G: Nucl. Part. Phys. 44 044001
Year 2017

P35 *Nuclear Equation of State from ground and excited state properties of nuclei*
Authors X. Roca-Maza and N. Paar
Journal Prog. Part. Nucl. Phys. Accepted. [[arXiv:1804.06256](https://arxiv.org/abs/1804.06256)]
Year 2018

P36 *Nuclear symmetry energy and the breaking of the isospin symmetry: How do they reconcile with each other?*
Authors X. Roca-Maza, G. Colò, H. Sagawa
Journal Phys. Rev. Lett. Accepted. [[arXiv:1803.09120](https://arxiv.org/abs/1803.09120)]
Year 2018

Conference Talks & Seminars

Title [Can we reconcile our understanding of the symmetry energy with the isobaric analog state properties?](#)
Conference Invited talk at "Information and statistics in nuclear experiment and theory ISNET-5"
Place York, UK, November 6th - 9th.
Year 2017

Title [Can we reconcile our understanding of the symmetry energy with the isobaric analog state properties?](#)
Conference Invited talk at "The International Symposium on Physics of Unstable Nuclei 2017 (ISPUN17)"
Place Halong City, Vietnam, September 25th - 30th.
Year 2017

Title [Towards a universal nuclear structure model](#)
Conference Invited talk "Congresso del Dipartimento di Fisica" conference.
Place Physics Department, Milan, Italy, June 28nd-29th.
Year 2017

Title [Towards the improvement of spin-isospin properties in nuclear energy density functionals](#)
Conference Invited talk "Landau Fermi liquid theory in nuclear and many-body systems" workshop.

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Place ECT* Trento, Italy, May 22nd-26th.

Year 2017

Title [Beyond mean field calculations with Skyrme functionals: subtraction method](#)

Conference Invited talk "Unraveling the complexity of nuclear systems: single-particle and collective aspects through the looking glass" workshop.

Place ECT* Trento, Italy, February 6th-10th.

Year 2017

Title [The nuclear Equation of State](#) (in connection with the pygmy)

Conference Invited talk given at the "Terzo Incontro Nazionale di Fisica Nucleare" conference.

Place Frascati (LNF), Italy, November 14th-16th.

Year 2016

Title [The nuclear Equation of State and the neutron skin thickness in nuclei](#)

Conference Invited talk given at the "Physics beyond the standard model and precision nucleon structure measurements with parity-violating electron scattering" workshop.

Place Trento, Italy, August 1st-5th.

Year 2016

Title [The Isobaric Analog State, the Antianalog Giant Dipole Resonance and the neutron skin thickness](#)

Conference Seminar given at the Physics Department of the University of Zagreb.

Place Zagreb, Croatia, May 25th

Year 2016

Title [The dipole polarizability and the neutron skin thickness](#)

Conference Invited talk given at the workshop on Neutron Skins of Nuclei.

Place Mainz, Germany, May 17th-27th

Year 2016

Title [The dipole polarizability and the neutron skin thickness](#)

Conference Invited talk given at the Joint LIA COLL-AGAIN, COPIGAL, and POLITA Workshop.

Place Catania, Italy, April 26th-29nd

Year 2016

Title [The Nuclear Equation of State and the Symmetry Energy](#)

Conference Invited talk given at the TNPI2016 - XV Conference on Theoretical Nuclear Physics in Italy.

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Place Pisa, Italy, April 20th-22nd
Year 2016

Title [Dipole polarizability, parity violating asymmetry and the neutron skin thickness](#)
Conference Seminar at the School of Nuclear Science and Technology, Lanzhou University.
Place Lanzhou, China, January 27th
Year 2016

Title [Dipole polarizability, parity violating asymmetry and the neutron skin thickness](#)
Conference Seminar at the Institute for Theoretical Physics.
Place Beijing, China, January 20th
Year 2016

Title [Dipole polarizability, parity violating asymmetry and the neutron skin thickness](#)
Conference Seminar at Peking University.
Place Beijing, China, January 19th
Year 2016

Title [Covariance analysis for nuclear energy density functionals](#)
Conference Invited talk given at "Information and statistics in nuclear experiment and theory (ISNET-3)" workshop.
Place Trento, Italy, November 16th - 20th.
Year 2015

Title [Towards the improvement of spin-isospin properties in nuclear energy density functionals](#)
Conference Invited talk given at "Computational Advances in Nuclear and Hadron Physics" workshop.
Place Kyoto, Japan, September 21st - October 30th.
Year 2015

Title [Towards the improvement of spin-isospin properties in nuclear energy density functionals](#)
Conference Invited talk given at "Selected Topics in Nuclear and Atomic Physics" school.
Place Fiera di Primiero, Italia, September 30th - October 4th.
Year 2015

Title [Towards the improvement of spin-isospin properties in nuclear energy density functionals](#)

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

- Conference Invited talk given at ISEN-2015.
Place Varna, Bulgaria, September 6th-12th.
Year 2015
- Title [Renormalization of zero-range effective interactions in finite nuclei](#)
- Conference Invited talk given at the "Interfacing Structure and Reaction Dynamics in the Synthesis of the Heaviest Nuclei" workshop at ECT*.
Place Trento, September 1st-4th.
Year 2015
- Title [New Skyrme energy density functional for a better description of spin-isospin resonances](#)
- Conference Invited talk given at the "Nuclear Structure and Dynamics III" conference.
Place Portoroz, June 14th-19th.
Year 2015
- Title [Parity violating electron scattering and dipole polarizability](#)
- Conference Invited talk given at the "Neutron Skins of Nuclei: from laboratory to stars: Introductory Workshop".
Place Mainz, May 4th-7th.
Year 2015
- Title [Nuclear equation of State and the Symmetry Energy](#)
- Conference Talk given at the STRENGTH group internal meeting.
Place Napoli, April 16th-17th.
Year 2015
- Title [Parity violating asymmetry, Giant Resonances, and the neutron skin thickness](#)
- Conference Invited talk given at the ASY-EoS 2015 workshop.
Place Piazza Armerina, March 3rd-6th.
Year 2015
- Title [Parity violating asymmetry, dipole polarizability, and the neutron skin thickness in \$^{48}\text{Ca}\$ and \$^{208}\text{Pb}\$](#)
- Conference Invited talk given at the "Christmas meeting" of the ICCUB.
Place Barcelona, December 17th.
Year 2014

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

- Title [*New energy density functionals for a better description of charge-exchange resonances Mini-workshop*](#)
- Conference Talk given at the workshop on "New achievements in Gamow-Teller nuclear transitions and decays".
- Place Milan, November 18th.
- Year 2014
-
- Title [*Parity violating asymmetry, dipole polarizability, and the neutron skin thickness in \$^{48}\text{Ca}\$ and \$^{208}\text{Pb}\$*](#)
- Conference Invited talk PAVI14: From Parity Violation to Hadron Structure.
- Place Skaneateles, NY, July 14-18th.
- Year 2014
-
- Title [*Towards the improvement of spin-isospin properties in nuclear energy density functionals*](#)
- Seminar Invited seminar on the cycle "Seminaires de Physique Theorique".
- Place IPN Orsay, May 28th 2014.
- Year 2014
-
- Title [*Structure and composition of the outer crust*](#)
- Conference Invited talk at FUSTIPEN workshop on the "Structure of the neutron star crust: experimental and observational signatures."
- Place GANIL, Caen, May 26-27th.
- Year 2014
-
- Title [*Nature of low-energy dipole states in exotic nuclei*](#)
- Conference Talk at the SPES one-day workshop on "Collective Excitations of Exotic Nuclei".
- Place University of Milan, 9-10 December.
- Year 2013
-
- Title [*Unraveling the dependence of the Electric Dipole Polarizability on the isovector properties of the nuclear effective interaction*](#)
- Conference Invited seminar
- Place University of Barcelona, 19 September
- Year 2013
-
- Title [*The Nuclear Symmetry Energy: Constraints from Giant Resonances*](#)
- Conference Invited talk at the 3rd International Symposium on Nuclear Symmetry Energy.
- Place NSCL/FRIB, East Lansing (USA) 22-26 July.

Via Augusto Anfosso 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

- Year 2013
- Title *Unraveling the dependence of the Electric Dipole Polarizability on the isovector properties of the nuclear effective interaction*
- Conference Invited talk at the first International Collaboration in Nuclear Theory (ICNT) topical program on "Symmetry Energy in the Context of New Radioactive Beam Facilities and Astrophysics".
- Place NSCL/FRIB, East Lansing (USA) 15 July - 9 August.
- Year 2013
- Title *The nuclear symmetry energy: constraints from giant resonances and parity violating electron scattering*
- Conference Talk at the International Nuclear Physics Conference 2013
- Place Firenze (Italy) 2-7 June.
- Year 2013
- Title *The Nuclear Symmetry Energy: constraints from Giant Resonances*
- Conference Invited Seminar at the Physics Department of Surrey University
- Place Guildford (UK) 14 May.
- Year 2013
- Title *Elastic electron scattering as a revitalized experimental tool in modern nuclear physics: a theoretical point of view.*
- Conference Internal Seminar of the Nuclear Physics Section
- Place Milan (Italy) 8 May.
- Year 2013
- Title *Local covariant density functional constrained by the relativistic Hartree-Fock theory.*
- Conference Internal Seminar of the Nuclear Physics Section
- Place Milan (Italy) 6 May.
- Year 2013
- Title *Parity Violating Asymmetry, Dipole Polarizability, and the Neutron Skin Thickness.*
- Conference Invited talk at the Calcium Radius Experiment (CREX) Workshop at Jefferson Lab
- Place Newport News (USA) 17-19 March.
- Year 2013

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

- Title *Electron scattering as a probe of surface properties and proton shell structure of unstable nuclei.*
 Conference Invited RIBF Nuclear Physics Seminar at RIKEN Nishina Center.
 Place Wako (Japan) 8 March.
 Year 2013
- Title *The Nuclear Symmetry Energy: constraints from Giant Resonances.*
 Conference Talk at the “Trobades de Nadal”.
 Place Barcelona (Spain) 19-20 December.
 Year 2012
- Title *New Skyrme energy density functional for a better description of charge-exchange resonances.*
 Conference Invited talk at the 19th Nuclear Physics Workshop - Marie & Pierre Curie.
 Place Kazimierz (Poland) 26-30 September.
 Year 2012
- Title *Dipole Polarizability and Parity Violating Asymmetry in ²⁰⁸Pb.*
 Conference Invited key note talk at the 2nd European Nuclear Physics Conference - EuPNC 2012.
 Place Bucharest (Romania) 16-21 September.
 Year 2012
- Title *Dipole Polarizability and Parity Violating Asymmetry in ²⁰⁸Pb.*
 Conference Talk at the conference Nuclear Dynamics and Structure II.
 Place Opatija (Croatia) 9-13 July.
 Year 2012
- Title *Dipole Polarizability and Parity Violating Asymmetry in ²⁰⁸Pb.*
 Conference Invited talk at the workshop The Nuclear Dipole Polarizability and its Impact on Nuclear Structure and Astrophysics.
 Place Trento (Italy) 18-22 June.
 Year 2012
- Title *Pygmy dipole resonances in stable and unstable nuclei.*
 Conference Talk at the 1st Topical Workshop on Modern Aspects in Nuclear Structure.
 Place Bormio (Italy) 22-25 February.
 Year 2012

Via Augusto Anfossi 32 – Milan, Italy 20135

☎ (+39) 338 117 00 94 • ☎ (+39) 02 503 17 225

✉ xavier.roca.maza@gmail.com • 🌐 www.mi.infn.it/~jroca/

Title *The pygmy dipole strength, the neutron radius of ^{208}Pb and the symmetry energy.*
Conference Talk at the II Iberian nuclear astrophysics meeting.
Place Salamanca (Spain), 22-23 September.
Year 2011

Title *Relativistic mean field interaction with density dependent meson-nucleon vertices based on microscopical calculations*
Seminar University of Coimbra. Physics Department.
Place Coimbra (Portugal), 20 September 2011.
Year 2011

Title *The Dipole Strength: Microscopic Properties and Correlations with the Symmetry Energy and the Neutron Skin Thickness*
Conference Invited talk at the International Symposium on Nuclear Symmetry Energy.
Place Northampton (MA), 17-20 June.
Year 2011

Title *Density dependence of the nuclear symmetry energy estimated from neutron skin thickness in finite nuclei.*
Conference Talk at the JAPAN-ITALY EFES Workshop.
Place Turin (Italy), 6-8 September.
Year 2010

Title *Density dependence of the nuclear symmetry energy estimated from neutron skin thickness in finite nuclei.*
Seminar University of Milan. Physics Department.
Place Milan (Italy), 3 November.
Year 2010

Title *The Smoothness of Physical Observables*
Seminar University of Barcelona. Physics Department.
Place Barcelona (Spain), 29 May.
Year 2009