Curriculum Vitae

Jean Paul Nery

Personal information

Name: Jean Paul Nery

Contact information

Dipartimento di Fisica, Sapienza Universita` di Roma

Education

2012 – 2018 Ph.D. in Physics, Stony Brook University, New York 2011 –

2012 M.Sc. in Physics, Stony Brook University, New York

2005 – 2011 Licenciatura in Physics, Universidad de Buenos Aires, Buenos Aires

Research positions

2018 – 2021 Postdoctoral Researcher, Sapienza Universit`a di Roma and Istituto Italiano di Tecnologia

2014 – 2018 Research Assistant, Stony Brook University

Publications

2021 J. Abreu, J. P. Nery, and M. Verstraete, Cumulant approach in non-polar materials: temperature dependence and convergence studies, in preparation (2021).

2021 J. P. Nery, M. Calandra, and F. Mauri, Ab-initio energetics of graphite and multilayer graphene: stability of Bernal versus rhombohedral stacking, 2D Mater. **8**, 035006 (2021).

2020 J. P. Nery, M. Calandra, and F. Mauri, Long-Range Rhombohedral-Stacked Graphene through Shear, Nano Lett. **20**, 5017-5023 (2020).

2018 J. P. Nery, P. B. Allen, G. Antonius, L. Reining, A. Miglio, and X. Gonze, Quasiparticles and phonon satellites in spectral functions of semiconductors and insulators: Cumulants applied to full first principles theory and Frhlich polaron, Phys. Rev. B **97**, 115145 (2018).

2016 P. B. Allen and J. P. Nery, Low-temperature semiconductor band-gap thermal shifts: T^4 shifts from ordinary acousticand T^2 from piezoacoustic coupling, Phys. Rev. B **95**, 035211 (2016).

2016 J. P. Nery and P. B. Allen, Influence of Fro¨hlich polaron coupling on renormalized electron bands in polar semiconductors: Results for zinc-blende GaN, Phys. Rev. B **94**, 115135 (2016).

2011 F. D. Mazzitelli, J. P. Nery and A. Satz, Boundary divergences in vacuum selfenergies and quantum field theory in curved spacetime, Phys. Rev. D **84**, 125008 (2011) (alphabetical order).

Ongoing Research

- J. P. Nery, L. Monacelli, F. Mauri, Quantum and temperature effects on the energy landscape of bilayer graphene using the stochastic self-consistent harmonic approximation (SS-CHA)
- J. P. Nery, F. Mauri, Non-perturbative Green's function approach to study electronphonon interactions.
- J. P. Nery, O. Hellman, M. Verstraete, P. B. Allen, Temperature dependence of the forbidden (222) reflection in Silicon.

Schools and Conferences

Presented work

2021 J. P. Nery, M. Calandra, and F. Mauri, Oral presentation: "Synthesis of long-range stacked rhombohedral graphene through shear and effects of temperature", APS March Meeting 2021 (Virtual meeting) (March 2021).

2021 J. P. Nery, M. Calandra, and F. Mauri, Poster: "Ab-initio energetics of graphite and multilayer graphene: stability of Bernal versus rhombohedral stacking", Total energy and Force Methods, ICTP, Trieste (Virtual meeting) (February 2021).

2018 J. P. Nery, O. Hellman, M. Verstraete, and P. B. Allen, Contributed talk: "Temperature-dependence of the (222) X-ray forbidden reflection in silicon", Electron-phonon interaction and its effects in condensed matter and reduced dimensionality systems, Louvain-la-Neuve, Belgium (May 2018).

2017 J. P. Nery, P. B. Allen, G. Antonius, A. Miglio, and X. Gonze, Poster: "Electronphonon renormalization of electronic quasiparticle energies and spectral functions in semiconductors and insulators", ES 2017 Workshop, Princeton, New Jersey (June 2017).

2017 J. P. Nery and P. B. Allen, Oral Presentation: "Temperature-dependence of the forbidden (222) reflection in silicon", APS March Meeting 2017, New Orleans, Louisiana (March 2017).

2016 J.P. Nery and P. B. Allen, Contributed talk: "Dynamical effects on the low temperature dependence of polar semiconductors", HoW Exciting 2016, Berlin (August 2016).

2016 J. P. Nery and P. B. Allen, Oral Presentation: "Temperature-dependence of electron bands in wurtzite GaN, including non-adiabatic (Polaron) contributions", APS March Meeting 2016, Baltimore, Maryland (March 2016).

2008 A.J. Kreiner, V. Thatar Vento, P. Levinas , J. Bergueiro, A.A. Burlon, H. Di Paolo, J.M.Kesque, A.A. Valda, M.E. Debray, H.R.Somacal, D.M. Minsky, L. Estrada, A. Hazarabedian, F. Johann, J.C. Suarez Sandin, W. Castell, J. Davidson, M. Davidson, M. Repetto, M. Obligado, **J.P. Nery** , H. Huck, M. Igarzabal, A. Fernandez Salares, D. Fondevila, "Development of a Tandem-ElectroStatic-Quadrupole accelerator facility for Boron Neutron Capture Therapy (BNCT)", IRPA 12 Congress Proceedings, Buenos Aires (October 2008).

Attended

2020 "International conference on electron-phonon coupling and thermoelectric efficiency", San Sebastian, Spain (Virtual meeting) (November 11-13 2020).

2019 "Graphene 2019", Rome, Italy (June 9, 2019).

2019 "Graphene Study 2019", Obergurgl, Austria (February 3-8 2019).

2017 "Quantum conductance and forces across molecular junctions", Initiative for the Theoretical Sciences, Graduate Center of the City University of New York, New York (November 2, 2017).

2017 "Fundmentals of Density Functional Theory: A Celebration of the Works of Mel Levy, Initiative for Theoretical Sciences and Association of Theoretical and Computational Chemists at CUNY, The Graduate Center of the City University of New York, New York (May 19, 2017).

2017 "Exploring Correlations Across Multiple Length and Time Scales", NY Theoretical and Computational Chemistry Conference, New York University (December 2, 2016).

2016 "2016 Workshop on Dynamical Quantum Effects in Molecular Processes (DyQEMP)", Initiative for the T heoretical Sciences at the Graduate Center and Association of T heoretical and Computational Chemists at CUNY, The Graduate Center of the City University of New York, New York (May 25, 2016).

2015 APS March Meeting 2015, San Antonio, Texas.

2010 "International School on Quantum Gravity", La Plata, Argentina (July 19 – 27, 2010).

2010 "Quantum Gravity in the Southern Cone V", Buenos Aires, Argentina (July 28 – 30, 2010).

Talks for a broader audience

April 2017 "Temperature-dependence of the forbidden (222) reflection in silicon", aimed at a broad scientific audience. Institute for Advanced Computational Science (IACS), Stony Brook, New York (April 12, 2017).

Visiting activities

July 2017 California Institute of Technology (Caltech), Pasadena, California.
Worked with Olle Hellman for 4 weeks on the forbidden (222) reflection of Silicon and pyroelctricity. Moved the existing code from Python to Fortran to speed up calculations.

Programming languages

Python, Fortran, Mathematica, Bash

First principles and atomistic calculations

Quantum Espresso, ABINIT, ASE and LAMMPS

Scholarships/Grants

2011 – 2012 Grant by Fundacio´n Bunge y Born to do M.Sc. at Stony Brook University.

2010 – 2011 Beca Est´ımulo (scholarship) from Universidad de Buenos Aires to complete M.Sc. thesis at Universidad de Buenos Aires.

Teaching experience

- **Teaching Assitant** Department of Physics and Astronomy, Stony Brook University

Physics for the Life Sciences I	Lab Instructor: Spring 2014.
Physics for the Life Sciences II	Lab Instructor: Summer2 2012, Fall 2012, Summer2 2013, Fall 2013, Summer2 2014.
Classical Physics I	Lab Instructor: Summer1 2014.
General Relativity	Grader: Spring 2013.

- **Teaching Assistant** Departamento de F´ısica, Universidad de Buenos Aires

Classical Physics I	Fall and Spring 2009
Classical Physics II	Spring 2010
Physics for the Life Sciences I & II	Spring 2011

- **Teaching Assistant** Ciclo B´asico Comn (CBC), Universidad de Buenos Aires

Calculus for Life Sciences I Spring and Fall 2007, Spring and Fall 2008, Fall 2009 and Spring 2010.

Languages

Spanish: Native speaker
English: Fluent
Italian: B2/C1