Curriculum Vitae

Name: Yuriel Núñez Fernández

Email: yurielnf@gmail.com

Date of birth: 22/11/1982 Nationality: Cuban Gender: Male

Work experience

- 09/2008-01/2013: Young Lecturer at the Faculty of Physics, University of Havana. Teaching Analytical Geometry (three times), Electrodynamics (once) and Numerical Methods (three times) to Physics students.
- 09/2006-08/2008: Professor in training at the Faculty of Technical Sciences, University of Las Tunas. Teaching Calculus to engineering students.

Education and training

- 04/2013-today: PhD student at Centro Atómico de Bariloche. Supervisor: Karen Hallberg. Research topic: Development of computational methods for the simulation and design of materials.
- 09/2010-09/2012: Sandwich PhD student at Departamento de Física Teórica, Universidad de la Habana / Department of Physics, University of Minho, Portugal. Supervisors: C. Trallero-Giner / Mikhail Vasilevskiy. Research topic: Exciton state in semiconductor nanocrystal, exciton-polariton Bose-Einstein condensate.
- 05/2010: Master Degree on Physics. Thesis title: “Chaos in liquid surface waves as the result of spatial geometric confinement”.
- 09/2001-07/2006: Graduated in Physics with Golden Title, University of Havana. Academic record: 4.81+0.21=5.02 (records range from 3 to 5). Thesis title: “Liquid surface waves in parabolic domain”.

Scientific Publications

1- Y. Núñez Fernández, D. García, and K. Hallberg. “The two orbital Hubbard model in a square lattice: a DMFT + DMRG approach”, J. Phys.: Conf. Ser. 568, 042009 (**2014**).

2- C. Trallero-Giner, M. V. Durnev, Y. Núñez Fernández, M. I. Vasilevskiy, V. López-Richard, and A. Kavokin. “Excited states of exciton-polariton condensates in 2D and 1D harmonic traps”, Phys. Rev. B 89, 205317 (**2014**).

3- C. Bernardo, I. Moura, Y. Núnez Fernández, E. J. Nunes-Pereira, P. J. G. Coutinho, A. M. Fontes Garcia, P. Schellenberg, M. Belsley, M. F. Costa, T. Stauber, and M. I. Vasilevskiy. “Energy Transfer via Exciton Transport in Quantum Dot Based Self-Assembled Fractal Structures”, J. Phys. Chem. C, 118 (9), pp 4982–4990 (**2014**).

4- D. Melnikau, D. Savateeva, V. Lesnyak, N. Gaponik, Y. Núnez Fernández, M. I. Vasilevskiy, M. F. Costa, K. E. Mochalov, V. Oleinikovfg and Y. P. Rakovich. “Resonance energy transfer in self-organized organic/inorganic dendrite structures”, Nanoscale, 5, 9317-9323 (**2013**).

5- Y. Núñez Fernández, M. I. Vasilevskiy, C. Trallero-Giner, and A. Kavokin. “Condensed exciton polaritons in a two-dimensional trap: Elementary excitations and shaping by a Gaussian pump beam”, Phys. Rev. B 87, 195441 (**2013**).

6- C. Trallero-Giner, V López-Richard, Y. Núñez-Fernández , M. Oliva , G.E. Marques, and M.C. Chung. “Superfluidity and collective oscillations of trapped Bose-Einstein condensates in a periodical potential”, Eur. Phys. J. D 66: 177 (**2012**).

7- Y. Núñez-Fernández, M. Vasilevskiy, E. Larramendi and C. Trallero-Giner. Chapter title: "Exciton states in free-standing and embedded semiconductor nanocrystals", Quantum Dots / Book 1 (ISBN 979-953-307-308-7, Ed. Intech, **2012**).

8- Y. Núñez-Fernández, C. Trallero-Giner, A. Butchleitner. “Liquid surface waves in parabolic domain”, Phys. Fluids 20, 117106 (**2008**).

9- E. Altshuler, O. Ramos, Y. Nunez, J. Fernandez, J. Batista-Leyva and C. Noda "Symmetry breaking in escaping ants" Am. Nat., 166, 643 (**2005**).

Authoring software (open source)

- "Spherical Quantum Dots using effective mass approximation" (EMAQDot, http://sourceforge.net/projects/emaqdot) associated with the Publication 5.
- "Basic numerical algorithms in c++" (numerica, http://sourceforge.net/projects/numerica) associated with the classes of Numerical Methods to Physics students.

Conferences, schools and workshops attended

- 15/09-19/09/2014: Autumn School on "DMFT at 25: Infinite Dimensions", Forschungszentrum, Julich, Germany.
- 27/08-21/09/2012: ICTP-TWAS Caribbean School on Electronic Structure Fundamentals and Methodologies, Cartagena, Colombia.
- 11-15 October 2010: "Workshop on quantum coherence and correlations in condensed-matter and cold-atom systems", University of Evora, Portugal.
- 7-11 June 2010: "Symposium on low dimensional systems and Workshop on Complex Systems", 150th orbit of Alexander von Humboldt, Havana, Cuba.
- 30/06-18/07/2008: School and Workshop on Dynamical Systems, Abdus Salam Center for Theoretical Physics (ICTP), Trieste, Italy.

Honors and awards

- Bronze Medal, VIII University Ibero-American Mathematical Olympiad/2005.
- Mention, VII University Ibero-American Mathematical Olympiad/2004.
- Gold Medal, VI Ibero-American Chemistry Olympiad/ Caracas/2000.
- Three gold medals on Chemistry National Contests (1998, 1999, 2000).
- Three silver medals on: Computer Sciences (1998), Physics (1999) and Mathematics (1999) National Contests.