

ADDRESS

Department of Physics phone: (407) 823-1882
University of Central Florida fax: (407) 823-5112
P.O. Box 162385 e-mail: mucciolo@physics.ucf.edu
Orlando, FL 32816-2385 <http://www.physics.ucf.edu/~mucciolo/>
USA

EDUCATION*Doctor of Philosophy (Ph.D.):*

Physics, August 1994, Massachusetts Institute of Technology, Cambridge, MA, USA.
Thesis: *Universal Correlations in the Quantum Spectra of Chaotic Systems and Exactly Solvable Many-Body Problems*. Adviser: Boris L. Altshuler (currently at Columbia University).

Master of Science (M.S.):

Nuclear Physics, December 1988, University of São Paulo, São Paulo, Brazil.
Dissertation: *Double Gamma Decay in ^{90}Zr* . Adviser: Otaviano A. M. Helene (retired).

Bachelor of Science (B.S.):

Physics, December 1986, University of São Paulo, São Paulo, Brazil.

EMPLOYMENT

- *Secondary Joint Appointment*: School of Electrical Engineering and Computer Science, University of Central Florida, Orlando, FL (since March 2006).
- *Professor*: Department of Physics, University of Central Florida (since August 2010).
- *Associate Professor*: Department of Physics, University of Central Florida (December 2003 – July 2010).
- *Visiting Associate Professor*: Department of Physics, Duke University, Durham, NC (December 2002 – December 2003).
- *Associate Professor*: Department of Physics, Pontifical Catholic University of Rio de Janeiro (PUC-RJ) (October 2002 – December 2005; tenured). On leave during December 2002 – December 2005.
- *Assistant Professor*: Department of Physics, PUC-RJ (August 1996 – September 2002).
- *Post-doctoral Fellow*: NORDITA, Denmark (September 1994 – July 1996).
- *Research Assistant*: Department of Physics, Massachusetts Institute of Technology (March – August 1994).

PUBLICATIONS¹

Papers in peer-reviewed international indexed journals (72)

84. D. Shaffer*, C. Chamon, A. Hamma, and E. R. Mucciolo, *Irreversibility and entanglement spectrum statistics in quantum circuits*. Journal of Statistical Mechanics: Theory and Experiment (in press). 12 pages
83. C. Chamon, A. Hamma, and E. R. Mucciolo, *Emergent irreversibility and entanglement spectrum statistics*. Physical Review Letters **112**, 240501 (2014). 5 pages
82. P. Jouzdani*, E. Novais, I. S. Tupitsyn, and E. R. Mucciolo, *Fidelity threshold of the surface code beyond single-qubit error models*. Physical Review A **90**, 042315 (2014). 11 pages
81. P. Jouzdani* and E. R. Mucciolo, *Numerical evaluation of the fidelity error threshold for the surface code*, Physical Review A **90**, 012315 (2014). 8 pages.
80. J. I. Romero*, E. Vernek, G. B. Martins, and E. R. Mucciolo, *Magnetic field modulated Kondo effect in a single-magnetic-ion molecule*. Physical Review B (in press). 5 pages.
79. J. I. Romero* and E. R. Mucciolo, *Single-electron transport in a three-ion magnetic molecule modulated by a transverse field*. Journal of Physics: Condensed Matter **26**, 195301 (2014). 8 pages.
78. A. P. Hinz*, E. R. Mucciolo, and S. Kettemann, *Quantum corrections to thermopower and conductivity in graphene*. Physical Review B **89**, 075411 (2014). 21 pages.
77. P. Jouzdani*, E. Novais, and E. R. Mucciolo, *Fidelity of the surface code in the presence of a bosonic bath*. Physical Review A **88**, 012336 (2013). 13 pages.
76. C. H. Lewenkopf and E. R. Mucciolo *The recursive Green's function method for graphene*. Journal of Computational Electronics **12**, 203 (2013). 29 pages.
75. C. Chamon and E. R. Mucciolo, *Rényi entropies as a measure of the complexity of counting problems*. Journal of Statistical Mechanics: Theory and Experiment P04008 (2013). 13 pages.
74. E. Novais and E. R. Mucciolo, *Surface code threshold in the presence of correlated errors*. Physical Review Letters **110**, 010502 (2013). 5 pages.
73. A. Patra, S. Singh*, B. Barin, Y. Lee, J.-H. Ahn, E. del Barco, E. R. Mucciolo, and B. Özyilmaz, *Dynamic spin injection into chemical vapor deposited graphene*. Applied Physics Letters **101**, 162407 (2012). 4 pages.
72. L. R. F. Lima*, F. A. Pinheiro, R. B. Capaz, C. H. Lewenkopf, and E. R. Mucciolo, *The role of the disorder range and electronic energy in the graphene nanoribbons perfect transmission*. Physical Review B **86**, 205111 (2012). 6 pages.
71. H. Y. Lee*, E. R. Mucciolo, G. Bouzerar, and S. Kettemann, *RKKY interactions in graphene: dependence on disorder and gate voltage*. Physical Review B **86**, 205427 (2012). 7 pages.
70. L. Arrachea, E. R. Mucciolo, C. Chamon, and R. B. Capaz, *Microscopic model of a phononic refrigerator*, Physical Review B **86**, 125424 (2012). 9 pages.
69. C. Chamon and E. R. Mucciolo, *Virtual parallel computing and a search algorithm using matrix product states*, Physical Review Letters **109**, 030503 (2012). 4 pages.

¹Student and post-doctoral co-authors are indicated with * and †, respectively.

68. S. Kettemann, E. R. Mucciolo, I. Varga, and K. Slevin, *Kondo-Anderson transitions*, Physical Review B **85**, 115112 (2012). 16 pages.
67. H. Y. Lee*, J. H. Kim, E. R. Mucciolo, G. Bouzerar, and S. Kettemann, *RKKY interaction in disordered graphene*, Physical Review B **85**, 075420 (2012). 5 pages.
66. A. L. C. Pereira, C. H. Lewenkopf, and E. R. Mucciolo, *Correlated random hopping disorder in graphene at high magnetic fields: Landau level broadening and wave function symmetries*, Physical Review B **84**, 165406 (2011). 9 pages.
65. C. Chamon, E. R. Mucciolo, L. Arrachea, and R. B. Capaz, *Heat pumping in nanomechanical systems*, Physical Review Letters **106**, 135504 (2011). 4 pages.
64. A. Ferreira[†], J. Viana Gomes[†], J. Nilsson[†], E. R. Mucciolo, N. M. R. Peres, and A. H. Castro Neto, *A unified description of the dc conductivity of monolayer and bilayer graphene based on resonant scatterers*, Physical Review B **83**, 165402 (2011). 22 pages
63. J. Katoch*, J. H. Chen[†], R. Tsuchikawa*, C. W. Smith*, E. R. Mucciolo, and M. Ishigami, *Uncovering the dominant scatterer in graphene sheets on SiO₂*, Physical Review B **82**, Rapid Comm. 081417 (2010). 4 pages.
62. E. R. Mucciolo and C. H. Lewenkopf, *Disorder and electronic transport in graphene*, Journal of Physics: Condensed Matter **22**, 273201 (2010). 12 pages.
61. D. C. B. Valente*, E. R. Mucciolo, and F. K. Wilhelm, *Decoherence by electromagnetic fluctuations in double-quantum-dot charge qubits*, Physical Review B **82**, 125302 (2010). 12 pages.
60. E. Novais, E. R. Mucciolo, and H. U. Baranger, *Bound on quantum computation time: Quantum error correction in a critical environment*, Physical Review A **82**, Rapid Comm. 020303 (2010). 4 pages.
59. A. R. Hernández*, F. A. Pinheiro, C. H. Lewenkopf, and E. R. Mucciolo, *Adiabatic charge pumping through quantum dots in the Coulomb blockade regime*, Physical Review B **80**, 115311 (2009). 10 pages.
58. S. Kettemann, E. R. Mucciolo, and I. Varga, *Critical metal phase at the Anderson metal-insulator transition with Kondo impurities*, Physical Review Letters **103**, 126401 (2009). 4 pages.
57. E. R. Mucciolo, C. H. Lewenkopf, and A. H. Castro Neto, *Conductance quantization and transport gap in disordered graphene nanoribbons*, Physical Review B **79**, 075407 (2009). 5 pages.
56. G. González*, M. N. Leuenberger, and E. R. Mucciolo, *Kondo effect in single-molecule magnet transistors*, Physical Review B **78**, 054445 (2008). 12 pages.
55. C. H. Lewenkopf, E. R. Mucciolo, and A. H. Castro Neto, *Numerical studies of conductivity and Fano factor in disordered graphene*, Physical Review B **77**, Rapid Comm. 081410 (2008). 4 pages.
54. E. Novais[†], E. R. Mucciolo, and H. U. Baranger, *Hamiltonian formulation of quantum error correction and correlated noise: Effects of syndrome extraction in the long-time limit*, Physical Review A **78**, 012314 (2008). 18 pages

53. A. Zhuravlev[†], I. Zharekeshev, E. Gorelov*, A. I. Lichtenstein, E. R. Mucciolo, and S. Kettemann, *Nonperturbative scaling theory of free magnetic moment phases in disordered metals*, Physical Review Letters **99**, 247202 (2007). 4 pages.
52. M. Hentschel, D. C. B. Valente*, E. R. Mucciolo, and H. U. Baranger, *Improving intrinsic decoherence in multi-quantum-dot charge qubits*, Physical Review B **76**, 235309 (2007). 12 pages.
51. E. R. Mucciolo and C. H. Lewenkopf, *Spin pumping with quantum dots*, International Journal of Nanotechnology **4**, 482–495 (2007).
50. S. Kettemann and E. R. Mucciolo, *Disorder-quenched Kondo effect in mesoscopic electronic systems*, Physical Review B **75**, 184407 (2007). 17 pages.
49. M. D. Hogue*, E. R. Mucciolo, and C. I. Calle, *Triboelectric, corona, and induction charging of insulators as a function of pressure*, Annual Meeting of the Electrostatics Society of America, Berkeley, CA, June 2006 [Journal of Electrostatics **65**, 274–279 (2007)].
48. E. Novais[†], E. R. Mucciolo, and H. U. Baranger, *Resilient quantum computation in correlated environments: A quantum phase transition perspective*, Physical Review Letters **98**, 040501 (2007). 4 pages.
47. E. R. Mucciolo, C. H. Lewenkopf, and L. I. Glazman, *g factors and discrete energy level velocities in nanoparticles*, Physical Review B **74**, Rapid Comm. 121402 (2006). 4 pages.
46. M. N. Leuenberger and E. R. Mucciolo, *Berry phase oscillations of the Kondo effect in single-molecule magnets*, Physical Review Letters **97**, 126601 (2006). 4 pages.
45. S. Kettemann and E. R. Mucciolo, *Free magnetic moments in disordered metals*, JETP Letters **83**, 240–245 (2006) [Pis'ma v ZhETF, **83**, 284 (2006)].
44. M. Thorwart, J. Eckel*, and E. R. Mucciolo, *Non-Markovian dynamics of double quantum dot charge qubits due to acoustic phonons*, Physical Review B **72**, 235320 (2005). 6 pages.
43. S. Vorobjov*, E. R. Mucciolo, and H. U. Baranger, *Phonon decoherence of a double quantum dot charge qubit*, Physical Review B **71**, 205322 (2005). 7 pages.
42. M. D. Hogue*, E. R. Mucciolo, C. I. Calle, and C. R. Buhler, *Two-phase equilibrium model of insulator-insulator contact charging with electrostatic potential*, Annual Meeting of the Electrostatics Society of America, Rochester, NY, June 2004 [Journal of Electrostatics **63**, 179–188 (2005)].
41. E. R. Mucciolo, C. Chamon, and A. H. Castro Neto, *Excitations and quantum fluctuations in site-diluted two-dimensional antiferromagnets*, Physical Review B **69**, 214424 (2004). 15 pages.
40. M. Martínez-Mares[†], C. H. Lewenkopf, and E. R. Mucciolo, *Statistical fluctuations of pumping and rectification currents in quantum dots*, Physical Review B **69**, 085301 (2004). 12 pages.
39. S. Vorobjov*, E. R. Mucciolo, and H. U. Baranger, *Spin qubits in multi-electron quantum dots*, Physical Review B **69**, 115329 (2004). 6 pages.
38. E. R. Mucciolo, C. Chamon, and C. M. Marcus, *Adiabatic quantum pump of spin-polarized current*, Physical Review Letters **89**, 146802 (2002). 4 pages.
37. W. A. M. Morgado and E. R. Mucciolo, *Numerical simulation of vibrated granular gases under realistic boundary conditions*, Physica A **311**, 150–168 (2002).

36. F. M. Cucchietti*, C. H. Lewenkopf, E. R. Mucciolo, H. M. Pastawski, and R. O Vallejos, *Measuring the Lyapunov exponent with quantum mechanics*, Physical Review E **65**, 046209 (2002). 9 pages.
35. A. M. F. Rivas†, E. R. Mucciolo, and A. Kamenev, *Numerical study of quasiparticle lifetime in quantum dots*, Physical Review B **65**, 155309 (2002). 8 pages.
34. C. Chamon, E. R. Mucciolo, and A. H. Castro Neto, *P-wave pairing and ferromagnetism in the metal-insulator transition in 2D*, Physical Review B **64**, 245115 (2001). 12 pages.
33. C. Chamon and E. R. Mucciolo, *Non-perturbative saddle point for the effective action of disordered and interacting electrons in 2D*, Physical Review Letters **85**, 5607–5610 (2000).
32. I. V. Krive, A. S. Rozhavsky, E. R. Mucciolo, and L. E. Oxman, *Electron transport through a mesoscopic metal-CDW-metal junction*, Physical Review B **61**, 12835–12341 (2000).
31. L. E. Oxman, E. R. Mucciolo, and I. V. Krive, *Transport in finite incommensurate Peierls-Fröhlich systems*, Physical Review B **61**, 4603–4607 (2000).
30. M. A. M. Aguiar, H. S. Brandi, B. Koiller, and E. R. Mucciolo, *Chaos in one-dimensional lattices under intense laser fields*, European Physical Journal B **14**, 329–335 (2000).
29. R. O. Vallejos†, C. H. Lewenkopf, and E. R. Mucciolo, *Coulomb blockade conductance peak fluctuations in quantum dots and the independent particle model*, Physical Review B **60**, 13682–13694 (1999).
28. I. V. Krive and E. R. Mucciolo, *Transport properties of quasiparticles with fractional exclusion statistics*, Physical Review B **60**, 1429–1432 (1999).
27. A. M. Ozorio de Almeida, C. H. Lewenkopf, and E. R. Mucciolo, *Semiclassical limit of universal parametric density correlations*, Physical Review E **58**, 5693–5703 (1998).
26. R. O. Vallejos†, C. H. Lewenkopf, and E. R. Mucciolo, *Coulomb blockade peak spacing fluctuations in deformable quantum dots: a further test of Random Matrix Theory*, Physical Review Letters **81**, 677–680 (1998).
25. E. R. Mucciolo†, R. A. Jalabert, and J.-L. Pichard, *Parametric statistics of the scattering matrix: From metallic to insulating quasi-unidimensional disordered systems*, Journal de Physique I **17**, 1267–1296 (1997).
24. H. Bruus†, C. H. Lewenkopf, and E. R. Mucciolo†, *Parametric correlation of Coulomb blockade conductance peaks in chaotic quantum dots*, Proceedings of the XVII Nordic Semiconductor Meeting, Trondheim, Norway, June 1996 [Physica Scripta T**69**, 13–16 (1997)].
23. H. S. Brandi, B. Koiller, and E. R. Mucciolo†, *Laser-induced quantum chaos in 1-D crystals*, Laser Physics **7**, 481–484 (1997).
22. P. A. Lee, E. R. Mucciolo†, and H. Smith, *Dephasing time of composite fermions*, Physical Review B **54**, 8782–8788 (1996).
21. H. Bruus†, C. H. Lewenkopf, and E. R. Mucciolo†, *Parametric conductance correlation for irregularly shaped quantum dots*, Physical Review B **53**, 9968–9983 (1996).
20. E. R. Mucciolo†, B. D. Simons†, A. V. Andreev*, and V. N. Prigodin, *Sensitivity of quantum chaotic wave function intensities to change in external perturbations*, Physical Review Letters **75**, 1360–1363 (1995).

19. E. R. Mucciolo*, V. N. Prigodin, and B. L. Altshuler, *Statistical properties of level widths and conductance peaks in a quantum dot*, Physical Review B **51**, 1714–1721 (1995).
18. E. R. Mucciolo*, R. B. Capaz*, B. L. Altshuler, and J. D. Joannopoulos, *Manifestations of quantum chaos in electronic band structures*, Physical Review B **50**, 8245–8251 (1994).
17. E. R. Mucciolo*, B. S. Shastry, B. D. Simons†, and B. L. Altshuler, *Exact dynamical correlations of the $1/r^2$ model*, Physical Review B **49**, 15197–15211 (1994).
16. S. P. Tsai*, E. R. Mucciolo*, and O. Helene, *Relocation of multichannel spectra*, Nuclear Instruments and Methods A **345**, 538–540 (1994).
15. E. R. Mucciolo* and X.-G. Wen, *Optical properties of an antiferromagnetic ordered TP -violating phase*, Physical Review B **47**, 12172–12177 (1993).
14. E. R. Mucciolo* and O. Helene, *Double gamma decay in ^{90}Zr* , Physical Review C **40**, 2403–2405 (1989).
13. E. R. Mucciolo* and O. Helene, *Energy measurements of gamma rays from ^{133}Ba decay: Consistency with cascade crossover relations*, Nuclear Instruments and Methods A **256**, 153–160 (1987).

Papers in non-indexed conference proceedings (6)

12. S. Kettemann and E. R. Mucciolo, *Dephasing of conduction electrons and the quenching of the Kondo effect in disordered metals*, VI Rencontres du Vietnam, Hanoi, Vietnam, August 2006 [*Nanophysics, from Fundamentals to Applications*, edited by D. Mailly, T. Martin, N. van Hieu, B. Placais, and J. Trân Thanh Vân (The Gioi Publishers, 2007), p. 105–110].
11. E. R. Mucciolo, S. Vorobjov*, and H. U. Baranger, *Phonon decoherence in quantum dot qubits*, Conference on Quantum Information and Computation III, Orlando, FL, March 2005 [Proceedings of the SPIE Security and Defense Symposium, edited by E. J. Donkor, A. R. Pirich, and H. E. Brandt, **5815**, p. 53–61].
10. L. E. Oxman, D. G. Barci, and E. R. Mucciolo, *Universal properties in low dimensional fermionic systems and bosonization*, Proceedings of the XVIII Lisbon Autumn School, Lisbon, Portugal, October 2000 [*Topology of Strongly Correlated Systems*, edited by P. Bicudo, J. E. Ribeiro, P. Sacramento, J. Seixas, and V. Vieira (World Scientific, 2001), p. 228].
9. L. E. Oxman and E. R. Mucciolo, *Universality of conductance in mesoscopic junctions and chiral anomaly*, Proceedings of the II Workshop on Electronic Transport in Mesoscopic Systems, Mérida, Venezuela, September 1999 [Rev. Mex. Fis. **45** S1, 64–68 (2001)].
8. B. Koiller, E. R. Mucciolo, H. S. Brandi, and M. A. M. de Aguiar, *Electrons in one-dimensional lattices under laser fields: Quantum and classical chaotic behavior*, Proceedings of the International Workshop on Collective Excitations in Fermi and Bose Systems, Serra Negra, Brazil, September 1998 [edited by C. A. Bertulani, L. F. Canto, and M. S. Hussein (World Scientific, 1999), p. 246–263].
7. P. A. Lee, E. R. Mucciolo†, and H. Smith, *Lifetime of composite fermions*, XXXI Rencontres de Moriond, Les Arcs, France, January 1996 [*Correlated Fermions and Transport in Mesoscopic Systems*, ed. T. Martin, G. Montambaux, and J. Trân Thanh Vân (Editions Frontiers, 1996), p. 417–419].

Book chapters (2)

6. E. Novais[†], E. R. Mucciolo, and H. U. Baranger, *Hamiltonian Methods in Quantum Error Correction and Fault Tolerance*, in *Quantum Error Correction*, edited by D. Lidar and T. Brun (Cambridge University Press, 2013). p. 585–611.
5. E. R. Mucciolo, *Adiabatic spin pumping with quantum dots*, in *CFN Lectures on Functional Nanostructures*, edited by C. Röthig, G. Schön, and M. Vojta (Springer Verlag, Heildeberg, 2011). p. 125–144.

Lecture notes (3)

4. E. R. Mucciolo, *Introduction to Quantum Computation* (64 pages), slides used in a graduate course on quantum computation, Spring 2005, Department of Physics, UCF. Available at www.physics.ucf.edu/~mucciolo/phy5650/ .
3. E. R. Mucciolo, *Chaos and Interactions in Quantum Dots* (10 pages, in Portuguese), Proceedings of the VII Brazilian School on Electronic Structure, *Goiânia, Brazil*, July 2000. Available at www.physics.ucf.edu/~mucciolo/ .
2. E. R. Mucciolo, *Theory of Phase Transitions and the Renormalization Group* (93 pages, in Portuguese), graduate course on statistical mechanics, August 2000, Department of Physics, PUC-RJ. Available at www.physics.ucf.edu/~mucciolo/ .

Patent Applications (1)

1. C. Chamon and E. Mucciolo, *Systems and Methods for Virtual Parallel Computing using Matrix Product States*. Submitted to the U.S. Patent Office on February 7, 2013 (pending).

FUNDING AND RESEARCH GRANTS**Office of Naval Research, USA (1)**

19. *Physical Limitations of Quantum Information Processing*, grant #10024674.
PI: Eduardo Mucciolo. Co-PI: Harold Baranger (Duke University). Amount: US\$ 400,000 (October 2008 – August 2013). Participation: 60%.

National Science Foundation, USA (5)

18. *Spin Injection and Manipulation in Graphene-based Spintronics Devices*. Award ECCS 1402990. PI: Enrique del Barco (UCF). Co-PI: E. Mucciolo. Amount: \$360,000 (June 2014 – May 2017). Participation: 35%.
17. *Robustness of Topological Quantum Memories*. Award CCF 1117241. PI: E. Mucciolo. Amount: \$223,000 (July 2011 – June 2014). Participation: 100%.
16. *The Origin of Resistance in Nanotubes: Semi-classical to Quantum Transport in One-Dimension*. Award DMR 1006230. PI: Masahiro Ishigami (UCF). Co-PI: E. Mucciolo. Amount: \$225,000 (July 2010 – June 2013). Participation: 25%.
15. *Molecular Spintronics with Single-Molecule Magnets*. Award ECCS 1001755. PI: Enrique del Barco (UCF). Co-PI: E. Mucciolo. Amount: \$400,000 (May 2010 – April 2013). Participation: 30%.
14. *Is Resilient Quantum Computing in Solid-State Systems Possible?*. Award CCF 0523603. PI: E. Mucciolo. Co-PI: Dan Marinescu (UCF). Amount: US\$ 200,000 (August 2005 – July 2009). Participation: 60%.

I²Lab, University of Central Florida, USA (1)

13. *Decoherence, Scalability, and Fault-Tolerant Quantum Computation in Solid-State Systems* (November 2005). Supplemental funds provided to the NSF award CCF 0523603. PI: E. Mucciolo. Co-PI: Dan Marinescu (EECS, UCF). Amount: US\$ 16,000 (FY 2006). Participation: 50%.

FAPERJ, Brazil (The State of Rio de Janeiro Research Foundation) (4)

12. *Transport Properties in Electronic Mesoscopic Systems* (March 2001). Grant for supporting a short-term visiting professor at PUC-RJ. PI: Ed. Mucciolo. Amount: R\$ 2,460 (US\$ 1,200 approx.).
11. *Mesoscopic Systems: Phase Coherence, Chaos, Disorder, and Interactions in Micro and Nano Electronic Structures* (May 2000). Young Scientist Award. Amount: R\$ 14,500 (US\$ 7,900 approx.).
10. *XXI National Condensed Matter Physics Meeting of the Brazilian Physical Society* (May 1998). Grant for partial support of the event. PI: E. Mucciolo. Amount: R\$ 19,500 (US\$ 17,000 approx.).
9. *Renewal of the Computer Network at the Physics Department of the Pontifical Catholic University: Connecting Teaching and Research* (February, 1998). Grant for the acquisition of equipment and materials. PI: Ed. Mucciolo. Amount: R\$ 10,000 (US\$ 8,800 approx.).

Participation in other group funded research projects in Brazil and in the USA (8)

8. *Spin Transport in Quantum Dots*, (February 2006). American Physical Society Travel Grant Award Program. PI: Caio Lewenkopf (UERJ, Brazil). Co-PI: Ed. Mucciolo. Amount: US\$ 2,000.
7. *A High-Performance Computer Cluster for Nanophysics Simulations* (January, 2005). UCF Presidential Initiative - Equipment Funding Award (matched by startup funds from the PIs). PI: Kurt Busch (Physics, UCF). Co-PI: Ed. Mucciolo. Amount: US\$ 34,500.
6. *Research Network on Nanostructured Materials* (December, 2001). This was a one-year long project (renewable) involving several Brazilian institutions, sponsored by CNPq. PI: Israel Baumvol (UFRG). Amount: R\$ 750,000 (US\$ 300,000 approx.). Participation: Co-PI.
5. *Nanoscience Institute* (October 2001). This was a three-year long project, involving several Brazilian institutions, sponsored by the Brazilian Ministry for Science and Technology. PI: Alaor S. Chaves (UFMG). Amount: R\$ 4,600,000 (US\$ 1,700,000 approx.). Participation: Co-PI.
4. *Experimental Study and Theoretical Modeling of Energy Losses in Air-Conditioning* (August 2001). This was a two-year long project sponsored by Light S.A., the local electricity distribution company in Rio de Janeiro. PI: Evandro Bezerra (Light S.A.). Co-PIs: E. Mucciolo, Claudio Cesar (UFRJ), and Manuel Cruz (UFRJ). Amount: R\$ 350,000 (US\$ 140,000 approx.).
3. *Materials for Nanotechnology* (September 2001). This was a three-year long project, involving several institutions in the Rio de Janeiro State, sponsored by FAPERJ. PI: Humberto S. Brandi (UFRJ). Amount R\$ 450,000 (US\$ 170,000 approx.). Participation: Co-PI.

2. Co-PI, *Decoherence Effects in Mesoscopic Systems* (August 2000). This was a one-year long project within the Trilateral Cooperation Program of the Vitae Foundation. PI: Caio H. Lewenkopf (UERJ). Co-PI: E. Mucciolo. Amount R\$ 18,000 (US\$ 10,000 approx.).
1. Co-PI, *Hamiltonian Systems: Chaos and Quantization* (January 1998). This was a five-year long project within the “Center of Excellence” (PRONEX) program of the Brazilian Federal Government. PI: Alfredo M. Ozorio de Almeida (CBPF). Co-PIs: Caio Lewenkopf (UERJ), E. Mucciolo, Marcus A. M. Aguiar (UNICAMP), and Maria C. Nemes (UFMG). Amount: R\$ 250,000 (US\$ 220,000 approx.).

INVITED PRESENTATIONS

In conferences, workshops, and schools (26)

93. *Unified description of electronic transport in graphene based on resonant scatterers*, Asia-Pacific Centre for Theoretical Physics: Conference on Localisation, *Pohang, South Korea* (August 2011).
92. *Resonant impurity scatterers and dc conductivity in graphene*, Boston-Area Carbon Nanoscience Annual Workshop, *Boston, MA, USA* (June 2011).
91. *Probing the dominant scatterers in graphene via hydrogenation*, Advanced Materials Science Workshop on Metal-Insulator Transitions in Disordered and Magnetic Systems, *Pohang, South Korea* (September 2010).
90. *For how long is it possible to quantum compute?*, Workshop on Quantum Algorithms, Computational Models, and Foundations of Quantum Mechanics, University of British Columbia, *Vancouver, Canada* (July 2010)
89. *Kondo effect in single-molecule magnets*, 3rd Workshop on Current Trends in Molecular and Nanoscale Magnetism, *Orlando, FL, USA* (June, 2010)
88. *Physical limitations of quantum information processing*, Workshop on Quantum Information, Office of Naval Research, *Shepherdstown, WV, USA* (May 2010).
87. *Phonon decoherence in semiconductor charge qubits*, 13th International Conference on Vibrations at Surfaces, University of Central Florida, *Orlando, USA* (March 2010)
86. *Numerical methods and simulations for graphene-based electronic devices*, Workshop on Centre for Carbon Science and Technology, National University of Singapore, *Singapore* (September 2009).
85. Two talks: *Conductivity of disordered graphene; Kondo effect of magnetic molecules*. Advanced Materials Science Workshop on Correlations in Disordered Materials, POSTECH, *Pohang, South Korea* (August 2009).
84. *Physical limitations of quantum information processing*, Workshop on Quantum Information, Office of Naval Research, *Washington DC, USA* (May 2009).
83. *Electronic transport in disordered graphene sheets and nanoribbons*, American Physical Society March Meeting, *Pittsburgh, USA* (March 2009).
82. *Universal and non-universal scaling of the conductivity in disordered graphene*, Workshop on Delocalization Transitions and Multicriticality, Isaac Newton Institute for Mathematical Sciences, *Gregynog Hall, UK* (November 2008).

81. *Conductance suppression in disordered graphene nanoribbons*, Workshop on the Physics of Graphene, Aspen Center for Physics, Aspen, CO, USA (June 2008).
80. *Carbon-based devices for high-speed microelectronics*, group leader presentation, Workshop on Carbon Electronics for Radio-Frequency Applications, DARPA, Arlington, VA, USA (April 2007).
79. *Coherent spin transport and spin pumping*, lecture, CFN Summer School on Nanoelectronics, Bad Herrenalb, Germany (September 2005).
78. *Adiabatic pumping of spin currents with quantum dots*, American Physical Society March Meeting, Montreal, Canada (March 2004).
77. *Ferromagnetic instability in two-dimensional disordered metals*, Workshop on Strange Metals, ICCMP, Brasília, Brazil (November 2002).
76. *Quantum dot spin pump*, Workshop of the Nanostructured Materials Research Network - Theory Group, São Paulo, Brazil (October 2002).
75. *Adiabatic spin pumping*, Workshop on Mesoscopic Physics and Electron Interaction, ICTP, Trieste, Italy (June 2002).
74. *Adiabatic spin pumping with quantum dots*, Workshop of the Nanostructured Materials Research Network - Semiconductor Group, Belo Horizonte, Brazil (April 2002).
73. *Chaos and interactions in quantum dots*, lecture, VII Brazilian School on Electronic Structure Goiânia, Brazil (July 2000).
72. *Electronic transport in CDW-metal junctions*, II Workshop on Electronic Transport in Mesoscopic Systems, Mérida, Venezuela (September 1999).
71. *Lecture on Mesoscopic Physics*, II Workshop on Electronic Transport in Mesoscopic Systems, Mérida, Venezuela (September 1999).
70. *Electronic transport in CDW-metal junctions*, International Conference on Spin Ladders and Low-Dimensional Strongly Correlated Systems, ICCMP, Brasília, Brazil (September 1999).
69. *Workshop on Nonlinear Dynamics and Chaos in Physical and Biological Systems*, São Paulo, Brazil (October 1997).
68. *VIII Brazilian Workshop on Semiconductor Physics*, Águas de Lindóia, Brazil (February 1997).

In universities and research institutions (67)

67. *Irreversibility and entanglement spectrum statistics in quantum circuits*, Naval Research Laboratory, Washington DC, USA (October 2014).
66. *Irreversibility and entanglement spectrum statistics in quantum circuits*, Perimeter Institute, Waterloo, Canada (September 2014).
65. *A new approach to teaching physics*, colloquium, Institute of Physics, Fluminense Federal University, Niterói, Brazil (June 2013).
64. *Rényi entropies, counting problems, and matrix computing*, Institute of Physics, Fluminense Federal University, Niterói, Brazil (May 2013).

63. *Virtual parallel computing with matrix product states*, Federal University of ABC, Santo André, Brazil (July, 2012).
62. *Virtual parallel computing with matrix product states* University of São Paulo, São Paulo, Brazil (July, 2012).
61. *Virtual parallel computing with matrix product states* Fluminense Federal University, Niterói, Brazil (June, 2012).
60. *Virtual parallel computing with matrix product states* Federal University of Rio de Janeiro, Rio de Janeiro, Brazil (June, 2012).
59. *Virtual parallel computing with matrix product states* Naval Research Laboratory, Washington D.C., USA (June 2012).
58. *Resonant scatterers and electronic transport in graphene*, School of Physics, Trinity College, Dublin, Ireland (December 2011).
57. *A unified description of electronic transport in graphene based on resonant scatterers*, National High Magnetic Field Laboratory, Tallahassee, FL, USA (November 2011).
56. *Quantum information processing: What is new and what is possible*, colloquium, Department of Physics and Astronomy, University of North Carolina, Chapel Hill, NC, USA (November 2010).
55. Two seminars: *Long-time dynamics of quantum computers in the presence of correlated errors; Kondo and Coulomb blockade effects in single molecule magnets*. Department of Physics and Astronomy, University of British Columbia, Vancouver, Canada (March 2009).
54. *Electronics with single-molecule magnets*, colloquium, Department of Physics, University of Ohio, Athens, OH, USA (October 2008).
53. *Electronic transport in disordered graphene*, seminar, Department of Physics, University of Regensburg, Regensburg, Germany (July 2008).
52. *Electronics and spintronics with single-molecule magnets*, seminar, Institute of Applied Physics, Hamburg University, Hamburg, Germany (July 2008).
51. *Simulations and numerical modeling of electronics transport in disordered graphene*, seminar, Department of Physics, University of California, San Diego, CA, USA (May 2008).
50. *Simulations and numerical modeling of electronics transport in disordered graphene*, seminar, Department of Physics, University of California, Riverside, CA, USA (May 2008).
49. *Simulations and numerical modeling of electronics transport in disordered graphene*, seminar, Department of Physics, Stanford University, Palo Alto, CA, USA (May 2008).
48. *Graphene*, lecture, Department of Chemistry, University of Central Florida, Orlando, FL, USA (April, 2008).
47. *Conductivity and Fano factor in disordered graphene*, seminar, Department of Physics, Duke University, Durham, NC, USA (January 2008).
46. *Electronics with single-molecule magnets*, seminar, Institute for Theoretical Solid-State Physics, Karlsruhe University, Karlsruhe, Germany (June 2007).
45. *Electronics with single-molecule magnets*, seminar, Institute of Theoretical Physics, University of Hamburg, Hamburg, Germany (June 2007).

44. A series of three seminars on my research activities, Max-Planck Institute for the Physics of Complex Systems, *Dresden, Germany* (June 2007).
43. *Quantum oscillations in the conductance of a single-molecule magnet*, seminar, Department of Physics. Ohio State University, *Columbus, OH, USA* (May 2007).
42. *Electronics with single-molecule magnets*, seminar, Department of Physics. Boston University, *Boston, MA, USA* (February 2007).
41. *Electronics with single-molecule magnets*, colloquium, Physics Department, University of Waterloo, *Waterloo, Canada* (February 2007).
40. *Berry phase oscillations of the Kondo effect in single-molecule magnets*, seminar, Department of Physics. University of Florida, *Gainesville, FL, USA* (January 2007).
39. *Berry phase oscillations of the Kondo effect in single-molecule magnets*, seminar, Theory Division, Los Alamos National Laboratory, *Los Alamos, NM, USA* (May 2006).
38. *Phonon decoherence in quantum dot qubits*, seminar, Institute of Physics, State University of Rio de Janeiro, *Rio de Janeiro, Brazil* (December 2005).
37. *Quantum spin pumping*, seminar, Condensed Matter Science Division, Oak Ridge National Laboratory, *Oak Ridge, TN, USA* (November 2005).
36. *Quantum spin pumping*, seminar, Department of Physics, Karlsruhe University, *Karlsruhe, Germany* (May 2005).
35. *Quantum spin pumping*, seminar, Department of Physics, Ludwig-Maximilians University, *Munich, Germany* (May 2005).
34. *Quantum spin pumping*, seminar, Department of Physics, Heinrich-Heinz University, *Düsseldorf, Germany* (May 2005).
33. *Quantum spin pumping*, seminar, Institute for Theoretical Physics, Hamburg University, *Hamburg, Germany* (May 2005).
32. *Exploring non-equilibrium phenomena in quantum dots, wires, and alike*, colloquium, Department of Physics, University of Central Florida, *Orlando, FL, USA* (April 2005).
31. *Quantum pumping*, colloquium, Department of Physics, Florida State University, *Tallahassee, FL, USA* (January 2005).
30. *Quantum adiabatic pumping of charge, spin, and heat*, seminar, Department of Physics, New York University, *New York, NY, USA* (October 2004).
29. *Quantum adiabatic pumping of charge, spin, and heat*, seminar, Brazilian Center for Physical Research, *Rio de Janeiro, Brazil* (June 2004).
28. *Quantum spin pumping*, colloquium, Department of Physics, University of Central Florida, *Orlando, FL, USA* (March 2003).
27. Seminar, Institute of Physics, University of Campinas, *Campinas, Brazil* (October 2002).
26. *Quantum spin pumping*, seminar, Department of Physics, Pontifical Catholic University, *Rio de Janeiro, Brazil* (September 2002).
25. Colloquium, Department of Physics, University of Central Florida, *Orlando, FL, USA* (February 2002).

24. Colloquium, Department of Physics, Ohio University, *Athens, OH, USA* (February 2002).
23. Seminar, Department of Physics, Duke University, *Durham, NC, USA* (February 2002).
22. Colloquium, Department of Physics, Pontifical Catholic University, *Rio de Janeiro, Brazil* (April 2001).
21. Seminar, Institute of Physics, University of Campinas, *Campinas, Brazil* (August 2000).
20. Colloquium, Institute of Physics, Fluminense Federal University, *Niterói, Brazil* (May 2000).
19. Seminar, Institute of Physics, Federal University of Rio de Janeiro, *Rio de Janeiro, Brazil* (October 1999).
18. Seminar, Institute of Physics, State University of Rio de Janeiro *Rio de Janeiro, Brazil* (June 1999).
17. Seminar, Institute of Physics, University of Campinas, *Campinas, Brazil* (November 1998).
16. Seminar, Linear Accelerator Laboratory, University of São Paulo, *São Paulo, Brazil* (May 1998).
15. Colloquium, Department of Physics, Federal University of Minas Gerais, *Belo Horizonte, Brazil* (November 1997).
14. Seminar, Department of Physics, Federal University of Minas Gerais, *Belo Horizonte, Brazil* (November 1997).
13. Seminar, Institute of Physics, University of Rio de Janeiro, *Rio de Janeiro, Brazil* (May 1997).
12. Seminar, Institute of Physics, Fluminense Federal University, *Niterói, Brazil* (April 1997).
11. Seminar, Brazilian Center for Physical Research, *Rio de Janeiro, Brazil* (November 1996).
10. Seminar, Department of Physics, Pontifical Catholic University, *Rio de Janeiro, Brazil* (October 1996).
9. Seminar, University of Essen, *Essen, Germany* (June 1996).
8. Seminar, Institute of Physics, University of São Paulo, *São Paulo, Brazil* (March 1996).
7. Seminar, Institute of Physics, University of Campinas, *Campinas, Brazil* (March 1996).
6. Seminar, Department of Physics, Pontifical Catholic University, *Rio de Janeiro, Brazil* (March 1996).
5. Seminar, Institute of Physics and Astronomy, Aarhus University, *Aarhus, Denmark* (May 1995).
4. Seminar, Max-Planck Institute for Solid State Physics, *Stuttgart, Germany* (January 1995).
3. Seminar, Max-Planck Institute for Nuclear Physics, *Heidelberg, Germany* (January 1995).
2. Seminar, NORDITA & Niels Bohr Institute, *Copenhagen, Denmark* (October 1994).
1. Seminar, Institute of Physics, University of São Paulo, *São Paulo, Brazil* (May 1988).

PROFESSIONAL EXPERIENCE**Teaching**

- At the Department of Physics, University of Central Florida:
 13. PHY 2048, *Physics for Engineers and Scientists I* – SCALE-UP mode: Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013, Spring 2014).
 12. PHY 5524, *Statistical Physics* (Spring 2011).
 11. PHY 3513, *Thermodynamics and Statistical Physics* (Fall 2010).
 10. PHY 4605, *Wave Mechanics II* (Spring 2009, Spring 2010).
 9. PHY 4604, *Wave Mechanics I* (Fall 2008, Fall 2009).
 8. PHY 6624, *Quantum Mechanics II* (Spring 2007, Spring 2008).
 7. PHY 5606, *Quantum Mechanics I* (Fall 2006, Fall 2007). Graduate level.
 6. PHY 6939, *Graduate Research Seminar* (Summer 2006).
 5. PHY 2048, *Physics for Engineers and Scientists I* (Spring 2006).
 4. PHZ 5405, *Condensed Matter Physics* (Fall 2005).
 3. PHY 5650, *Introduction to Quantum Computation* (Spring 2005).
 2. PHY 6246, *Classical Mechanics* (Fall 2004).
 1. PHY 5524, *Statistical Physics* (Spring 2004).

- At the Department of Physics, Duke University:
 1. PHYSICS 307, *Introduction to Condensed Matter* (Fall 2003). Graduate level.

- At the Department of Physics, Pontifical Catholic University:
 10. *Quantum Mechanics II* (2002). Senior level.
 9. *Quantum Mechanics I* (2001 and 2002). Senior level.
 8. Laboratory, *Physics 2* (2000). Freshman level.
 7. Laboratory, *Physics 4* (2000). Sophomore level.
 6. Laboratory, *Physics 3* (four consecutive semesters, from 1998 to 2001; also in 2002). Sophomore level.
 5. *Electromagnetism III* (1999 and 2001). Graduate level.
 4. *Statistical Mechanics* (2000). Graduate level.
 3. *Statistical Physics* (1998, 1999, 2000). Senior level.
 2. *Electronic Transport in Mesoscopic Systems* (taught jointly with C. Lewenkopf) (1997). Graduate level. New course.
 1. *Physics 4* (four successive semesters, from 1996 to 1998). Sophomore level.

- At the Department of Physics, Massachusetts Institute of Technology:
 1. Teaching Assistant of Prof. Boris Altshuler in the graduate course *Solid State Theory* (Fall 1991).

Supervision of students at UCF

20. Emilia Ridolfi, visiting Ph.D. student. CNPq fellow from the Federal University Fluminense, Brazil (September – November 2014).
19. Daniel Bonior, Ph.D. student. Project: *Mathematical structures in quantum information theory* (since May 2014). Currently a graduate fellow at the NRL in Washington DC.
18. Kursti Delello, Physics (junior). Project: *Phase transitions in counting problems*. (since February 2014).
17. Alexander Stanforth, Physics (sophomore). Projects: *A Monte-Carlo method for evaluating the permanent of Hermitian matrices; Statistical properties of random permutation gates and Fidelity threshold in the surface code over multiple cycles*. (since January 2013).
16. Richard Bergmann, Physics & Computer Science Major. Project: *Variational matrix product state solution of spin chain problems*. (since August 2013).
15. Leandro Lima, visiting Ph.D. student. CNPq fellow from the Federal University of Rio de Janeiro, Brazil (August – October 2012). Currently at post-doctoral fellow at UFF, Brazil.
14. Sabine Pelton, Ph.D. student. Project: *Approximate matrix product state solution of SAT problems* (since January 2012).
13. Thomas Evaskis, Physics & Math major. Project: *Phase transitions in the #2-SAT class of problems* (August – December 2012).
12. Evelyn Strunk, Physics major. Project: *Percolation and electrical conductance in graphene oxide* (May 2012 – May 2013).
11. Guilherme Martins, visiting M.S. student. SBF-APS fellowship recipient from the Federal University of Sergipe, Brazil (November – December 2011). Currently a Ph.D. student at UF Sergipe, Brazil.
10. Amin Ahmadi, Ph.D. student. Project: *Spin pumping and spin transport in graphene/metal junctions* (since May 2011).
9. Stephen Wood, Physics major. Project: *Artificial magnetic fields and strain in graphene* (August – December 2010).
8. Javier Romero, Ph.D. student. Project: *Electronic transport in single-molecule magnet transistors* (July 2014). APS-SBF fellowship recipient (July 2013).
7. Pejman Jouzdani, Ph.D. student. Project: *Fault tolerance in topological quantum memories* (November 2014).
6. Jonathan Edmiston, Physics major. Project: *Transfer-matrix calculation of conductance in graphene nanoribbons* (August – December 2009).
5. Sabine Pelton, M.S. thesis: *Spin pumping with double quantum dots* (March 2012).
4. William Cole, B.S. in Physics. Project: *Weak localization in disordered graphene* (August 2007 – May 2008). Currently a Ph.D. student at Ohio State University.
3. Diego C. Valente, Ph.D. dissertation: *Decoherence in Semiconductor Solid State Quantum Computers* (October 2009). Currently a visiting assistant professor at University of Connecticut.

2. James McCracken, M.S. thesis: *Decoherence in Quantum Dot Charge Qubits: the Role of Electromagnetic Fluctuations*. (April 2006). Currently a staff member at the Naval Research Laboratory.
1. Michael D. Hogue, Ph.D. dissertation: *Insulator-Insulator Contact Charging as a Function of Pressure* (November 2005). Member of the technical staff at the NASA Kennedy Space Center, Florida.

Supervision of students at the Department of Physics, PUC-RJ

5. Bernardo S. Fernandes, *undergraduate* student in Physics (CNPq-PIBIC scholarship). Project: *Development of a laboratory kit for the observation of the conductance quantum* (August 1999 – July 2000).
4. Marcelo S. Schiaffino, *undergraduate* student in Physics (CNPq-PIBIC scholarship). Project: *Self-consistent confining potential in semiconductor heterostructures* (March 1999 – February 2000). Currently the founder and CEO of Organomix, an on-line service company in Brazil.
3. Kenjiro K. Gomes, *undergraduate* student in Physics (CNPq-PIBIC scholarship). Project: *Description of half-filled Landau levels* (August 1997 – July 1999). Project: *Superconductivity in disordered metallic grains* (March – July 2000). M.S. dissertation (CAPES scholarship) : *Spontaneous Spin Polarization in Disordered Quantum Dots* (July 2002). Received a Ph.D. in Physics from U. Illinois at Urbana-Champaign and is now an assistant professor at the University of Notre Dame, USA
2. Ana Luiza Cardoso Pereira, *undergraduate* student in Physics (CNPq-PIBIC scholarship). Project: *Transport and spectral fluctuations in mesoscopic structures* (August 1997 – March 1999). Currently a faculty member at UNICAMP-Limeira, Brazil, and winner of the L'Oreal Prize for Brazilian women in sciences.
1. Marco e Silva de Melo Távora (CAPES and CNPq scholarships). M.S. dissertation: *Vortex States in Unconventional Superconductors* (September 2002). Worked in the private sector. Currently a Ph.D. student at New York University.

Supervision of postdoctoral fellows

1. Dr. Alejandro M. F. Rivas, FAPERJ fellow (May 1999 – April 2001). Member of the technical staff at the Tandem National Laboratory, Argentina.

Organization of scientific events

7. Sorting Team Leader – Complex Structured Materials; Focus Session Organizer for Graphene: Structure, Dopants, and Defects (10 sessions). American Physical Society 2011 March Meeting, *Dallas, TX*.
6. Workshop on Quantum Coherent Properties of Spins III, *Orlando, FL*, December 2010. Other members: Enrique del Barco (chairman), Philip Stamp (UBC, Canada), and Stephen Hill (FSU).
5. Sorting Team Leader – Complex Structured Materials. American Physical Society 2010 March Meeting, *Portland, OR*.

4. Workshop on Frontiers in Quantum and Biological Information Processing, *Orlando, FL*, November 2006 (sponsored by the Interdisciplinary Information Science and Technology Laboratory at UCF). Other members of the organizing committee: James Hickman, Michael Leuenberger, Dan Marinescu, and Pawel Wocjan (UCF).
3. School on Mesoscopic Electronics. International Center for Condensed Matter Physics, *Brasília, Brazil*, July 1998. Chairmen: Múcio A. Continentino (UFF, Brazil) and Gilles Montambaux (Université Paris-Sud, France).
2. Latin-American Winter School “Chaos and Quantum Mechanics: Theory and Applications”. *Rio de Janeiro, Brazil*, July 1998. Chairman: Alfredo M. Ozorio de Almeida (CBPF, Brazil).
1. XXI National Meeting of Condensed Matter Physics. *Caxambu, Brazil*, May 1998. Chairman: Sylvio R. A. Canuto (USP).

Institutional service and administrative activities

- At UCF:

- Member of two faculty search committees in attosecond physics; chairs one of them (since November 2014).
- Member of the UCF Physics Career Day organization committee (2014).
- Member of the Physics Department’s Strategic Planning Committee (September 2011 – present). Currently chairs the committee.
- Member of the UCF Graduate Council Policy Committee (September 2009 – March 2011).
- Member of the UCF Faculty Senate (April 2009 – March 2011).
- External member of the Chemistry’s Annual Evaluations, Procedures and Standards Committee: Criteria Revisions (January 2009).
- Chair of the Physics’ Computer and Technology Committee (August 2006 – January 2007)
- Member of the new Physical Science Building Committee (February 2006 – present)
- Member of the Physics’ Annual Evaluations, Procedures and Standards Committee (May 2005 – December 2005; September 2011 – present)
- Member of the Physics’ Chair Search Committee (March 2005 – April 2006)
- Director of the Physics Graduate Program (December 2004 – July 2006)
- Member of the Interdisciplinary Information Science and Technology Laboratory (I2Lab) Steering Committee (December 2004 – August 2006). Member of the fellowship subcommittee.
- Member of the Physics Graduate Program governance (August 2004 – present). Currently chair of the Graduate Affairs Committee.

- At the Department of Physics, PUC-RJ:

- Director of the Graduate Program (December 2000 – August 2002)
- Member of the Graduate Committee (December 1999 – August 2002)
- Manager of the computer network (March 1997 – February 2001)
- Library liaison (November 1996 – February 1999)
- Member of the Steering Committee (November 1996 – October 1999)

- Thesis and dissertation committees (excluding of advisees):
 - External member in 5 committees in Brazil (1996-2002), 1 in Ireland (2012), and 1 in Germany (2013)
 - Member of more than 30 committees at UCF (Computer Sciences, Mathematics, Education, Electrical Engineering, Mathematics, Optics, and Physics)

Service to the profession and the community

- Consultant, panelist, and referee work:
 - *Publisher*: Cambridge University Press – book proposal reviewer (November 2013)
 - *Journal*: Physica Status Solidi B (October 2013)
 - *Journal*: Carbon (August 2013)
 - *Journal*: Annals of Physics (June 2013)
 - *Journal*: Journal of Computational Electronics (December 2012)
 - *Funding Agency*: CONICYT, the Chilean foundation for science and technology (July 2011)
 - *Journal*: Journal of Magnetism and Magnetic Materials (June 2011)
 - *Journal*: Reports on Progress in Physics (March 2011)
 - *Publisher*: Springer Verlag – book chapter review (August 2010)
 - *Journal*: Small (August 2010)
 - *Journal*: Applied Physics B – Laser and Optics (April 2010)
 - *Journal*: Applied Physics Letters (since September 2009)
 - *Journal*: Journal of Applied Physics (since June 2009)
 - *Journal*: Reviews of Modern Physics (since May 2009)
 - *Journal*: Journal of the American Chemical Society (since April 2009)
 - *Funding Agency*: Office of Basic Energy Sciences, Department of Energy (since April 2009)
 - *Journal*: Nano Research (August 2008)
 - *Journal*: New Journal of Physics (since January 2008)
 - *Journal*: Journal of Physics: Condensed Matter (since August 2007)
 - *Journal*: Nanotechnology (since May 2007)
 - *Journal*: Physica E (May 2006)
 - *Funding Agency*: John Simon Guggenheim Foundation (February 2006)
 - *Journal*: European Journal of Physics B (since February 2006)
 - *Journal*: Europhysics Letters (since September 2005)
 - *Funding Agency*: American Chemical Society Petroleum Research Fund, (August 2005)
 - *Funding Agency*: FONCyT, the Argentinean national fund for science and technology (March 2005)
 - *Funding Agency*: National Science Foundation (since November 2004)
 - *Journal*: Chemical Physics Letters (August 2004)
 - *Journal*: Solid State Communications (since December 2003)
 - *Government Agency*: The Brazilian Ministry of Education (November 2000)
 - *Funding Agency*: FAPESP, the State of São Paulo Research Foundation, Brazil (since August 2000)
 - *Journal*: Physics Letters A (since April 1999)

- *Funding Agency*: CNPq, the Brazilian federal agency for the promotion of science and technology (since September 1998)
- *Journal*: Physical Review A, B, E, and Letters (since November 1994)

- Outside Academia:

- Volunteer, 28th Annual Science Olympiad National Tournament, Orlando, FL (May 2012)
- Judge, U.S. Army, Navy and Air Force sponsored 46th National Junior Science Humanities Symposium (JSHS), Orlando, FL (May 2008)
- Member of the Community Council at the Orlando Science Center, Orlando, FL (November 2004 – December 2005)

AWARDS AND HONORS

- Teaching Incentive Award, UCF (March 2011)
- Honored Instructor, Class of 2002, Department of Physics, PUC-RJ
- Invited commencement speaker, Class of 2000, Department of Physics, PUC-RJ
- Rio de Janeiro State Young Scientist Award, FAPERJ (March 2000)
- CNPq researcher fellowship (March 1997 – February 2003)
- CNPq doctorate scholarship (September 1989 – February 1994)
- CAPES doctorate scholarship (March 1989 – August 1989)
- FAPESP graduate scholarship (March 1987 – December 1988)
- FAPESP undergraduate research scholarship (August 1985 – February 1987)

PARTICIPATION IN SCIENTIFIC SOCIETIES

- Member, European Physical Society (since 2012)
- Founding member, Brazilian Society for Materials Research (since 2001)
- Member, American Physical Society (since 1993)
- Member, Brazilian Physical Society (since 1988)

VISITING POSITIONS

- Visiting Scientist, Institute of Physics, Fluminense Federal University, Niterói, Brazil (May/June, 2013; May/June, 2014).
- Fellow, International Center for Transdisciplinary Studies, Jacob University, Bremen, Germany (July 09 – 30, 2008).
- Visiting scientist, Max-Planck Institute for the Physics of Complex Systems, Dresden, Germany (June 03 – 30, 2007).
- Visiting scientist, Centre d'Études Nucléaire de Bordeaux-Gradignan, France (May – July 1989).