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EDUCATION:

- Ph.D. in Physics, Russian Academy of Sciences, Institute of Chemical Physics, 1992
- M.S. in Physics, Moscow Institute of Physics and Technology, 1983
- B.S. in Physics, Moscow Institute of Physics and Technology, 1981

PROFESSIONAL EXPERIENCE:

- Assistant Professor, Department of Physics, University of South Florida, 2002-present
- Research Scientist, Department of Materials, University of Oxford, UK, 1996-2001
- The Royal Society Research Fellow, School of Physics, University of Bath, UK, 1995-1996
- Assistant Professor, Department of Mathematics, Volgograd State University, Russia, 1992-1995
- Research Assistant, Russian Academy of Sciences, Institute of Chemical Physics, Moscow, Russia, 1988-1992

HONORS AND AWARDS:

- ONR/NRL Summer Faculty Research Fellowship, 2003, 2004, 2005
- The Royal Society Research Fellowship award, UK, 1995
- AFOSR/EOARD Window on Science (WOS) award, 1993

RESEARCH INTERESTS:

Condensed matter & materials theory: application of atomic-scale modeling techniques to study the atomic, electronic and chemical properties of systems of fundamental & technological importance including:

- Energetic materials and matter under extreme conditions
- Electron and spin transport in solid state and molecular systems
- Development of interatomic potentials for large scale simulations of materials
- Surface and interface physics and chemistry

CURRENT RESEARCH PROJECTS

- Electron and spin transport in single molecule devices
- Shock-induced chemistry and physics of energetic materials
- Analytic bond order potentials (BOPs) for large scale MD simulations of materials
- Surface chemistry of chemical vapor deposition diamond growth
- Metal/oxide and metal/organic molecule interfaces in magnetic tunnel junctions

FUNDING:

Current grants:

- Army Research Office: “Defense University Research Instrumentation Program: High-Performance Computational Cluster for Energetic Materials Research” (Principal Investigator) 04/2007-03/2008
- National Science Foundation (NSF): “*Fundamental principles of non-linear single molecular devices as building blocks for future computing technologies*” (Principal Investigator) 11/2006-10/2008
- National Science Foundation (NSF): “*Quantum mechanics of electron and spin transport in single molecular devices*” (Principal Investigator) 09/2004-08/2007
- National Science Foundation (NSF): “*NIRT: Nanocrystalline diamond for MEMS and biomedical applications*” (Co-Principal Investigator) 09/2004-08/2008
- Office of Naval Research & Naval Research Laboratory: “*Shock-induced chemistry and physics of energetic materials*” (Principal Investigator) 09/2006-08/2009
- Army Research Office: “*MURI: Effect of defects on mechanisms of initiation and energy release in energetic molecular crystals*” (Co-Principal Investigator) 04/2005-03/2010

Previous grants:

- National Research Council/National Academy of Sciences: “*First-principles theory of spin-dependent tunneling in magnetic tunnel junctions*” (Principal Investigator) (2003)
- USF New Researcher Grant: “*Spin-dependent tunneling in magnetic tunnel junctions*” (Principal Investigator) (2003)
- USF Creative Scholarship Grant: “*First-principles modeling of diamond nanostructures for spintronics and quantum computing*” (Principal Investigator) (2002)
- Defense Advanced Projects Agency: “*Atomistic Modelling of Spintronic Materials*” (Co-Principal Investigator) (1999-2001)
- Defense Advanced Projects Agency: “*Multiscale Modeling of CVD diamond growth*” (Co-Principal Investigator) (1996-1999).
- Department of Energy & Sandia National Laboratories: “*Modeling of Electrically Controlled Polyelectrolyte Gels and Gel Devices*” (Principal Investigator) (1995-1996).

PROFESSIONAL SERVICE:

- Reviewer for research proposals from NSF (2004-present)
- Member of NSF review panels: “*Spin-Electronics for 21st Century*” (2002), “*Materials Science and Engineering Centers (MRSEC)*” (2004), “*Nanotechnology applications to computing and communication*” (2005), “*Quantum information science*” (2005)
- Member of NSF MRSEC site visit team (2006)
- Referee for Physical Review Letters, Physical Review B, Journal of Applied Physics, Journal of Physics – Condensed Matter.

UNIVERSITY SERVICE:

- University: Member of the University Council on Technologies for Instruction and Research (2004-2006)
- College: Member of College of Arts and Sciences Faculty Development Committee (2003-2005)
- Department: Member of Physics Department Graduate Committee (2004-present)
Chair of Physics Department Colloquia (2002-2003).