

## Biographical Sketch

Andre G. Petukhov

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### EDUCATION

- Ph. D. Physics, St. Petersburg State Technical University (Leningrad Polytechnic Institute), St. Petersburg, Russia, 1981
- M. S. Theoretical Physics, Odessa State University, Odessa, Ukraine, 1977

### APPOINTMENTS AND TRAINING

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|---------------------|---|
| Chair and Professor | Department of Physics, SDSM&T, Rapid City, SD, 2007-present                         |
| Professor           | Department of Physics, SDSM&T, Rapid City, SD, 2000–2007                            |
| Associate Professor | Department of Physics, SDSM&T, Rapid City, SD, 1994–2000                            |
| Sabbatical Fellow   | Naval Research Laboratory, Washington, DC, 2002                                     |
| Adjunct Professor   | Department of Physics, Case Western Reserve University, Cleveland, OH, 1998-present |
| Research Associate  | Department of Physics, Case Western Reserve University, Cleveland, OH, 1992-1994    |
| Visiting Scientist  | Universidad Autonoma, Madrid, Spain, 1991   |
| Research Professor  | Odessa State University, Odessa, Ukraine, 1981-1991                                 |

### AWARDS AND HONORS

- Principal investigator of multiple multi-investigator grants supported by NSF, NASA and DoD
- 2004 ASEE-NAVY Summer Faculty Fellowship
- 2002 Alan Berman Research Publication award for the best research paper at the Naval Research Laboratory in Washington, DC
- 2002 ASEE-NAVY Sabbatical Fellowship
- 2001-2002 ASEE-NAVY Summer Faculty Fellowships
- 1996-1998 ASEE-NASA Summer Faculty Fellowships
- 1992 Fellowship of the New York Academy of Sciences
- 1991 Fellowship of Spanish Ministry of Education and Science

### SYNERGISTIC ACTIVITIES

- Presented more than 20 invited talks at International Conferences, Seminars and Colloquia
- Organized 49<sup>th</sup> Midwest Solid State Conference in Rapid City, SD, October, 2001.
- Organized Workshop on Vertical Facility at Deep Underground Science and Engineering Laboratory (DUSEL) at Homestake, Rapid City, SD, December, 2008.
- Served and continues to serve as a proposal reviewer for NSF, DOE and CRDF.
- Served on NSF Panel Reviews on Computational Materials Science and Materials Theory in 2005 and 2007.
- Served and continues to serve as a referee for Physical Review B, Physical Review Letters, Journal of Physics: Condensed Matter, Applied Physics Letters, Nature Materials, Journal of Magnetism and Magnetic Materials, Journal of Physics D, Nanotechnology, and other refereed journals.

### **COLLABORATORS (outside SDSM&T)**

I. Zutic, A. Petrou, B. McCombe, R. Oszwaldowski (SUNY Buffalo); R. Abolfath (U. Texas Southwestern); S.C. Erwin, B.T. Jonker, I. I. Mazin (Naval Research Lab.); I. Sellers (Sharp Labs, Oxford, UK); B. Nadgorny, G. Lawes (Wayne State Univ.); S. Lyon, A. Tyryshkin (Princeton Univ.), J. Ager, T. Schenkel, E. Haller (Lawrence Berkeley National Lab.); E. Albanesi, L. Makinistian (CONICET, Santa Fe, Argentina); A. Chantis (Los Alamos National Laboratory); D. Demchenko (University of Virginia Commonwealth); H. Weitering, A.P. Li (University of Tennessee); C. J. Palmstrom, S.J. Allen (University of California, Santa Barbara); P. Dowben (University of Nebraska, Lincoln); R. Morris, V. Smelyanskiy, V. Osipov (NASA Ames Research Center); R. Gareev (University of Regensburg); W. R. L. Lambrecht, B. Segall (Case Western Reserve University).

**GRADUATE ADVISOR:** V. K. Bazhenov, deceased

### **GRADUATE STUDENTS:**

- Current: E. Handberg, R. Anderson (SDSM&T, Ph.D. Program in Nanoscience; M.S. Program in Physics); L. Pendo (SDSM&T; M.S. Program in Physics); L. Makinistian (CONICET, Santa Fe, Argentina)
- Graduated: B. T. Hemmelman (Professor, SDSM&T); D.O. Demchenko (Professor, University of Virginia Commonwealth); A. Chantis (Research Scientist, Los Alamos National Laboratory).

### **FIVE RECENT PUBLICATIONS (from 100 total)**

- 1) I. Zutic and A. Petukhov. "Shedding Light on Nanomagnets," *Nature Nanotechnology* **4**, 623 (2009).
- 2) R. P. Panguluri, P. Kharel, C. Sudakar, R. Naik, R. Suryanarayananay, V.M. Naik, A.G. Petukhov, B. Nadgorny, and G. Lawes. "Ferromagnetism and Spin Polarized Charge Carriers in  $\text{In}_2\text{O}_3$  Thin Films," *Physical Review B* **79**, 165208 (2009).
- 3) R. M. Abolfath, A. G. Petukhov, and I. Zutic, "Piezomagnetic Quantum Dots," *Physical Review Letters* **101**, 207202 (2008).
- 4) A.G. Petukhov, I. Zutic, and S. C. Erwin, "Thermodynamics of Carrier-Mediated Magnetism in Semiconductors," *Physical Review Letters* **99**, 257202 (2007).
- 5) A.P. Li, C. Zeng, K. van Benthem, M.F. Chisholm, J. Shen, S.V.S. Nageswara Rao, S.K. Dixit, L.C. Feldman, A.G. Petukhov, M. Foygel, and H.H. Weitering, "Dopant Segregation and Giant Magnetoresistance in Manganese-Doped Germanium," *Physical Review B* **75**, R201201 (2007).

### **FIVE OTHER PUBLICATIONS**

- 1) V. N. Smelyanskiy, A. G. Petukhov and V. V. Osipov, "Quantum Computing on Long-Lived Donor States of Li in Si," *Physical Review B* **72**, R081304 (2005).
- 2) A. G. Petukhov, A. N. Chantis, and D. O. Demchenko, "Resonant Enhancement of Tunneling Magnetoresistance in Double-Barrier Magnetic Heterostructures," *Physical Review Letters* **89**, 107205 (2002).
- 3) S. C. Erwin and A. G. Petukhov, "Self-Compensation in Manganese-Doped Ferromagnetic Semiconductors", *Physical Review Letters* **89**, 227201 (2002).
- 4) R. M. Stroud, A. T. Hanbicki, Y. D. Park, A. G. Petukhov, B. T. Jonker, G. Itkos, G. Kioseoglou, and A. Petrou, "Reduction Of Spin Injection Efficiency by Interface Defect Spin Scattering in ZnMnSe/AlGaAs-GaAs Spin-Polarized Light-Emitting Diodes," *Physical Review Letters* **89**, 166602 (2002).
- 5) D. Schmidt, A. G. Petukhov, M. Foygel, J. P. Ibbetson, and S. J. Allen, "Fluctuation Controlled Hopping of Bound Magnetic Polarons in ErAs:GaAs Nanocomposites," *Physical Review Letters* **82**, 823 (1999).