

CURRICULUM VITAE

Natalia Perkins

School of Physics and Astronomy
University of Minnesota, Minneapolis
MN 55455, USA

Education

- **Ph.D.** Physics, Moscow State University, Moscow, USSR.
Advisor: Prof. M.I. Kaganov
Degree conferred: April, 1997.
- **M.Sc** Physics, Moscow State University, Moscow, USSR
Degree conferred: January, 1994.

Research Area: Condensed Matter Theory

- Strongly correlated electron systems
- Frustrated magnetism
- Spin-orbital systems

Funding and Fellowships

1. Emmy Noether Fellowship (2016), Perimeter Institute, Waterloo, Canada
2. NSF-DMR1511768 grant (2013-2018): "CAREER: Emergent Phases of Correlated Electrons in Materials with Spin-Orbit Coupling and Magnetic Frustration".
3. NSF-DMR1005932 grant (2010-2013): "Quantum spin-orbital systems: models and spectroscopies."
4. Fellowship award of the Institute for Complex Adaptive Matter (ICAM) to support the collaboration with Los Alamos National Laboratory (08.2010-08.2012): "Exotic phases and phase transitions in quantum spin-orbital systems"

Employment

- 9/2014 to present: Associate Professor at School of Physics and Astronomy, University of Minnesota, Minneapolis
- 9/2013 to 9/2014: Associate Professor at Department of Physics, University of Wisconsin-Madison, Madison WI

- 9/2007 to 9/2013: Assistant Professor at Department of Physics, University of Wisconsin-Madison, Madison WI
- 07/1997 -04/2009: Senior Researcher at Bogoliubov Laboratory of Theoretical Physics, JINR, Dubna, Russia.

Professional Preparation

- **11/2006 -9/2007** : Postdoctoral Research Associate, Technische Universitat Braunschweig, Institut fur Theoretische Physik, Braunschweig, Germany.
- **01/2005-10/2006**: Research scientist in Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany.
- **02/2002-02/2004**: Postdoctoral Research Associate at Laboratori Nazionali di Frascati, INFN, Frascati, Italy.
- **09/1999-09/2000**: Postdoctoral Research Associate at University of Salerno, Salerno, Italy

Visiting Research Positions

- **09/2014-10/2015** Visiting Professor in the Kavli Institute for Theoretical Physics (KITP), Santa Barbara, US.
- **03/2015** Visiting Professor in the Universidad Adolfo Ibanez, Santiago, Chile
- **10/2014-11/2014** Visiting Professor in the Kavli Institute for Theoretical Physics (KITP), Santa Barbara, US.
- **08/2012** Visiting Professor in the St. Andrews University, Scotland, UK.
- **06/2012** Visiting Professor in the Rennes University, France.
- **08/2011** Visiting Professor in the Ruhr-Universitat Bochum, Germany.
- **10/2010-12/2010**: Visiting Professor in the University of Tokyo, Japan.
- **06/2001-09/2001, 07/2004-08/2004, 06/2009-08/2009,06/2010-07/2010, 06/2011-07/2011,07/2013** Visiting scientist in Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany.
- **10/2004-11/2004**: Visiting Researcher in Instituto de Fisica UFRGS, Porto Alegre, Brasil
- **06/2004-08/2004**: Visiting Researcher at Laboratori Nazionali di Frascati, INFN, Frascati, Italy.
- **02/2001-04/2001** and **02/2003-04/2003**: Visiting scientist in Laboratoire Louis Neel, CNRS, Grenoble, France.

Teaching

1. Physics 5701 at UMN : Solid-State P for engineers and scientists (Spring 2016)

2. Physics 1301 at UMN : Introductory Physics for Engineers (Spring 2015)
3. Physics 109 at UW-Madison: Physics in the Arts (Spring 2013, Spring 2014)
4. Physics 531 at UW-Madison: Introduction to Quantum mechanics (Spring 2012)
5. Physics 551 at UW-Madison: Solid State Physics (Fall 2007, Fall 2008, Spring 2009, Spring 2011)
6. Physics 715 at UW-Madison: Statistical Mechanics (Spring 2008, Fall 2011, Fall 2012, Fall 2013)
7. Physics 311 at UW-Madison: Classical Dynamics (Spring 2010)
8. Physics 103 at UW-Madison: General Physics (Fall 2010)
9. University of Tokyo: Magnetism and orbital physics in strongly correlated electron systems (Fall 2010)

Advising

1. Fulia Kos, Ph.D. student 2015-present
2. Jianlong Fu , Ph. D. student 2015-present
3. Samuel Ducatman, Ph.D. student 2011-present (Graduation May 2016)
4. Yuriy Sizyuk, Ph.D. student 2012-present
5. Ioannis Rousochatzakis, Postdoctoral Research Associate 2015-present

Previous members of the group

1. Eunsong Choi, Ph.D. student, 2009-2015 (PhD May 2015, Financial Software Developer at Bloomberg LP)
2. Craig Price, Undergraduate student 2010-2012 (Research Fellow in Penn State University)
3. Gia-Wei Chern, Postdoctoral Research Associate 2009-2012 (Faculty at University of Virginia.)

Invited seminars and colloquia in the period 2011-present

1. *Raman scattering in 2D and 3D Kitaev spin liquids*, Seminar at John Hopkins University, Baltimore (November 2015).
2. *Anisotropic interaction in honeycomb iridates*, Seminar at Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Spain (June 2015).
3. *Raman scattering in Kitaev spin liquid*, Seminar at Department of Physics, University of Toronto, Toronto (December 2014).

4. *Anisotropic interaction in honeycomb iridates*, Seminar at Department of Physics, University of Waterloo, Waterloo (December 2014).
5. *New Physics due to Kitaev interactions*, Seminar at Department of Physics and Astronomy, University of California, Irvine (November 2014).
6. *New Physics due to Kitaev interactions*, Seminar at Department of Physics and Astronomy, Caltech, Pasadena (November 2014).
7. *Critical properties of Kitaev-Heisenberg model*, Seminar at Department of Physics, University of Urbana-Champaign (April 2014).
8. *Finite temperature phase diagram of Kitaev-Heisenberg model*, Seminar at Department of Physics, Washington University in St. Louis (October 2013).
9. *Kitaev Heisenberg model and beyond*, Seminar at Department of Physics, Loughborough University, UK (March 2013).
10. *Kitaev-Heisenberg model and its applications to iridates*, Seminar at Department of Physics, Utah State Univeristy (December 2013).
11. *Emergent phases of correlated electrons in materials with spin-orbit coupling*, Seminar at Los Alamos National Laboratory (May 2013).
12. *Finite temperature properties of Kitaev-Heisenberg model*, Seminar at Department of Physics, Univeristy of Kentucky, Lexington (April 2013).
13. *Emergent phases of correlated electrons in materials with spin-orbit coupling*, Physics Department Colloquium, Iowa State University (January 2013).
14. *Emergent phases of correlated electrons in materials with spin-orbit coupling and magnetic frustration*, Physics Department Colloquium, UW Madison (November 2012).
15. *Magnetism in parent Fe-chalcogenides: quantum fluctuations select a plaquette order*, Seminar at Dipartimento di Fisica, University of Salerno, Italy, (October 2012).
16. *Magnetism in parent Fe-chalcogenides* , Seminar at Department of Physics, St. Andrews University, Scotland (August 2012).
17. *Finite temperature phase diagram of the Kitaev Heisenberg model*, Seminar at Department of Physics, St. Andrews University, Scotland (August 2012).
18. *Quantum criticality in the spin-orbital models*, Colloquium at Institut fur Theorie der Kondensierten Materie, Karlsruhe, Germany (July 2012).
19. *Critical properties of the Kitaev-Heisenberg model* , Seminar at Department of Physics, University of Rennes, France (June 2012).
20. *Phase diagram of the toy model for spin-orbital chains*, Seminar at Department of Physics and Astronomy, University of California, Irvine (May 2012).

21. *Exotic physics in materials with strong spin-orbit coupling*, Physics Department Colloquium, University of Montana (February 2012).
22. *Quantum criticality in the spin-orbital models*, Seminar at Iowa State University, Ames (January 2012).
23. *Quantum phase transitions in a strongly entangled spin-orbital chains*, Seminar at W.I.Fine Theoretical Physics Institute and Department of Physics, University of Minnesota (November 2011) .
24. *Quantum phase transitions in a strongly entangled spin-orbital chains*, Seminar at Laboratori Nazionali di Frascati, Italy (July 2011).
25. *Quantum phase transitions in quasi one dimensional vanadium chains*, Seminar at Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Spain (March 2011).
26. *Magnetic and orbital ordering in MnV_2O_4* , Seminar at University of Texas-Austin, Austin, US (February 2011).

Conference talks in the period 2011-present

1. Invite Lecturer on Spin-Orbit Coupling Summer UBC School, Vancouver, Canada (October 2015).
2. Invited talk on Conference on Frontiers of Nanoscience, Trieste, Italy (September 2015).
3. Invited talk on Workshop on Strongly Correlated Electronic Systems - Novel Materials and Novel Theories , Trieste, Italy (August 2015).
4. Invited talk on Conference on Novel States in Spin-Orbit Coupled Quantum Matter: from Models to Materials, KITP, Santa Barbara, USA (July 2015)
5. Invited talk at the International conference on Computational Quantum Magnetism, Mainz, Germany (May 2015)
6. Invited talk at the International Workshop on "Spin-orbit coupling and correlations in transition metal oxides", Ohio, USA (May 2015)
7. Invited talk on the APS March Meeting 2015, San Antonio, USA (March 2015).
8. Invited talk on International workshop "Magnetism, Bad Metals and Superconductivity: Iron Pnictides and Beyond", KITP, USA (October 2014)
9. Invited talk on International workshop "Quantum Spin Dynamics: From Exotic Excitations to Novel Transport and Non-Equilibrium Phenomena", Dresden, Germany (September 2014)
10. Invited talk on International workshop on Frustrated Magnetism at NORDITA, Stockholm, Sweden (July 2014)
11. Invited talk on the International conference on Transition Metal oxides, Minneapolis, USA (May 2014)

12. Invited talk on the APS March Meeting 2014, Denver, USA (March 2014).
13. Invited talk on the Gordon Godfrey Workshop 2013, Sydney, Australia (November 2013).
14. Invited talk on the conference "Novel Materials: Adding material-specific reality in physicists' models", Natal, Brazil (December 2012).
15. Invited talk on the conference Innovations in Strongly correlated electronic systems, Trieste, Italy (August 2012).
16. Contributed talk on the conference Quantum Matter from the Nano- to the Macroscale, Dresden, Germany (July 2012).
17. Invited talk on the conference The New Generation in Strongly Correlated Electron Systems 2012 (NGSCES 2012) Portoroz, Slovenia (June 2012).
18. Invited talk on the Gordon Godfrey Workshop 2011, Sydney, Australia (October 2011).
19. Invited lecturer at Cargese Multiorb 2011 summer school, Cargese, France (August 2011).
20. Contributed talk on Novel Phenomena in Frustrated Systems conference, Santa Fe, USA (May 2011).

Professional Activities

1. Focus Topic Organizer for APS March meeting (2016).
2. Co-Organizer of the workshop "Modern trends in Quantum Magnetism", Aspen Center of Physics, June 2014.
3. Co-Organizer of the workshop "Itinerant Spin-Orbital Systems: From Magnetic Frustration to Novel Superconductivity", Dresden, Germany, May 2012.
4. Organizer of the bi-weekly Condensed Matter Theory seminar for graduate students and postdocs, Physics Department UW Madison (2011-2014)
5. Organizer of the participation of Physics Department UW-Madison as associated member in the European consortium Master Erasmus Mundus in Materials Science for the period 2012-2017 (Agreement 2010-0138(SGA 2011-1615)).
6. Reviewer for the National Research Foundation.
7. Panelist for the National Research Foundation.
8. Panelist for the Department of Energy.
9. Referee for the Physical Review Letters, Physical Review B and European Physical Journal B.