Natalia Drichko
Associate Research Professor, Department of Physics and Astronomy,
The Johns Hopkins University, 3400 North Charles Street, Baltimore, MD 21218
(410) 516-5390 (P) (410) 516-7239(F) (443) 799 4730 (C)
E-mail: drichko@jhu.edu

Education

Ioffe Physico-Technical Institute, St. Petersburg Russia, Ph. D., Physics, 2002
St.Petersburg State University, St. Petersburg Russia, M. S., Physics, 1996

Appointments

2016-present Associate Research Professor, The Johns Hopkins University
2010-2016 Associate Research Scientist, The Johns Hopkins University
2008-2010 Habilitant in 1.Physikalisches Institut University of Stuttgart, Germany
Visiting Assistant Research Professor, The Johns Hopkins University
2005-2008 Senior Scientist, Ioffe Physico-Technical Institute, Russia
2003-2005 Alexander von Humbold Foundation postdoctoral fellow in
University of Stuttgart, Germany

Research Interests

Experimental Condensed Matter Physics: Strongly correlated electron systems, Frustrated magnets, Mott transition, Raman and Optical spectroscopies, Organic conductors.

Honors and Distinctions:

2010 M. Hildred Blewett Fellowship, American Physical Society
2008 Margarethe von Wrangell Habilitation Fellowship
2003 Alexander von Humbold Foundation Fellowship.
2002 The Synthetic Metals Young Scientist Award for independent young researcher at International Conference on Science and Technology of Synthetic Metals, Shanghai, 2002

Citations: 1472 H-factor: 21 95 publications

Teaching at JHU:

Winter Intersession 2017 171.358.22 Raman Scattering Spectroscopy for Characterization of Materials
Fall 2016 172.203.01 Contemporary Physics Seminar
Fall 2015 172.203.01 Contemporary Physics Seminar
Winter Intersession 2015 171.358.22 Raman Scattering Spectroscopy for Characterization of Materials
Fall 2014 172.203.01 Contemporary Physics Seminar

Professional activities

2012- present Managing the Raman Users Lab in Department of Physics and Astronomy, The Johns Hopkins University. The Users Center is working in collaboration with Material Science Department, Chemistry Department, Chemical and Biomolecular Engineering, Mechanical Engineering, JHU Medical Center, and various groups in the Department of Physics and Astronomy for characterization of a broad spectrum of materials, devices and chemical processes.

2014 Selection committee American Physical Society H. Blewett Fellowship selection committee.

Invited Talks:

19. 2016 Annual Meeting of the APS Mid-Atlantic Section. University of Delaware Newark, DE. October 15-16, 2016.

Magnetic properties of organic conductors: inelastic light scattering study.

18. Physics Department Colloquium at Georgetown University. 11 October 2016.

Quasi-two-dimensional organic conductors as frustrated magnets: the quest for the quantum spin liquid.

17. Workshop on experiment and theory of the electronic structure of correlated f-electron materials, Temple University, Philadelphia. 15-17 August 2016.

Breakdown of Kondo insulating state in SmB_6 by introducing Sm vacancies.

16. Workshop on "Anomalous Transport in Multipolar and Topological Materials." Baltimore Maryland, March 2016.

Breakdown of the Kondo insulating state in SmB6 by introducing Sm vacancies.

15. University of Stuttgart, Germany. September 2015.

Topological Kondo insulator SmB_6: Raman spectroscopy study.

14. GRC Conductivity & Magnetism in Molecular Materials. Bates College Lewiston, ME August 2014

Metallic State and Charge Order Metal-insulator Transition in a Quasi-2D Conductor - $(BEDT\text{-}TTF)_2Hg(SCN)_2Cl$.

13. International Symposium on Conducting Organic Materials Poznan, Poland, September 2011

Reduced Influence of Electronic Correlations in a Half-Filled System: Metallic Properties and Metal-Insulator Transition in k-$(BEDT\text{-}TTF)_2Hg(SCN)_2Cl$.

12. Workshop "Applications of Terahertz-to-Infrared Probes in Molecular and Materials Sciences" in Arlington, VA, April 2011.

Strongly correlated electron systems at BIG LIGHT: Interplay of Charge Order and Superconductivity in BEDT-TTF-based Materials with 1/4-filled Conductance Band

11. International School and Symposium on Multifunctional Molecule-based Materials. Argonne National Laboratory, March 2010

Interplay of Charge Order and Superconductivity in BEDT-TTF-based Materials with 1/4-filled Conductance Band.

10. The International Conference on Low-Energy Electrodynamics in Solids 2008 (LEES08), Vancouver – Whistler, British Columbia, June 30 - July 4, 2008

An optical study of interplay between superconductivity and charge order in a quarter-filled quasi-two dimensional organic conductor.

9. University of Geneva, Switzerland.. Seminar of Optical Solid State Group of Prof. van der Marel, 15 February 2007

Bandwidth- and bandfilling-controlled Mott transition in 2D organic conductors.

8. The 8th International Conference on Materials and Mechanisms of Superconductivity and High Temperature Superconductors (M2S-HTSC-VIII) Dresden, Germany, 9 -14 July 2006

Bandwidth- and band filling-controlled Mott transition in BEDT-TTF-based 2D organic conductors

7. 6th International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets (ISCOM2005), Key West, Florida, USA, September 11-16, 2005.

Optical investigations of the influence of electronic correlations in α-(BEDT-TTF)$_2$*M*Hg(SCN)

6. Max-Plank Institute Stuttgart, Germany. Seminar of Department Keimer. 5August 2005

Optical study of an influence of electron-electron correlations on the properties of quasi-two-dimensional organic conductors.

5. University of Parma, Italy Seminar of the group of Prof. A. Girlando.

Optical study of influence of electronic correlations on properties of α-(BEDT-TTF)2MHg(SCN)4, M=NH4, Tl, Rb

4. Walther-Meißner-Institute for Low Temperature Research, Garching, Germany, 15 May 2005

Signatures of charge order fluctuations in optical spectra of α-(BEDT-TTF)$_2$*M*Hg(SCN)$_4$

3. The International Conference on Low-Energy Electrodynamics in Solids 2008, (LEES04) at Kloster Banz, Germany 18 – 23. July, 2004

Charge Ordering Fluctuations in Two-Dimensional Organic Conductors

2. NATO-ASI Meeting "Organic Conductors, Superconductors and Magnets:From Synthesis to Molecular Electronics", Corfu, Greece, April 29-May 11, 2003

Origin of metal-insulator transition in (BEDO-TTF)$_5$[CsHg(SCN)$_4$]$_2$

1. International Conference on Science and Technology of Synthetic Metals (ICSM2002), Shanghai, China, June 29-July 5, 2002.

Correlation induced optical gap in α-(BEDT-TTF)$_2$*M*Hg(SCN)$_4$