February, 2018

Curriculum Vitae: Michael Reznikov

Academic appointments and education

2000 - Current	Associate Prof., Technion, Haifa.
1998-2000	Senior Lecturer, Technion, Haifa.
1995-1998	Research Associate, Weizmann Institute of Science, Rehovot
1992-1995	Postdoctoral Associate, Weizmann Institute of Science, Rehovot
1988-1992	Researcher, Institute for Solid State Physics (ISSP), Chernogolovka, Moscow District.
1984-1988	Ph.D. Graduate school at Moscow Institute for Physics and Technology (MPTI), Dolgoprudni. Ph.D. - March 1988.
1982-1984	Junior Researcher, ISSP.
1976-1982	M.Sc. Department of General and Applied Physics, MPTI.

Prizes and Awards:

- Hewlett-Packard Europhysics Award, 1999
- Alon Fellowship, 1999

Main research projects

- **1986-1988** First observation and investigation of Edge Magnetoplasmons in two-dimensional electron gas.
- **1992-1998** Shot noise measurements in mesoscopic systems. The latest part of this work, direct measurements of a fractional charge, was mentioned in the 1998 Nobel Prize nomination announcement as the “conclusive verification of their discoveries”. For developing of the noise measurements technique I got the 1999 Hewlett-Packard Europhysics Award.
- **2000-2008** Charge counting statistics measurements beyond the second moment. Measurements of the third cumulant of the transferred charge in a tunneling junction and in a quantum point contact accurate enough to reliably compare with theory.
- **1999-2003** Development of an alternative, recharging, technique for thermodynamic magnetization measurements of a two-dimensional electron gas. This technique was chosen for commenting by the Journal Club for Condensed Matter Physics. We used it to check and refute the claim of spontaneous ferromagnetic instability in two-dimensional electron gas in Si/SiO_2 interface.
- **2005-2007** Fluctuations in superconductors. The project originally aimed for the search of Cooper pairs in high-T_c superconductors at temperatures above T_c using shot noise as a tool. This goal happened to be inaccessible. This project has evolved into measurements of shot noise in Andreev reflection peaks.

Current research projects

- Measurements of the charge induced by magnetic field penetration into high-T_c superconductors. This problem is related to the long-standing problem of the vortex charge in high-T_c materials. The project is running with a clearly seen signal indicating positive induced charge. Measurements of many samples of different doping and orientation are required to clarify the problem.
- Measurements of shot noise in Andreev peaks in high-Tc superconductors. Andreev peaks occur when the current flows in a nodal direction; it is predicted to be noiseless for pure d-wave order parameter. We intend to check this prediction. If such a current generates shot noise, it would indicate the existence of admixture of an order parameter with a different symmetry.

Participation in organizing conferences

Co-director of the NATO advanced workshop "Quantum noise in mesoscopic physics", 3-7 June 2002.

Research grants

Present:

- 2016-2020 Israel Science foundation
- 2018-2022 BSF

Publications

Refereed papers (01.10.2015-31.09.2018)

1. Pudalov, V. M., Kuntsevich, A. Y., Gershenson, M. E., Burmistrov, I. S., & Reznikov, M. (2018). Probing spin susceptibility of a correlated two-dimensional electron system by transport and magnetization measurements. Phys. Rev. B, 98(15), p. 155109, 2018

2. O. Negri, M. Zaberchik, G. Drachuck, A. Keren, M. Reznikov, Zero energy states at a normal-metal/cuprate-superconductor interface probed by shot noise, Phys. Rev. B, **97**, p. 214504, 2018.

3. V.M. Pudalov, M. Gershenson, A. Yu. Kuntsevich, N. Teneh, M. Reznikov, On the origin of the temperature dependence of spin susceptibility in correlated 2D electron system, Journal of Magnetism and Magnetic Materials, 2017.

4. V. M. Pudalov, A. Yu. Kuntsevich, I. S. Burmistrov, M. Reznikov, Thermodynamic Studies of Two-Dimensional Correlated Electron Systems, Journal of Low Temperature Physics, **181**, 99 (2015)