On localization of Dirac fermions by disorder

Medvedyeva, M.V.

List of Publications

- *Cyclotron enhancement of tunneling* , M. V. Medvedeva, I. A. Larkin, S. Ujevic, L. N. Shchur, and B. I. Ivlev, Phys. Rev. B **78**, 165325 (2008).
- *Hartman effect and spin precession in graphene*, R. A. Sepkhanov, M. V. Medvedyeva, and C. W. J. Beenakker, Phys. Rev. B **80**, 245433 (2009).
- *Absence of a metallic phase in charge-neutral graphene with a random gap* , J. H. Bardarson, M. V. Medvedyeva, J. Tworzydło, A. R. Akhmerov, and C. W. J. Beenakker, Phys. Rev. B **81**, 121414(R) (2010) [Chapter 3].
- *Majorana bound states without vortices in topological superconductors with electrostatic defects*, M. Wimmer, A. R. Akhmerov, M. V. Medvedyeva, J. Tworzydło, and C. W. J. Beenakker, Phys. Rev. Lett. **105**, 046803 (2010) [Chapter 4].
- *Effective mass and tricritical point for lattice fermions localized by a random mass*, M. V. Medvedyeva, J. Tworzydło, and C. W. J. Beenakker, Phys. Rev. B **81**, 214203 (2010) [Chapter 2].
- *Piezoconductivity of gated suspended graphene*, M. V. Medvedyeva and Ya. M. Blanter, Phys. Rev. B **83**, 045426 (2011) [Chapter 6].
- *Effects of disorder on the transmission of nodal fermions through a d-wave superconductor*, J. K. Asbóth, A. R. Akhmerov, M. V. Medvedyeva, and C. W. J. Beenakker, to be published in Phys. Rev. B [Chapter 5].

Curriculum Vitæ

I was born in Dnipropetrovsk, Ukraine on the 9th of June 1985, where I also received my primary and secondary education. During my school years I participated in the science competitions for Physics, Chemistry, and Mathematics, winning prizes at the regional level and for Physics also at the national level. In the last year of the secondary school my research project on analogues of geometrical equalities and nonequalities in non-Euclidean geometry was awarded the first prize at the national level.

In 2002 I entered the Faculty of General and Applied Physics of the Moscow Institute of Physics and Technology. In 2006 I received my Bachelor degree with a thesis on *Enhancement of tunneling in magnetic field*, under the supervision of professors Boris Ivlev and Lev Shchur. The Masters diploma followed in 2008 with the thesis *Cyclotron enhancement of tunneling*. During the last three years at the University I took part in a special project on computational physics, constructing and administrating a computer cluster at the Landau Institute for Theoretical Physics in Chernogolovka.

After graduating I joined the group of prof. Carlo Beenakker at Leiden University, employed by the *Foundation for Fundamental Research on Matter* (FOM), to pursue the research reported in this thesis. Part of my research was carried out together with experimentalists at the Delft University of Technology, in the context of a FOM research program on graphene.

As a Ph.D. student I have attended summer schools in Les Houches and Windsor, and presented my work at seminars and conferences in Italy, Sweden, and the United Kingdom. I also participated in the 2010 Lorentz Center Workshop on "Physics with Industry".