



Universiteit
Leiden
The Netherlands

Lattice models for Josephson junctions and graphene superlattices

Ostroukh, V.

Citation

Ostroukh, V. (2018, June 27). *Lattice models for Josephson junctions and graphene superlattices*. *Casimir PhD Series*. Retrieved from <https://hdl.handle.net/1887/63217>

Version: Not Applicable (or Unknown)

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/63217>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/63217> holds various files of this Leiden University dissertation.

Author: Ostroukh, V.

Title: Lattice models for Josephson junctions and graphene superlattices

Issue Date: 2018-06-27

Curriculum Vitæ

I was born in Lugansk, Ukraine (at that time part of the Soviet Union), on the 21st of May 1991, and received there my primary and secondary education (at Municipal School №57). I started advanced study in physics already then, being a regular participant of the Ukrainian State Physics Olympiad (in the years 2005–2008).

After graduating from school in 2008, I started my study in Taras Shevchenko National University of Kyiv at the Faculty of Physics. After two years of study I chose the specialization in theoretical physics. I obtained my Bachelor (2012, red diploma, equivalent to *cum laude*) and Master (2014) degrees under the supervision of Prof. Dr. Bohdan Lev (head of the Synergetics department in the Boholyubov Institute for Theoretical Physics). The title of my master thesis was “Phase transitions in two-dimensional electron systems on the surface of liquid helium”. This work also resulted in my first publication.

During my master study I held a part-time job at Samsung Research Ukraine as a software engineer. This provided me much experience at working in industry and helped me to acquire advanced software development skills.

In 2014 I joined the group of Prof. Dr. Carlo Beenakker at the Instituut-Lorentz of Leiden University as a Ph.D. student, employed by the Foundation for Fundamental Research on Matter (FOM). I collaborated with the theoretical nanoscience group of Dr. Anton Akhmerov and Dr. Michael Wimmer at Delft University of Technology. I greatly benefited from the opportunity to work with experimentalists in the group of Prof. Dr. Ir. Leo Kouwenhoven at QuTech in Delft.

During my Ph.D. study I was a teaching assistant for the theoretical condensed matter physics course. I presented my research at workshops, schools, and conferences in The Netherlands, Ukraine, Spain, and Italy.

List of Publications

- B. I. Lev, V. P. Ostroukh, V. B. Tymchyshyn, and A. G. Zagorodny. *Statistical description of the system electrons on the liquid helium surface.* Eur. Phys. J. B **87**, 253 (2014).
- B. Baxevanis, V. P. Ostroukh, and C. W. J. Beenakker. *Even-odd flux quanta effect in the Fraunhofer oscillations of an edge-channel Josephson junction.* Phys. Rev. B **91**, 041409(R) (2015) [Chapter 2].
- V. P. Ostroukh, B. Baxevanis, A. R. Akhmerov, and C. W. J. Beenakker. *Two-dimensional Josephson vortex lattice and anomalously slow decay of the Fraunhofer oscillations in a ballistic SNS junction with a warped Fermi surface.* Phys. Rev. B **94**, 094514 (2016) [Chapter 4].
- K. Zuo, V. Mourik, D. B. Szombati, B. Nijholt, D. J. van Woerkom, A. Geresdi, J. Chen, V. P. Ostroukh, A. R. Akhmerov, S. R. Plissard, D. Car, E. P. A. M. Bakkers, D. I. Pikulin, L. P. Kouwenhoven, and S. M. Frolov. *Supercurrent interference in few-mode nanowire Josephson junctions.* Phys. Rev. Lett. **119**, 187704 (2017).
- F. K. de Vries, T. Timmerman, V. P. Ostroukh, J. van Veen, A. J. A. Beukman, F. Qu, M. Wimmer, B.-M. Nguyen, A. A. Kiselev, W. Yi, M. Sokolich, M. J. Manfra, C. M. Marcus, and L. P. Kouwenhoven. *h/e superconducting quantum interference through trivial edge states in InAs.* Phys. Rev. Lett. **120**, 047702 (2018) [Chapter 3].
- O. V. Gamayun, V. P. Ostroukh, N. V. Gnezdilov, Ī. Adagideli, and C. W. J. Beenakker. *Valley-momentum locking in a graphene su-*

perlattice with Y-shaped Kekulé bond texture. New J. Phys. **20**, 023016 (2018) [Chapter 5].

- C. W. J. Beenakker, N. V. Gnezdilov, E. Dresselhaus, V. P. Ostroukh, Í. Adagideli, and J. Tworzydło. *Valley switch in a graphene superlattice due to pseudo-Andreev reflection.* arXiv:1805.02487.