Bahruz Suleymanli

CONTACT INFORMATION

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RESEARCH INTERESTS

Spintronics, effects of weak localization and electron-electron correlations, exactly solvable one-dimensional disordered models, theory of superconductivity.

EMPLOYMENT HISTORY

Assistant Professor, Yildiz Technical University, Physics Department, Istanbul, Turkey — 2022 to Present

Assistant Professor, National Research Nuclear University MEPhI, Division of Nuclear Physics and Technologies, Office of Academic Programs, Moscow, Russia — 2019 to 2021

Researcher, Joint Institute for Nuclear Research, Bogolyubov Laboratory of Theoretical Physics, Dubna, Russia — 2018 to 2019

Researcher, National Nuclear Research Center CJSC, Baku, Azerbaijan — 2016 to 2022

Researcher, Baku branch of Moscow State University named after M.V. Lomonosov, Faculty of Physics, Baku, Azerbaijan — 2016 to 2017

Engineer, Institute of Physics of Azerbaijan National Academy of Sciences, Baku, Azerbaijan — 2015 to 2017

EDUCATION

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russia

PhD, Theoretical Physics

- Thesis Topic: *Investigation of the correlation with the effects of disorder in some low-dimensional topological structures*
- Adviser: Professor Enver Nakhmedov
- Co-Adviser: Professor Petr Yu. Naumov
- Start Date: 03 November 2017
- Graduation Date: 05 October 2021

Institute of Physics of Azerbaijan National Academy of Sciences, Baku, Azerbaijan

M.S., Theoretical and Mathematical Physics

- Thesis Topic: *Effect of magnetic field and Rashba spin-orbit interaction on the Josephson tunneling between p-wave topological superconductors*
- Adviser: Professor Enver Nakhmedov
- Start Date: 15 September 2015
- Graduation Date: 07 June 2017

Baku State University, Baku, Azerbaijan

B.S., Physics

- Thesis Topic: *Conformational capabilities of the Glu-Ile-Asn-Phe fragment of a neuropeptide obtained from various termite*

- Adviser: Candidate of Physical and Mathematical Sciences Rashid Aliyev
- Start Date: 15 September 2011
- Graduation Date: 05 June 2015

Refereed Journal Publications

[1] Bahruz Suleymanli *et al*. The diagrammatic method of Berezinskii for one-dimensional disordered wire with spin-orbit interaction. *Physica E: Low-dimensional Systems and Nanostructures*. 2023. **146**, 115550. https://doi.org/10.1016/j.physe.2022.115550

[2] Bahruz Suleymanli *et al*. Motion of two-dimensional quantum particle under a linear potential in the presence of Rashba and Dresselhaus spin–orbit interactions. *Solid State Communications*. 2022. **342**, 114582. https://doi.org/10.1016/j.ssc.2021.114582

[3] Bahruz D Suleymanli *et al*. Topological properties of Josephson current between two s- and p-wave superconducting nanowires with Majorana fermions. *Journal of Physics: Conference Series*. 2020. **1690**, 012078. https://doi.org/10.1088/1742-6596/1690/1/012078

[4] B D Suleymanli *et al*. Josephson current between two p-wave superconducting nanowires in the presence of Rashba spin-orbit interaction and Zeeman magnetic fields. *Physica C: Superconductivity and its applications*. 2020. **579**, 1353753. https://doi.org/10.1016/j.physc.2020.1353753

Conference Papers

[1] B Suleymanli, E Nakhmedov, O Alekperov, F Tatardar. Vacancy segregation mechanism for magnetization and self-repearing of a graphene monolayer. 6th International Conference on Advances in Functional Materials. Development of Functional Materials for a Better World. Jeju, South Korea, 15–17 February 2021. https://functionalmaterials.org/afm-2020/wp-content/uploads/2020/12/List-of-Accepted-Abstracts.xls

[2] B D Suleymanli, P Yu Naumov. Superconducting tunnel junctions as nuclear particle detectors. LXX INTERNATIONAL CONFERENCE «NUCLEUS-2020» NUCLEAR PHYSICS AND ELEMENTARY PARTICLE PHYSICS. NUCLEAR PHYSICS TECHNOLOGIES. Saint Petersburg, Russia, 12–17 October 2020. https://indico.cern.ch/event/839985/attachments/2116081/3590424/book_of_abstracts_Nucleus-2.pdf

[3] Bahruz D Suleymanli, Enver Nakhmedov, Petr Yu Naumov. Topological properties of Josephson current between two s- and p-wave superconducting nanowires with Majorana fermions. The 5th international conference on particle physics and astrophysics. Dedicated to the 90th anniversary of Boris Dolgoshein. Moscow, Russia, 5–9 October 2020. https://indico.particle.mephi.ru/event/35/overview

[4] B D Suleymanli, P Yu Naumov. Superconducting tunnel junctions as detectors in nuclear and particle physics. LXIX INTERNATIONAL CONFERENCE "NUCLEUS-2019" ON NUCLEAR SPECTROSCOPY AND LEAR STRUCTURE "Fundamental Problems of Nuclear Physics, Nuclei at Borders of Nucleon Stability, High Technologies". Dedicated to the International Year of the Periodic Table of Chemical Elements. Dubna, Russia, 1–5 July 2019. https://indico.jinr.ru/event/706/attachments/4509/5761/Book_of_abstracts.pdf

[5] Bahruz Suleymanli. Influence of the magnetic field and the Rashba spin-orbit interaction on the Josephson current. I INTERNATIONAL SCIENTIFIC CONFERENCE OF YOUNG RESEARCHERS. Baku, Azerbaijan, 05–06 May 2017. http://yric.az/2018/books/2017/1.pdf

WORKSHOPS & SUMMER SCHOOLS

[1] Modern Digital Educational Environment of Educational Organizations, December 8–February 18, 2020–2021, Moscow, Russia

[2] New Advances in Quantum Information Science and Quantum Technology, September 10–18, 2019, Samarkand, Uzbekistan

[3] XIV Asia-Pacific Conference & Workshop on Quantum Information Science, December 04–09, 2016, Baku, Azerbaijan

HARDWARE AND SOFTWARE SKILLS

Numerical Analysis:
- Wolfram Mathematica, MATLAB, Maple, R

Computer Programming:
- Python, C, C++, Fortran, and others

Desktop Editing and Productivity Software:
- Vim, Emacs, Eclipse
- TEX (LATEX, BIBTEX, PSTricks),
- Microsoft Office, OpenOffice.org, LibreOffice, Corel WordPerfect, Google Docs
- GIMP, InkScape

Operating Systems:
- Apple macOS, Microsoft Windows family, Linux, BSD, Solaris, and other UNIX variants