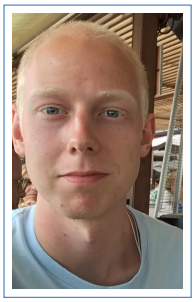

Isac Sahlberg

Curriculum Vitae

https://github.com/isacsahlberg
Google Scholar profile

Education

2017–18 **Master of Science**, University of Helsinki
Major in theoretical physics; **weighted GPA 4.8/5**, minor in mathematics. Master's thesis: *Topological superconductivity in regular and random lattices*, supervisors Prof. Kai Nordlund and Dr. Teemu Ojanen. Spent one academic year (2017–18) as an exchange student at the university LMU in Munich, Germany.

2013–17 **Bachelor of Science**, University of Helsinki
Major in theoretical physics; **weighted GPA 4.5/5**, minors in physics and mathematics. I worked as a teaching assistant for 2 years in mathematical methods courses, receiving an evaluation of "excellent" for all 4 courses. Bachelor's thesis: *Nanocluster elongation using ion irradiation*, supervisors Prof. Kai Nordlund and Doc. Flyura Djurabekova.

Academic training

2024 **Postdoctoral researcher**, Aalto University
In this short postdoc project, I work on machine learning models for materials discovery, in particular a search for high-temperature superconductors for fusion applications that attempts to optimize properties such as a high critical temperature and manufacturability.

2019– **Doctoral researcher**, Tampere University
I work at the Computational Physics Laboratory under Prof. Teemu Ojanen, writing my PhD thesis, while teaching quantum mechanics and conducting research. My research focus has been topological quantum phases of matter, in particular in random or non-crystalline lattices. My work involves some analytical calculations, and a lot of numerical implementation and analysis of those results, in particular using remote clusters.

2017 **Research Assistant**, Aalto University, Helsinki
I continued research from the previous summer (see 2016 entry), and worked on my Master's thesis.

2016 **Research Assistant**, Aalto University, Helsinki
I worked at the Department of Applied Physics for the summer researching topological superconductivity. My work included analytical calculations, numerical implementations, and preparing my first academic research article.

2015 **Intern**, *Department of Physics*, University of Helsinki
I worked at the Division of Materials Physics, using molecular dynamics simulations to study irradiation of nanoclusters, and writing my Bachelor's thesis.

Skills

proficient LaTeX, python (4 years+), MATLAB (3 years+)

basics julia, FORTRAN, Rust

misc statistical analysis, pattern recognition and machine learning, high-performance computing, strong analytical skills

Language skills

Finnish	Native
Swedish	Native
English	Excellent (CEFR C2)
German	Fluent (CEFR C1)
Mandarin	Upper Intermediate

Publication history

Only the most important ones listed, see my Google Scholar profile for more

- **I. Sahlberg**, Moein N. Ivaki, K. Pöyhönen, T. Ojanen, *Quantum Hall effect and Landau levels without spatial long-range correlations*, Phys. Rev. Research **5**, 033218 (2023).
- Rostislav Duda, Moein N. Ivaki, **I. Sahlberg**, K. Pöyhönen, T. Ojanen, *Quantum walks on random lattices: Diffusion, localization, and the absence of parametric quantum speedup*, Physical Review Research **5**, 023150 (2023), arXiv:2210.05310.
- Moein N. Ivaki, **I. Sahlberg**, K. Pöyhönen, T. Ojanen, *Topological random fractals*, Communications Physics **5**, 327 (2022), arXiv:2112.08824.
- Moein N. Ivaki, **I. Sahlberg**, T. Ojanen, *Criticality in amorphous topological matter: Beyond the universal scaling paradigm*, Phys. Rev. Research **2**, 043301 (2020), arXiv:2006.05886.
- **I. Sahlberg**, A. Weststrom, K. Pöyhönen, T. Ojanen, *Topological phase transitions in glassy quantum matter*, Phys. Rev. Research **2**, 013053 (2020), arXiv:1902.01623.
- K. Pöyhönen, **I. Sahlberg**, A. Weststrom, T. Ojanen, *Amorphous topological superconductivity in a Shiba glass*, Nat. Commun **9**, 2103 (2018), arXiv:1712.07486.
- **I. Sahlberg**, A. Weststrom, K. Pöyhönen, T. Ojanen, *Engineering one-dimensional topological phases on p-wave superconductors*, Phys. Rev. B **95**, 184512 (2017), arXiv:1612.05714.