Curriculum Vitae

Anastasiia SKURATIVSKA

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arXiv and Scholar

Research Experience

Postdoctoral Researcher, Leiden University, The Netherlands — 01/09/2024 – present

Postdoctoral Researcher, Donostia International Physics Center, Spain — 11/07/2022 – 11/07/2024

Education

Ph.D. in Condensed Matter Physics — 01/09/2018 – 01/06/2022
University of Zürich, Switzerland
Advisors: Mark H Fischer and Titus Neupert
Thesis: *Symmetry and Topology in Superconductors and Synthetic Systems*

MSc. in Physics — 01/09/2016 – 01/07/2018
University Paris Saclay, Orsay, France
Advisor: Dr. Pascal Simon

BSc. in Physics — 01/09/2012 – 01/07/2016
Kyiv National University, Ukraine

Research Interests

- quantum simulations and quantum dynamics
- topological phases of matter
- flat band and moiré physics
- unconventional superconductivity

Teaching

Two lectures on “Symmetry protected topological phases in 1D” — September 2024

Teaching assistant:

Thermodynamics, UZH	Fall 2021
Computational Quantum Physics, UZH & ETH Zürich	Spring 2021
Linear Algebra, UZH	Fall 2020
Theory of Solid State Physics, UZH & ETH Zürich	Spring 2020
Thermodynamics, UZH	Fall 2019
Theory of Solid State Physics, ETH Zürich	Spring 2019

Skills

Programming	Python, Mathematica, Julia, Bash
Methods & Tools	Density functional theory (DFT); matrix product state methods (DMRG, TEBD) using TeNPy and ITensors. Experience with high-performance computing (HPC) environments and the Slurm Workload Manager.
Languages	Ukrainian (native), English (fluent) German, French, Italian (basic)

Grants and Awards

The Ada Lovelace Postdoctoral Fellowship from NWO 2024 – 2026
The Forschungskredit grant from the University of Zürich 2019 – 2020
University Paris-Saclay International Master's Scholarship 2016 – 2018

Conference Organization

Conference *Quantum Computing Theory in Practice (QCTIP)*, Leiden (2027)
Summer school for young researchers *QSC Junior Days* , Noordwijk (2027)
Workshop *Opportunities from local noise spectroscopy*, Lorentz Center, Leiden (2023)

Presentations at Schools and Conferences

Qsim2026, Amsterdam, the Netherlands (August 2026)
"Enhancing Adiabatic Quantum Optimization of the Maximum Independent Set Problem via Symphonic Tunneling" (Poster)

Advanced School and Conference on Quantum Matter, ICTP Trieste, Italy (December 2025)
"Machine learning symmetry protected topological phases from randomized measurements"(Poster)

Quantum Information and Quantum Matter Conference, Madrid, Spain (May 2023)
"Robust spin polarization of YSR states in FMI/SC heterostructure" (Talk)

Seminar at the University of Zürich, Switzerland (May 2023)
"Yu-Shiba-Rusinov states of quantum impurities in spin-split superconductors" (Talk)

DPG Meeting, Dresden, Germany (March 2023)
"Yu-Shiba-Rusinov states of quantum impurities in spin-split superconductors" (Talk)

Seminar at the University of Leiden, the Netherlands (Nov 2021)
"Flat bands through adatom-superlattice engineering on graphene" (Talk)

Swiss and Austrian Physics Society Meeting, Innsbruck, Austria (Sept 2021)
"Topologically fragile flat bands through adatom-superlattice engineering on graphene" (Poster)

Korrelationstage, online (April 2021)
"Fragile topological flat bands through adatom-superlattice engineering on graphene" (Poster)

APS March Meeting, online (March 2021)
"Fragile topological flat bands through adatom-superlattice engineering on graphene" (Talk)

University of Zürich, Switzerland (Oct 2019)
"Atomic limit and inversion-symmetry indicators for topological superconductors" (Seminar)

The Capri Spring School on Transport in Nanostructures, Capri, Italy (May 2019)

8th MaNEP Winter School on Symmetry and Topology, Saas-Fee, Switzerland (Jan 2019)

List of Publications

[1] K. S. Rai, **AS**, P. Emonts, J. Tura, and R. Samajdar. "Enhancing Adiabatic Quantum Optimization of the Maximum Independent Set Problem via Symphonic Tunneling". *(in preparation)*

[2] C. H. Huang, **AS**, F. S. Bergeret, and M. A. Cazalilla. "Probing magnetic and triplet correlations in spin-split superconductors with magnetic impurities". *Phys. Rev. Res.* **6**, 033022 (2024).

[3] **AS**, J. Ortuzar, D. Bercioux, F. S. Bergeret, and M. A. Cazalilla. "Robust spin polarization of Yu-Shiba-Rusinov states in superconductor/ferromagnetic insulator heterostructures". *Phys. Rev. B* **107**, 224507 (2023).

[4] **AS**, M. Sigrist, and M. H. Fischer. "Spin response and topology of a staggered-Rashba superconductor". *Phys. Rev. Research* **3**, 033133 (2021).

[5] **AS**, S. S. Tsirkin, T. Neupert, and M. H. Fischer. "Flat bands with fragile topology through superlattice engineering on single-layer graphene". *Phys. Rev. Research* **3**, L032003 (2021).

[6] M. Denner, **AS**, F. Schindler, M. H. Fischer, R. Thomale, T. Bzdušek, and T. Neupert. “Exceptional topological insulators”. *Nat. Commun.* **12**, 5681 (2021).

[7] **AS**, T. Neupert, and M. H. Fischer. “Atomic limit and inversion-symmetry indicators for topological superconductors”. *Phys. Rev. Research* **2**, 013064 (2020).

References

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