

Barbara Roos

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Academic Experience and Education

11/2023 –	PostDoc, University of Tübingen
09/2019 – 10/2023	PhD Student ISTA, Austria <i>Advisor:</i> Prof. Dr. Robert Seiringer
09/2017 – 04/2019	MSc Mathematics, ETH Zürich, Switzerland
09/2014 – 09/2017	BSc Mathematics, ETH Zürich, Switzerland

Awards and Fellowships

2015 – 2023	Member of the Swiss Study Foundation
2015	EIROForum - XFEL special donated prize at the European Union Contest for Young Scientists 2015 in Milan, Italy
2014	Bronze medal at the International Physics Olympiad 2014 in Astana, Kazakhstan
2014	Member of the Swiss team at the European Girls' Mathematical Olympiad 2014 in Antalya, Turkey

Publications and Preprints

- [1] **Two-Particle Bound States at Interfaces and Corners**
Barbara Roos, Robert Seiringer
[Journal of Functional Analysis 282, 109455](#) (2022), [arXiv:2105.04874](#)
- [2] **Boundary Superconductivity in the BCS Model**
Christian Hainzl, Barbara Roos, Robert Seiringer
[Journal of Spectral Theory 12 \(2022\), no.4, pp.1507-1540](#), [arXiv:2201.08090](#)
- [3] **Optimal steering of matrix product states and quantum many-body scars**
Marko Ljubotina, Barbara Roos, Dmitry A. Abanin, Maksym Serbyn
[PRX Quantum 3, 030343](#) (2022), [arXiv:2204.02899](#)
- [4] **Universality in low-dimensional BCS theory**
Joscha Henheik, Asbjørn Bækgaard Lauritsen, Barbara Roos
[Reviews in Mathematical Physics, 2360005](#) (2023), [arXiv:2301.05621](#)
- [5] **BCS Critical Temperature on Half-Spaces**
Barbara Roos, Robert Seiringer
Preprint, [arXiv:2306.05824](#)
- [6] **Enhanced BCS Superconductivity at a Corner**
Barbara Roos, Robert Seiringer
Preprint, [arXiv:2308.07115](#)

Talks

02/2024	QMATH Quantum Lunch, Copenhagen
12/2023	Quantum and Dynamical Christmas 2023, Milan (Invited speaker)
09/2023	Oberwolfach workshop “Many-Body Quantum Systems”
08/2023	Summer school on “Current Topics in Mathematical Physics”, Warsaw (contributed talk)
01/2023	Oberseminar Mathematische Physik, University Tübingen
11/2022	GAuS Seminar
08/2022	Quantissima in the Serenissima IV, Venice (contributed talk)
06/2022	MCQM22, Como (contributed talk)
03/2022	INdAM Quantum Meetings IQM22 Workshop I, Politecnico di Milano (contributed talk)
02/2022	Second Austrian Day of Women in Mathematics, online (contributed talk)
05/2021	MathPhys Analysis Seminar, ISTA

Teaching

Fall 2023	Repetitorium Analysis II/Mathematics for Physicists III, Tübingen
Fall 2021	Teaching assistant Selected Topics in Analysis and Applications, ISTA
Fall 2016	Teaching assistant Complex Analysis, ETH Zürich

Extracurricular activities

2023 –	Founding member of the Association of Women in Mathematical Physics (AWMP). The AWMP supports women in the field of mathematical physics, establishing a network and meeting space for them, and aims at promoting diversity and equal opportunities for all individuals in mathematical physics.
2015 –	Co-organizer Swiss Physics Olympiad: creating and marking exams, giving preparatory courses, website administration Leader at the International Physics Olympiad 2017 and at the European Physics Olympiad 2018 and 2019
2021 –	Member of the Academic Committee at the European Physics Olympiad

Languages

Fluent: German, Polish, English

Intermediate: French