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Eric Nilsson

Curriculum vitæ

Born: April 1, 1997, Arvika, Sweden
Citizenship: Sweden

Updated: February 28, 2025

Education

2021-2026 **Ph. D. Physics (Ongoing)**, *Chalmers University of Technology*, Gothenburg, Sweden
Funded by the Area of Advance Nano (former *Excellence Initiative Nano*).
Topic(s): Holographic models for strongly correlated electron systems and unconventional transport in 2D materials.
Supervisor: Prof. Ulf Gran.
Licentiate thesis: *Electron Transport and Collective Modes in Fermi and non-Fermi Liquids*. Defended April 2024. *Link to thesis.*
Visiting Ph.D. student with Prof. Koenraad Schalm at Leiden University, Sep-Dec 2024.

2019-2021 **M. Sc. Physics**, *Chalmers University of Technology*, Gothenburg, Sweden
Average grade: 5.0/5.0. Thesis: *Surface plasmon polaritons in strongly correlated media*.
Supervisor: Prof. Ulf Gran. *Link to thesis.*

2016-2019 **B. Sc. Engineering Physics**, *Chalmers University of Technology*, Gothenburg, Sweden
Average grade: 4.87/5.0. Thesis: *Simulating Many-Particle Systems on an Emulated Quantum Computer*.
Supervisors: Profs. Christian Forssén and Andreas Ekström. *Link to thesis (in Swedish).*

Awards

2021 **Excellence Initiative Nano Excellence Ph.D. student**
Allows for freely chosen research within in the field of Nanoscience at Chalmers. Chosen as one of three out of more than 300 applicants.

2018, 2021 **Guldkärnan award for best T.A.**
Received the prize for best Teaching Assistant twice by the students at the Engineering Physics and Engineering Mathematics programs at Chalmers.

Teaching experience

2024 **Supervision**, *Department of Physics*, Chalmers
Main supervisor of M.Sc. student Eli Ismailov. Thesis: *Fermi Surfaces of Holographic Metals*. *Link to thesis.*

2024 **Supervision**, *Department of Physics*, Chalmers
Main supervisor for a group of six B.Sc. students doing a thesis on holographic methods in condensed matter physics; *Link to thesis (in Swedish).*

2022- **Lecturing**, *Department of Physics*, Chalmers
I give half of the lectures in the String Theory course offered by the M. Sc. Physics program.

2021- **Teaching Assistant**, *Department of Physics*, Chalmers
I teach two mechanics courses at the Engineering Physics program.

2017, 2019-2020 **Teaching Assistant**, *Department of Mathematical Sciences*, Chalmers
Part-time and Amanuensis teaching assistant positions for courses in Analysis (1D and multi-variable), Linear Algebra and Statistics taught at the Engineering Physics and Engineering Mathematics programs.

Schools attended

2023 **Quantum Connections**, *NORDITA*, Stockholm, Sweden
Broad topic summer school with several Nobel laureates.

Conferences attended

2023 **Quantum Matter with and without Quasiparticles**, *KITP, UCSB*, Santa Barbara, California

2022 **Recent Developments in Strongly-Correlated Quantum Matter**, *NORDITA*, Stockholm, Sweden

Grants recieved

2022 **General announcment for physics**, *The Royal Swedish Academy of Sciences*
Stiftelsen Olof Ahlöfs fond, $23\,100$ SEK. Funded travel to KITP.

2024 **General announcment for physics**, *The Royal Swedish Academy of Sciences*
Stiftelsen Hierta Retzius fond för vetenskaplig forskning, $24\,400$ SEK, for travel to the Simons Center for Geometry and Physics.

Talks given

2024-09-25 **"Nonequilibrium relaxation and odd-even effect in 2D Fermi liquids/Holographic surface plasmon polaritons"**, *Leiden University*, Quantum matter group seminar

2022-11-30 **"Holographic Models for Plasmons in Strange Metals"**, *Chalmers*, Quantum Materials seminar

2022-06-10 **"Electromagnetic response in strongly correlated media"**, *Chalmers*, Theoretical Subatomic physics seminar

Other

2021- **Board member, Cashier**, *Chalmers Rock Club*
Board member and from 2023 cashier in Chalmers Rock Club, which provides a rehearsal space for students.

2018-2019 **Information manager**, *Student council board*, Gothenburg
As a part of the Physics division student council board I partook in meetings and handled all information heading out to the division members.

Languages

Swedish	Native	
English	Advanced	*Fluent, 8.5/9.0 IELTS*
Spanish	Intermediate	*Intermediate reading comprehension, simple communication*

Publications

Ulf Gran, Eric Nilsson, and Johannes Hofmann. Shear viscosity in interacting two-dimensional Fermi liquids, December 2023.

E Nilsson. Electron Transport and Collective Modes in Fermi and non-Fermi Liquids, 2024.

Eric Nilsson. Surface Plasmon Polaritons in Strongly Correlated Media. Master's thesis, Chalmers University of Technology, Gothenburg, Sweden, 2021.

Eric Nilsson and Ulf Gran. Holographic surface plasmon polaritons. In preparation.

Eric Nilsson, Ulf Gran, and Johannes Hofmann. Nonequilibrium relaxation and odd-even effect in finite-temperature electron gases, May 2024.