

Eric Nilsson | Curriculum vitæ

Department of Physics – Chalmers University of Technology – Gothenburg, Sweden

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Date of birth: April 1 1997

Updated: January 26, 2026

Citizenship: Swedish

Education

Ph.D. Physics (Ongoing)

Gothenburg, Sweden

Funded by the Area of Advance Nano (formerly Excellence Initiative Nano).

Research focus: Holographic models for strongly correlated electron systems and unconventional transport in 2D materials.

Supervisor: Prof. Ulf Gran. Planned defense date: June 11, 2026

Licentiate thesis: *Electron Transport and Collective Modes in Fermi and non-Fermi Liquids* ([link](#)). Defended April 2024.

Visiting Ph.D. student with Prof. Koenraad Schalm at Leiden University, Sep-Dec 2024.

Chalmers University of Technology

2021-2026

M. Sc. Physics

Gothenburg, Sweden

Average grade: 5.0/5.0.

Thesis: *Surface Plasmon Polaritons in Strongly Correlated Media* ([link](#)). Supervisor: Prof. Ulf Gran.

Chalmers University of Technology

2019-2021

B.Sc. Engineering Physics

Gothenburg, Sweden

Average grade: 4.87/5.0.

Thesis: *Simulating Many-Particle Systems on an Emulated Quantum Computer* ([link](#); [in Swedish](#)).

Supervisors: Profs. Christian Forssén and Andreas Ekström.

Chalmers University of Technology

2016-2019

Awards

CBA Poster Prize

2025

Prize for best poster at the yearly Community Building Nano at Chalmers University of Technology. Received 10 000 SEK in travel funds.

Excellence Initiative Nano Ph.D. Fellowship

2021

Allows for freely chosen research within in the field of Nanoscience at Chalmers. Chosen as one of three out of more than 300 applicants.

Guldärnan award for best T.A.

2018, 2021

Received the prize for best Teaching Assistant (twice) by the students at the Engineering Physics and Engineering Mathematics programs at Chalmers.

Publications

Journal Articles

E. Nilsson, U. Gran, and J. Hofmann (Oct. 2025). "Nonequilibrium Relaxation and Odd-Even Effect in Finite-Temperature Electron Gases". [Physical Review X 15.4](#), p. 041007. [arXiv:2405.03635](#).

Preprints

E. Nilsson and K. Schalm (Dec. 2025). "Quantum Critical Theories in a Periodic Potential: Strange Metallic Thermoelectric and Magnetotransport". [arXiv:2512.19480](#).

U. Gran, E. Nilsson, and J. Hofmann (Dec. 2023). "Shear Viscosity in Interacting Two-Dimensional Fermi Liquids". [arXiv:2312.09977](#).

Theses

E. Nilsson (2024). "[Electron Transport and Collective Modes in Fermi and Non-Fermi Liquids](#)". Licentiate thesis. Chalmers University of Technology.

E. Nilsson (2021). "[Surface Plasmon Polaritons in Strongly Correlated Media](#)". M.Sc. thesis. Chalmers University of Technology.

Teaching experience

Lecturing

String Theory FFM485

Department of Physics

Co-responsible for lecturing, course administration and oral examination.

Chalmers University of Technology

2022-2025

Supervision

Main supervisor, M.Sc. thesis

Department of Physics

Eli Ismailov, *Fermi Surfaces of Holographic Metals* ([link](#)).

Chalmers University of Technology

2024

Main supervisor, B.Sc. thesis group

Department of Physics

Group of six B.Sc. students; thesis on holographic methods in condensed matter physics.

Konduktiviteten hos ett starkt kopplat 2D-material ([link](#); *in Swedish*).

Chalmers University of Technology

2024

Teaching assistantships

Teaching Assistant

Department of Physics

Mechanics I (FFM516) and II (TIF375): exercise classes and grading.

Chalmers University of Technology

2021-2026

Teaching Assistant/Amanuensis

Department of Mathematical Sciences

Analysis (single- and multivariable), Linear Algebra, Statistics; Engineering Physics/Mathematics programs.

Chalmers University of Technology

2017, 2019-2020

Conferences & Schools

SCGP, Stony Brook University

Black holes and strongly coupled thermal dynamics

Stony Brook, New York, USA

2025

KITP, UCSB

Quantum Matter with and without Quasiparticles

Santa Barbara, California, USA

2023

NORDITA

Quantum Connections Summer School

Stockholm, Sweden

2023

NORDITA

Recent Developments in Strongly-Correlated Quantum Matter

Stockholm, Sweden

2022

Grants received

The Royal Swedish Academy of Sciences

General announcement for physics ("Stiftelsen Hierta Retzius fond för vetenskaplig forskning")

2024

24 400 SEK (~2400 €). Funded travel to the Simons Center for Geometry and Physics.

The Royal Swedish Academy of Sciences

General announcement for physics ("Stiftelsen Olof Ahlöfs fond")

2022

23 100 SEK (~2300 €). Funded travel to KITP.

Talks given

Quantum matter group seminar

"Quantum critical theories in periodic potentials: Toward Holographic EMT"

Leiden University

2025-12-08

Nano SmallTalk

"Holographic Effective Medium Theory", Invited talk

Chalmers University of Technology

2025-12-01

SHP seminar

"Quantum critical theories in periodic potentials: Toward Holographic EMT"

Chalmers University of Technology

2025-11-07

Popular science presentation to high school students

"Från rostig koppar till svarta hål"

Solbergagymnasiet

2025-10-07

Quantum matter group seminar

"Nonequilibrium relaxation and odd-even effect in 2D Fermi liquids"

Leiden University

2024-09-25

Quantum Materials seminar

"Holographic Models for Plasmons in Strange Metals"

SHP seminar

"Electromagnetic response in strongly correlated media"

Chalmers University of Technology

2022-11-30

Chalmers University of Technology

2022-06-10

Languages

Swedish: Native

English: Advanced

Fluent, 8.5/9.0 IELTS

Spanish: Intermediate

Intermediate reading comprehension, basic communication

Computer skills

Numerical methods: Discretization of PDEs (finite difference and spectral methods); large-scale linear and nonlinear eigenvalue problems; Krylov subspace methods and preconditioning.

Scientific computing: C, Python, PETSc, SLEPc, MPI, HDF5.

Tools: Linux, Git, Bash, L^AT_EX, Mathematica.