

# Elisabetta Perotti

## Curriculum Vitae

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### Education

- 2020 **PhD in Physics**, *Uppsala University*, Sweden  
Dissertation title: Electromagnetic and Spin Properties of Hyperons.
- 2014 **Master in Physics**, *Uppsala University*, Sweden
- 2012 **Bachelor in Physics**, *University of Turin*, Italy  
Score: 110/110 *cum laude*.

### Research Interests

Real-time optimization and control, data-driven autonomous energy systems, renewable integration, electromagnetics, vehicle-grid integration, sustainable urban mobility, electrified transportation.

### Research Experience

- 2022–Present **Schmidt Science Postdoctoral Fellow**, *ECEE Department, University of Colorado Boulder*, USA  
Research in the development of control and optimization algorithms and their performance.  
Programming languages: C++, Python, Matlab and Mathematica.
- 2020–2021 **Research Assistant**, *Uppsala University*, Sweden  
Worked on an extension of my doctoral thesis project. Mentored a PhD student.
- 2016–2020 **PhD in Physics**, *Uppsala University*, Sweden  
Developed novel mathematical framework to investigate electromagnetic and spin properties of subatomic particles.
- 2014–2016 **Research Assistant**, *Uppsala University*, Sweden  
Worked on an extension of my master thesis project. Published first paper. Taught math and physics classes.
- 2012–2014 **Master in Physics**, *Uppsala University*, Sweden

### Publications – ORCID iD 0009-0006-4413-0212

- 2024 **Incremental Volt/Var Control for Distribution Networks via Chance-Constrained Optimization**  
A. Colot, E. Perotti, M. Glavic, E. Dall'Anese. Submitted in May.

- 2024 **Electromagnetic form factors of the transition from the Delta to the nucleon**  
M. M. Aung, S. Leupold, E. Perotti, Y. Yan. Submitted in February.
- 2023 **Renewable-Based Charging in Green Ride-Sharing**  
E. Perotti, A. M. Ospina, G. Bianchin, A. Simonetto, E. Dall'Anese. Sci Rep 13, 15425.
- 2020 **Electromagnetic and Spin Properties of Hyperons**  
E. Perotti. Doctoral thesis. Acta Universitatis Upsaliensis.
- 2020 **Constraining CP violation in the main decay of the neutral Sigma hyperon**  
E. Perotti. J.Phys.Conf.Ser. 1667, 012033.
- 2020 **Electromagnetic form factors of the transition from the spin-3/2 Sigma to the Lambda hyperon**  
O. Junker, S. Leupold, E. Perotti, T. Vitos. Phys.Rev. C101, 015206.
- 2019 **Polarization observables in positron-electron annihilation to a baryon-antibaryon pair**  
E. Perotti, G. Fäldt, A. Kupsc, S. Leupold, J. J. Song. Phys.Rev. D99, 056008.
- 2019 **Constraining P and CP violation in the main decay of the neutral Sigma hyperon**  
S. S. Nair, E. Perotti, S. Leupold. Phys.Lett. B788, 535.
- 2018 **Extraction of Polarization Parameters in the  $\bar{p}p \rightarrow \bar{\Omega}\Omega$  Reaction**  
E. Perotti. J.Phys.Conf.Ser. 1024, 012019.
- 2017 **The electromagnetic Sigma-to-Lambda hyperon transition form factors at low energies**  
C. Granados, S. Leupold, E. Perotti. Eur.Phys.J. A53, 117.
- 2016 **Lifetime of the  $\eta'$  meson at low temperature**  
E. Perotti, C. Niblaeus, S. Leupold. Nucl.Phys. A950, 29.

## Grants and Fellowships

- 2021 Schmidt Science Fellowship in partnership with the Rhodes Trust (2 yr, \$ 200k)
- 2020 Liljewalch travel scholarship, Uppsala University
- 2019 Liljewalch travel scholarship, Uppsala University
- 2018 Anna Maria Lundins travel grant, Smålands nation
- 2017 Anna Maria Lundins travel grant, Smålands nation
- 2017 Student Fellowship, 55th International Winter Meeting on Nuclear Physics in Bormio, Italy
- 2016 Anna Maria Lundins travel grant, Smålands nation

During the PhD, most of my research trips were funded by the grants above, for a total of \$ 10k.

## Conference Activity

- 2022 Invited speaker - Photonics Open House, KTH-Stockholm, Sweden
- 2022 Invited speaker - International School on Plasmonics and Nano-Optics, Polytechnic University of Turin, Italy
- 2022 Invited speaker - Best theory PhD thesis related to the PANDA experimental program, at GSI in *Darmstadt*, Germany
- 2019 Oral presentation - Doctoral Training Programme on Effective Field Theory Techniques, ECT\* in *Trento*, Italy
- 2019 Oral presentation - FAIR next generation scientists, in *Arenzano*, Italy
- 2018 Invited speaker - EMMI workshop on Electromagnetic Structure of Strange Baryons in *Darmstadt*, Germany
- 2017 Oral presentation - Swedish Nuclear Physics Meeting in *Stockholm*, Sweden
- 2017 Oral presentation - FAIR next generation scientists in *Sitges*, Spain
- 2017 Oral presentation - International Summer Workshop on Reaction Theory in *Bloomington*, Indiana, USA
- 2017 Oral presentation - 55th International Winter Meeting on Nuclear Physics in *Bormio*, Italy
- 2016 Invited speaker - PANDA Collaboration Meeting in *Bochum*, Germany

## Professional experience

- 2021–2022 **Software Engineer**, *COMSOL, Inc.*, Sweden  
Multiphysics simulation and optimization. Java developer in the Electromagnetics group.

## Teaching Experience

- 2024 Substitute lecturer in the Linear Systems course
- 2018–2020 Lecturer and co-designer of the workshop *Symmetry Breaking and Particle Masses* (as part of the Quantum Field Theory course)
- 2018 Teaching assistant in the Mechanics II Lab
- 2018 Teaching assistant in the Advanced Quantum Mechanics Lab
- 2017 Teaching assistant in the Energy Technology course
- 2015–2016 Lecturer at the workshop on Higgs Boson Decays
- 2015 Teaching assistant in the Quantum Physics Lab
- 2014–2018 Teaching assistant in the Nuclear Physics Lab

## Service and Mentorship

- 2023-Present Postdoc representative in the ECEE department committee
- 2023-Present Referee for IEEE Transactions on Vehicular Technology

- 2023 Reviewer for Schmidt Science Polymaths
- 2023 Peer-Mentor Volunteer for 2022 Schmidt Science Fellows Cohort
- 2019-2020 Mentor of a PhD student, M.M. Aung
- 2018-2020 Referee for Physical Review journals
- 2018-2019 PhD representative in the Nuclear Physics division
- 2017-2019 Co-supervisor of 4 master students, S.S. Nair, M. Holmberg, O. Junker and T. Vitos
- 2017 Student assistant at the *Summer school on diversity in the cultures of physics*, Sheffield, UK

## --- Extra Training

- 2023 Schmidt Science Senior Fellows Conference, hosted by Northwestern University, Chicago, Illinois
- 2023 Interdisciplinary Science Networking Convening hosted by CIFAR and Schmidt Science Fellows, Washington, D.C.
- 2022 Schmidt Science Fellows Global Meeting hosted by Stanford University and the University of California, Berkeley
- 2022 Schmidt Science Fellows Global Meeting hosted by MIT, Cambridge, MA
- 2021 Schmidt Science Fellows Virtual Global Meeting hosted by Cambridge University, UK
- 2018 Academic Teacher Training Course (5 weeks), Uppsala University
- 2017 Research Ethics for Science and Technology, Uppsala University

## --- Community Outreach

- 2024 Outreach at Overland High School, Aurora, CO
- 2016–2020 Science Festival, *SciFest*, Uppsala, Sweden

## --- Media Coverage

- 2023 **CU Boulder postdoc leads research into decarbonization of transportation sector through EV ride-shares**  
J. Rhoten. News from the College of Engineering & Applied Science, CU Boulder.
- 2021 **Elisabetta Perotti utsedd till Schmidt Science Fellow**  
C. Thulin. News from the Department of Physics and Astronomy, Uppsala University.