

# Rebeca Gonzalez Suarez - Teaching and Supervision

## Contents

Formal training in teaching and learning in higher education, 1 • Teaching experience, 1 • Supervision of PhD students, 1 • Supervision at the Bachelor and Master degree levels, 1 • Production of teaching materials and publications, 2.

## Formal training in teaching and learning in higher education

- **Hands-on: renew your online teaching.** 2 December 2020, 24 March 2021, Uppsala University (SE). (6 hours).
- **Supervising Students for Degree Projects.** March - April 2019, Uppsala University (SE). (2 weeks).
- **Student-centered teaching and learning.** 4 December 2018, Uppsala University (SE). (3 hours).
- **Supervising PhD Students.** September - December 2018, Uppsala University (SE). (3 weeks).
- **Academic Teacher Training Course.** September - October 2018, Uppsala University (SE). (5 weeks).
- **Supervising student presentations.** 27-29 August 2018, Uppsala University (SE). (2,5 days).
- **Mathematics didactics in the ESO** (*Didáctica de las matemáticas en la ESO*). Fall semester 2003, Universidad de Oviedo (ES). (6 credits).

## Teaching experience

### University courses

- (2019 -) **Teacher.** Lectures, problem solving sessions, exam, for the course *Modern Physics 5.0 c*, at the Department of Materials Science and Engineering, formerly the Department of Engineering Sciences, Uppsala University. Course code:1TE078. Semester: Spring.
- (2021/2022) **Guest Lecturer** for the course *Application-Oriented Deep Learning in Physics*, 5 credits, at the Department of Physics and Astronomy, Uppsala University. Lecture title 'Machine learning for particle physics at the LHC'. Application code:UU-13116. Semester: Autumn.

### Schools

- (2021) **COST** Advanced School on Physics of Dark Matter and Hidden Sectors: from Theory to Experiment. **Organizer** and Teacher: Non-standard collider signatures: long-lived particles. (18-21 October) Hybrid format - Lund University, Sweden.
- (2019) **HASCO2019 Summer School.** Teacher: Introduction (21- 26 July) University of Goettingen, Germany.
- (2019) PIER Graduate Week, **Scientific colloquium** "When will the LHC come full Circle?" (23-26 Sep) DESY, Hamburg, Germany.

## Supervision of PhD students

PhD student supervision:

- Olga Sunneborn Gudnadottir (2019-) **main supervisor**, hep and data science, partially funded by the Uppsala Centre for Interdisciplinary Mathematics (CIM)
- Jonas Steentoft (2020-) (co-supervisor)
- Thomas Mathisen (2018-2019) (co-supervisor)

I am a member of the **Network for Research Supervisors** in Uppsala University. Uppsala University offers courses in supervision of PhD students for faculty and as a part of these courses there is a study visit to a senior PhD student supervisor to observe a supervision session. I have received the following visits for Supervision Observation:

- Stephan Wagner (October 21, 2020) observed supervision between me and Olga (via Zoom).
- Niklas Wahlström (April 14, 2020) observed supervision between me and Olga (via Zoom).
- Marina Corbella (November 8, 2019) observed supervision between me and Olga.

## Supervision at the Bachelor and Master degree levels

### Master students

- Lovisa Rygaard (2022)
  - Uppsala University. Co-supervised with Suchita Kulkarni and Juliette Alimena.
  - Thesis Title: *Long-Lived Heavy Neutral Leptons at the FCC-ee* [link].
- Rohini Sengupta (2021), Uppsala University. Co-supervised with Suchita Kulkarni. Thesis Title: *Towards Vertexing Studies of Heavy Neutral Leptons with the Future Circular Collider at CERN* [link].
- Olga Sunneborn Gudnadottir (2019), Uppsala University. Thesis Title: *Exploring selections across channels in Dark Matter searches with top quarks at the ATLAS experiment of the LHC* [link].
- Isis Marina Van Parijs (2013), Vrije Universiteit Brussel. Thesis Title: *Measurement of the single top  $tW$  associated production in the dilepton decay channel in proton proton collisions at a center of mass energy of 8 TeV* [link]

### Subject Reader (Ämnesgranskare)

- Claudia Rafaela de Sousa Goncalves (2022) supervised by Carlos Perez de los Heros
- Nils Eriksson (2022) supervised by Serhat Ordek
- Edvin Eriksson (2020) supervised by Richard Brenner

### Project students

- Lovisa Rygaard and Nils Eriksson (15HP + 15HP) (January 2022) - "Simulation of long-lived Heavy Neutral Leptons and Axion-Like Particles at the FCC-ee"
- Mario Alves Cardoso 5HP (February 2021) - "Implementation of Variational Autoencoder on simulated particle collider data" [link]
- Rohini Sengupta 15HP (January 2021) - "Long-Lived Particles at the FCC-ee" [link] - Project in Applied Physics 15 hp (19/01/21)
- Mario Alves Cardoso 3 HP (June 2020) - Machine Learning Introduction'
- Daniela Romero 3HP (May 2020) - Physics Opportunities of a 100 TeV Proton-Proton Collider
- Olga Sunneborn Gudnadottir 3HP (Jan 2019) - Single Top Physics

### Other

I was a **CERN summer student program** supervisor in 2012 (Isis Marina Van Parijs) and co-supervisor in 2013 (Ivan Shvetsov), both projects related to single top physics.

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## Production of teaching materials and publications

I have contributed to the IPPOG website, e.g. (links below)

- How to build a salad bowl accelerator.
- Activities with liquid nitrogen.
- Build your own cloud chamber.