Pontus Holma

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EDUCATION

KTH Royal Institute of Technology **Stockholm, Sweden**
BSc/MSc in Engineering Physics. 309.5 ECTS Credits *2016 - 2021, 2024*[1]
MSc Specialization in Theoretical Physics[2]

- ∗ Overall GPA: 4.90/5.00 (∼Top 5%). Masters GPA: 5.0/5.0
- – Master Thesis: *Hierarchical Initial Condition Generator for Cosmic Structure using Normalizing Flows*
- • Advisor: Associate Professor Jens Jasche
- – Bachelor Thesis: *Group Theoretic Classification of Pentaquarks and Numerical Predictions of Their Masses*
- • Advisor: Professor Tommy Ohlsson

Uppsala University **Uppsala, Sweden**
Computational Science (FEM, PDE, Optimization, HPC, GPU). 42.5 ECTS Credits *2023/10-2025/06*
GPA: 5.0/5.0

University of Texas at Austin **Austin, Texas, USA**
Exchange Semester *2019/01-2019/06*

- – Attended Spring School on Computational Astrophysics, which introduced multiple simulation methods that can be used in astrophysics, such as Machine learning, Monte Carlo, Finite Volume Method, Discontinuous Galerkin methods etc.

Stockholm University **Stockholm, Sweden**
Mathematics. 30 ECTS Credits. GPA: 5.0/5.0 *2016*

Luleå Gymnasieskola **Luleå, Sweden**
High school program in natural sciences with specialization in mathematics *2012 - 2015*

- – Attended university courses in undergraduate mathematics at Luleå University of Technology

PUBLICATIONS

Pontus Holma and Tommy Ohlsson, *Phenomenological predictions for pentaquark masses from fits to baryon masses*, Phys. Lett. B **800**, 135108, (2020) arXiv:1906.08499.

RESEARCH INTERNSHIPS

Summer Internship in Physics, Zhejiang University, China *2018/06 - 2018/07*
Project: *Fabry-Perot Etalon Interference Based on Fourier Optics*
International Summer Program, Osaka University, Japan *2019/07 - 2019/08*
Internship where we performed projects in different physics groups at the Department of Physics at the Graduate School of Science.

SCHOLARSHIPS

The Engineer Ernst Johnson Foundation, KTH Royal Institute of Technology *2019, 2020*
"Awarded to gifted students at second level with preference for persons who prior to admission to KTH studied and resided in Sweden, though outside of the Stockholm area." (3 times)
Henrik Göransson's Sandviken Scholarship, KTH Royal Institute of Technology *2019*
"For very good academic results."

[1] Gap due to taking care of an estate
[2] MSc Degree conducted in English

General student scholarships, KTH Royal Institute of Technology *2019, 2020*
"For good academic results." (2 times)
JASSO Scholarship, Japan Student Services Organization *2019*
Awarded to a limited number of qualified students admitted to the International Summer Program at Osaka University.
Academic Scholarship, Luleå Gymnasieskola *2015*
Award for best examination project in the class of 2015, which consisted of making a high-temperature superconductor for examining the Meissner effect, quantum levitation and flux pinning.

TEACHING

Teaching Assistant, KTH Royal Institute of Technology *2017 - 2021, 2024-2025*

- Voted "Teaching Assistant of the Year" for course year 2018/2019 by students at the Environmental Engineering program for which I received an award from their Student Union.

Teaching Assistant at the Department of Mathematics where I independently led exercise sessions and seminars for up to 70 students. Additionally, this includes marking assignments and final exams. 16 course instances in total.

- SF0003 Introduction to Mathematics - Autumn term 2017, 2020, 2024 (2 groups)
- SF1624 Algebra and Geometry - Autumn term 2017 (2 times), 2018 (2 times), 2019 (1 time), 2020 (2 times) and 2024 (3 times).
- SF1625 Calculus in One Variable - Spring term 2018
- SF1633 Differential Equations - Autumn term 2019
- SF1626 Calculus in Several Variables - Spring term 2020

ADDITIONAL

Relevant Coursework: Simulation and Modelling, Numerical Analysis, General Relativity, Advanced Astrophysics, Machine Learning, High-Performance Programming, Theoretical Particle Physics, Relativistic Quantum Physics.
Programming Languages: C/C++ (Intermediate), Python (Intermediate), MATLAB (Basic).
Programming Skills: Basic high performance programming (vectorization/SIMD, cache optimization, parallelization using Pthreads and OpenMP). Basic GPU programming using CUDA. Machine Learning(Tensorflow). Numpy/SciPy/Matplotlib.
Computer Skills: LaTeX, Git, Bash, Cluster computing
Tests: Physics GRE (920/990), 2019.
Languages: English (Fluent/C2), Swedish (Native/C2).