

Melvin Storbacka

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EDUCATION

KTH Royal Institute of Technology
Degree Programme in Engineering Physics

August 2023 – present

Norra Real High School

Extracurricular coursework: *Physics 3, Linear Algebra for High School Students*

GPA: 22.50/22.50

August 2020 – June 2023

Stockholm University

Mathematics 1 (30 credits) with 50% study rate during last year of high school

Grade: A (*Excellent*)

August 2022 – August 2023

Södra Ängby Skola

Compulsory education

Grade: 340/340

August 2010 – June 2020

RESEARCH EXPERIENCE

Full-time Summer Research Project, Nuclear Astrophysics

June 2024 – August 2024

KTH Royal Institute of Technology

Supervisor: Assoc. Prof. Chong Qi

- Full-time project, funded by Stiftelsen Sigurd och Elsa Goljes Minne and Handelsbanken Gustaf Söderbergs Stiftelse
- Worked on evaluating and constructing nuclear mass models using Bayesian statistics.
- Worked with Bayesian regression, Bayesian model mixing, and Gaussian Processes using [PyMC](#)

Student Researcher, Nuclear Astrophysics

July 2022 – present

KTH Royal Institute of Technology

Supervisor: Assoc. Prof. Chong Qi

- Investigating the importance of nuclear models for r -process predictions
- Experience with [SkyNet](#) and [TALYS](#)

PUBLICATIONS

- [1] **Storbacka, M.**, Qi, C., “Location of the neutron drip line for Sn and its impact on r -process abundances”. In: *Physics Letters B* 855 (2024), p. 138822. ISSN: 0370-2693. DOI: <https://doi.org/10.1016/j.physletb.2024.138822>.

HONOURS & SCHOLARSHIPS

- **Stiftelsen Sigurd och Elsa Goljes Minne:** Funding for summer research 2024
- **Handelsbanken Gustaf Söderbergs Stiftelse:** Funding for summer research 2024
- **Research Academy for Young Scientists:** Best Paper 2022
- **Norra Reals fond för stipedier och premier:** Scholarship for Academic Results 2022
- **Norra Realarnas Förening:** Norra Real’s Mathematics Award 2022

WORK EXPERIENCE

Supplemental Instruction Leader

August 2024 – December 2024

KTH Royal Institute of Technology

Leader for Supplemental Instruction within analysis and linear algebra

Tutor for Middle School Students

October 2020 – June 2024

Helped students aged 11 – 16, mainly mathematics and natural sciences

COMPETITIONS & RESULTS

- *Silver medal* at International Physics Olympiad (IPhO) 2023
- *Bronze medal* at European Physics Olympiad (EuPhO) 2023
- *1st place* in Swedish Physics Olympiad (Wallenbergs Fysikpris) 2023
- *Silver medal* at Nordic-Baltic Physics Olympiad (NBPhO) 2023

ATTENDED WORKSHOPS & SCHOOLS

Research Academy for Young Scientists

June 2022 – July 2022

Sigtuna, Sweden

- A four-week research school where I worked on a project within nuclear astrophysics
- Lectures and workshops on scientific methodology, writing, and programming, etc.

Mathematical Summer in Paris

July 2021

Online

- A one-week mathematical program for students from all over the world
- Lectures and problem solving classes, learning about number theory, mathematical physics, and other mathematics

TALKS

- *The impact of the neutron drip line for Sn on the r-process* October 2023
Annual Swedish Nuclear Physicist's Meeting and SFAIR Meeting 2023
- *Identification of Critical Neutron-Rich Sn Isotopes in Rapid Neutron-Capture Process* October 2022
Annual Swedish Nuclear Physicist's Meeting and SFAIR Meeting 2022

SERVICE & OUTREACH

Board member of Research Academy for Young Scientists (Rays)

February 2023 – present

- Rays is a summer research school for high school students
- I work mainly with acquiring funding from foundations

Organizing group of Swedish Astronomy Olympiad

November 2022 – September 2023

- Helped organise marketing, qualifiers, and finals for the Swedish team for the International Olympiad on Astronomy and Astrophysics.
- Held lectures in astronomy during the finals in 2024