Name: Tor Ragnar Djärv

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Nationality: Swedish

Pers. ID NR: 19911016-4515

Current Employment

ORNL: (2022-Pressent) Employed with UT-Battelle at Oak Ridge National Laboratory.
Position: Postdoc at the National Center for Computational Sciences.
Reference phone number: +1 (865) 547-4415

Education

Ph.D.: (2017-2021) Doctor of Philosophy from Chalmers University of Technology
Swedish degree: Teknologie Doktor
Thesis title: JupiterNCSM: A Pantheon of Nuclear Physics
—an implementation of three-nucleon forces in the no-core shell model—
Thesis URL: https://research.chalmers.se/publication/525827
Supervisors: Prof. Christian Forssén (Chalmers University of Technology) and Assoc. Prof. Andreas Ekström (Chalmers University of Technology)
Examiner: Prof. Gabriele Ferretti (Chalmers University of Technology)
Opponent: Assoc. Prof. Kristina D. Launey (Louisiana State University)
Committee: Dr. Frederic Nowacki (Université de Strasbourg/CNRS), Assoc. Prof. Ann-Cecilie Larsen (University of Oslo), Prof. Henrik Grönbäck (Chalmers University of Technology)

Master: (2014-2016) Master of Science and Engineering Chalmers University of Technology
Thesis title: Three-Body Forces in Configuration Interaction Methods for Nuclear Physics
Supervisors: Christian Forssén, Andreas Ekström
Examiner: Christian Forssén

Bachelor: (2011-2014) Bachelor of Engineering Physics Chalmers University of Technology
Thesis title: LHC, the Higgs particle and physics beyond the Standard Models: Simulation of an additional scalar particle a's decay.
Co-authors: Andreas Olsson, Justin Salér-Ramberg
Supervisor: Gabriele Ferretti, email: ferretti@chalmers.se
Examiner: Christian Forssén

Publications

Paper I *"Normal-ordering approximations and translational (non) invariance"*
T. Djärv, A. Ekström, C. Forssén, and G. R. Jansen
Phys. Rev. C.104.024324 (2021)

Paper II *"Fast & rigorous predictions for $A = 6$ nuclei with Bayesian posterior sampling"*
T. Djärv, A. Ekström, C. Forssén, and H. T. Johansson
Submitted for publication in Phys. Rev. C; arXiv: 2108.13313

Paper III *"Exploring non-implausible nuclear-matter predictions with Δ-full chiral interactions"*
W. Jiang, C. Forssén, T. Djärv, A. Ekström, G. Hagen, and T. Papenbrock
in preparation (2021)

Teaching experience

FUF050 (2017-2020) Subatomic Physics, Chalmers University of Technology
I was a teaching assistant, leading the Beta decay and Fermi theory lab in addition to the Neutron activation of Ag lab.

FYP101GU (2017-2019) Att bli fysiker, Chalmers University of Technology
I taught first-year physics students how to use MATLAB.

TIF083 (2020) Experimental Physics, Chalmers University of Technology
I was a teaching assistant in a basic small signal electronics lab, where the students build simple amplifiers using transistors and operational amplifiers.

Prior work experience

- (Fall 2016) A part-time project employment to develop a Configuration Interaction code for the study of light atomic nuclei at the department of physics at Chalmers University of Technology. **Contact:** Christian Forssén, Andreas Ekström
  Email: christian.forssen@chalmers.se, andreas.ekstrom@chalmers.se
- (Summer-2012) I helped translate an old high school mathematics textbook into LaTeX for a summer course at Malmö University.

  Contact: Per Jönsson, professor at Malmö University

  Email: per.jonsson@mau.se

Skills

Languages:

Swedish I am a native Swedish speaker.

English I am fluent in both professional and causal spoken English, and I have written and defended my PhD thesis in English.

Programming languages:

C/C++ Written HPC research code as PhD-student; see programming projects

Python I have used Python for data analysis and visualization during my PhD

Matlab I have used Matlab in various courses at Chalmers and have been teaching it to first-year physics students as PhD-student.

Java I have taken two Java Courses in High school and one at Chalmers.

Fortran I have taken an HPC course at Chalmers that used it extensively, and I am currently using it as a Postdoc at ORNL.

Rust I'm currently learning Rust by applying it to a hobby project.

Kotlin I have used Kotlin while developing Android apps as a hobby.

Programming Projects:

- *"JupiterNCSM"*
  Description: Implementation of the NCSM, T. Djärv, C. Forssén, A. Ekström, and H. T. Johansson
  License: GPLv2
  https://github.com/thundermoose/JupiterNCSM
- *"Anicre"*
  D. Sääf, C. Forssén, H. T. Johansson, T. Djärv
  License: GPLv2
  https://github.com/thundermoose/Anicre

Other programming skills:

GIT I have extensive experience with version control in GIT.

openMP/MPI I have experience with several parallel programming frameworks such as openMP, MPI.

CUDA I have experience with parallel programming on GPU using the CUDA framework.

Other skills:

LaTeX I have extensive experience with writing in LaTeX. For example, I used it to write my dissertation and my papers.

Beamer I have made many presentations with beamer. For example, my PhD-defense presentation was made with beamer.

Extracurricular activities

- (2015) Participated in the Chalmers team at IPT (International Physicist Tournament) in Warsaw.
- (2011-2013) Worked in F-Spexet, a student comical theater group. The first time I was an assistant director, and the second time I helped design and construct theatrical props and build the stage.
- (2011) Participated in the NCPC Programming Challenge with the team "Ful kod är kul kod"
- (2010) Participated in "Utställningen Unga Forskare" (UUF) with my classmate Markus Enekvist, with our project about a color-changing moth.
- (2010) Participated for Sweden in Intel International Science and Engineering Fair (ISEF) in San Jose California. This was our price from UUF.

Other assignments

- (2010-2011) Assistant treasurer in "Skånes Fältbiologer," a youth environmental and biology interest group.
- (2011) Assisted in the organization of "Utställningen Unga Forskare" in Stockholm.