

Aarathi Parameswaran

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<https://rtparam.github.io/>

Education

University of Bonn

October 2022 – present

Master of Science in Physics

Bonn, Germany

- Relevant Coursework: Advanced Quantum Theory, Particle Physics, Statistical Methods of Data Analysis, Complex Networks and Energy Grids, Quantum Computing, Quantum Technology, Quantum Optics, Advanced Atomic Molecular and Optical Physics, Theoretical Neuroscience, Weather and Climate for Physicists, Energy Production.

Azim Premji University

July 2019 – May 2022

Bachelor of Science (honours) in Physics

Bangalore, India

- Minor: Media and Democracy
- Relevant Coursework: Mechanics, Quantum Mechanics, Mathematics for Physics, Nonlinear Dynamics, Solid State Physics, Waves Phenomena, Optics, Electricity and Magnetism, Thermal Physics, Computing in Physics, Spectroscopy, Wildlife and Ecosystems, Media and Politics in India, Media Communications, Public Reasoning, Political Philosophy, Writing for the Media, Academic Writing, Multimedia Storytelling.

Relevant Experience

Master Thesis

May 2024 – present

Institute for Theoretical Physics, University of Cologne

Cologne, Germany

- Topic: Structural Transitions in Optimal Networks
- Supervisor: Prof. Dirk Witthaut
- Group: Network Science Group, University of Cologne and Energy Networks and Complex Systems Group, Institute of Climate and Energy Systems (ICE-1), Forschungszentrum Jülich

Participant

June 2024

Complexity72h Workshop

Madrid, Spain

- Participated in the week-long Complexity72h workshop, which involved attending various talks across different fields in complex systems and completing a project resulting in a paper pre-print within a span of 72 hours. The project was on optimal transport networks.
- Project topic: Assessing Metro Networks Efficiency using Max-Plus Algebra
- Supervisor: Dr. Ebrahim Patel, University of Greenwich

Visiting Student

February 2024 - March 2024

Abdus Salam International Center for Theoretical Physics

Trieste, Italy

- Attended the Spring College in the Physics of Complex Systems as a fully funded student, in collaboration with ICTP and SISSA.
- Courses: Statistical Mechanics of Random Matrices; Thermodynamics of Information; Collective Dynamics in Complex Systems; The Physics of RNA

Graduate Assistant

December 2023 - March 2024

Institute for Applied Physics, University of Bonn

Bonn, Germany

- Worked as a graduate assistant for the Nonlinear Quantum Optics group.
- Tasks involved designing and testing experiments on quantum optics for bachelor and master students.
- Supervisor: Prof. Sebastian Hofferberth

Bachelor Thesis

February 2021 - May 2022

Azim Premji University

Bangalore, India

- Topic: Investigating Taylor-Couette Flow
- Supervisor: Dr. Kaustubh Manchanda
- Grade: O
- Independent research project on studying the nonlinear fluid dynamics phenomena of Taylor-Couette flow, computationally and experimentally by building a Taylor-Couette reactor and using Computational Fluid Dynamics.

Additional Experience

Visiting Student

May 2022 - June 2022

Inter-University Center for Astronomy and Astrophysics

Pune, India

- Attended the Introductory Summer School on Astronomy and Astrophysics, with a series of lectures, courses and talks on astrophysics.

Participant

May 2022

International Center for Theoretical Sciences

Bangalore, India

- Participated in the course and workshop on Gravitational Waves Data Analysis held by ICTS on data analysis tools used by the LIGO-Virgo-KAGRA Collaboration to detect and analyze the gravitational wave signals from compact binary mergers.

Mediator

February 2021 - June 2021

Science Gallery Bengaluru

Bangalore, India

- Worked as a mediator for Science Gallery Bengaluru's digital exhibition titled CONTAGION, an exhibition that explored the phenomenon of the transmission of emotions, behaviours, and diseases. Involved science communication through the interdisciplinary lens of science and art to visitors of the exhibition.

Intern

December 2019

AlphaZee Systems

Kochi, India

- Worked as an intern for AlphaZee Systems, a solar energy systems company. Accompanied on-site projects and helped set up PVs and other renewable sources of solar energy.

Awards & Honors

Scholarship (Declined)

Stuttgart, Germany

International Max Planck Research School for Condensed Matter Science

June 2022

Invited Speaker

Bangalore, India

Infosys Science Foundation

July 2022

Specialized Skills

Programming Languages: Python, Wolfram Mathematica, MATLAB, R

Python Libraries: NetworkX, NumPy, SciPy, pandas, Qiskit, seaborn, sklearn, iminuit

Typesetting: L^AT_EX

Simulation/Modeling Tools: OpenFOAM, ANSYS Fluent, Autodesk Fusion 360, Autodesk CFD, FEBio Studio

Other Software: Softology, OSLO Edu, Tracker, NAAP Labs, SAOimageDS9, Stellarium, FL Studio

Additional Achievements and Interests

- Student Council: Bonn-Cologne Graduate School of Physics and Astronomy (2023).
- Student Council: Azim Premji University (2019-2021), Arts and Culture Committee, Sports and Fitness Committee.
- Student Council: Literary Secretary of Chinmaya Vidyalaya Vaduthala (2018).
- Selected to the Under-19 Kerala State Football team (2017).
- Gold medallist at National level athletics meet for 800m and 400m (2015)
- Represented school and college at the district, state and national levels for football, athletics, basketball and volleyball.
- Shorin-ryu Seibukan Karate Brown 3 belt.

Other Interests

Music (trained multi-instrumentalist), Philosophy of Science and Physics, Reading, Etymology and Applied Linguistics, Art History, Political Philosophy, Photography.

Language Proficiency

English (Bilingual, Fluent, TOEFL iBT: 113/120), Malayalam (Native, Advanced), Hindi (Advanced), Tamil (Elementary), German (Elementary)