



Dortmund University of Technology is a dynamic research-oriented university with 17 faculties in the natural sciences, engineering, social sciences and cultural studies. On our international campus, around 6,600 employees make a daily contribution to solving urgent questions of the present and the future. Openness and diversity not only characterize our cooperation in research and teaching, but also in technology and administration.

Post-doctoral research position

The Faculty of Human Sciences and Theology, in cooperation with the Faculty of Physics, is offering a post-doctoral research position for a project duration of three years at the earliest possible date. Payment according to public service's wage agreement TV-L E13. An employment in or a reduction to part-time is generally possible.

The position is part of the DFG project "Data, Theories and Scientific Explanation: The Example of Astroparticle Physics", which addresses epistemological questions of the theory dependence of data and scientific explanation at the intersection of philosophy and physics. Astroparticle physics investigates cosmic rays using telescope systems that monitor large volumes of data and register subatomic messenger particles from the universe. Innovative machine learning methods are used for data analysis at TU Dortmund University, and the project focuses on the probabilistic character and epistemic significance of these methods.

We offer:

The opportunity to conduct cutting-edge research at the interface of physics and philosophy; connections to the LAMARR Institute for Machine Learning and Artificial Intelligence, the SFB 1491 "Cosmic Interacting Matters", and the DFG project UDNN (Prof. Florian J. Boge); many opportunities for further qualification as well as the opportunity to present your research at national and international conferences.

We promote diversity and equal opportunities. Convince us with your personality and expertise.

Applications from women will be given preferential treatment in accordance with legal regulations. Please note that applications from suitable severely disabled persons are welcome.

Please send your application with the usual documents (CV, grades, motivation, reference) by 10.10.2024, quoting the reference number **w46-24**, to:

Tasks: The role of machine learning in astroparticle physics, particle physics, and radio astronomy will be investigated in studies to clarify how machine learning mediates between measurement results and theory and how this has to be interpreted from an epistemological point of view. The work will be integrated into the research group of Prof. Wolfgang Rhode (Physics) and carried out in cooperation with Prof. Brigitte Falkenburg (Philosophy).

Your qualification:

- highly motivated PostDoc with an excellent PhD in philosophy (philosophy of science or *history and philosophy of science*) or in physics (astroparticle, particle or astrophysics)
- He/she should be familiar with data analysis in high energy physics or astroparticle physics to be able to compare their methods, and have the relevant philosophical knowledge required for epistemological comparison
- Previous experience in interdisciplinary work, familiarity with the philosophical debates on the epistemic significance of computer simulations and machine learning as well as related publications in peer-reviewed international journals are welcome.
- we expect the ability to combine teamwork with independent research and good communication and organizational skills.

Prof. Dr. Dr. Wolfgang Rhode
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If you have any questions, please contact:
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