technische universität dortmund

Fakultät Physik

With more than 6,300 employees in research, teaching and administration and its unique profile, TU Dortmund University shapes prospects for the future: The cooperation between engineering and natural sciences as well as social and cultural studies promotes both technological innovations and progress in knowledge and methodology. And it is not only the more than 32,500 students who benefit from that.

PhD Position (m/f/d)

The group "Theory and Modelling of Astrophysics and Atmospheric Physics" at TU Dortmund University, Germany invites applications for a full time PhD position in the group of Dr. Christoph Köhn. The focus of this position is to study the effect of energetic radiation from thunderstorms on avionics as part of the Horizon Europe MSCA DN project GRAIL ("Gamma Radiation from the Atmosphere for Investigation and Learning") funded research project and is limited to 3 years. The position will start on Sep, 1st, or after negotiation. The payment is according to EU rules on Doctoral Networks.

The PhD project is part of 15 GRAIL PhD projects Europe-wide out of which 3 will take place at TU Dortmund. More information about GRAIL can be found at grail.physik.tu-dortmund.de

YOUR TASKS:

- Simulate the propagation of relativistic photons and electrons from thunderstorm source altitudes to aircraft cruising altitudes
- Model the production of secondary energetic particles (positrons, neutrons, protons) in the atmosphere
- Use particle Monte Carlo codes and the Geant4 toolkit to study interactions between energetic particles and avionics
- Quantify risks and failure probabilities of avionics systems exposed to high-energy atmospheric radiation
- Participate in laboratory experiments at industry partners to validate simulation results and study radiation effects on electronic components

WHAT WE OFFER:

- You will be embedded in a high profile research environment.
- You will benefit from lots of interaction opportunities with several groups within the Horizon Europe GRAIL network
- You are provided with funding for visiting international conferences.
- You will benefit from personal development opportunities by a broad spectrum of transferable skills offered with the Horizon Europe GRAIL network
- Extensive training through summer/winter schools, online seminars and PhD courses
- Secondments at DENA Desarrollos (high-voltage laboratory experiments) and the Technical University of Denmark (DTU)

YOUR PROFILE:

- Master's degree in physics, electronics, computational physics, atmospheric science or a closely related field
- Experience in scientific programming and numerical simulations
- Familiarity with Monte Carlo particle simulations and/or Geant4 is an advantage
- Interest in atmospheric electricity, high-energy radiation, and avionics resilience

The TU Dortmund University promotes diversity and equal opportunities. Convince us with your personality and expertise.

Applications from women will be given preferential treatment in accordance with the legal regulations.

It is pointed out that the application of suitable severely disabled persons is desired.

Please note that candidates for this position are subject to the Horizon Europe mobility rule. A candidate must not have resided in Germany for more than 12 months in the 3 years immediately prior to the date of recruitment (and not have carried out their main activity (work, studies, etc.) in that country).

Complete applications including a CV, a publication list, and a list of potential people who are prepared to provide a letter of recommendation should be sent as pdf file using the Reference number w15-26 to

Technische Universität Dortmund
Fakultät Physik
Dr. Christoph Köhn
christoph.koehn@tu-dortmund.de

Deadline is May, 24th, 2026, 11:59 p.m.

WELTOFFENE HOCHSCHULEN GEGEN FREMDENFEINDLICHKEIT

CHARTA FAMILIE IN DER HOCHSCHULE