LEIBNIZ-INSTITUTE OF ATMOSPHERIC PHYSICS IAP

Leibniz Association

Job Advertisement 2024-24 *18.12.2024*

At the Leibniz Institute of Atmospheric Physics (IAP), a **full-time position (100%)** in the Department “Radar Remote Sensing” is available as

PhD Student, atmosphere and ionosphere investigations over the Baltic Sea area (f/m/d)

The position is initially offered for **three years** with a **start date in April 2025**. The salary is according to class EG 13 TV-L. The fixed-term contract is based on § 2 WissZeitVG.

Take part in cutting-edge research with real-world impact!

This position is part of the collaborative project “Atmospheric Impact on the R-Mode Positioning System,” involving the IAP, the University of Greifswald, the DLR Institute for Solar-Terrestrial Physics, the DLR Institute of Communications and Navigation, and the Leibniz Institute for Baltic Sea Research Warnemünde.

Satellite-based navigation systems (GNSS) are critical for accurate positioning and time synchronization; however, natural and human-made interferences can disrupt GNSS signals, particularly in the Baltic Sea region. Such disruptions pose significant risks for air and maritime traffic. This project seeks to develop a reliable backup system utilizing medium wave R-Mode (Ranging Mode) technology, capable of delivering accurate position and time data when GNSS signals fail.

R-Mode transmitters emit waves that travel along Earth’s surface and reflect off the E region of the ionosphere (90–130 km altitude). The interaction of these waves—affected by both reflection and absorption in the D region—presents analytical challenges. To address these, the project focuses on improving the understanding of ionization processes and dynamic conditions within this atmospheric region through detailed observations and analysis.

Your Tasks:

- Develop/adapt techniques for ionization measurements (Faraday rotation, absorption) in the D region using an existing 3~MHz radar.
- Analysis of the dynamical situation of the relevant altitude region employing various radar wind data over the Baltic Sea region.
- Association of derived parameters to other data sources (Lidar, model) and large scale atmospheric processes.

This role is ideal for a candidate passionate about radar and radio technology, atmospheric dynamics, and exploring the intersection of data science and atmospheric physics.

Your Qualifications / Experience:

- A Master's degree (or equivalent) in physics, engineering, or a related field.
- A strong interest in atmospheric dynamics, radar techniques, radio propagation, and data processing.
- Solid communication skills and an ability to work independently and responsibly.
- Proficiency in English for collaboration and documentation.

What we offer:

- A vibrant research environment near the beautiful Baltic Sea (German Riviera).
- Access to modern research facilities and tools, alongside collaborative opportunities in international settings.
- Flexible working hours and options for remote work (where applicable).
- Competitive benefits including participation in the German public sector pension scheme (VBL).
- Support for work-life balance, including family-friendly policies and services.
- An opportunity to be part of a renowned institute within the Leibniz Association, known for its commitment to equality, flexibility, and professional growth.

Who we are: Our institute's mission is to advance the scientific understanding of the mesosphere and lower thermosphere, focusing on atmospheric physics, instrumentation, data analysis, and modeling. As part of the Leibniz Association, we prioritize research that addresses pressing societal challenges, such as climate change, while fostering an inclusive and supportive work environment. Our partnerships include collaborations with the University

of Rostock and other research institutions worldwide, ensuring a strong network for academic exchange and development.

Interested?

Please send your application as one pdf with complete, informative documents, including

- motivational letter
- curriculum vitae
- diploma with indication of final grade
- copy of certificates, possibly testimonies and references

under indication of the keyword: ***2024-24***

to: personal@iap-kborn.de

Please send applications by **January 31, 2025.** Applications beyond this date will be considered until the position is filled. Unfortunately, application and travel costs cannot be covered by the state of Mecklenburg-Vorpommern. By submitting your application, you consent to the processing of your personal data for the purpose of the application process.

Equal Opportunities: We pursue a family-friendly personnel policy, and strive to increase the proportion of women. Qualified women are therefore explicitly encouraged to apply. People with disabilities are given preference if they have the same qualifications.

Contact: For further information, please contact Prof. Toralf Renkwitz (renkwitz@iap-kborn.de) or inform yourself under www.iap-kborn.de.

Zertifikat seit 2014
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