

Job advertisement

Vacancy ID: 299/2022

Closing date: 31st October 2022



**FRIEDRICH-SCHILLER-
UNIVERSITÄT
JENA**

Friedrich Schiller University is a traditional university with a strong research profile rooted in the heart of Germany. As a university covering all disciplines, it offers a wide range of subjects. Its research is focused on the areas Light–Life–Liberty. It is closely networked with non-research institutions, research companies and renowned cultural institutions. With around 18,000 students and more than 8,600 employees, the university plays a major role in shaping Jena's character as a cosmopolitan and future-oriented city.

The Institute of Applied Physics seeks to fill the position of a

Scientific employee (Postdoc or PhD) (m/f/d) in the research topic **"PhoQuant - Bonding of hybrid waveguide structures"**

commencing immediately.

We offer a limited full-time postdoctoral position (40 hours/week) or a part-time doctoral position (75%, 30 hours/week), (initially) limited until 30th Juni 2025, with the possibility of an extension if appropriate.

The Institute of Applied Physics (IAP) focuses on basic and applied research in the fields of micro- and nano optics, fiber- and waveguide optics, ultrafast optics, quantum optics and optics. The possibility of doing a PhD is possible within the research group Microstructure Technology.

Research theme: For the fabrication of waveguide structures for integrated photonics (e.g. telecommunication) LNOI substrates (LNOI – lithium niobate on insulator) are used. Amorphous SiO₂ or other glasses are feasible as insulator. The waveguiding requires an interlayer free connection of the waveguide with the isolator. A difference in the coefficients of thermal expansion result in mechanical stresses within the substrates during bonding, which may lead to the destruction of the whole assembly. The resulting mechanical stresses can be evaluated by means of FEM (finite element modelling) or analytical approaches. By appropriate choice of the substrate materials and their geometry or prestressing of the substrates, stresses can be reduced. Aim of this thesis is the creation of a simulation tool for the bonding process and experimental verification of the substrate design to achieve minimal mechanical stress.

Your responsibilities:

- You will develop the technology for the fabrication of LNOI substrates within the framework of the joint project PhoQuant.
- The coordination of activities to achieve the project goals and milestones is in close cooperation with working groups of the Fraunhofer IOF.
- Presenting your scientific results at conferences and in scientific journals.
- Work on your own scientific qualification project, e.g. doctorate

Your profile

- University degree in physics, photonics, materials science, mechanical engineering or related subject
- Experience in finite element modeling is a plus
- We expect open communication and the ability to work in a team
- Solid language skills in German and English would be desirable

We offer:



- Remuneration based on the provisions of the Collective Agreement for the Public Sector of the Federal States (TV-L) at salary scale E13 – depending on the candidate's personal qualifications—, including a special annual payment in accordance with the collective agreement.
- The possibility to do a PhD with support of the largest A Graduate Academy for doctoral candidates and postdocs
- Participation in experimental and theoretical research project with a strong multi-disciplinary nature within in national and international networks of research institutes and industrial companies
- Excellent equipment and infrastructure
- Participation in international conferences and further education programmes
- A family-friendly working environment with a variety of offers for families, University health promotion and sports activities, as well as attractive fringe benefits (benefits for public transport, capital formation and pension)

The position is limited with the possibility of an extension if appropriate.

This is a full-time position (40 hours per week) for postdocs or a part-time position with 75% of the working hours of a full-time employee (30 hours per week) for PhD candidates.

Candidates with severe disabilities will be given preference in the case of equal qualifications and suitability.

Are you eager to work for us? Then submit your detailed written application, preferably by email (one PDF file), stating the vacancy ID 299/2022 to:

**Friedrich Schiller Universität Jena
Institut für Angewandte Physik
apl. Prof. Dr. Uwe Zeitner
Albert-Einstein-Straße 15
07745 Jena, Germany**

or by email to:

uwe-zeitner@iof.fraunhofer.de

Since all application documents will be duly destroyed after the recruitment process, we ask you to submit only copies of your documents.

For further information for applicants, please also refer to www4.uni-jena.de/stellenmarkt_hinweis.html (in German)
Please also note the information on the collection of personal data at www4.uni-jena.de/en/jobs_information_collecting_personal_data.html