Leibniz-Institute of Photonic Technology
Albert-Einstein-Straße 9 • 07745 Jena • Germany
www.leibniz-ipht.de

Job Advertisement

The Leibniz Institute of Photonic Technology (Leibniz-IPHT) offers the following **full-time position (100%)** in the **Research Department Spectroscopy and Imaging**, **Work Group Field-Resolved Optical Precision Metrology,** starting at the next possible time:

Postdoctoral Researcher (f/m/d)

The position is to be filled as soon as possible and is initially **limited to a period of 2 years**.
An extension will be sought if suitable.

The Leibniz-IPHT is a university independent research institute with close connection to the Friedrich-Schiller-University Jena and member of the Leibniz association.

Job description

Recent progress in broadband, coherent sources of ultrashort mid-infrared (MIR) pulses and electric-field-resolved spectroscopy (FRS) has opened up a vast potential for new applications of vibrational fingerprinting to high-throughput classification of biological systems[1]. At the Laboratory of Lightwave Metrology the candidate will join a dynamic, multi-disciplinary team, developing MIR-FRS technology toward its application to real-life biomedical settings. The candidate will work at the Leibniz-IPHT on the development of a new generation of ultracompact FRS instrumentation and be in charge of its deployment at the intensive care unit of the Jena university hospital. The affiliation with the Field-Resolved Optical Precision Metrology Group within the Spectroscopy and Imaging Department at the Leibniz-IPHT and the close proximity to the Fiber and Waveguide Lasers Group at the Institute of Applied Physics of the Friedrich Schiller University Jena will provide access to state-of-the-art laser laboratories and cutting-edge infrared vibrational spectroscopy techniques[1,2,3]. The position is funded by the ERC Consolidator Grant "LIVE – Laser-Based Infrared Vibrational Electric-Field Fingerprinting" and is furthermore affiliated with the DFG Cluster of Excellence "Balance of the Microverse". In close collaboration with the Department of Anesthesiology and Intensive Care Medicine as well as the Institute for Clinical Chemistry and Laboratory Diagnostics, both at the Jena University Hospital, the candidate will work on establishing FRS breath analysis as a novel clinical method for real-time diagnostics of critically ill patients.

Your field of activity includes:

- Development of broadband, waveform-stable MIR sources and novel, optimized electric-field sampling techniques
- Implementation of a novel FRS system based on compact fiber lasers and its deployment in a clinical setting
- Coordination and active involvement in clinical studies focusing on vibrational spectroscopy of exhaled breath

Your qualification:

- Completed doctorate in experimental laser physics or similar.

Desired knowledge and skills:

- Experience with nonlinear optics, preferably fiber lasers
- Experience with the characterization of ultrashort pulses
- Experience in vibrational spectroscopy
- Experience with spectroscopic gas analysis, preferably breath analsis
- Enjoy interdisciplinary work with a focus on laser-based applications
- Strong motivation, commitment and independence
- Very good written and spoken English
- German skills are desirable

We offer:

- **An open welcoming culture** and an inclusive and interdisciplinary working environment: Located on the Beutenberg campus in Jena, Leibniz-IPHT is home to more than 400 employees from around the world working at the interface of physics, biochemistry, technology, data science and medicine to develop the photonic technologies of tomorrow.

- **World-class equipment and facilities**: Leibniz-IPHT has a large number of physics, chemistry and biology laboratories at the highest level. It also has state-of-the-art fiber drawing and clean room facilities as well as microfluidics fabrication and big data computing facilities.

- **Comprehensive training programmes** and individual opportunities for personal and professional development.

- **A family-friendly working environment** with support offers for the compatibility of family and work (e.g. parent-child office, campus kindergarten places, advice on family care situations from trained care guides and much more).

- **Flexible working time models** as well as 30 days vacation/year, special annual payment and bridge days.

- **Jena - City of Science**: a young city with a vibrant local cultural agenda!

Salary:

Salary is in accordance with the regulations of the TV-L and your qualifications and experience.

About us:

We are a modern, internationally focused research institute. Work-life balance is one of our central concerns. We value diversity and therefore welcome all applications - regardless of gender, disability, nationality or ethnic and social origin. If women are underrepresented in the area of the advertised position, they will be given preferential consideration in the hiring process if they are equally qualified.

Further information:

If you have any questions, please contact Prof. Dr. Ioachim Pupeza, mail: ioachim.pupeza@leibniz-ipht.de.
See also: lightwavelab.de.

Application:

Simply apply via our job portal (https://www.leibniz-ipht.de/en/institute/career/job-portal/) or send your application with the usual documents (CV, certificates, reference addresses) **until May 31, 2026** by e-mail, preferably as one pdf file, quoting **reference number 1413** to the:

Leibniz-Institute of Photonic Technology Jena e. V.
Human Resources
Albert-Einstein-Straße 9, 07745 Jena
E-Mail: Personal_Abtl@leibniz-ipht.de

Reference Number: 1413

Literature:
[1] I. Pupeza et. al., "Field-resolved infrared spectroscopy of biological systems", Nature 577, 52 (2020).
[2] S.A. Hussain et. al., "Sub-attosecond-precision optical-waveform stability measurements using electro-optic sampling", Scientific Reports 16, 692 (2024).
[3] C. Hofer et. al., "Linear field-resolved spectroscopy approaching ultimate detection sensitivity", Optics Express 33, 1 (2025).