

TUD Dresden University of Technology, as a University of Excellence, is one of the leading and most dynamic research institutions in the country. Accordingly, we welcome all applicants who would like to commit themselves, their achievements and productivity to the success of the whole institution.

At the **Faculty of Electrical and Computer Engineering, Institute of Circuits and Systems**, the **Chair of Measurement and Sensor System Technique** offers a position as

Research Associate / PhD Student / PostDoc (m/f/x)

Adaptive multiplane light conversion

(subject to personal qualification, employees are remunerated according to salary group E 13 TV-L)

within the Reinhart-Koselleck-project starting **as soon as possible**. The position is limited to 3 years. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG). The position comprises up to 100% of the fulltime weekly hours. Balancing family and career are an important issue. The position is generally suitable for candidates seeking part-time employment. Please indicate your request in your application. The position offers the chance to obtain further academic qualification (usually PhD / habilitation thesis).

Tasks: The focus is on research into innovative concepts for closed-loop control with multiplane light conversion using spatial light modulators, which enable multiplexing via the spatial degrees of freedom towards aberration correction in multimode fibers. For this purpose, spatial modulation techniques for the generation of structured light are investigated for classical laser waves and entangled photons. Your activities include the realization of an adaptive multiplane light conversion system, the implementation of experiments toward the transfer of the unique advantages to real-world applications and the scientific publication of the results. Your responsibilities include:

- characterization of the transmission properties of multimode optical fibers using physics-informed deep learning
- experimental and simulation-based investigations of optical diffractive neural networks
- development and implementation of novel diffractive networks for mode, wavelength, and polarization multiplexing in multimode optical fibers
- publication of research results in international scientific journals, filing of patents, and presentation of conference contributions (the research group has delivered more than 100 invited talks on all continents in recent years)
- the position can be flexibly tailored to focus on experimental laboratory work or simulation-based studies

Requirements:

- above-average university degree in in the subject physics, computer science, information systems technique, electrical engineering, mechatronics, or related areas
- ability and willingness to work independently and conceptually in a team, in a goal-oriented manner, with a high level of commitment
- excellent written and spoken German and English skills
- interest in practice-oriented, interdisciplinary collaboration with international cooperation partners from research and industry
- knowledge of software development, deep learning, computational imaging, Fourier optics
- previous knowledge of quantum optics, waveguide optics, multiplane light conversion, MATLAB or Python is advantageous

We offer:

- a diverse, cutting-edge and challenging research position with your own externally funded research project, dedicated funding and opportunities to shape and develop your research
- an interdisciplinary research group whose pioneering paradigm shifts have been recognized with prestigious awards (more than 100 awards in total)
- state-of-the-art laboratories and research facilities

- opportunities to publish in high-quality scientific journals and attend international conferences for scientific exchange
- excellent connections with research and industry partners
- flexible working hours
- 30 days of annual leave (based on a five-day working week)
- participation in the supplementary public-sector pension scheme through VBL

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The university is a family-friendly university. We welcome applications from candidates with disabilities. If multiple candidates prove to be equally qualified, those with disabilities or with equivalent status pursuant to the German Social Code IX (SGB IX) will receive priority for employment.

Application: Please submit your detailed application with the usual documents by **September 23, 2026** (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies), by sending it as a single pdf file to grp-application-mst@mx.tu-dresden.de (Please note: We are currently not able to receive electronically signed and encrypted data) or to:

TU Dresden, Chair of Measurement and Sensor System Technique, Prof. Juergen Czarske, Helmholtzstr. 10, 01069 Dresden, Germany.

Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

TUD is a founding partner in the DRESDEN-concept alliance.

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Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: <https://tu-dresden.de/karriere/datenschutzhinweis>.