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STARTING NOW, THE FRAUNHOFER INSTITUTE OFFERS YOU AN EXCITING JOB OPPORTUNITY AS A:

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## **STUDENT ASSISTANT FOR A RESEARCH TASK, THESIS OR INTERNSHIP IN THE FIELD »ADAPTIVE OPTICS«**

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The Fraunhofer Institute for Applied Optics and Precision Engineering in Jena conducts application-oriented research in the field of optical systems engineering on behalf of its clients in industry and within publicly-funded collaborative projects. The Fraunhofer IOF provides the entire process chain, starting from system design to manufacture of prototype optical, optomechanical and opto-electronic systems.

Adaptive optics (AO) systems are used for wavefront correction of atmospheric turbulence effects in laser beam propagation applications. Recent research has explored the use of AO in optical and quantum communication, proving its efficacy, but not yet employing its full potential.

### **»Simulation and optimization of adaptive optics systems«**

This topic aims to enhance the understanding of AO system potential through simulation and experiment. As part of the thesis, the candidate will improve an existing simulation routine, incorporating models of real hardware to enable application specific optimization in AO design, based on parameters such as the degrees of freedom of the AO system or the wavefront sensor design. As a result of this study, particularly interesting AO system parameters should also be evaluated practically through integration in and experiment with an existing AO system. With this work, we want to further pave the way towards the design of earth-based AO systems for feederlink communication with geostationary satellites, as well as quantum communication within cities.

The Active and Adaptive Optics group specialises in the design and production of AO systems and deformable mirrors for a range of applications such as laser material processing, correction of large telescope aberrations and correction of atmospheric turbulence for optical communications. Within this research task / thesis / internship, you can expect to work as part of a young, dynamic and interdisciplinary team with a balanced gender ratio.

#### **What you can expect from us**

- insight into praxis-oriented development
- flexible working hours

#### **What we expect from you**

- student in physics, engineering
- basic scientific programming skills
- experimental skills and familiar handling in the laboratory

Remuneration according to Remuneration at student assistant level.

In case of identical qualifications, preference will be given to severely disabled candidates.

The Fraunhofer-Gesellschaft is committed to providing equal career opportunities for men and women.

Fraunhofer is Europe's largest application-oriented research organization. Our research efforts are geared entirely to people's needs: health, security, communication, energy and the environment. As a result, the work undertaken by our researchers and developers has a significant impact on people's lives.

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**Closing Date:** 31.12.2018

**Job Reference:** IOF-2018-64