



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

---

## **STUDENT ASSISTANT FOR A RESEARCH TASK OR MASTER THESIS IN »APPLIED QUANTUM OPTICS« (HERALDING SINGLE-PHOTON SOURCE TECHNOLOGIES)**

---

The Fraunhofer Institute for Applied Optics and Precision Engineering (IOF) in Jena conducts applied research in optical system technology on behalf of the industry and as part of publicly funded joint projects. The range of services offered by the Fraunhofer IOF includes system solutions, starting with new design concepts, through the development of technologies, manufacturing and measuring methods to the construction of prototypes and pilot series for applications in the wavelength range from millimeter to nanometer.

The Fraunhofer IOF is also pioneering applied optical quantum technology research and offers innovative solutions for science and industry wherever quantum systems have the potential for revolutionary applications. Quantum states of light, in particular entangled photons, are a vital resource for many of these quantum-enhanced technologies: As low-noise probes in quantum imaging and sensing, as versatile information carriers in quantum information processing and quantum networks, or as tamper-proof padlocks in quantum cryptography.

The Emerging Technology department at the Fraunhofer IOF deals with adaptive optics and quantum technology. Quantum technology is a new and highly promising field in modern science and technology. A major topic is quantum communication based on secure quantum cryptography. The Fraunhofer IOF is specialized in developing sources for satellite-based quantum communication systems. Furthermore, quite recently, quantum imaging based on entangled photon-states attracted much attention in the scientific community since it can overcome certain imaging limitations regarding detection efficiency, available spectral range, and resolution. For both applications - communication and imaging - reliable and stable photon-pair sources are essential and build the heart of any such quantum device.

**Project:**

Heralding single-photon source technologies

**Your Job:**

- Optical modulation and high-speed electronic signal processing
- FPGA/micro-controlling programming
- Assembling/integration of fiber-based/optical components
- Time-energy entanglement analysis

**Was Sie mitbringen**

- Bachelor's degree in physics, laser technology, engineering or a similar photonic study program
- Prior knowledge in at least one of the fields: optical modulation, electronics, non-linear optics, quantum optics/photonics
- Preferably to have Programming in FPGA language is a decisive plus, Experience in programming micro-controllers (Arduino, Raspberry Pi etc.), Scientific programming (Python, MATLAB, LabView, etc.), Experimental skills and familiar handling in the laboratory, Hands-on mentality

**Was Sie erwarten können**

- insight into praxis-oriented development
- flexible working hours

Die Vergütung erfolgt nach HiWi-Vergütung.

Schwerbehinderte Menschen werden bei gleicher Eignung bevorzugt eingestellt.

Wir weisen darauf hin, dass die gewählte Berufsbezeichnung auch das dritte Geschlecht miteinbezieht.

Die Fraunhofer-Gesellschaft legt Wert auf eine geschlechtsunabhängige berufliche Gleichstellung.

Die Stelle kann auch in Teilzeit besetzt werden.

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. We are creative. We shape technology. We design products. We improve methods and techniques. We open up new vistas.

<http://www.iof.fraunhofer.de>

Kennziffer: **IOF-2020-64**

Bewerbungsfrist: **31.01.2021**

**Zurück**

**Bewerben**