With us, you don't just talk the talk, you walk the walk.

Change starts with us.

Working Student – Quantum Communication Electronics

The Fraunhofer-Gesellschaft (www.fraunhofer.com) currently operates 76 institutes and research institutions throughout Germany and is the world's leading applied research organization. Around 32000 employees work with an annual research budget of 3.4 billion euros.

The **»Wireline Communication Circuits«** group at Fraunhofer IIS is part of the "Integrated Circuits and Systems" department and is located at the institute's Erlangen site. Our team members have diverse academic backgrounds in Electronics, Communication Engineering, and Physics. Our group, well known for multi-gigabit SERDES solutions for the automotive industry, looks forward to utilizing our expertise to address challenges in the field of Quantum Communication and Quantum Key Distribution.

The field of **»Quantum Communication«** is an emerging research domain within the **»Wireline Communication Circuits«** group. With our proven track record in CMOS analog circuit design, we aim to explore different Quantum Key Distribution (QKD) methodologies in practice. As part of the QuKomIn consortium, led by the Max Planck Institute for the Science of Light, we seek to partition a QKD system into optical and electronic domains to assess the feasibility of a monolithic or heterogeneous integrated solution for next-generation QKD systems.

Are you interested in Quantum Communication and would like to develop your skills?

Then have a look at our offer!

What you will do
- You will work on topics related to Quantum Communication, diving into the fascinating world of this cutting-edge technology
- You will create an overview of the state of the art of Quantum Key Distribution, analyzing the latest advancements in this crucial area of secure communications and identifying opportunities for further innovation
- You will work towards models and/or circuits for existing and emerging QKD systems, to help us meet the evolving needs of the industry
- You will conceptualize ideas for the next generation of Quantum Communication technologies, bringing your creativity and knowledge to the table to shape the future of secure communications

What you bring to the table
- **Educational Background:** Currently pursuing a degree in Electronics, Optics, or Physics, showcasing your passion for cutting-edge technology.
- **Knowledge in Communication Technologies:** A solid understanding of Optical Communication or Quantum Communication, demonstrating your interest in innovative communication solutions.
- **Programming Skills:** Proficiency in Python and experience with libraries such as NumPy, allowing you to tackle complex problems with ease.
- **Circuit Design Insight:** Familiarity with the basics of analog circuit design is a plus, enhancing your ability to contribute to practical applications.
- **Language Proficiency:** Fluency in English, enabling effective communication in our dynamic and diverse team environment.

What you can expect
- **Flexible** working hours
- **Open** and **friendly team work**
- **Varied** tasks with room for **creativity**
- Exciting **seminars** and **events**
- **Networking** with scientists

- **Active contribution** in applied research
- **Interesting** and **innovative** projects

Your start date and weekly working hours will be determined individually with you (as a student assistant from **10** to **15** hours a week or as an intern for a period of at least three months). You can reduce your hours before exams and increase them during semester breaks. You can flexibly determine the working days. After your studies, there are attractive opportunities to join the institute on a full time or part time basis.

We would be happy to offer you the opportunity to write a bachelor's thesis or master's thesis in cooperation with us in the above-mentioned subject area. The thesis will be assigned and carried out in accordance with the rules of your university. For this reason, please discuss the thesis with a professor who can advise you over the course of the project.

We value and promote the diversity of our employees' skills and therefore welcome all applications - regardless of age, gender, nationality, ethnic and social origin, religion, ideology, disability, sexual orientation and identity.

Interested?
Apply online now (PDF: cover letter, CV, transcripts). We look forward to getting to know you!

Fraunhofer-Institute for Integrated Circuits IIS
www.iis.fraunhofer.de/en

Requisition Number: xxxxx   Application Deadline: none   Location: Erlangen