Fraunhofer-Institut für Organische Elektronik, Elektronenstrahl- und Plasmatechnik FEP

The Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP is working on innovative solutions in the field of vacuum coating and surface treatment as well as the combination of organic electronics with classical silicon circuitry. The Fraunhofer FEP thus offers a wide range of research, development and pilot-manufacturing. Our interdisciplinary field of "Microdisplays and Sensors" is engaged in the development and manufacturing of micro-displays and sensors based on the integration of organic light emitting diodes (OLED) onto silicon CMOS substrates. Here, our activities range from the initial idea, through design in close cooperation with the OLED technology, the circuit design of the OLED integration, testing, assembly and interconnection technology to the development of the complete system and application. Here, we are working in the interdisciplinary scope of different subjects such as electrical engineering/electronics, microelectronics, microsystems technology, information technology, computer science, physics, chemistry, optics and manufacturing. As part of your dissertation, you will develop new architectures for ultra-low power and low-latency architectures of CMOS backplanes for OLED microdisplays. Such microdisplays are used in wearables, e.g. for augmented- and/or assisted-reality (AR) applications. Wearables require low power consumption, both for the backplane (pixel cell array) and the respective emitters. AR in the tactile Internet also requires extremely low latencies.

PhD THESIS
in IC DESIGN, FOCUSING ON of new CMOS backplane architectures for OLED microdisplays

City: Dresden; Renumeration: EG 13/2; Reference number: FEP-2018-50

Task
This interdisciplinary task requires a sound knowledge of CMOS circuit technology as well as the technological integration of emissive semiconductor layers on silicon wafers.

An interesting, challenging and varied task awaits you in a highly innovative environment of research and development. You will be responsible for the following tasks:

- Development, implementation and experimental validation of concepts for CMOS integrated optoelectronic sensors
- Design of analog, digital and mixed (mixed signal) integrated circuits
- Layout design for CMOS and OLED manufacturing
- Close cooperation with multidisciplinary departments and research partners (for example, OLED technology and manufacturing)
- Development and implementation of Device and Test Specifications
- Technical and statistical evaluation of measurement results, circuit and device documentation

The Fraunhofer FEP works for both industrial and public clients. According to this, contacts with international customers from industry, academic partners and funders are to make and maintain, specifically also within the CeTI cluster. A participation in project acquisition and management is explicitly encouraged

Qualifications
You have a university degree (Master, Diploma) in electrical engineering (microelectronics, information technology), physics or similar programs.
Good knowledge of digital and very good knowledge of analog semiconductor circuit technology, practical experience in the complete analog design flow as well as practical experience with design tools from cadence are necessary! Experience in full digital and mixed-signal design flow are very beneficial. In addition, good English skills are required, and German is highly appreciated.

You should be resilient and flexible, enjoy working with people and your work style should be characterized by commitment, the introduction of own ideas and accuracy in handling the necessary tasks. We expect strong organizational skills and a professional presence in dealing with international scientists, customers and public institutions/funders and the willingness to assume responsibility as well as team spirit and joy of work.

**Application**

Please apply online via "Apply" button.

More information at [https://stellenticket.de/77264/TUB/](https://stellenticket.de/77264/TUB/)

Offer visible until 15/03/20