

PhD, Research Assistant

# Research Assistant (PhD Candidate) in mmWave RF IC design at the Chair of Micro- and Nanosystems Technology (m/f/d)

**The Chair of Micro- and Nanosystems Technology (MNT) is looking for a Research Assistant (m/w/d) for integrated mmWave Radio Frequency Circuits and Systems in BiCMOS and CMOS (RF SOI).**

To make new applications such as augmented reality possible in everyday life, mobile communications standards are needed that enable very high data rates with very low latency and must also be very energy- and area-efficient. For this reason, actual scientific research is strongly working on 6G. The innovation in the future 6G mobile communication systems will be the capability to use these systems for sensing task at the same time, which enables so-called Joint Communication and Sensing (JCAS) systems. To make this possible, new approaches for high-performance circuits and systems in the mmWave range must be researched and implemented.

A special focus lies on the high integration density of the resulting multi-channel systems. This claims for innovative integration, placement and packaging concepts. Here, in addition to the avoidance of cross-coupling, thermal management also plays a very important role for the performance of the integrated multi-channel system. Both have to be modeled and addressed with suitable methods.

## Your research activities include:

- Working on current research and development topics in the area of mmWave chip design.
- Development of novel circuits and systems for 6G and JCAS applications.
- Demonstration of feasibility, simulation and measurement of integrated circuits and systems.
- Presentation of project results at international conferences and to research partners

## Necessary qualification

- A master degree in electrical engineering, mechatronics, physics, computer engineering, medical engineering or similar fields.
- Very good knowledge in the areas of radio frequency technology, circuit technology and/or communications technology.
- Very good analytical and conceptual skills as well as a structured way of working.
- A high degree of independence, initiative and commitment.

## Desirable Qualification

- Knowledge in the design and simulation of radio frequency systems (e.g. PathWave System Design (SystemVue), Simulink, Python).
- Knowledge in the design and simulation of mmWave circuits (e.g. with ADS or Cadence).
- Knowledge in EM-simulation (HFSS, CST, Momentum, etc.).

### **We Offer:**

- An interdisciplinary research unit with a young and motivated team
- Participation in international conferences
- An international scientific network
- A friendly, helpful and international work environment
- The possibility to do a PhD thesis under personal supervision
- Direct cooperation and co-supervision by Fraunhofer Research Institution for Microsystems and Solid State Technologies EMFT
- Embedding in scientific environment at Fraunhofer EMFT and on-site workplace
- Fair pay according to the collective wage agreement of the federal state (TV-L E13)

### **Application:**

Please send your application documents (Motivation, CV, academic transcripts, possibly internship/work references) in one PDF file (max. 25MB) to **Prof. Dr-Ing. Amelie Hagelauer**, Chair for Micro- and Nanosystems Technology, Technical University of Munich ([amelie.hagelauer@tum.de](mailto:amelie.hagelauer@tum.de)). We are looking forward to meet you!

Bewerbungen werden gerne auch in deutscher Sprache entgegengenommen.

### **Hinweis zum Datenschutz:**

Im Rahmen Ihrer Bewerbung um eine Stelle an der Technischen Universität München (TUM) übermitteln Sie personenbezogene Daten. Beachten Sie bitte hierzu unsere Datenschutzhinweise gemäß Art. 13 Datenschutz-Grundverordnung (DSGVO) zur Erhebung und Verarbeitung von personenbezogenen Daten im Rahmen Ihrer Bewerbung. Durch die Übermittlung Ihrer Bewerbung bestätigen Sie, dass Sie die Datenschutzhinweise der TUM zur Kenntnis genommen haben.

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