



PhD position (m/f/d) in the field of Wireless Communications

Job-ID: 3023/22 | Department: System Architectures | Salary: as per tariff (TV-L) | Working Time: 40h/week (part-time work option) | Limitation: initially 2 years with option of extension for three more years | Earliest Starting Date: 01.05.2022

IHP is an institute of the Leibniz Association and conducts research and development of silicon-based systems and ultra-high-frequency circuits and technologies including new materials. It develops innovative solutions for application areas such as wireless and broadband communication, security, medical technology, industry 4.0, automotive industry, and aerospace. IHP employs approximately 350 people. It operates a pilot line for technological developments and the preparation of high-speed circuits with 0.13/0.25 μm -SiGe-BiCMOS technologies, located in a 1500 m² cleanroom that meets the highest industrial nanotechnology requirements.

The position:

As a member of the research group Wireless Broadband Communications within the Department System Architectures, you will contribute to research into the investigation and development of Medium Access Control (MAC) protocols and network interfaces for state-of-the-art systems supporting Joint Communication and Sensing (JCAS). Your tasks will include the development and implementation of a scalable high-performance MAC-Layer in support of extremely high data rate wireless communication systems. An international team of 20 scientists including very experienced scientists as well as several PhD students is looking forward to you. Flat hierarchies and mutual support are important to us. We see diversity of perspectives as a great advantage for our team. We strive for a balanced gender mix in our team.

Your PhD project:

For different novel and high-performance Physical Layer (PHY) developments in the context of the 6th generation of mobile communication systems (6G), we require a scalable Medium Access Control (MAC) Layer.

Within the doctorate with the working title *“Investigation and development of a high-performance scalable MAC layer and network interface for Joint Communication and Sensing (JCAS)”*, it is intended to develop a concept for an IHP MAC platform. The doctorate is supported by an experienced supervisor and accompanied within the framework of a supervision agreement. We aim together for a completion within 3-5 years. After one and a half years, the topic will be finally defined and the contract duration will be adjusted accordingly by mutual agreement to the foreseeable doctoral period.





Your qualifications:

You hold a Master's degree in Communications Engineering, Electronics Engineering, Computer Science or a comparable study area. You are already experienced in Wireless Communications and protocol development. You are familiar with MATLAB or similar tools as well as Hardware Description Languages such as VHDL. Ideally, you have some background in hardware development using VHDL and FPGA implementation. It would be desirable that you also have background in computer science and are familiar with known networking protocols.

You are also a strong team player. We are looking for a team member, who is able to structure his or her own work and to bring a well-organized and systematic way of working into the cooperation with creative minds. You are an ideal match for this position, when you have experimental, analytical and problem-solving skills, very strong communicative skills and the ability to quickly learn how to operate the latest technical equipment including various software. It is necessary that you confidently handle the English language. Knowledge of the German language is welcome, but not mandatory. The consolidating of German language skills is expected and highly encouraged, for example in in-house language courses and intensive courses.

Our Offer:

Conducting research in a challenging, multinational environment giving you excellent career opportunities. You will have the chance to establish an international reputation at the edge of top-notch technologies. An orientation guide will help you to quickly integrate into the institute and to familiarize yourself with the field.

It is important to us to support the individual career developments (e.g. conferences, advanced trainings) as well as the personal needs of our employees by offering flexible working hours and the possibility to work off-site. The task includes extensive model development within the framework of the standardized technologies of IHP, as well as new developments. The compatibility of work and family is highly valued. More information about our scientific excellence and the working environment at IHP can be found on our website.

IHP is TOTAL E-QUALITY-certified for equal opportunities for women and men at work and actively pursues the equality of all gender and all groups of people. We promote the professional development of women and strongly encourage them to apply. Disabled applicants, qualified according to the above criteria, will be given preference over other candidates with equivalent relevant qualifications.

Your application:

Have we sparked your interest? Then we look forward to receiving your application until **11.03.2022** via our [online application form](#).

For further information about the position, please contact Prof. Dr. Eckhard Grass: career@ihp-microelectronics.com.

