



PhD or Postdoctoral position (m/f/d) for research in wireless communication systems

Job-ID: 3093/21 | Department: System Architectures | Salary: according TV-L | Working time: 40h/week (part-time work option) | Limitation: initially 2 years with option of extension | Entry Date: 01.01.2022

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 in wireless communication technologies. Your tasks will include the theoretical and experimental investigation of novel modulation schemes (e.g., Orthogonal Time Frequency Space modulation) and high-speed forward error correction. An international team of more than 20 scientists including very experienced scientists as well as several PhD students is looking forward to work with 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 main research topic:

Within the main research topic with the working title “Investigation of new modulation schemes and processing strategies for high-speed wireless communications”, it is intended to develop innovative and hardware effective algorithms and architectures. This includes modelling, design, implementation and measurement of wireless communication systems. An opportunity to pursue a PhD degree is strongly supported by an experienced supervisor. The doctoral thesis is initially planned and encouraged to be concluded within 4 years within a framework of a supervision agreement. 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.

For postdoctoral candidates, IHP offers a huge opportunity to enrich the academic as well as the practical capabilities by providing a wide range of lab and technology options, facilitating the implementation and testing of a large range of technical ideas and scientific topics.

Your qualifications:

Mandatory:

- Master's or PhD degree in electrical engineering, communications engineering or a comparable study area
- Strong background in (wireless) communication systems
- Good knowledge of Matlab or comparable software (e.g., Octave)
- Experience in lab equipment and measurement capabilities (power supplies, multimeters, oscilloscopes)
- Practical skills in constructing embedded systems
- Confidently handle the English language.

Not mandatory but beneficial:

- Knowledge of lab equipment (arbitrary waveform generators, spectrum analyzers, vector signal analyzers)
- Practical skills in constructing hardware-in-the-loop experimental platforms
- Knowledge in THz communication
- Experience in VHDL/Verilog, FPGA, or microcontrollers
- Knowledge in ASIC design and simulation

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 hardware and software components. It is necessary that you confidently handle the English language. Knowledge of the German language is welcome but not mandatory. The development of German language skills is expected and highly encouraged, for example in in-house language courses and intensive courses.

Our Offer:

Do research in a challenging, multinational environment giving you excellent career opportunities. You will have the chance to establish 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 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 for this position. 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 **November 30th, 2021** via our [online application form](#).

For further information regarding the position please contact Dr. Lukasz Lopacinski:
career@ihp-microelectronics.com.