PhD or Postdoctoral position (m/f/d) for research in Millimeter and THz MIMO circuits and systems

Job-ID: 5095/21 | Department: Circuit Design | Salary: according TV-L | Working time: 40h/week (part-time work option) | Limitation: initially 2 years with option of extension for three more years | Earliest Entry Date: 15.11.2021

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 “Millimeter Wave Terahertz Sensing” within the Circuit Design department you will contribute to research in wireless and noninvasive sensing and radar technologies. Your tasks will include design, modeling and testing of multiple-input multiple-output (MIMO) radar systems at very high frequencies 100-500 GHz. This includes MIMO system modelling, top level system specifications and on-chip/in-package/on-board antenna arrays designs. Other scientific tasks might be transmission line to waveguide interfaces and modelling of sub-THz packaging solutions.

An international team of 7 researchers within a department of more than 30 scientists and engineers with broad area of experience 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 main research topic:
The main research topic with the working title “*Development of THz MIMO systems and arrays*”, it is intended to develop large scale high precision sensing frontends. This includes modelling, design, implementation and measurement of antenna arrays, MIMO system and sub-THz passive structures. An opportunity to pursuit a PhD degree is strongly supported by an experienced supervisor. The doctoral thesis is initially planned and encouraged to be concluded within 4-5 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 allowing a various range of lab and technology options, facilitating the implementation and testing of large range of technical ideas and scientific topics.

Your qualifications:

Mandatory:

- Master's or PhD degree in electrical engineering or a comparable study area
- Strong background in phased array and MIMO systems and circuits
- Good knowledge about modelling and CAD tools (Matlab, ADS, HFSS, CST, etc.)
- Experience in radar imaging and sensing systems
- Knowledge in antenna design and simulation
- Very good communication skills
- Team player capabilities
- Confidently handle the English language.

Not mandatory but beneficial:

- Experience in lab equipment and measurement capabilities
- Knowledge in high frequency packaging designs
- Knowledge in transmission line to waveguide interfaces
- Knowledge of the German language is welcome and encouraged through in-house language courses

Our Offer:

Do research in the most recent topics and technologies! The application oriented research methods makes the activities in IHP very much relevant to the industry. This makes the candidates of IHP very well suited for both academic as well an industrial careers. This opportunity is also fueled by industrial projects being part of IHP design activities.

IHP offers 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 environment.

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. 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 **October 10th, 2021** via our **online application form.**

For further information regarding the position please contact Dr. Mohamed Eissa:
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