



PhD Position (m/f/d) on SiGe Heterojunction Bipolar Transistors for Cryogenic Application

Job-ID: 71011/21 | Department: Technology | Salary: according TV-L | Working time: 40h/week (part-time work option) | Limitation: initially 2 years with option of extension for three more years | Entry Date: at the earliest possible date

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 High-Performance Si Technologies within the department Technology you will contribute to research into physics and technology of semiconductor devices for leading-edge applications in high-frequency electronics and quantum technology. Your tasks will include the electrical characterization of semiconductor devices at cryogenic temperatures and the investigation of the fundamental charge carrier transport processes that govern device operation at these extreme conditions. An international team of experienced scientists as well as 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:

Within the doctorate with the working title *“Development and characterization of SiGe heterojunction bipolar transistors for cryogenic applications”*, it is intended to explore and to optimize transistor characteristics for operation at cryogenic temperatures addressing emerging applications in quantum technology. The research will be carried out in close collaboration with leading teams in the field. 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 are holding a Master's degree in Physics or Electrical Engineering. You are already experienced in semiconductor physics, electrical measurement techniques, and data analysis. Ideally, but not mandatory you have a background in semiconductor technology and device physics.

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. The deepening 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. 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 **December 5th, 2021** via our **[online application form](#)**.

For further information regarding the position please contact Dr. Holger Rücker:
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