



PhD position for integrated smart sensor developments (m/f/d)

Job-ID: 7075/23 | Department: D-T | 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 | Starting 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 380 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 Technology within the department Technology you will contribute to research novel specialised semiconductor devices for the purpose of research as well as industrial application. An international team of more than 20 scientists and highly skilled engineers 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 are seeking a highly motivated and skilled scientist to join our team as a device development researcher. In this role, you will be responsible for the development of optical sensors as acoustic-optical sensors (AOS) and CCD (Charge-Coupled Device) elements for IHP Photonic and BiCMOS technologies, from the initial feasibility study to exemplary integration.

Your primary tasks will include:

-Identifying roadblocks and finding solutions: You will be tasked with identifying potential challenges and roadblocks during the development process and finding innovative solutions to overcome them. Your problem-solving skills will be crucial in ensuring the success of the project.

-Designing and modeling device test structures: You will be responsible for the design, simulation (e.g. by COMSOL) and modeling of device test structures to evaluate the performance and characteristics of the AOS and CCD elements. Your expertise in device modeling and simulation will be instrumental in optimizing the design.

-Coordinating the manufacturing of test structures: As the AOS and CCD element developer, you will coordinate the manufacturing process of the test structures. This will involve collaborating with the fabrication team and ensuring the production of high-quality test devices.



-Coordinating and supporting test structure integration: You will work closely with other teams as e.g. the circuit design and process integration team to implement test structures into simple verification circuits. Your ability to collaborate effectively with cross-functional teams will be essential in achieving seamless integration.

Your qualifications:

You hold a master's degree in electrical engineering, physics or photonics or a comparable study area. You are already experienced in device modeling/simulation (TCAD), and simple analog circuit design. Ideally, you have a background knowledge in semiconductor manufacturing steps and in particular optoelectronics and photonics.

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.

Further advantages:

30 days holiday | special annual payment | Company pension scheme (VBL) | Flexible working hours, also part-time (no core working hours) | Possibility to work up to 40 % independent of location according to company agreement | Parent-child room as a possibility to work with a child in case of childcare bottlenecks | A wide range of further training opportunities in-house or within the framework of business trips | Discounted company ticket with monthly allowance of € 15 for various fare zones | Good transport connections, free parking at the institute | Canteen with breakfast and lunch | On-site health services | Company family and care guides | Free, confidential counselling by an external service provider in a wide variety of challenging private or professional situations, for example on how to reconcile work and family life or in psychosocial emergencies | Structured induction and actively supported integration into the institute (welcome workshop, intercultural workshop, joint leisure activities)

Your application:

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

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