IHP GmbH -
Innovations for High Performance Microelectronics/
Leibniz-Institut für innovative Mikroelektronik

PhD position (m/f/d) for the electrical properties of graphene for the realization of advanced opto-electronic devices

Job-ID: 0041/24 | Department: Material Research | 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: as soon as possible

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 2D Materials group within the department of Materials Research, you will contribute to the latest research on graphene at IHP. Your tasks will include advanced electrical characterization of simple and complex graphene-based devices (TLMs, Kelvin, Hall Bars, GFETs etc.) aiming at understanding the effect of fabrication variations/graphene growth conditions/annealing on various properties of Graphene (Mobility, sheet resistance, contact resistance, doping, etc.).

You will analyze experimental data and present the results to international communities. An international team composed by very experienced scientists, postdocs and PhD students is looking forward to you. Flat hierarchies and mutual support are important to us. We value diversity of perspectives and strive for a balanced gender mix in our team.

Your PhD project:

The PhD degree could be obtained within this work and will be supported by an experienced supervisor. The PhD thesis in the field of graphene devices will focus on understanding the electrical characteristics (Rc, Rs, mobility etc.) of graphene devices. The candidate will be involved in the general processing steps of graphene devices as well as in the characterization of the samples using different techniques. Special emphasis will be given to the I-V and C-V measurements with manual and automated semiconductor analyzing systems. We aim together for a completion within 3-4 years.

IHP GmbH -
Innovations for High Performance Microelectronics/
Leibniz-Institut für innovative Mikroelektronik

Your qualifications:

You hold a Master's degree in Physics, Material Science, Electrical Engineering or a related field. You have a good knowledge of the physics of semiconductor devices, two-dimensional materials with a focus on graphene and its properties (contact resistance, mobility, etc.). Ideally, you have hands-on experience in electrical characterization of devices using semiconductor analysis systems. 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.

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. 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:

Conduct 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 Dr. Lukosius: career@ihp-microelectronics.com.