



## Bachelor-/Masterthesis (m/f/d) in the field “advanced sample preparation”

Job-ID: 70212/22 | Dept.: D-T | | Limitation: 6 months with option of extension | Entry Date: as soon as possible

We offer the possibility to work parallel as a student or research assistant, with a working time of max. 19h per week, remuneration according to the guidelines of the state of Brandenburg on the working conditions of research and student assistants.

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 330 people. It operates a pilot line for technological developments and the preparation of high-speed circuits with 0.13/0.25  $\mu\text{m}$  BiCMOS technologies, located in a 1500  $\text{m}^2$  cleanroom.

### Topic:

The topic you will work on is the ever-shrinking structure sizes of semiconductor components and the associated increase in integration density, which are pushing the familiar visualization methods to their physical limits. In particular, this is a problem in the localization of defective devices in the circuit but also during tapping of electrical signals. Nowadays, both are mainly done through the back side of the chip, since the front side does not offer direct access to the active device level due to a multitude of metal layers.

On the other hand, the back of the chip is made of silicon, which is not transparent to optically visible light. For decades, infrared light was used to look through the silicon and visualize the device level. However, the Abbe criterion limits the resolution that can be achieved, and for some years now there has been an effort to use light in the visible range for applications in the field of defect analysis and probing.

However, this requires the reliable and precise removal of the back side silicon to a few  $\mu\text{m}$  or nm residual thickness. A new approach is based on the use of highly selective polishing slurries which form an automatic "polishing stop" on the Shallow Trench Isolation.

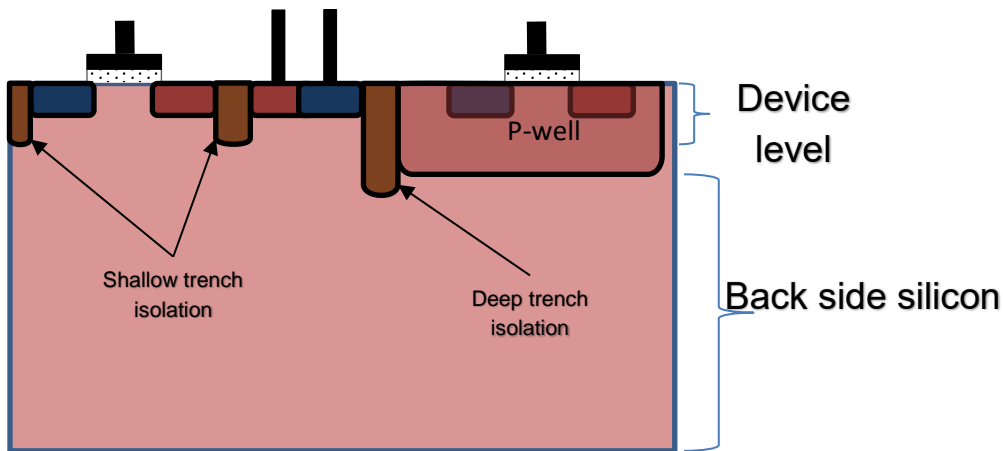
### Your Research/Position:

- initial training with the functioning of a high-precision polishing system
- Creation of working recipes for target preparation using a high-precision polishing system
- Experimental evaluation of the suitability of highly selective polishing suspensions for target preparation at STI level
- (evaluation of the device functionality in dependence of the remaining silicon thickness)

### Your Qualifications:

- Fluent German or English speaking and writing skills
- interested in exploring new topics
- work independently on new topics
- basic knowledge of mechanics and chemistry are an advantage but no requirement





### Our Offer:

Gain insights into a dynamic and multinational research institute for microelectronics! You will apply your theoretical knowledge from university in practice and contribute to our research projects with your work! A motivated, international team, consisting of very experienced scientists as well as young colleagues is looking forward to you. Take the opportunity to lay the foundations for your career in a research institute that operates close to the economy. Your experience will be of great benefit to you, regardless of whether you want to start your career in academia or in business. We guarantee flexible working hours.

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 March 31, 2022** via our [online application form](#).

For further information regarding the position please contact Dr. Norbert Herfurth: [career@ihp-microelectronics.com](mailto:career@ihp-microelectronics.com)