

PhD Student/Scientist position for Materials Development on HVPE growth of GaN crystals

NaMLab gGmbH is a research organization and associated institute of the Technical University Dresden. NaMLab provides industry-oriented and basic research in material science for electronic devices. Based on its key expertise in dielectric materials for semiconductor devices NaMLab focuses on the integration and application of materials applied to reconfigurable and energy efficiency devices. NaMLab's approach of placing the device rather than the material system itself into the center of its research activities differentiates it from other world-class material research activities in the Dresden area. Additionally, it allows taking full advantage of the already existing expertise by forming orthogonal consortia. It therefore fills the gap between basic materials research and its application towards electronic circuits and systems.

One major research area at NaMLab is materials development of GaN for microelectronic applications. NaMLab is looking for a PhD student/ scientist in the field of doping of GaN-crystals grown by Hydride Vapor Phase Epitaxy (HVPE) to strengthen our activities in this research field. Together with an industrial partner NaMLab is pushing this concept since 2012 and running research on fundamental materials properties and investigating scalability and industrial potential. The research will focus on investigations on the effect of templates and doping on the growth of GaN-crystals. It will include the analysis of the crystal morphology and internal stress. Additionally, topics of scalability of wafer diameter and crystal thickness have to be investigated. The research will be conducted in our research lab in Freiberg in close co-operation with our research partner. The results of the scientific work shall be used to obtain a PhD in Electrical Engineering at the TU Dresden.

Your Responsibilities:

- Growth of GaN templates by Metal Organic Vapor Phase Epitaxy
- Growth of GaN crystals by Hydride Vapor Phase Epitaxy
- Characterization of GaN crystals (by x-ray diffraction, atomic force microscopy, electron microscopy and Photoluminescence spectroscopy etc.)
- Investigations on crystal doping, crystal morphology and internal stress
- Investigations on the scalability of crystal diameter and crystal thickness
- Concepting, carrying out and evaluation of experiments in coordination with external partners
- Working in an interdisciplinary team together with scientists and technicians
- Coordination with the industry partner.

Your profile:

- M.Sc. / M.Eng. in applied natural science, nanotechnology electrical engineering, physics, chemistry, materials science or similar
- Experiences in high temperature and/or CVD processing of samples and structural characterization of crystals
- Experiences and understanding in research equipment engineering
- Good technical comprehension, professional English communication and writing skills
- Ability to work in a team environment
- Strong perseverance in experimental work
- Self-organized and conscientious way of working.

What you can expect:

- Collaboration with a dedicated, inspiring, interdisciplinary team working on leading technologies
- Research work on innovations originating from materials science and microelectronic devices
- Room for independent work and creative collaboration
- Flexible working time models for work life balance.

Check also our video on research on capacitors at Namlab:

<https://www.youtube.com/watch?v=e8pqf5RTqw>

We value and encourage the diversity of our employee skills and therefore welcome all applications - regardless of age, gender, nationality, ethnic and social origin, religion, ideology, disability, sexual orientation and identity.

The position is initially limited to 3 years. We offer you a long-term perspective with a versatile and interesting field of activity in microelectronics research.

For further information please contact:

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