## Scientist position for HVPE growth of semi-insulating GaN crystals

**NaMLab gGmbH**
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.

**The position/PhD opportunity**
NaMLab is looking for a scientist in the field of GaN growth by Metal Organic Vapor Phase Epitaxy (MOVPE) and Hydride Vapor Phase Epitaxy (HVPE) to strengthen our activities in research on the properties of semi-insulating GaN. HVPE GaN grown crystals have the advantage of lower defect density compared to the established GaN-on-sapphire or GaN-on-silicon wafer technologies. The researcher will be responsible for conducting the activities in MOVPE GaN template growth and HVPE GaN crystal growth and investigating the growth of semi-insulating crystals achieved by metalorganic-doping with different types of dopants. Additionally topics of scalability of wafer diameter, crystal thickness, crystal morphology and internal stress have to be investigated. The research will be conducted in our research lab in Freiberg in close co-operation with our research partners. The results of the scientific work might be used to obtain a PhD in Electrical Engineering at the TU Dresden.

**Responsibilities:**

- Growth of GaN templates by MOVPE,
- Growth of GaN crystals by HVPE,
- Structural characterization of GaN crystals by x-ray diffraction, atomic force microscopy and electron microscopy, Photoluminescence spectroscopy,
- Investigations on crystal doping, crystal morphology and internal stress, scalability of crystal diameter and crystal thickness
- Set-up, carrying out and evaluation of experiments in coordination with external partners.

**Your profile:**

- Outstanding M.Sc. / M.Eng. in 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.

**The following skills are a plus:**

- Knowledge of microelectronics design, concepts and operation

**We offer:**

- An inspiring international and open atmosphere,
- A team consisting of a well-balanced mixture of PhD students, experienced Post-Docs from different fields and process/facility technicians,
- Focused guidance throughout the project/PhD work,
- On-the-job-training,
- Involvement in projects with research institutes and industry,
- Full position,
- Salary will be oriented on German research organization standards.

**Period:**

- Begin of employment: as soon as possible
- Duration: 36 month (depending on the project releases)

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