As a University of Excellence, Universität Hamburg is one of the strongest research universities in Germany. As a flagship university in the greater Hamburg region, it nurtures innovative, cooperative contacts to partners within and outside academia. It also provides and promotes sustainable education, knowledge, and knowledge exchange locally, nationally, and internationally.

The Faculty of Mathematics, Informatics and Natural Sciences, Department of Physics, Center for Hybrid Nanostructures (CHyN) invites applications for a

**RESEARCH ASSOCIATE FOR THE PROJECT**

“**MASKED DROPLET ETCHING FOR SITE-CONTROLLED QUANTUM STRUCTURES**”

- **SALARY LEVEL 13 TV-L** -

The position in accordance with Section 28 subsection 3 of the Hamburg higher education act (Hamburgisches Hochschulgesetz, HmbHG) commences as soon as possible.

This is a fixed-term contract in accordance with Section 2 of the academic fixed-term labor contract act (Wissenschaftszeitvertragsgesetz, WissZeitVG). The term is fixed for a period of 3 years. The position calls for 100% of standard work hours per week**. This position is also suitable for part time employment.

**RESPONSIBILITIES:**

Duties include academic services in the project named above. Research associates may also pursue independent research and further academic qualifications.

**SPECIFIC DUTIES:**

Quantum effects provide novel approaches for future information and communication technologies. In this field, semiconductor quantum structures represent central building-blocks, which often are fabricated using self-assembly mechanisms. However, such self-assembled structures are usually located on random positions. To overcome this issue, this project studies a novel method for the fabrication of site-controlled quantum structures using masked molecular beam epitaxy (MBE). In detail, site-controlled metal droplets are deposited through pinholes in a mask. The droplets drill nanoholes into the surface that are filled with a material different from the substrate for functionalization. Example are semiconductor quantum dots and rings, self-aligned quantum dot molecules, and ultra-short nanopillars. Tasks within the project are the development and fabrication of MBE compatible masking technologies, the fabrication of samples with site-controlled quantum structures using masked MBE, structural characterization with atomic force microscopy for evaluating the process parameters, and measurements of the optical emission from single quantum structures with micro photoluminescence (PL) spectroscopy at low temperatures.

* Full-time positions currently comprise 39 hours per week.
**REQUIREMENTS:**

A university degree in a relevant field. Required is knowledge of solid-state physics and quantum mechanics. Desirable is knowledge in the physics of semiconductors and experience in vacuum technology, atomic force microscopy, and optical spectroscopy.

The Free and Hanseatic City of Hamburg promotes equal opportunity. As women are currently underrepresented in this job category at Universität Hamburg according to the evaluation conducted under the Hamburg act on gender equality (Hamburgisches Gleichstellungsgesetz, HambGleiG), we encourage women to apply for this position. Equally qualified and suitable female applicants will receive preference.

Qualified disabled candidates or applicants with equivalent status receive preference in the application process.

For further information, please contact Dr. Christian Heyn, Email: heyn@physnet.uni-hamburg.de or consult our website at https://www.researchgate.net/profile/Christian_Heyn.

Applications should include a cover letter, a tabular curriculum vitae, and copies of degree certificate(s). Please send applications by 15.07.2020 to: Dr. Christian Heyn, Center for Hybrid Nanostructures, Luruper Chaussee 149, 22761 Hamburg, Germany, Email: heyn@physnet.uni-hamburg.de.

Please do not submit original documents as we are not able to return them. Any documents submitted will be destroyed after the application process has concluded.