

Scientific Member of Staff / (m/f/d) - Photonic Integrated Circuits for Quantum Sensors -

The Joint Lab Quantum Photonic Components at the FBH is seeking a scientific staff member for the development of active, GaAs-based photonic integrated circuits for application to quantum sensors.

(Reference number 39/19)

GaAs-based diode lasers constitute the photonic backbone of quantum sensors. To allow for miniaturization and scalable production a multitude of functional features has to be integrated into the laser chips. To facilitate proper design of these evermore complex GaAs photonic components, FBH develops a multi-physics, multi-scale modelling and simulation environment which is to predict the performance parameters relevant to quantum sensor applications. The environment will be applied to the development of an extended-cavity diode laser, that is fully (monolithically) integrated on the chip.

The research will cover theoretical, software development, and experimental aspects. The theoretical work will address the modelling of steady-state lasers, i.e., the optical, electrical, thermal, and mechanical properties of the device. The software part will cover the development of the computational environment: existing expert programs will be used to simulate different physical aspects, and control software will be developed to manage the overall simulation flow and the exchange of data between the expert programs. The experimental work will focus on investigating relevant electro-optical performance parameters of test structures and devices like optical transfer functions, optical spectra, modulation properties or frequency noise spectra. All work will be performed in close cooperation with a second project team member and with relevant specialist teams at the FBH.

Candidates must have completed their doctoral studies in physics, electrical engineering or mathematics. They hold strong expertise in physics modelling and in numerical computation. The position is specifically open to those who focused on theory so far and want to extend their expertise into the experimental realm.

Team working as well as independent working skills and an excellent command of English language are essential for this position. German language skills are highly desirable.

The position can be filled immediately and is initially limited to two years.

Payment is according to TVöD (collective salary scheme for German public service). FBH is an equal-opportunity employer. Female candidates are encouraged to apply. Among equally qualified applicants, preference will be given to handicapped candidates.

Have we piqued your interest? Then we look forward to your online application. Please click on "[Apply online](#)" and submit your complete application documents by **03.01.2020**.

If you have any questions about the application, please contact:

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Profile

The Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik (FBH) within the Forschungsverbund Berlin e.V., is a leading international research institute that studies diode lasers, LEDs and microwave devices.

On the basis of III/V semiconductors, it researches and implements components and systems for applications in communications, traffic and production technology, medicine and biotechnology. It covers the entire value chain from design to ready-for-delivery systems.

For more details, visit:
www.fbh-berlin.com