



The University of Paderborn is a high-performance and internationally oriented university with approximately 20,000 students. Within interdisciplinary teams, we design forward-looking research, innovative teaching and the active transfer of knowledge into society. As an important research and cooperation partner, the university also shapes regional development strategies. We offer our more than 2,500 employees in research, teaching, technology and administration a lively, family-friendly, equal opportunity environment, a lean management structure and diverse opportunities. Join us to invent the future!

The Group of Optoelectronic Materials and Devices at the Department of Physics (Faculty of Science) invites applications for the position of a

## Research/ Ph.D.-student (f/m/d) in Experimental Solid-State Physics

(Salary level 13 TV-L)

starting at the earliest possible date (from April 2022 on). The position (75% of regular working time) entails a fixed-term contract for the duration of the Ph.D. project in the field of experimental solid-state physics and is initially limited to 3 years. A prolongation to finish the PhD is possible in accordance with the rules of the Wissenschaftszeitvertragsgesetz (WissZeitVG)

### Position Profile:

The candidate will work in the framework of the BMBF-funded coordinated program QR.X on the fabrication of InAs quantum dots and quantum dot molecules by molecular beam epitaxy for applications in quantum communication. The nanostructures will be embedded into GaAs/AlAs heterostructures that allow for electric field tuning of the emission wavelength via an external bias. To enhance the light outcoupling efficiency, the structures are patterned in cooperation with partners within the program employing electron beam lithography and state-of-art etching techniques. A special focus is on device designs that allow for ultrafast electrical state control.

### Mission:

- Fabrication of InAs quantum dot and quantum dot molecule heterostructures by molecular beam epitaxy
- Structural and optical characterization of the samples, e.g. by atomic force microscopy and photoluminescence spectroscopy
- Nanofabrication of prototype devices for single photon generation and spin storage

### Your Profile:

- Completed university degree in physics or any related subject (M.Sc. or comparable)
- Solid knowledge in the fields of semiconductor physics and solid-state physics
- Highly motivated, hard-working and interested in experimental work

The University of Paderborn is making efforts to increase the proportion of women in the CRC/ TRR142 and therefore encourages qualified women in particular to apply. Female applicants with equal qualifications, skills, and achievements in the field will be given preferential consideration according to North Rhine-Westphalian Equal Opportunities Act (LGG), unless there are cogent reasons to give preference to another applicant. Part-time employment is generally possible. Applications from disabled people with appropriate suitability are explicitly welcome. This also applies to people with equal opportunities in accordance with the German social law SGB IX.

For any questions regarding the position contact Prof. Dr. Dirk Reuter ([dirk.reuter@upb.de](mailto:dirk.reuter@upb.de)).

Applications (preferable as a single PDF-file) should be send with **reference number 5182** to Prof. Dr. Dirk Reuter via e-mail ([dirk.reuter@upb.de](mailto:dirk.reuter@upb.de)) **until 30.04.2022**.

Information regarding the processing of your personal data can be located at: <https://www.uni-paderborn.de/en/zv/personaldatenschutz>.

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