Doctoral Researcher Position (m/f/d)
Development of highly efficient GaAs quantum dot light sources

The Institute for Integrative Nanosciences (IIN), Leibniz IFW Dresden e.V. is one of the world leaders in the domain of semiconductor quantum light sources and provided pioneering contributions to the design, fabrication and characterization of self-assembled quantum dots. Quantum dots are a promising platform for the realization of devices of the quantum internet, such as sources of entangled photon sources, quantum repeaters and one-way quantum computing. In order to realize these devices, high quality droplet etched GaAs quantum dots with specific properties are used. Recently, we have demonstrated single source entanglement swapping and GHz-clocked emission using our leading quantum dot-based entanglement photon sources. We aim to deepen and diversify the investigations of quantum dot-based quantum information systems and therefore offer a PhD position on the topic:

“Development of highly efficient GaAs quantum dot light sources for entangled photon pairs using nanostructuring techniques ”

Your profile:

We are looking for a highly motivated and team-oriented student, who holds a masters degree in physics or nanoscience. Basic knowledge of solid state and semiconductor systems, optics as well as nanostructuring techniques (lithography) is welcome. The successful candidate should be interested in experimental fundamental sciences and enjoys practical work. Very good communication skills in written and spoken English are required.

Project description:

The successful PhD candidate (m/f/d) will be responsible for the optimization of high-quality quantum light sources based on GaAs quantum dots via nano- and microstructuring of semiconductor samples in a clean room. To achieve this goal, the candidate will also perform structural and optical characterization studies of quantum dot samples using optical spectroscopy, as well as develop an atomic force microscope lithography technique for accurate positioning of individual quantum dots. The candidate will join the "Solid-State Quantum Photonics" team of Dr. Caspar Hopfmann and will be able to develop his/her skills as a young scientist. The active participation of the candidate in internal and external conferences, workshops and seminars is explicitly desired.

Conditions:

The employment relationship, including remuneration, is based on the federal German public employment standard (TV-L) according to pay group 13. If the candidate is suitably qualified, we offer a weekly working time of 26 hours (65%). The employment is initially limited to 1 year, an extension for another 2 years is possible.

The IFW would like to increase the number of women in the scientific field. Qualified women are therefore explicitly invited to apply. Severely disabled applicants (m/f/d) will be given preferential consideration in case of equal suitability and qualification.

Please send your application with informative documents (letter of motivation, curriculum vitae, proof of education, references, etc.) by August 20, 2022, exclusively in electronic form and in a PDF file (other formats will not be considered), quoting the reference number 046-22-4320 to:

bewerbung@ifw-dresden.de.

For technical queries, please contact Dr. Caspar Hopfmann: c.hopfmann@ifw-dresden.de.