

The Leibniz Institute for Solid State and Materials Research Dresden e. V. (IFW Dresden) conducts modern materials research on a scientific basis for the development of new and sustainable materials and technologies. The institute employs an average of 500 people from over 40 nations and, in addition to its scientific tasks, is dedicated to promoting young scientists and engineers. Further information at: <http://www.ifw-dresden.de>.

Postdoctoral Researcher Position (m/f/d) Leader quantum optical investigations using 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 postdoctoral position on the topic:

“Leader quantum optical investigations of GaAs quantum dot light sources for quantum communication and meteorology”

Your profile: We are looking for a highly motivated and team-oriented young researcher (m/f/d), who holds a doctoral degree in the physics discipline of quantum optics (or similar). Sophisticated knowledge of experimental optical and semiconductor quantum systems and in particular quantum optics of quantum light sources using single photon spectroscopy is required. Secondly knowledge of solid state and quantum physics, data analysis, as well as nanostructuring techniques is welcome. The successful candidate (m/f/d) 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 candidate (m/f/d) will be responsible for leading a world-class quantum optics laboratory at the IFW Dresden. The candidate (m/f/d) will supervise the daily work of PhD and master students in this lab as well as develop his/her own scientific investigations in the context of quantum communication networks. The intended goal of these investigations in the "Solid-State Quantum Photonics" team of Dr. Caspar Hopfmann are, for example: Characterization of highly entangled photon pair sources, entanglement swapping, quantum memories, quantum frequency conversion, photonic cluster states. The candidate (m/f/d) will be able to develop his/her skills as a young scientist (m/f/d) and will perspective be able to apply his/her own projects. The active participation of the candidate (m/f/d) 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 (m/f/d) is suitably qualified, we offer a weekly working time of 40 hours (100%), part-time is possible. The employment is initially limited to 2 years, an extension 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 **January 30, 2023**, exclusively in electronic form and in a PDF file (other formats will not be considered), quoting the **reference number 011-23-4320** to:

bewerbung@ifw-dresden.de.

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

