The 3rd physics institute in Stuttgart (Germany) is a leader in control of solid state quantum systems with strongly growing expertise in nano-fabrication technology. In addition, the institute has established strong and fruitful collaborations with global industrial partners such as Bosch GmbH, Trumpf GmbH and Denso Corp. As a member of the Quantum Internet Alliance (QIA) which has recently received a 10 M€ funding from the European Quantum Technology Flagship, we will develop the next generation of the quantum Internet. Within the QIA framework, we seek for a PhD candidate to join us in our efforts in generating multi-qubit defect clusters in diamond, which promise a significant increase of the bandwidth of the envisaged quantum information protocols. The underlying idea in this respect is to use one part of the cluster as an efficient spin-optical interface, and the other part for high-coherence quantum information storage.

The applicants’ tasks will be:

- Creation of multi-qubit clusters based on strongly coupled nitrogen-vacancy centres in diamond via novel approaches based on ion implantation techniques.
- Optical and spin characterisation of the created qubit clusters.
- Implementation of quantum information protocols and routines for high-level quantum Internet applications.

The applicant will be offered:

- Working at a leading institute for applied quantum information technology and being an integral part of the future quantum Internet.
- Full access and thorough training on all our in-house nano-fabrication facilities (including ion implantation, e-beam lithography, CVD diamond growth,...).
- Ability to create, characterise, and use your own quantum information devices.
- Work in a large international team with a lot of fun.

The University of Stuttgart is an equal opportunity and affirmative action employer. Applications of women are strongly encouraged. Severely challenged persons will be given preference in case of equal qualifications.

Note that by sending your application via email, your data is transferred as plaintext and may be read or manipulated by non-authorized parties. You can minimize this risk by sending a hard copy of your application. Information about collection of personal data can be found at http://www.physik.uni-stuttgart.de/aktuelles/stellenausschreibungen/
The applicants are expected to meet the following requirements:

- MSc degree (or equivalent) in experimental Physics / Optics.
- Experience in optical microscopy at the single emitter level.
- Basic experience in electron and nuclear spin magnetic resonance.
- Basic experience in programming with Python.
- Motivation to work in a multi-disciplinary environment combining device fabrication and quantum control.
- High level of communication skills in English.

Vergütung  
E13 TV-L, 75%

Art der Beschäftigung  
Teilzeit

Zeitraum der Beschäftigung  
The position is initially limited to three years.

Bewerbungsfristende  

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Bitte beziehen Sie sich in Ihrer Bewerbung auf https://www.stellenwerk-stuttgart.de/