



DLR – DAAD Fellowships

Fellowship No. 477

Research Area : Aeronautics

Research Topic: **Simulation of the phase diagrams of engineering alloys with a near-term quantum computer**

DLR Institute: Institute of Materials Research, DLR Cologne

Position: Doctoral Fellow

Openings: 1

Job Specification:

Quantum computing is one of the key technologies of the current century. Due to their quantum character, quantum computers are parallel machines perfectly suited for material simulations at the atomic level. The DLR Institute of Materials Research is investigating how this kind of computing power can be utilized to simulate macroscopic properties of engineering materials. A decisive step towards this ambitious goal is to increase the simulation quality, i.e. the number of atoms that can be simulated within a many-body approach. Interdisciplinary knowledge about the computational methods as well as the available quantum computer hardware is required together with materials science expertise. The project is embedded in an international consortium with renowned experts in these fields. The candidate should be able to work in such a team to tackle this ambitious challenge towards the next generation of materials science and engineering.

Required Qualification:

- Completed master studies in physics, materials, computer science or engineering, e.g. aerospace engineering or mechanical engineering.
- Very good knowledge in materials science, DFT calculations or quantum computing.
- Solid programming experience
- Ability to work in a structured way both independently and as part of a team

Advantageous Skills:

- Experience in atomistic materials simulations or quantum chemistry
- Experience in quantum algorithm programming

English competence: **Fluent** - See requirements on www.daad.de/dlr

Earliest Start Date: 01.03.2021

Application Deadline: Until the position is filled

Further Information: <http://www.dlr.de>
<http://www.daad.de/dlr>