

Bachelor thesis:

Several Topics regarding diamond quantum sensing of intermolecular distances

Project: Goal of the project is the development of quantum sensor which is able to resolve smallest distances within a biomolecule. For that crystal defects in diamonds are used which can be addressed with a combination of laser and microwave pulses to visualize the interaction between single spins.

We are looking for students interested in the following topics:

Measurement:

- Characterization of the quantum sensor in terms of lifetime and depth in the diamond
- Measurement of the polarization and determination of magnetic fields
- Determination of the coupling efficiency between the microwave field and the sensors, depending on orientation

Coding:

- Design of an intelligent Database for previous measurements
- Graphical user interface operating measurements

Biochemistry:

- Functionalizing of the diamond surface for specific DNA binding

If you are interested please contact Prof. Jens Michaelis (jens.michaelis@uni-ulm.de) or Christian Ganslmayer (christian.ganslmayer@uni-ulm.de).