



## Quantum sensing of biomolecules and their chemical stimuli

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For the prestigious PhD school of the [Swiss Nanoscience Institute](#), we solicit applications for a paid 4-year PhD student position in the [Biomolecular Nano-Dynamics](#) group at the Dept. of Chemistry and in close collaboration with the [Quantum Sensing](#) group at the Dept. of Physics, both at the University of Basel, Switzerland. We look for a highly talented and motivated PhD student with a strong background in physics or physical chemistry to join our team for cutting-edge quantum sensing of biomolecules using nitrogen vacancy (NV) colour centers in diamond and single-photon fluorescence readouts.



### Your position

In this interdisciplinary PhD project, you will:

- Build an optically-detected magnetic resonance (ODMR) spectrometer based on state-of-the-art equipment.
- Detect single particles and single photons to establish new fluorescence readouts.
- Develop a range of biocompatible experiments to detect protein molecules and their chemical stimuli.

This work will yield key steps towards single-molecule NMR of biomolecules based on our progress in optical quantum sensing with NV centers. This is a full-time position, and a project we ideally want to start in the first half of 2025.

### Your profile

Prior experience in several of these areas is desired:

- Optics and fluorescence spectroscopy techniques,
- Quantum sensing, ideally using color centers,
- Single-molecule experiments and interpretation,
- Advanced data analysis, coding, modeling, machine learning.

### Essential requirements

- MSc degree in physics or physical-chemistry with excellent grades,
- High motivation and curiosity about fundamental questions and method development,
- Independent analytical thinking and systematic work style,
- Excellent experimental problem-solving skills and perseverance,
- Great team player proficient in English (speaking & writing).

### We offer

- An exciting and fully funded PhD project in Basel, Switzerland,
- Embedding in the PhD school of the [Swiss Nanoscience Institute \(SNI\)](#),
- A productive, interdisciplinary group with an open and interactive lab culture,
- State-of-the-art research infrastructure and facilities,
- A highly international and interdisciplinary setting stimulating your professional and personal development,
- The [GRACE graduate center](#), wide-ranging [sports offers](#), etc.
- A beautiful and very lively city at the intersection of Germany, France, and Switzerland.

### Application/contact

Applications are invited from now until **Oct 30<sup>th</sup>, 2024**. Please submit your application through the online application tool, including: letter of motivation, CV, and email addresses of 2-3 references – all merged into a single pdf file named '*Application NV Firstname Lastname.pdf*'.

For questions, please contact Prof. Schmid: [sonja.schmid@unibas.ch](mailto:sonja.schmid@unibas.ch) or Prof. Maletinsky: [patrick.maletinsky@unibas.ch](mailto:patrick.maletinsky@unibas.ch)