

Job title: PhD Position in Single-Molecule Biophysics using Nanopore Trapping

Level of employment / date of entry

100% / starting spring 2026 (negotiable)

The Schmid group at the University of Basel invites applications of talented and ambitious candidates for a PhD student position in the field of single-molecule biophysics, with a focus on protein trapping and mechanistic analysis using state-of-the-art nanopore experiments.

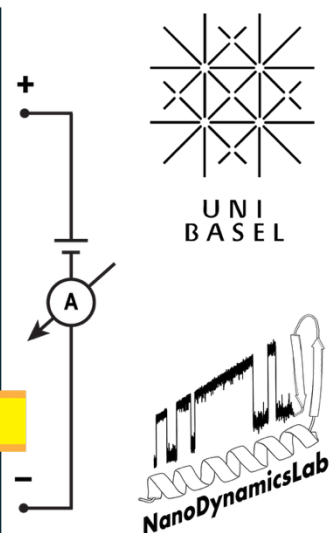
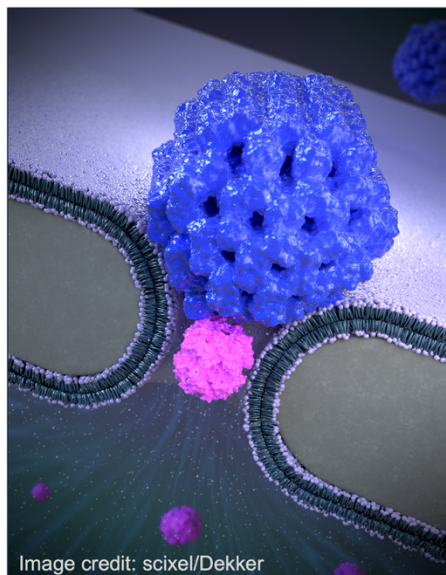
About the Project

Our group has pioneered the development of the Nanopore Electro-Osmotic Trap (NEOtrap), a groundbreaking technique that enables label-free trapping and sensing of single proteins in solution for up to hours. Now, we leverage the unique abilities of nanopore trapping to detect proteins and their conformations, dynamics, interactions, catalytic mechanisms etc. in real-time. Building on our published and unpublished work, the successful candidate will advance nanopore trapping in new directions using solid-state and biological nanopores to identify previously inaccessible protein properties with single-molecule resolution, for future applications in biotechnology and biomedical diagnostics.

Your position

As a PhD student, you will:

- contribute to next-generation detection tools for protein characterization and fingerprinting.
- design and execute experiments to trap single proteins.
- perform in-depth data analysis and pattern recognition to extract protein properties from electrical current reads.
- engineer new nanopores (solid-state or biological).
- collaborate within an interdisciplinary team of biophysicists, nanotechnologists, and biochemists.
- present your findings orally and in writing at conferences and in scientific publications, respectively.



Your profile

Required:

- MSc degree in biochemistry, physical chemistry, nanoscience, physics, or related fields with excellent grades.
- A driven scientist, highly motivated to learn and apply new single-molecule techniques.
- Excellent experimental problem-solving skills, perseverance, and a strong ambition to grow.
- Strong analytical and independent thinking capacity is a must.
- A systematic work style, and an honest colleague.
- A friendly team player with excellent communication skills (English speaking & writing).

Desired:

- Experience in nanopore and/or other single-molecule experiments and their interpretation.
- Coding skills for advanced data analysis, machine learning, kinetic modeling, etc.
- Nanofabrication and/or protein engineering and/or DNA origami expertise.

We value diversity and welcome applications from talented scientists of all backgrounds.

We offer

- An exciting and fully funded PhD project at the University of Basel, Switzerland.
- Embedding in a productive, interdisciplinary group with an open and interactive lab culture.
- State-of-the-art research infrastructure and facilities at the Dept. of Chemistry, the Swiss Nanoscience Institute, and the University of Basel.
- An international and interdisciplinary setting stimulating your professional and personal development.
- A beautiful and very livable city at the intersection of Germany, France, and Switzerland, with wide-ranging sport, leisure and cultural opportunities.

Application / Contact

To apply, please send a single pdf file named *[YOURNAME].pdf* to [sonja.schmid\[at\]unibas.ch](mailto:sonja.schmid[at]unibas.ch), including:

- Motivation letter, also stating how your expertise and training align with the project.
- CV.
- BSc and MSc Transcripts.
- Contact details of 2-3 referees (email & phone number).

Please use the subject "PhD Application: *[YOURNAME]*".

Deadline: open until filled

Contact: sonja.schmid@unibas.ch

Start Date: Spring 2026 (negotiable)

Are you passionate about pushing the limits of protein biophysics through innovative nanotechnology? Join our dynamic, interdisciplinary team in Basel, Switzerland.