Job title: PhD Position in Microplastic Detection Using Micropores and Microfluidics

Level of employment / date of entry

100% / starting spring 2026

The **Schmid group** at the University of Basel invites applications from highly motivated and creative candidates for a PhD position in **nanoscience and microfluidic engineering**, dedicated to developing integrated micropore-based systems for real-time detection of microplastic particles in the Rhine River.

About the Project

Microplastic pollution poses a serious threat to aquatic life, environmental and human health. Despite increasing awareness, reliable monitoring of microplastics in natural waters remains difficult, as current measurement approaches are costly and time-consuming.

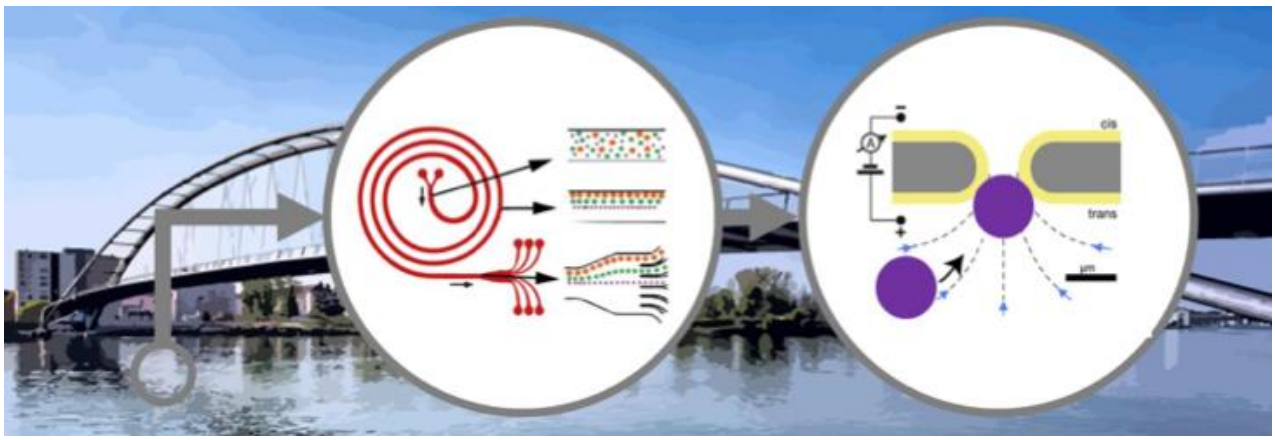
In collaboration with microfluidics and microfabrication experts, this project aims to design and implement an integrated detection system that merges microfluidic preconcentration with micropore-based particle sensing. The ultimate goal is to create a portable prototype for continuous, in situ monitoring of microplastic concentrations in the Rhine.

We are looking for a candidate who enjoys hands-on experimental work and has a mindset similar to a **nanopore engineer – applying that skillset to micropore recordings** with a clear, meaningful application in environmental monitoring and sustainability. Through this work, you will help establish new technologies for real-world water quality analysis and environmental diagnostics.

Your Position

As a PhD student, you will:

- Develop and optimize nano- and micropore sensors for environmental conditions.
- Design, perform, and validate nano- and micropore experiments to identify and characterize microplastic particles.
- Contribute to the design of a portable sensing prototype integrating microfluidics, micropores, and automated data acquisition.
- Develop software solutions for automated recording, signal processing, and data analysis, extracting meaningful particle characteristics from complex datasets.
- Collaborate with an interdisciplinary team of experts in microfluidics, nanoscience, environmental science, and analytical chemistry.
- Present your research at conferences and publish results in peer-reviewed journals.



Your Profile

Required:

- MSc degree in nanoscience, physics, physical chemistry, or related fields, achieved with excellent grades.
- Strong motivation to apply nanoscale and microscale engineering to environmental monitoring challenges.
- Excellent experimental and analytical problem-solving skills, along with independent and creative thinking.
- A systematic and reliable working style; strong collaboration and communication skills.
- Proficiency in English (speaking and writing).

Desired:

- Experience in microfluidics, nanopore or micropore sensing, or single-particle analysis.
- Coding experience for data acquisition, control, or analysis (e.g., Python, MATLAB, LabVIEW).
- Interest or background in sensor engineering, environmental sampling, etc.

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

We Offer

- A fully funded PhD position at the University of Basel, Switzerland.
- Integration into a dynamic, interdisciplinary research environment with access to cutting-edge facilities.
- Opportunities for collaboration across the trinational Upper Rhine region: Basel - Freiburg - Strasbourg.
- Professional growth in an international academic setting.
- A stimulating, high-quality living environment in Basel – at the intersection of Switzerland, Germany, and France – with rich cultural and recreational offerings.

Application / Contact

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

- Motivation letter outlining your research interests and how they align with the project.
- Curriculum Vitae (CV).
- BSc and MSc transcripts.
- Contact information for 2–3 referees (email and phone number).

Please use the subject line: **PhD Application: [YOURNAME]**

Deadline: Open until filled.
Contact: sonja.schmid[at]unibas.ch
Start Date: Spring 2026.