

#### Project

Nanofiltration research at IAMT is focused on a materials and processes approach, where fundamental aspects are covered from novel material characterization to transport phenomena, while pilot scale systems are used in field work applied to decentralized water supplies. Applications typically cover water treatment, encompassing water reuse and desalination. Relevant topics include micropollutant removal, transport of inorganic contaminants (e.g. arsenic, uranium, nitrate, fluoride) and complex phenomena of real water. IAMT has a suite of highly sensitive analytical tools that enable high sample throughput at environmentally relevant concentrations.

Filtration systems and devices are predominantly designed in-house and enable experimentation at the smallest scale with industrially relevant conditions. Extensive opportunity for international collaboration and up-scale exists. Modelling, in particular, molecular dynamics modelling is carried out in collaboration to correlate experimental data with state-of-the-art models to better understand phenomena and to – ultimately – enable better material design through the availability of multiscale models.



The position requires a person interested in;

- ◆ Designing excellent research projects in the field of nanofiltration and carrying out laboratory experiments to gain fundamental principles understanding (aided by masters or PhD students);
- ◆ Interest in upscale and contribute to pilot scale system development, construction and experimentation, including coupling with renewable energies;
- ◆ Develop hands-on, in collaboration with modelling experts, models to gain fundamental understanding and determine transfer parameters for model development.

The project choice is open within these boundaries and willingness to apply for fellowships will open further opportunities. There are numerous exciting mobility opportunities – including Australia – available to expand experience and networks. At the postdoctoral level the preparation of research proposals and publications, participation in team responsibilities and activities as well as the supervision of students is a key requirement. Throughout the project, there will be additional opportunities for cooperation with internal and external partners, team events, as well as contributing to (a minimal amount of) teaching.

#### Qualifications

The ideal candidate will hold a PhD in Chemical, Process, Environmental Engineering, or equivalent and is a naturally curious ‘can do’ person, eager to learn more and has a strong interest in research. Experience with membrane filtration is a requirement and modelling (of any scale) is a definite advantage. Further requirements are experience in specifying system components, sound experimental problem-solving skills, micropollutant/water analysis and a solid publication track record – as well as good common sense. Excellent English language proficiency is essential, and basic German language skills of advantage. A valid driver’s licence is required.

#### KIT

KIT is one of the biggest research institutions worldwide and has access to state-of-the-art research facilities resulting from the merger of the National Research Centre of the Helmholtz Association and the former Technical University of Karlsruhe. This project is hosted by the Institute for Advanced Membrane Technology (IAMT) that was founded in 2020 with new state-of-the-art laboratories.

#### Position details

TvOD E13 100% for 1 year (**extendable, start date flexible and position open until filled**) or fellowships (e.g. Humboldt/Helmholtz/Marie Curie)

#### Contact

**Prof. Dr. Andrea I. Schäfer**, Institute for Advanced Membrane Technology (IAMT), +49(0)721 608 26906, Andrea.Iris.Schaefer@kit.edu, <https://www.iamt.kit.edu>

#### Applications

Please send applications with cover letter addressing position requirements, CV, publication list and your contribution to the publication (if relevant), academic transcripts, degree certificates, contact details for three references and a research proposal on the topic within your interests to the above contact(s). It is strongly advised to visit the IAMT website as well as read the numerous publications on the topic.