

Doctoral position (m/f/d)

Antibiofouling and Antisoiling Coatings

*Project C2 within the CRC SFB-1537 **ECOSense***

Who we are:

The Department of Microsystems Engineering (IMTEK) at the University Freiburg is one of the largest research institutes dedicated to microsystems engineering. The IMTEK Laboratory for Chemistry and Physics of Interfaces develops coatings and micro/nano structuring techniques to generate tailored surfaces for sensors and other applications.

Your Task:

Within **ECOSense** you will be working on the development of coatings that protect sensor surfaces from soiling and/or biofouling in various environments e.g. on leaves or buried in the ground.

For details on ECOSense, see <https://www.cep.uni-freiburg.de/forschungsprojekte/ecosense>

You will develop coatings and coating techniques based on a chemistry established in our group and adjust them to the needs of ECOSense. Two general strategies will be followed: The removal of inorganic contaminants can be achieved by applying a low-surface energy coating. The low adhesion of particles to these coatings allows a simple removal by rain. To prevent bio-fouling, we will pursue "entropic shielding". This is a concept in which surface-attached hydrogel coatings prevent the adhesion of biomolecules and cells. Your coatings will fulfill a broad spectrum of requirements: They will work both under very dry conditions and in the pouring rain, endure strong temperature changes as well as strong UV loads from the sun.

We are looking for candidates (m/f/d) with a MSc degree in chemistry, physics, materials science and engineering or comparable.

Your qualification will cover several of the following areas:

- Synthetic polymer chemistry (monomer synthesis, polymerization techniques)
- Experience in the analysis of small molecules and polymers via standard spectroscopies (UV/Vis, IR, NMR) and other techniques (GPC, mechanical analysis, DSC)
- Experience in surface modification and coating technologies (spin and/or dip coating, doctor blading)
- Experience in surface analytical techniques (XPS, microscopies, wetting properties)

What we offer

We offer an exciting interdisciplinary topic with a relevant application focus for our society and a salary according to **TV-L until the end of June 2026**. The possibility for pursuing a doctoral thesis is given, provided that all formal criteria are fulfilled. You can expect modern laboratory equipment and a highly qualified, multicultural team, which will cooperate with you and support you along your professional growth.

Details on the documents required for your application and on the required form of the application are to be found on <https://www.cep.uni-freiburg.de/forschungsprojekte/ecosense>. Please **follow these rules strictly** and send your job application in digital form until **August 21, 2022**, to the following persons:

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