Masters Project

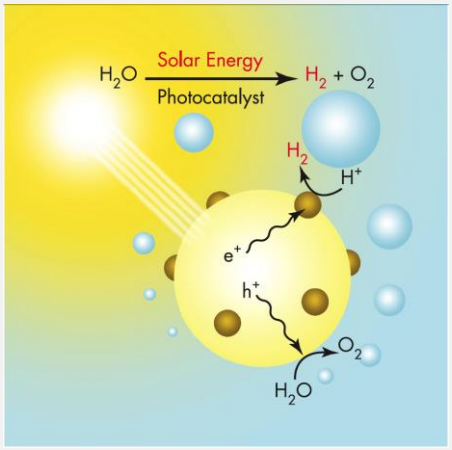
Project Summary	**Photocatalytic Nanofiltration Membrane for the Removal of Trace Pollutants in Water Reuse**

The current presence of steroid hormones in natural waters and their negative effect on surroundings and human health is an issue of global concern. This Masters project builds on the Photocatalytic Membrane processes for the removal of micropollutants from water. The main aim of this project is to fabricate a ceramic based photocatalytic nanofiltration membrane by atomic layer deposition (ALD) and extend its applications in micropollutants removal.

The project is developed with the following objectives, i) prepare the ceramic based photocatalytic membrane by ALD method, ii) study the effectiveness of the prepared photocatalytic membrane for the removal of micropollutants; ii) investigate the effects of various operating parameters on the removal performance.

The research will investigate the following research questions:

- Which kind of preparation conditions of ALD are suitable in fabricating the photocatalytic nanofiltration membranes?
- What is the performance of the prepared photocatalytic membrane for micropollutants removal from water?



- How will the operating parameters affect the removal performance of the photocatalytic membrane

Master student will have the opportunity to co-author a research publication. Master student will need to take part in group activities, oral presentation in group meeting and writing of reports (medium of all communications and writing will be in English).

Required Skills	**Studies in Chemical/Process Engineering or equivalent (Uni, TH)** Basic knowledge in photocatalysis, membrane technology, and water analysis. Evidenced writing skills in English language, ability to use MS Word, Excel, know-how for Origin Labs software and Endnote for data analysis, graphing and citation management, willingness to lead or contribute to the writing of a scientific publication.
Institute/ Department	Institute for Advanced Membrane Technology (IAMT) Bldg 352, Campus North, Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen
Start Date	Flexible/negotiable
Application Procedure	Please email CV, transcripts and motivation letter with available time period for evaluation.
Project Advisor(s)	Dr. Siqi Liu: siqi.liu@kit.edu Prof. Dr.-Ing. Andrea Iris Schäfer: andrea.iris.schaefer@kit.edu https://www.iamt.kit.edu/