



AARHUS UNIVERSITY

2-year postdoc on effect-directed analysis of micropollutants in water

The Department of Biological and Chemical Engineering, Aarhus University, invites applications for a 2-year postdoc position offering applicants an exciting opportunity to join our research on effect-directed analysis of micropollutants in wastewater.

The currently known environmental micropollutants are generally responsible for less than 1-5% of the total mixture toxicity in wastewaters. This project aims at identifying the key toxicants in complex mixtures and assess their removal in advanced water purification (bio)technologies.

For this, the project aims at developing an innovative technology for high resolution screening of bioactive compounds (i.e. effect-directed analysis, EDA) by developing a direct coupling between liquid chromatography – mass spectrometry and planar bioassays (i.e. in vitro bioassays integrated with TLC).

Specific tasks are:

- Development of a novel interface for printing μL -droplets of the eluent of liquid chromatography on TLC plates for planar bioassays
- Optimization and validation of the EDA approach for detecting biological effects based on liquid chromatography coupled with planar bioassays
- Identification of key pollutants causing the currently unattributed effects in wastewater before and after advanced water purification (bio)technologies.
- Working in a team with external & international partners including research stays abroad

The project will be conducted in close collaboration with:

- Dr. Associate Prof. Jeroen Kool, Vrije Universiteit Amsterdam, The Netherlands: Development of LC-TLC interface
- Dr. Sebastian Buchinger, Federal Institute of Hydrology, Germany: Effect-based methods based on planar bioassays
- Dr. Prof. Jan H. Christensen, University of Copenhagen, Denmark:
https://plen.ku.dk/english/research/env_chem_phys/ac/research-projects/vandalf/

There is considerable freedom to align the goals of the project with the goals of the candidate. The candidate is therefore encouraged to describe research ideas as part of the application (research proposal of max. 2 pages).

The position, funded by the Danish Research Foundation, is for 2 years. The starting date is flexible: December 2021 or thereafter.



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Your profile

Our ideal candidate holds a PhD in analytical environmental chemistry and has experience with effect-based methods or similar, has an open mind to develop new ideas and is eager to collaborate with international partners.

The following qualifications are considered as an advantage:

- Experience with chromatography and mass spectrometry
- Experience with effect-based methods such as in vitro bioassays
- Experience with fate of micropollutants in wastewater treatment
- Publishing in peer-reviewed journals
- Developing and writing project proposals

Where experience is lacking, the candidate must be motivated to learn and will get the opportunity to develop new skills. The applicant should be interested to co-supervise students. Excellence in both written and spoken English is a requirement.

The successful candidate is offered:

We offer a well-financed and unique research opportunity to conduct research on effect-directed analysis of micropollutants in water at a high international level.

The successful candidate will be employed by Aarhus University, located in the vibrant student-city of Aarhus. The place of work is the Aarhus University Centre for Water Technology (WATEC) (<https://watec.au.dk/>) at the Department of Biological and Chemical Engineering (<https://eng.au.dk/>). WATEC is a strongly growing and highly dynamic interdisciplinary centre at the Department of Engineering.

We guarantee access to well-developed research infrastructure including state-of-the-art instrumentation for chemical analysis (UHPLC-HRMS).

Further information and application

Further information about the position may be obtained from Leendert Vergeynst, +4550577938, email: leendert.vergeynst@eng.au.dk

Applications (CV, motivation letter) should be sent to Leendert Vergeynst.

The position will be open until a qualified candidate is found.