

Teaching, research and practice – we connect

PhD student Applied Microbiology / 3D-printing

School of Life Sciences FHNW, Institute for Ecopreneurship

Your tasks: 3D-printing has become a key technology in a multitude of disciplines in the field of life sciences. However, its potential has so far been exploited mainly for medical applications and the handling of eukaryotic cell lines. It also offers opportunities for the application of microbial agents in bioremediation settings. Additionally, it allows for the fine-tuned spatial coordination of microbes, either in artificial biofilms to unlock emergent properties required for pollutant degradation, or in bioaugmentation settings where biodegrading agents are protected from the complex environment. In the frame of the Horizon Europe projects NYMPHE and MAR2PROTECT, we offer a PhD position focusing on additive manufacturing of microbes and artificial communities for the degradation of environmental pollutants in various environmental compartments. The PhD position will be in collaboration with the University of Duisburg-Essen. In the offered position, your main responsibilities include:

- setting up of artificial communities (e.g., combinations of anaerobic and aerobic microorganisms or those with complementary biodegradation capabilities) with potential for bioremediation
- 3D-bioprinting of microbes and artificial communities, evaluation of different geometries and possibly different printing matrices
- assessment of physiology and viability of cells in the printed materials using imaging technologies and/or bioassays
- evaluation of the degradation potential of 3D-printed vs. non-printed setups

The position is initially limited to one year with a prospect of a three-year extension.

Your profile:

- MSc in microbiology or related fields
- strong experience in the cultivation of various microorganisms, good knowledge of microbial metabolism
- ideally experience with additive manufacturing, analysis of organic pollutants and imaging technologies
- interest in working in a highly interdisciplinary field and thinking outside the box
- open-minded team player who would like to contribute to bio-based solutions and face the challenge of successful bioremediation methods

Your prospects: The FHNW School of Life Sciences offers state-of-the-art technical, laboratory and office facilities. Contributing to the school's highly motivating working environment – which is second to none – are its collaboration with a large number of companies and institutions in Switzerland and abroad, a widely varied program of scientific events, and daily contact with young students in research and teaching. The FHNW is also committed to equal opportunities and the compatibility of private and professional life.

Starting date at the earliest possible date. Workplace: Muttenz

Will you soon belong to our team? Please submit your application online via the respective announcement on www.fhnw.ch/offene-stellen to Cristina Kabas, HR Manager. For further information please contact Dr. Boris Kolvenbach, e-mail: boris.kolvenbach@fhnw.ch.

