



UNIVERSITÄT
LEIPZIG

Faculty of Physics and Earth
System Sciences
**Peter Debye Institute for
Soft Matter Physics**
Prof. Dr. Frank Cichos

Department Molecular Nanophotonics, Linnéstraße 5, 04103 Leipzig, Germany

PhD Position available
“Machine Learning of Multi-Species Microbial Consortia Representations”

The Research and Transfer Center for Bioactive Matter (b-ACT^{matter}) at Leipzig University is currently offering a doctoral researcher position under the supervision of Prof. Dr. Frank Cichos. The position is part of the **M-ERA.NET** Call 2023 funded project

“LivMat – Productive catalytic living materials: combining 3D biobased fibrillar membranes with synthetic microbial consortia to produce chemicals”

We seek to fill the above position from October 1, 2024.

Leipzig University coordinates the LivMat project, and the consortium consists of the Helmholtz-Centre for Environmental Research (Leipzig, Germany), University of Latvia (Riga, Latvia), Istanbul Technical University (Istanbul, Turkey), Kaunas University of Technology (Kaunas, Lithuania), and Solaga UG (Germany).

In this project, we aim to capture and utilize natural resources (e.g., natural fibers) and waste resources (e.g., CO₂) to develop catalytic living materials (cat-LMs) that are robust, energy efficient and scalable for chemical production. The goal of this PhD project is, in particular, to develop machine learning models that can predict the properties of multi-species microbial communities from fundamental properties of bacteria.

We are seeking a highly motivated PhD candidate with an excellent master’s degree in physics or in an equivalent relevant subject area with excellent English proficiency. A strong computational background and previous experience with machine learning is an advantage.

The successful candidate will perform cutting edge computational research on the development of digital bacterial representations and the machine learning guided prediction microbial consortia properties and their optimization.

The candidate should be committed to collaborative and highly interdisciplinary teamwork and have excellent oral and written communication skills. The computational work will enable the successful candidate to acquire expert skills and knowledge of innovative machine learning methods applied to a highly relevant topic of new bio-based sustainable materials.

Salaries will be according to DFG standards.

Applications including 1) a letter of interest (max. 1 page), clearly stating the specific motivation of the candidate to join the group, work on this project, career goals, etc., 2) a CV, 3) grade transcripts or equivalent record of excellent academic performance, clearly indicating courses taken and grades in each course (for MS and BS), 4) the names of at least two consenting referees should be sent to cichos@physik.uni-leipzig.de. The application deadline is **September 15, 2024**.

Please visit our group website for more details about our research:

<https://www.uni-leipzig.de/~mona>