

The Chair of Biogenic Functional Materials at TUM Campus Straubing for Biotechnology and Sustainability is offering a

Bachelor / Master Thesis Project – Synthesis and Characterization of luminescent Metal-Organic Frameworks.

Are you passionate about innovation?; Do you love to develop applied science with environmental impact?; Do you use multidisciplinary thinking to solve professional questions?; Are you able to appreciate the beauty of nature's answers to its many challenges?; Would you like to innovate in an international and highly collaborative environment? Then the Chair of Biogenic Functional Materials (BFM) lead by Professor Dr. Rubén D. Costa at the Technical University of Munich (TUM) is the perfect place for your future. BFM offers state-of-the-art infrastructure comprising three interdisciplinary and inter-connected laboratories focused on the synthesis and engineering of biogenic and sustainable photo-electro-active materials, mechanical/spectroscopic/electrochemical characterizations, and the engineering of lighting and photovoltaic devices with researchers from around the world. We are located at the young TUM Campus Straubing, aiming to become the European leader in developing sustainable technologies and their economic implementation. Learn from Biology, think like a Chemist, and handle like an Engineer...are you ready?

Background: Organic and coordination chemistry, luminescence, MOFs, porous materials.

Project Description: Metal Organic Frameworks (MOFs) are a class of highly crystalline, porous materials made by one or several metal cation(s) and one or several organic ligand(s) called linker(s). The aim of this project is the synthesis, the full characterization and the study of the photophysical properties of new series of MOFs. The synthesized MOFs will be based on relatively cheap, abundant and ecologically friendly metal cations (e.g. Zn²⁺, Mg²⁺, Zr⁴⁺). In particular, techniques such as powder X-ray diffraction (PXRD), photoluminescence quantum yield (PLQY), excited lifetimes will be deeply investigated.

Required skills: The candidate must have skills in organic coordination and supramolecular chemistry. Knowledge in materials science and in solid state photophysics is welcome, even though not mandatory. Good English level is mandatory.

A successful project ends with a technical/proceeding paper and one or more author contributions to the articles of the group in artificial evolution.

For questions please contact:

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