

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

Bachelor / Master Thesis Project – Luminescence Protein-based NanoParticles for Bio-hybrid Light-Emitting Diodes

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 inter-disciplinary 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: protein chemistry, organic/inorganic chemistry, coordination chemistry, luminescence, nanomaterials.

Project Description: Bio-hybrid LEDs are a class of lighting devices made by blue-, green-, and red-fluorescent proteins (FPs) that are stabilized into a rigid or elastomeric polymeric matrix. The aim of this project is the encapsulation of FPs into mesoporous silica nanomaterials by sol-gel process. The student will be in charge of the synthesis and the full-fledged photophysical characterization of a new series of mesoporous nanomaterials. In particular, techniques such as RMN, TEM, SEM, steady-state and time-resolved spectroscopic techniques will be touch. In addition, the student will implement and characterize Bio-hybrid LEDs using the above protein-based nanoparticles.

Required skills: The candidate must have skills in protein chemistry and organic synthesis.

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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