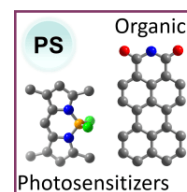


Job Announcement

Postdoctoral Position available from 01.06.2024

Project Investigator (PI): Prof. Dr. Kalina Peneva

Name of Institute: Institute of Organic and Macromolecular Chemistry
Friedrich Schiller University Jena (FSU Jena), Germany



TRR234-A3: Metal-free Photosensitizers and Their Application as Molecular Chromophore-Catalyst Systems

The project focuses on the **design of tailored photosensitizers** with broad visible light absorption. Chemical functionalization of the dyes will enable **coupling to catalytic units**, allow **soft matter integration**, tune the redox potentials, and adjust their solubility in the reaction media. (<https://www.catalight.uni-jena.de>)

Few examples of our **current work** can be found in the following links (*J. Mater. Chem. A.* **2023**, *11*, 23260–23269. DOI: [10.1039/d3ta04450e](https://doi.org/10.1039/d3ta04450e), *React. Chem. Eng.* **2023**, *8*, 2967-2983. DOI: [10.1039/d3re00398a](https://doi.org/10.1039/d3re00398a), *ACS Catal.* **2023**, *13*, 7159–7169. DOI: [10.1021/acscatal.3c01201](https://doi.org/10.1021/acscatal.3c01201), *ACS Appl. Mater. Interfaces* **2023**, *15*, 20833–20842. DOI: [10.1021/acsami.2c18529](https://doi.org/10.1021/acsami.2c18529))

Short description of the Job: Applications are invited for a **Postdoctoral Research Associate** to work under the supervision of Professor Kalina Peneva on a research project for a period of up to 24 months (<https://www.penevagroup.uni-jena.de>). This work is part of a large-scale collaborative research center **CATALIGHT** that will investigate the **elemental processes of photocatalytic ensembles embedded in various soft-matter matrices**. CATALIGHT encompass leading experts in molecular and macromolecular synthesis, materials characterization and theoretical modelling from Ulm University, Friedrich-Schiller-University Jena, Max-Planck-Institute of Polymer Research, Mainz and Vienna University to cover all aspects required for a truly fundamental understanding of the underlying mechanisms in photocatalytic water splitting.

The candidate should hold a **PhD in Chemistry** or have submitted a thesis prior to taking up hers/his appointment. The research requires a strong background in organic chemistry, particularly relevant to the preparation and characterization of organic photosensitizers, together with an interest in photochemistry, fluorescence and molecular design. Solid knowledge of photocatalysis, photochemistry and their application in materials sciences will be an advantage.

The candidate should be fluent in English, be able to integrate in a team, work independently and have good organizational as well as communication skills. Scientific curiosity with an open attitude to work interdisciplinary in the framework of international collaborations is also expected in the framework of such large-scale projects.

Application Deadline: 30th of March 2024

Strating date: 01.06.2024 (earlier starting date is also possible)

Please submit your application per email, as a single pdf file containing your CV, motivation letter and copy of your certificates, directly to Prof. Peneva: kalina.peneva@uni-jena.de

The projects is funded by the program



CATALIGHT – CRC/Transregio TRR 234

Light-driven Molecular Catalysts in Hierarchically Structured Materials – Synthesis and Mechanistic Studies

The CRC/Transregio CATALIGHT addresses fundamental challenges in the design of photocatalytically active materials for solar energy conversion. Inspired by the design principles of natural photosynthesis, CATALIGHT will provide fundamental insights into the performance of molecular photocatalysts embedded in functional and hierarchically structured soft matter materials. To this end, general synthetic strategies are developed to tune the reactivity of molecular light-absorbers and catalysts. Complementary synthetic routes will be established to access functional polymeric matrices for the site-specific binding of the molecular building blocks. In addition, synergistic reactivity and stability control by tuning the molecule-matrix interactions will become possible. Experimental and theoretical analyses across multiple length- and timescales will be used to rationalize photochemical reactivity and to understand new effects arising from embedding such components within a suitable matrix. Such effects will lead to novel material properties, e.g. materials capable of self-regulating their photocatalytic activity or materials where photocatalytic activity can be repaired both on a molecular and material level. CATALIGHT will lead to new paradigms, which break down the current boundaries between the realms of molecule-based reactivity and bottom-up material design. This will result in fundamentally new, knowledge-guided concepts for light-driven productive chemistry in hybrid materials – opening new research opportunities for chemistry, biology and materials science.

Projects are carried out either at the *Ulm University (Germany)*, the *Friedrich Schiller University Jena (Germany)*, the *University of Vienna (Austria)*, the *Max Planck Institute for Polymer Research Mainz (MPI-P, Germany)* and the *Leibniz Institute of Photonic Technology Jena (IPHT, Germany)*.

Salaries are competitive (in Germany: TV-L + allowance depending on the candidate's profile,), participation at the Integrated Research Training Group (iRTG) and dissertations are usually completed within three years. Equal opportunities are a cornerstone of our staff policy.