



The Research Group of Dr Simon Krause at the Nanochemistry Department of the Max Planck Institute for Solid State Research in Stuttgart announces an opening:

A PhD student with the research topic “Synthesis and characterisation of cooperative-mechanized framework materials”

The research addresses fundamental questions in the field of dynamic nanomaterials: What would a molecular clockwork look like? How can we establish nanoscopic dynamics in solids and coordinate them in space and time? Can we incorporate dynamic features known from biology in artificial solids? These topics will be addressed by making use of a wide range of synthetic and experimental methods at the intersection of chemistry, materials science, physics and engineering. Our goal is to incorporate a variety of different molecular machines in the backbone of nanoporous framework materials such as metal-organic frameworks and covalent-organic frameworks. We will stimulate machine operation by light irradiation and investigate the resulting nanoscopic dynamics on a spatiotemporal level using a variety of different solid-state in situ methods. Finally, we will study the physical properties of such dynamic solids with respect to host-guest interactions.

We are looking for a highly motivated and enthusiastic experimentalist with a strong background and Masters degree (or equivalent) in organic/materials synthesis and supramolecular chemistry, who is interested in the synthesis of novel light-responsive molecular machines and framework materials, and who enjoys working in an interdisciplinary team of synthetic and materials chemists at one of the world-leading institution for solid state research.

Qualifications:

- Excellent background in organic synthesis
- Experience in synthesis of porous framework materials such as MOFs and COFs.
- Technical proficiency in spectroscopic (NMR, IR, Raman, UV/Vis) and X-ray diffraction methods
- The candidate enjoys working in a team and in a dynamic and multidisciplinary environment.

We are committed to increasing the number of individuals with disabilities and therefore encourage applications from individuals with disabilities. We endeavour to achieve gender equality and diversity. Furthermore, we seek to increase the number of women in areas where they are underrepresented and therefore explicitly encourage women to apply.

The position will be supported by a Liebig fellowship of the Fonds der Chemischen Industrie. Earliest possible starting date is February 1st 2022.

Interested candidates should send a brief application letter, curriculum vitae, and the name of at least one reference by January 15th 2022 to s.krause@fkf.mpg.de.

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