

# Job advertisement

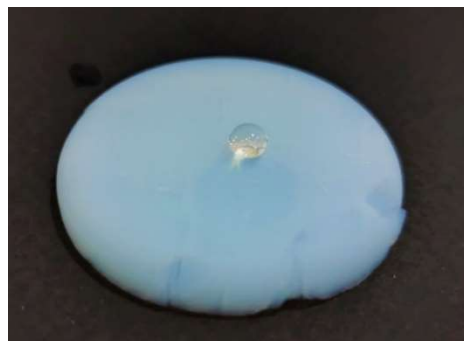
February 2021

**We are seeking** a highly motivated, kind, and curious **PhD candidate** with strong experimental skills in the field of **materials science, physics, physical chemistry** or a related field who enjoys working in an interdisciplinary and diverse research team.

## **Topic: In-situ characterization of aerogels to explore the origin of the springback effect**

The PhD position is offered within the research group “Hierarchical structure of biological and bioinspired materials”, which belongs to the Department of Biomaterials at the Max Planck Institute for Colloids and Interfaces in Potsdam. The primary focus of our group is to understand the role of structure in biological and bio-inspired materials in view of their (biological) function, mechanical properties and material design.

Project: The PhD project focuses on the characterization of aerogels, which are highly porous nanostructured solid materials derived from gels. Aerogels show remarkable properties such as a low density, very high specific surface area and porosity and a low thermal conductivity.



*Aerogel (shimmering blueish) and water droplet*

The focus of the PhD work is to investigate primarily the occurrence and origin of the springback effect in ceramic aerogels, which leads to a severe shrinkage (up to 50 %) of the material while drying, followed by a re-expansion to about 95 % of its original size. This effect represents a surprisingly significant volume change for a ceramic-based material and the elucidation of the underlying mechanisms define central research questions in the project.

The PhD work will include a detailed in-situ characterization of aerogels by method-combinations, such as micro-computed tomography and synchrotron-based x-ray scattering. Experiments to characterize structural properties will be carried out in close collaboration with our partners at TU Berlin.

Apply: Submit a motivation letter and a current CV to

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