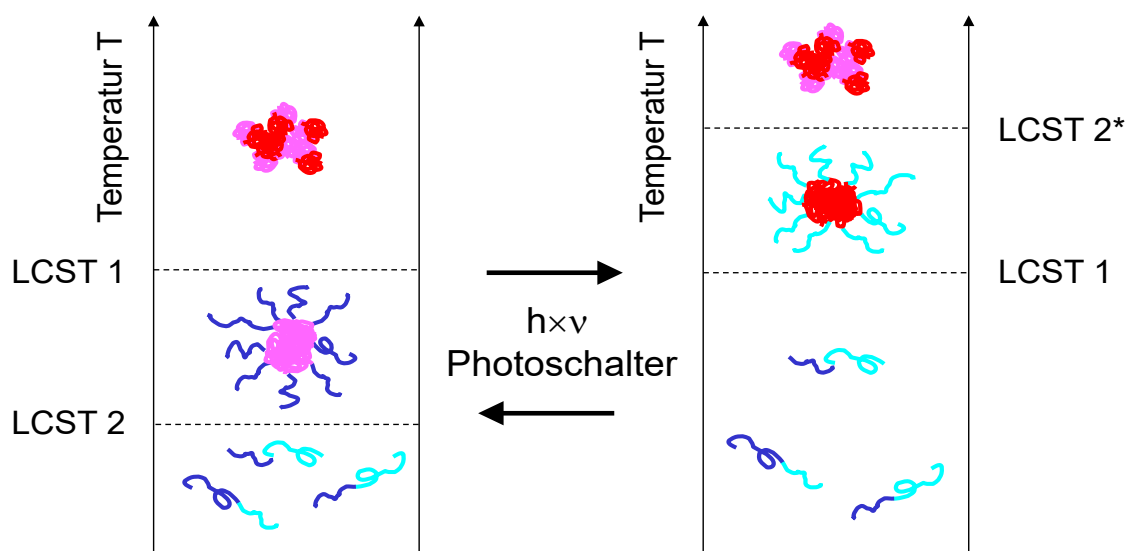


# Doktorarbeit / PhD thesis

## Amphiphilic self-assembly of completely noninvasive orthogonal switchable block copolymers



At the Chair of Functional Materials at the Technical University of Munich, we investigate the physical basis of material properties using state-of-the-art scattering methods (neutron, X-ray and light scattering) and spectroscopic techniques. The general goal of our research is to infer functional properties from knowledge of microscopic structure and dynamics.

We are looking for a PhD student to work on the project "Amphiphilic self-assembly of completely noninvasive orthogonal switchable block copolymers". The salary is 1/2 TVL E13 for 3 years.

Information about the chair can be found at:

<https://www.groups.ph.tum.de/en/functmat/about-us/>

**Topic:** The project focuses on the induced self-organization of amphiphilic block copolymers. The hydrophilic or hydrophobic character of both blocks can be controlled reversibly and independently from each other by means of non-invasive stimuli, namely by change of temperature or irradiation with UV-light. In dependence on the molecular parameters (like chemical structure and size of the blocks), structure formation and switching behavior upon change of temperature or after irradiation shall be studied in thin films. To enable this, new diblock copolymers are synthesized by a collaborating group, in which the hydrophilicity or hydrophobicity of the blocks can be inverted independently by temperature- and especially by light-induced processes. The structures as well as the structural changes upon crossing the phase boundaries will be investigated in detail using modern spectroscopic and scattering methods in thin films and will be compared with that in the volume studied by another collaborating group. The study will include neutron scattering experiments at the Munich neutron source FRMII.

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