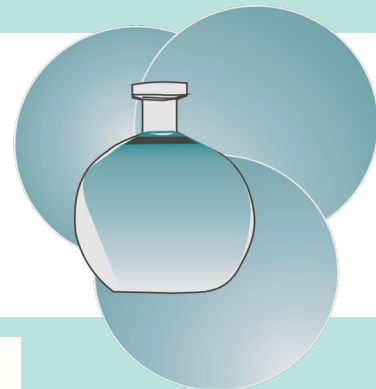


# Fakultät für Naturwissenschaften Institut für Chemie



lädt ein

gemeinsam mit der Gesellschaft  
Deutscher Chemiker  
zum



**Vortrag**  
von Herrn

**Prof. Markus  
Retsch**

*Physical Chemistry  
Department of Chemistry  
University of Bayreuth*

## “Thermal transport and heat management in self-assembled materials”

am: 24. Oktober 2024  
um: 16:00 Uhr  
WO: im Raum 1/232

Die kleine Kaffeerrunde vor dem Vortrag beginnt  
um 15:30 Uhr im Raum 1/232.

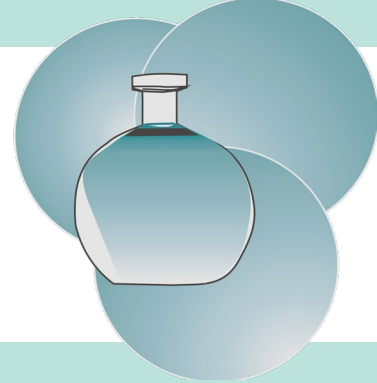
Das Mitbringen von eigenen Trinkgefäßen ist  
erwünscht.

Gäste sind herzlich willkommen!



TECHNISCHE UNIVERSITÄT  
IN DER KULTURHAUPTSTADT EUROPAS  
CHEMNITZ

Prof. Dr. Michael Sommer  
Telefon: 0371 / 531 32507  
E-Mail: [michael.sommer@chemie.tu-chemnitz.de](mailto:michael.sommer@chemie.tu-chemnitz.de)



**Prof. Markus  
Retsch**

*Physical Chemistry  
Department of Chemistry  
University of Bayreuth*



**Thermal transport and heat management in self-assembled materials**

Thermal transport can be significantly influenced by the presence of nano- and mesostructures and the interfaces that exist in such materials. This structuring can be employed to realize super-insulation properties as well as efficient heat spreading. Consequently, nanoscale thermal transport has attracted a lot of research interest for the past 20 years. Furthermore, (colloidal) mesostructures play a pivotal role in light-matter interaction, covering a broad spectral range from ultra-violet to mid-infrared. Thus, solar radiance scattering and thermal radiation emission can be tuned towards passive radiative daytime cooling.

In this presentation, I will provide an overview of heat transport and heat management in mesostructured materials. Based on anisotropically structured materials on different length scales and dimensionalities I will highlight the vast possibilities to control the temperature distribution for various applications. Order and disorder further contribute to thermal transport pathways and scattering of light. Colloidal mixtures of distinct compositions are well-suited model systems to systematically unravel their role in heat management. Finally, we have a strong interest in materials with a gradient structure. I will demonstrate various pathways to access gradually structured materials and how they can be employed for optical engineering and switchable temperature gradients.

