GESELLSCHAFT DEUTSCHER CHEMIKER
ORTSVERBAND SIEGEN

Ankündigung

Am Dienstag, **11. Oktober 2022**, spricht um **16:30 Uhr**
im **Hörsaal AR-F 002** des Departments Chemie und Biologie der Universität Siegen im Rahmen eines

GDCh-Festkolloquiums zu Ehren von
Prof. Dr. Michael Schmittel

Prof. Dr. Markus Lackinger

Deutsches Museum und Technische Universität München

über das Thema

„On-surface synthesis of two-dimensional polymers - the quest for regularity“

Kaffeerunde ab 16 Uhr im Foyer des Hörsaals AR-F 002, organisiert durch das
JungChemikerForum Siegen

GESELLSCHAFT DEUTSCHER CHEMIKER
ORTSVERBAND SIEGEN

Alle interessierten Kolleginnen und Kollegen, Mitarbeiterinnen und Mitarbeiter und Studierende sind zu diesem Vortrag herzlich eingeladen.
Gäste sind herzlich willkommen.

Der Ortsverbandsvorsitzende
PD Dr. Stephan Bäurle
Tel. 0271 740-4025

Prof. Dr. Markus Lackinger

On-surface synthesis of two-dimensional polymers – the quest for regularity

Two-dimensional (2D) polymers are a relatively new class of macromolecules comprised of topologically planar repeat units that are cross-linked in more than one direction. These bottom-up synthesized organic 2D materials have promising application perspectives in diverse fields as (opto)electronics, (photo)catalysis and separation. Current challenges concern the rational synthesis of 2D polymers with sufficient quality and their structural characterization at the molecular level.
Various synthetic approaches are being explored. In this regard, solid surfaces represent a versatile and beneficial reaction venue for the synthesis of 2D polymers. Apart from templating the two-dimensional topology, the solid supports can also play an active chemical role. Accordingly, both the choice of surface and additional passivation or functionalization are influential and widely tunable reaction parameters. A relevant asset of the on-surface synthesis is that an entire arsenal of well-developed and highly resolving surface sensitive techniques facilitates a thorough chemical and structural characterization down to the

molecular level. Thereby, the attained spatial, chemical and temporal resolution also allows to elucidate underlying reaction mechanisms, which are often surface specific and almost always distinct from solution chemistry.
Various coupling reactions have proven suitable for the on-surface synthesis of 2D polymers. We will introduce and discuss the pros and cons of the commonly employed condensation reactions and dehalogenative couplings. Alternatively, 2D polymers ordered at the mesoscale were obtained by a topochemical photopolymerization, thereby combing the long-range order typically found for supramolecular self-assembly with the stability endowed by covalent bonds.