

Functional Molecules on Surfaces

Mini-Colloquium

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The interest in supramolecular nanoarchitectures on surfaces emerges from their prospective applications in nanoscale electronics, solar cells, energy storage devices, and other fields. The formation of two-dimensional long-range ordered patterns on surfaces is facilitated by non-covalent intermolecular interactions, while adsorbate-substrate interactions as well as thermodynamics can have a strong influence on the final structure, even preventing any long-range order. On-surface synthesis by covalent coupling of reactive precursors has emerged as a powerful tool to improve the stability and intermolecular charge transport of molecular structures. While one-dimensional nanoribbons can be formed with atomic precision, the formation of well-ordered two-dimensional networks still represents a challenge owing to the irreversible nature of the newly formed covalent bonds.

The focus of this mini-colloquium is on (supra)molecular architectures to pattern and functionalize surfaces. This includes experimental and theoretical studies dealing with, among others, the design of molecular nanostructures, intermolecular interactions, adsorbate-substrate interactions, the kinetics and thermodynamics of self-assembled and covalently-linked systems at surfaces. The aim is to bring together researchers from both physics and chemistry to discuss important aspects of functional molecules on surfaces.

Topics:

(not limited to)

- molecular self-assembly
- on-surface synthesis
- metal-organic networks
- chiral molecular surface structures
- single molecule chemistry
- dynamics of molecules on surfaces
- molecular manipulation
- molecular switches
- molecular resolution analysis of surface architectures

Invited Speakers:

Willi Auwärter, TUM, Germany
Michael Gottfried, Philipps-Universität Marburg, Germany
Pavel Jelinek, Czech Academy of Science, Czech Republic
Roberto Otero, UAM, Spain
Daniele Passerone, EMPA, Switzerland
Ingmar Swart, Utrecht University, Netherlands
Petra Tegeder, Ruprecht-Karls-Universität Heidelberg, Germany

