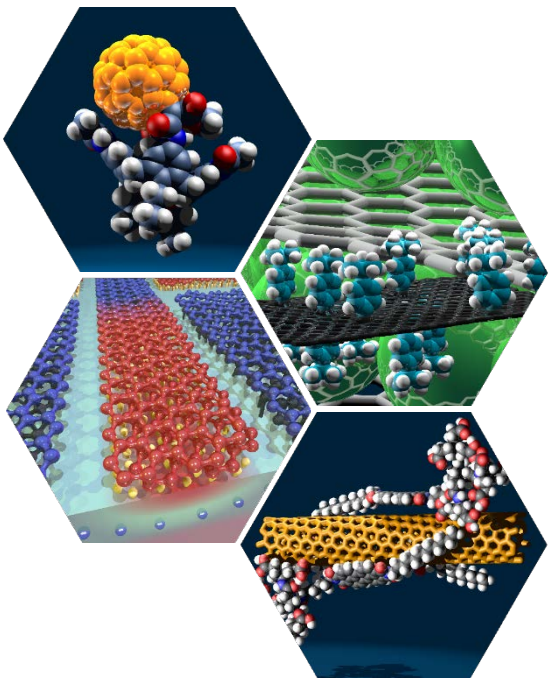
SCA
Synthetic Carbon Allotropes SFB953

Seminar series of the Collaborative Research Centre (SFB) 953 «Synthetic Carbon Allotropes»

On-surface synthesis of molecular nanostructures on semiconducting oxide surfaces



Dr. Marek Kolmer

NANOSAM, Faculty of Physics, Jagiellonian University, Poland

17th April 2018

5:15 pm

Lecture Hall C1 – Chemikum
Nikolaus-Fiebiger Straße 10

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ABSTRACT: Molecular nano-architectures formed by on-surface chemical reactions under ultra-high vacuum conditions have attracted great attention over the last few years. These bottom-up strategies allow formation of molecular structures of atomically-defined morphologies including: exotic single-molecules, molecular wires and 2D networks or confined graphene nanostructures. So far, surfaces of selected noble metals have been mostly used as substrates catalyzing the reactions. In his talk, Marek Kolmer will discuss strategies leading to on-surface aryl-aryl coupling on transition metal oxide surfaces and present recent work on intramolecular aryl-aryl coupling by the cyclodehydrofluorination reaction (C-F bond activation). The STM and XPS studies prove synthesis of preprogrammed nanographenes from specially designed fluoroarene precursors by the series of cyclodehydrofluorination reactions thermally triggered on the rutile TiO2(011)-(2x1) surface. These finding opens up a venue towards rational synthesis of carbon based nanostructures directly on insulating metal oxide surfaces.

DFG Deutsche Forschungsgemeinschaft

GSMS Graduate School Molecular Science

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