

EINLADUNG

zum Vortrag von

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Carbon Nanomembranes

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Dienstag, 5. Mai 2015, um 17:30 Uhr

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

Barrierefreier Zugang: Boltzmannngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals

Abstract

Carbon Nanomembranes (CNMs) are extremely thin (~1nm), synthetic two-dimensional (2D) layers or sheets with tailored physical, chemical or biological function. With their two opposing surfaces they interface and link different environments by their distinct physical and chemical properties, which depend on their thickness, molecular composition, structure and the environment on either side. Due to their minute nanometer thickness and 2D architecture, they can be regarded as "surfaces without bulk" separating regions with different gaseous, liquid or solid components and controlling any materials exchange between them. A universal scheme for the fabrication of functional CNMs is presented and it will be shown that CNMs can be engineered with a controlled thickness, conductivity, permeability and elasticity. CNMs are also tested as ballistic membranes for the separation of gas molecules. Helium ion microscopy and spectroscopic methods as well as functional tests are applied to unravel the structure and composition as well as mechanical, electrical and optical properties of the CNMs.

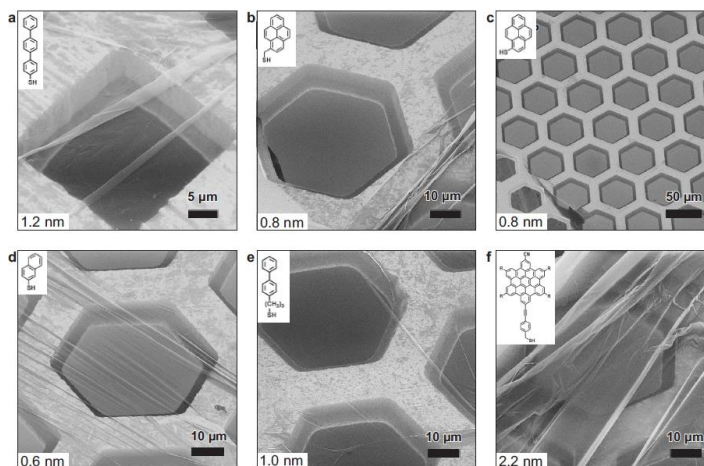


Figure: Helium Ion Micrographs of free-standing carbon nanomembranes from different aromatic molecules. The CNMs are suspended over quadratic (a) and hexagonal (b-f) openings in thin metal grids. The parenting precursor molecule is shown in the upper left insert, the CNM thickness is shown in the lower left insert.

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