

# Nanoobjects Microscopy

## STM-investigation of Monolayer of Long Chain *n*-Alkanes ( $n \geq 50$ ) on Atomically Flat Surfaces

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Long-chain aliphatic molecules are part of petrochemical products. They serve as the building blocks of numerous organic compounds including live matter. Due to structural simplicity alkanes can be considered as convenient model object for investigations of mechanisms of adsorption and crystal formation. Despite of intensive research of *n*-alkanes number of issues are opened, such as mechanisms of charge transport through alkane films, phase transitions in ultrathin thin layers and bulk crystals. On the basis of investigations by scanning tunneling microscopy (STM) in ambient conditions, regularities of adsorption for *n*-alkanes in the range of length from 1.4 nm ( $C_{10}H_{22}$ ) to 6.5 nm ( $C_{50}H_{102}$ ) were found.

To continue STM investigations of homologous series of *n*-alkanes ( $n > 50$ ) we focused on monolayers of  $C_{60}H_{122}$ . Highly oriented pyrolytic graphite (HOPG) and reconstructed Au(111) surface were used to establish the influence of substrate on self-organization of alkane films. It has been revealed that structural organization of long alkanes is drastically different and governed by type of the substrate.

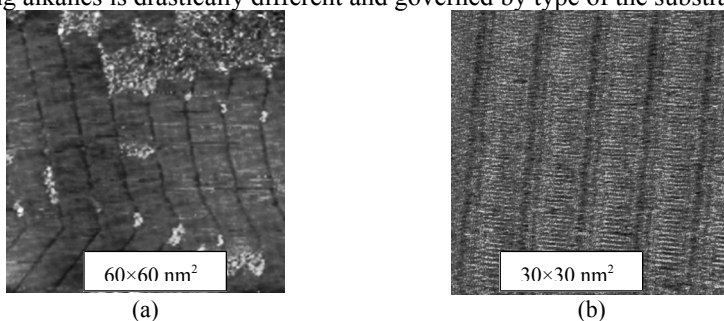


Fig. 1. STM-images of monolayer of  $C_{60}H_{122}$  on Au(111) – (a) and HOPG – (b).