Abstract Submitted
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Self assembled monolayers of rigid thiols on Gold SVETLANA STOYCHEVA, 1, JOERG FICK, 1, ALEXANDER KORNVIAKOV, 2, AVI ULMAN, 2, MICHAEL HIMMELHAUS, 1, MICHAEL GRUNZE, 1, APPL. PHYS. CHEMISTRY, UNIV. HEIDELBERG TEAM, DEPT. OF CHEM. ENGINEERING, POLYTECHNIC UNIV., BROOKLYN, NY TEAM — Self assembled monolayers (SAM) of ω-functionalized mercaptobiphenyls (ω-MBP) are stable, molecularly engineered ultrathin organic films, which can be used for the design of model surfaces with well-defined chemical and physical properties. For example, the number and distribution of terminal hydroxyl groups can be tailored to study water-surface interactions or the chemisorption of organic molecules from solution. We have prepared and studied SAM of mercaptobiphenyls (MBP), 4-Methyl-4'-MBP, and 4-Hydroxy-4'-MBP on Au (111). The film quality of the SAM with respect to coverage and structure was characterized by contact angle measurements, spectral ellipsometry, infrared reflection absorption spectroscopy, X-ray photoelectron spectroscopy, and sum frequency generation. By means of a frequency analysis based on ab initio calculations, the different vibrational modes could be assigned and used for the study of chemisorption processes at the surface.

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