

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Influence of lateral packing density and tailgroup hydrophilicity on the protein resistance of oligoether-terminated alkanethiols studied by IR-vis sum frequency generation (SFG) JOERG FICK, RONGYAO WANG, SASCHA HERRWERTH, WOLFGANG ECK, MICHAEL HIMMELHAUS, MICHAEL GRUNZE, APPL. PHYS. CHEMISTRY, UNIV. HEIDELBERG TEAM — A recent study indicates that the protein resistance of self-assembled monolayers (SAM) consisting of oligoether-terminated alkanethiols is determined by different factors such as internal and terminal hydrophilicity and lateral packing density. In this contribution we analyze the influence of lateral packing density and hydrophilicity on the protein resistance using in-situ broadband SFG to track conformational changes before, during and after water contact. We observe that the protein resistance is not dependent on the substrate, but is a pure density effect. SFG results are supplemented by ellipsometry and IR measurements examining the SAMs in the different stages of film treatment. Additionally, a mechanism of degradation of OEG-SAMs in aqueous solution has been investigated and clarified.

Michael Himmelhaus

Date submitted: 01 Dec 2004

Electronic form version 1.4