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Gegründet im Jahre 1869 von H. Hlasiwetz,
J. Loschmidt, J. Petzval und J. Stefan

EINLADUNG

zum Vortrag
von

Prof. Dr.-Ing. habil. Guido Grundmeier

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über

Adhesion and De-Adhesion at Polymer/Oxide/Metal Interfaces - From Molecular Understanding to Applied Interface Chemistry

am

Dienstag, 8. April 2008, um 17.30 Uhr

Ort: Großer Hörsaal der Experimentalphysik, Universität Wien,
1090 Wien, Strudlhofgasse 4 / Boltzmanngasse 5, 1. Stock

Abstract:
The design of long-term stable and corrosion resistant polymer/oxide/metal interfaces profits from the analysis and understanding of the interfacial chemical and electrochemical properties. Mainly in-situ analytical studies are of increasing interest for the characterization of the molecular mechanisms of adhesion and de-adhesion under ambient conditions. In-situ techniques such as FTIR-spectroscopy, Chemical Force Microscopy, Single-Molecule-Adhesion studies and the Scanning Kelvin Probe will be highlighted. We combine the analysis of defined interfaces and surfaces with computational chemistry. The theoretical approach enables the analysis of substrate surface structures, interfacial chemical bonds and adsorption as well as de-sorption processes. Currently, in our group systems under investigation are organosilanes and organophosphonic acids as molecular adhesion promoters on oxide covered zinc and aluminium oxides. The thereby generated knowledge serves as basis for the design of highly stable interfaces between polymeric films and oxide covered metal substrates. The presentation gives an overview about the relevant recent research and tries to bridge the gap between the theoretical aspects of interface chemistry and technically relevant surface chemical processes.

References:

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K. Wapner, M. Stratmann, G. Grundmeier, International Journal of Adhesion & Adhesives 28 (2008) 59–70.