

## O 90: Invited talk (Behm, Jürgen)

Time: Friday 14:15–15:00

Location: H36

**Invited Talk**

O 90.1 Fri 14:15 H36

**Surface Science and Electrocatalysis - Where do we stand? —**

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The close connection between Surface Science and Heterogeneous Catalysis, both on the experimental and on the theory side, is well established, and bridging the materials and pressure gap initially separating these disciplines has become a highly active field [1]. The existence of similar relations between the fields of Surface Science/Heterogeneous Catalysis and Electrochemistry/Electrocatalysis was much less established, although electrochemical studies on single crystals ('Surface Electrochemistry') have been reported since several decades [2]. Driven also by the recent rise of Electrochemical Energy

Technologies (fuel cells, photovoltaics, batteries etc.) in concepts for future sustainable energy supplies, this has changed considerably during recent years [3].

In the present talk I want to illustrate the close correlations between these fields and the validity of similar microscopic concepts for the description of reactions at the solid/gas and the solid/liquid interface, but also point out key differences, using simple reactions such as O<sub>2</sub> reduction or C<sub>1</sub> oxidation as examples. The potential of combined experimental and theoretical studies is demonstrated.

[1] R. Imbihl, R.J. Behm, R. Schlögl, *Phys. Chem. Chem. Phys.* 9 (2007) 3459.

[2] D.M. Kolb, *Surf. Sci.* 500 (2002) 722.

[3] *Fuel Cell Catalysis: A Surface Science Approach*, M.T.M. Koper, ed. (Wiley and Sons, Chichester, 2009).