



ADVANCED MATERIALS AND NANOTECHNOLOGY

SEMINAR SERIES

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Identification of Catalytically Active Sites at Electrode Surfaces

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Seminar room **C2.11**, building C
CEITEC Brno University of
Technology Purkynova 123

Invited by:

Jan Macák

The main focus of the presentation is set upon theoretical and direct instrumental identification of so-called active catalytic centers at the electrode surfaces. Identification of such active sites is not a trivial task nowadays. While recent theoretical approaches can be relatively simple [1], they require experimental verification. The latter can be in some cases done in-situ under reaction conditions using common electrochemical scanning tunneling microscopes (see Figure 1) [2]. Reactions, which are important for sustainable energy provision, such as hydrogen evolution reaction, oxygen reduction reaction and CO oxidation are used as illustrative examples.

References

- [1] Calle-Vallejo(1), F.; Tymoczko(1), J.; Colic, V.; Vu, Q.H.; Pohl, M.D.; Morgenstern, K.; Loffreda, D.; Sautet, P.; Schuhmann, W.; Bandarenka, A.S. *Science*, 2015, 350, 185-189.
- [2] Pfisterer(1), J.H.K.; Liang(1), Y.; Schneider, O.; Bandarenka, A.S. *Nature*, 2017, 549, 74-77.