

# SEMINAR ANNOUNCEMENT

**THURSDAY, 20.09.2018**

**10:30 h ID 03/455**

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## **“Biomimetic single-metal sites and nanostructured catalysts: insights by near ambient pressure spectroscopies”**

Nanometric control over surface composition offers an inspiring playground for research in crucial fields as light harvesting, electronics, and heterogeneous catalysis. A vast literature grew exploiting precise deposition protocols of supported nanoparticles, paired with new approaches stemming from the mimicking of biological enzymatic single-atom metal sites adopted by Nature. Complex, self-assembled artificial nanostructures consisting of metal-organic frameworks have appeared as promising catalyst candidates, for example in the conversion chemistry of carbon dioxide. In fact, CO<sub>2</sub> stability and weak adsorption at surfaces ask for specific reaction sites, designed to be highly reactive but selective. Nanostructured (organic) heterostructures may answer this call, as they allow a broad and fine tuning of their properties by directly manipulating in Ultra-High Vacuum their nanometric building blocks. It has to be kept in mind, however, that the synthesized structures may undergo complex rearrangements while moving from synthesis to operative conditions. Near Ambient Pressure XPS and Sum Frequency Generation spectroscopy offer surface-specific insights at an atomic-level detail, from UHV to operative regimes, thus bridging the so-called pressure gap historically limiting surface-science techniques to UHV, ex situ conditions

**Guests are very welcome!**