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Institut für Physik
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INSTITUTSKOLLOQUIUM

Gemeinsames Kolloquium der Physik und Chemie

Am Dienstag, dem **18. Juni 2024**, spricht um **17:15 Uhr** im **Faraday-Hörsaal,**

Dr. Francesco Armilotta
EPFL Lausanne

zum Thema:

„Investigating CO chemisorption on single Ni and Co atoms adsorbed in graphene double vacancies"

Abstract:
The kinetics of molecular adsorption and desorption can unveil non-trivial aspects that impact, for instance, the overall sticking probability. We investigate CO chemisorption on single atom catalysts formed by single Ni or Co atoms adsorbed in double vacancies of graphene grown on Ni(100) and Ni(111). We combine *in-situ* Scanning Tunneling Microscopy with Thermal Desorption Spectroscopy (TDS) in order to develop an atomic scale structure – chemistry relationship. TDS is performed with a custom designed high-resolution instrument that enables studying systems where the surface density of the active sites is very sparse, of the order of 10^{-3} monolayers. We demonstrate that, depending on the atomic species, the orientation of the substrate, and the presence of the graphene moiré pattern, the difference in sticking probability can be as large as two orders of magnitude, contrary to what is generally assumed. We identify, in each case, the relevant adsorption channels, such as direct impingement and/or reverse spillover from graphene. For the former, we unveil the presence of a precursor state mediating CO chemisorption, so far only investigated in the case of extended surfaces.

Wir laden Sie zu diesem Kolloquium herzlich ein!

Die Hochschullehrer der Institute für Physik und Chemie