

Vibrational Dynamics at Surfaces

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Abstract: Vibrations are the prime energy reservoir at surfaces for activating reactions between adspecies, diffusion and conformational changes. Vibrational spectroscopy at surfaces has seen great progress in the recent decade largely due to the advent of powerful short pulsed mid-IR laser systems. Spectroscopy performed with these allow to gain detailed insight into the energy flow between different degrees of freedom. In my lecture I will illustrate this development by three recent studies from my laboratory: 1) The vibrational dynamics of simple adsorbates on semi-conductor surfaces, 2) The dynamics of hydrogen binding to graphene, and 3) The formation of conformational disorder in organic monolayers at elevated temperatures.