Ultrafast Dynamics of Nonequilibrium Electrons in Metal/Adsorbate Nanosystems

Christophe Bauer, Jean-Pierre Abid and Hubert Girault

Laboratoire d’Electrochimie Physique et Analytique, ISIC, SB, EPFL, CH-1015 Lausanne, Switzerland

Summary

Metal/molecule interfaces play a crucial role in topics such as molecular electronics, surface femtochemistry, organic light emitting diodes, catalysis and solar cells. Here, we use adsorbates-covered metal nanoparticles to investigate by femtosecond transient absorption spectroscopy the dynamical behaviour of nonequilibrium electrons (NNEs) at metal/molecule interfaces. This approach allows: the separation of internal from external thermalization, the investigation of the size behaviour of metal/molecule interfaces. This approach allows: the separation of internal thermalization retardation, the observation of complex nonlinear dynamics with feedback loops.

Ultrafast Electron Dynamics in Metals

Nonthermal regime and hot electron gas

Femtosecond Pump-Probe Spectroscopy

Spectral Map:
Nonthermal regime and hot electron gas

Dynamical events: The picture

Interconnection between the dynamical processes

References

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