

Chapter



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Chemistry and Morphological Properties of Metal Interfaces to Organic Semiconductors

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Abstract

Metal contacts to organic semiconductors play a decisive role for the performance of organic based devices such as organic light emitting diodes, organic field effect transistors or organic solar cells. In particular when a metal is deposited onto an organic substrate, severe disruption of the interface may occur as a result of chemical reactions of the metal with organic molecules and/or diffusion of the metal into the organic layer. Here, the interaction of metals of different reactivity (Ag, In, Mg) with a variety of perylene derivatives as model molecules is probed employing *in situ* Raman spectroscopy. The results reveal that this technique allows an extreme interface sensitivity to be achieved via surface enhanced Raman scattering. The degree of reactivity and indiffusion can be derived from the analysis of the evolution in scattering by internal vibrational modes of the molecules and phonon-like external modes of the molecular crystal.

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