

# **Electronic Structure and Dynamics at Organic Semiconductor Interfaces: Insights for Charge- and Spin-Transfer**

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Interfaces of organic semiconductors with metals or inorganic semiconductors offer a rich laboratory for investigating weak many-body interactions across different length-, time- and energy-scales. In this talk, I will present an overview of our efforts to develop conceptual models of these interfaces. I will show how simple electrostatics can give quantitative insights into the ground and excited state electronic structure at organic semiconductor / metal interfaces, with direct impact on dynamics. The importance of hybridization and coupling at the surface will be highlighted by examining ultrafast spin-injection from a ferromagnetic electrode into an organic semiconductor, and by the role of quantum interference effects for electronic structure at a noble metal surface. At hybrid organic / inorganic semiconductor interfaces, we find that defects are essential to understand the evolution of the electronic structure. Taken together, the results presented here offer new pathways for rational design of organic electronic devices such as spin-valves or photovoltaics.