

Organics Spintronics

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There have been a considerable number of studies on spin-transport through organic molecules for the integration of organic semiconductors into solid-state spintronic devices. Understanding the fundamental mechanisms behind spin injection and transport in the metal (M)-organic (O) hybrid systems is crucial to improve device performance as well as to design new organic spintronic devices.

In this talk, after a brief review of recent progress in organic spintronics, I'll present our results regarding the magneto-optoelectronic functionalities of M/O hybrid structures. The interface property characterization in the M/O hybrid layer structures were carried out by Kelvin probe and UPS and XPS. Characterization of electromagnetic properties at the interfaces was also performed by using the electroluminescent (EL) and tunneling devices based on different metallic electrodes.

We will discuss novel approaches and the new possibilities to realize organic spintronic devices: feasibility of spin injections with high efficiency even at room temperature into organic semiconductors by interface engineering.