

MAR11-2010-006416

Abstract for an Invited Paper
for the MAR11 Meeting of
the American Physical Society

Molecular spintronics: tailoring spin polarization with molecules

PIERRE SENEOR, Unite Mixte de Physique CNRS/thales

Organic/molecular spintronics is a rising research field at the frontier between spintronics and organic chemistry. Organic molecules and semiconductors were first seen as promising for spintronics devices due to the expected long spin lifetime. An exciting challenge is now to find opportunities arising from chemistry to develop new spintronics functionalities that were unavailable with inorganic materials. Here one can hope to control the spin dependent transport by using the chemical versatility brought by molecules and molecular engineering. Starting from the use of Alq₃ and Phthalocyanine molecules we will show how the ferromagnetic metal/molecule hybridization can strongly influence the interfacial spin properties: from spin polarization enhancement to its sign control. CNRS/Thales team: C. Barraud, P. Seneor, R. Mattana, S. Tatay, K. Bouzehouane, S. Fusil, C. Deranlot, F. Petroff, A. Fert in collaboration with ISMN, Bologna, Italy & IPCMS, Strasbourg, France