## Abstract Submitted for the MAR07 Meeting of The American Physical Society

Spin Injection and Spin Dynamics at CuPc/GaAs (100) Interface HUANJUN DING, YONGLI GAO, Department of Physics and Astronomy, University of Rochester, MARINA SANCHEZ-ALBANEDA, MIRKO CINCHETTI, JAN-PETER WUSTENBERG, OLEKSIY ANDREYEV, MICHAEL BAUER, MARTIN AESCHLIMANN, Department of Physics, University of Kaiserslautern — Spin injection from GaAs (100) to organic semiconductor copper phthalocyanine (CuPc) has been investigated experimentally with spin-resolved two-photon photoemission (SR-2PPE) spectroscopy. The spin-polarized electrons are originally generated in GaAs through optical pumping with femtosecond time resolution and injected into CuPc film. We observed an enhancement in spin polarization at the interface after initial CuPc deposition. This demonstrates that interface spin scattering is insignificant, which is similar to our previous results of spin injection at CuPc/Co interface. The spin polarization dropped when the CuPc film became thick, an effect attributed to bulk attenuation in CuPc. The lifetime of the unoccupied orbits in CuPc was also studied with red-blue excitation of photon energy of 1.6 eV and 3.2 eV, respectively. There was a strong asymmetry in the time-resolved spectra, and an unexpected long lifetime for the low intermediate state was observed. A simple explanation of this phenomenon will be discussed.

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