Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Time-Resolved, Single Molecule Spectroelectrochemistry of Conjugated Polymers in Contact with ITO[1] JOHN GREY, RODRIGO PALACIOS, WEI-SHUN CHANG, WILLIAM MILLER, ALLEN BARD, PAUL BARBARA, University of Texas at Austin — Time-resolved, single molecule spectroelectrochemistry was used to study excited-state interfacial electron transfer between single conjugated polymer (MEH-PPV) molecules (possessing about 200 redox sites) and an indium tin oxide (ITO) electrode. Decay kinetics and emission yields were obtained while cycling the electrode potential in the range of -.5V to +.5V (Silver wire), which lies between the reduction (-1.5 eV) and oxidation potentials (0.8 eV) of the ground state. At +0.5 V, the emission intensities and average lifetimes were observed to increase about 20% whereas at -0.5 V both values decrease by the same amount. Several possible origins of the potential-induced intensity modulation are proposed.

[1] We acknowledge support from the NSF and Welch foundation for this work

John Grey
University of Texas at Austin

Date submitted: 03 Dec 2006

Electronic form version 1.4