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CALL FOR PAPERS

ABSTRACT DEADLINE: JUNE 21, 2005

REMINDER: *In fairness to all potential authors, late abstracts will not be accepted.*

MRS Symposium I: Interfaces in Organic & Molecular Electronics II

It is now generally recognized that the contact between a metal or semiconductor electrode and a single, a small group, or a thin film of molecules can play a critical, if not dominant, role in the performance of molecule-based electronics. One can identify two types of questions critical to the interface problem:

Chemical

- What is the structure and conformation of molecules at the buried interface?
- What is the nature of bonding and interaction at molecule/metal, molecule/molecule, and molecule/semiconductor interfaces?
- How is the chemical nature affected by the method for interface formation?

Physical

- How are molecular orbitals energetically aligned with the Fermi level of the electrode?
- What is the electrostatic profile in the molecule, in the molecular thin film, and at the interfaces?
- What is the strength of electronic coupling at the interface?
- Are charge carrier motions coupled to nuclear coordinates?

Answers to these questions determine quantitatively the rate of charge injection in molecule-based conventional devices, such as organic light-emitting diodes (OLED) or organic-field-effect transistors (OFET), as well as conductance in nanoscale molecular electronics (ME). These questions are not unique to molecule-based electronics and have long been addressed in other contexts, such as interfacial electron transfer, chemisorption theory, and surface spectroscopy. Following the success of the first symposium at the 2003 MRS Fall Meeting, this symposium will address the state-of-the-art on this important and exciting topic. The symposium intends to bring together experts on various aspects of the contact problem in molecule-based electronics: (a) electrical transport and device measurements, (b) surface spectroscopies and novel probes of the buried interface, and (c) theories and modeling (chemisorption, transport, and excited-state dynamics). In particular, papers are solicited dealing with well-characterized and unambiguous interfaces that can provide quantitative answers to the contact question.

Invited speakers include: **D.L. Allara** (Pennsylvania State Univ.), **S.F. Alvarado** (IBM Zurich, Switzerland), **N. Armstrong** (Arizona State Univ.), **F. Cacialli** (Univ. College, London), **D. Cahen and Hagai Cohen** (Weizmann Inst., Israel), **C.D. Frisbie** (Univ. of Minnesota), **M. Fujihira** (Tokyo Inst. of Technology, Japan), **H. Guo** (McGill Univ., Canada), **M. Hersam** (Northwestern Univ.), **J. Hsu** (Sandia National Labs), **A. Kahn** (Princeton Univ.), **M. Kawai** (RIKEN, Japan), **J. Kushmerick** (Naval Research Lab), **T. Lian** (Emory Univ.), **Y. Matsumoto** (IMS, Japan), **P. McEuen** (Cornell Univ.), **A. Nitzan** (Tel Aviv Univ., Israel), **M. Persson** (Chalmers Univ. of Technology, Sweden), **M. Ramsey** (Graz Univ. of Technology, Austria), **M. Ratner** (Northwestern Univ.), **W.R. Salaneck** (Linköping Univ., Sweden), **G. Scoles** (Princeton Univ.), **T. Seideman** (Northwestern Univ.), **N. Tao** (Arizona State Univ.), **D. Truhlar** (Univ. of Minnesota), **N. Ueno** (Chiba Univ., Japan), **E. Umbach** (Univ. Wurzburg, Germany), **R. Van Zee** (National Inst. of Standards & Technology), **D. Vuillaume** (CNRS, France), **H. Weber** (Univ. Karlsruhe, Germany), **P. Weiss** (Pennsylvania State Univ.), **M. Wolf** (Berlin, Germany), and **R. Wolkow** (Univ. of Alberta, Canada).

Symposium Organizers

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