

UCLA

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

presents

Procter&Gamble

**UCLA Student Organization for Cultural Diversity in Chemistry
Lectureship Series**

with

Professor Alejandro L. Briseño



Department of Polymer Science and Engineering
University of Massachusetts Amherst

“Crystal Chemistry, Molecular Order and Charge Transport at Organic Semiconductor Interfaces”

Abstract. The exploration and understanding of the crystallization, growth and the orientation of organic molecules on substrates is a very important feature in fundamental as well as applied research in the various fields of organic electronic device research. It is well known that the ordering and orientation of organic molecules significantly affects the electronic structure and transport properties, and the anisotropy of the transport properties in organic semiconductor thin films in particular has to be taken into account. It is, however, not only the orientation of the film as a whole that is important, but the molecular orientation in the few layers near an interface to other device layers that may affect the electronic properties, such as the electronic trap states, contact resistances or interface dipoles.

In this lecture, I will discuss our efforts in investigating charge and photogenerated transport at organic nanocrystalline interfaces. For example, we have synthesized single-crystalline donor-acceptor nanowire devices (i.e. transistors, solar-cells) that have enabled us to demonstrate excitonic charge splitting and ambipolar charge transport at p-n nanointerfaces. The use of organic single-crystalline devices will have a major impact in accelerating the emerging area of organic electronics, as these highly ordered systems will enable one to extract intrinsic charge carrier transport phenomena that cannot be accurately determined from disordered systems common to amorphous and/or polycrystalline films used in mainstream devices.

Monday, November 25, 2013

3:00 PM

Cram Conference Room - 3440 Mol Sci

Refreshments served at 2:30 PM

For further information, contact David Gingrich at gingrich@chem.ucla.edu