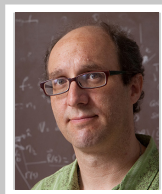


QUANTUM DYNAMICS OF ORGANIC SOLAR CELLS

April 7, 2017 at 12:30pm

CBB, Rm 106

Organic Photovoltaics (OPVs) remain a compelling material for light-weight and efficient light-harvesting devices. While in many ways similar to more standard solid-state photovoltaic systems, organic are fundamentally different due to the fact that the electronic states are highly localized, the dielectric constant is between 3-5, and vibronic coupling is very strong. At the heart of these devices, photo-excited states, termed Frenkel excitons, dissociate into free + and - charge carrier states on a timescale of 50-100 fs following the initial absorption of a photon. In my talk I will discuss some of our work in unraveling the dynamics of charge separation and probe this process with ultrafast multi-dimensional spectroscopy. Time permitting, I will discuss our latest work on using quantum light to develop new spectroscopic methods using photon-entanglement.



Eric Bittner

Professor

Theoretical Chemistry

University of Houston

SPEAKER BIO

Bittner obtained his B.S. in chemistry and in physics from Valparaiso University in 1988. From 1988 to 1994 he worked with John C. Light at the University of Chicago and obtained his Ph.D. thesis in 1994 on Quantum Theories of Energy Exchange at the Gas-Surface Interface. Subsequently, he worked at the University of Texas at Austin until 1996 as Postdoctoral Fellow of the National Science Foundation, with Peter J. Rosky as his mentor. In 1997 he joined the University of Houston as assistant professor of theoretical chemistry, where he became associate professor of theoretical chemistry in 2003 and full professor in 2008. He has held visiting professorships at the University of Cambridge, the École Normale Supérieure, Paris, and at Los Alamos National Lab. Since 2009, Bittner is John and Rebecca Moores Distinguished Professor of chemical physics at the University of Houston.

Contact Professor Jiming Bao at jbao@uh.edu if you would like to arrange for a time to meet with Dr. Bittner.

UNIVERSITY of HOUSTON

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Department of Electrical & Computer Engineering