

MAR17-2016-020431

Abstract for an Invited Paper
for the MAR17 Meeting of
the American Physical Society

Charge generation in polymer:fullerene and oligomer:fullerene blends for organic photovoltaics

NATALIE BANERJI, University of Fribourg, Chemistry Department

Polymer:fullerene blends have attracted attention as efficient organic photovoltaic (OPV) materials promising over 10% power conversion efficiency. It has recently been shown that the polymers can be replaced by small molecules or oligomers, which have better chemical reproducibility. In this talk, I present results obtained with a variety of ultrafast spectroscopic techniques (transient absorption, terahertz and electro-modulated differential absorption spectroscopy) that have allowed to correlate the mechanism of charge generation in donor:acceptor blends to the phase morphology, i.e. to the arrangement of the donor and acceptor into phase-pure (neat) and intermixed domains. In particular, I describe how varying the miscibility between the components (by changing the fullerene acceptor, or using ternary blends containing two different fullerenes), and replacing the polymer with the corresponding dimer, affect the phase morphology and charge generation.