Plastic Solar Cells: Current Progress and Challenges

Plastic solar cells potentially can offer low cost, large area, flexible, lightweight, clean, and quiet alternative energy sources for indoor and outdoor applications. In this talk, I will give an overview of the current progress, challenges, and research opportunities in organic solar cells. Then, I will go over some recent results in our group in characterization and device physics. We have developed nanoscale characterization techniques to probe film morphology and interfaces in multilayer optoelectronic devices, to image the donor-acceptor networks laterally and vertically, to assign phase domains to the donor and the acceptor components, and to study nanoscale charge generation, transport, external quantum efficiency, and device physics of organic solar cells.

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