

# Progress in Organic Photovoltaics and Its Impact on Advancing Hybrid Perovskite Solar Cells

Yang Yang<sup>1,2</sup>

<sup>1</sup>*Department of Materials Science and Engineering, University of California Los Angeles, Los Angeles, CA 90095 USA*

<sup>2</sup>*California NanoSystem Institute, UCLA, Los Angeles, CA 90095 USA*

E-mail: [yangy@ucla.edu](mailto:yangy@ucla.edu)

Solar energy provides limitless resource for human being to address the terawatt energy challenge. Solution processed solar cell based on organic polymer and organometal halide hybrid perovskites are both promising candidates for PV due to the low material cost, low temperature fabrication and their compatibility with printing/coating processes (roll-to-roll), high material utilization etc. They also provide attractive properties like flexibility, light weight, and transparency.

The major part of this talk will cover some of key progress in solution processed polymer solar cells: (a) Morphology control and understanding; (b) OPV molecule design; (c) Organic semiconductor/electrode interfaces; and (d) Device architecture investigation (inverted architecture, inverted tandem polymer solar cell).

The progress in OPV in the past decade also provides powerful scientific understanding and techniques in solar cell materials and devices in general. In the talk, I will show examples how knowledge developed in OPV research enabled better organometal halide perovskite solar cells. The R&D challenges & opportunities on solution process solar cell as viable technology will be discussed.