Electronic Supplementary Material (ESI) for Materials Chemistry Frontiers.

Supporting Information

Multi-length Scale Morphology of Nonfullerene All-Small Molecule Blends and Its Relation to Device Function in Organic Solar Cells

Indunil Angunawela[1], Long Ye[1], Haijun Bin[2], Zhi-Guo Zhang[2], Abay Gadisa[1], Yongfang Li[2]*, and Harald Ade[1]**

[1]Department of Physics and Organic and Carbon Electronics Lab (ORaCEL), North Carolina State University, Raleigh, NC 27695, United States
E-mail: hwade@ncsu.edu; lye4@ncsu.edu

[2]CAS Research/Education Center for Excellence in Molecular Sciences, CAS Key Laboratory of Organic Solids, Institute of Chemistry, Chinese Academy of Sciences, 100190 Beijing, China
E-mail: liyf@iccas.ac.cn

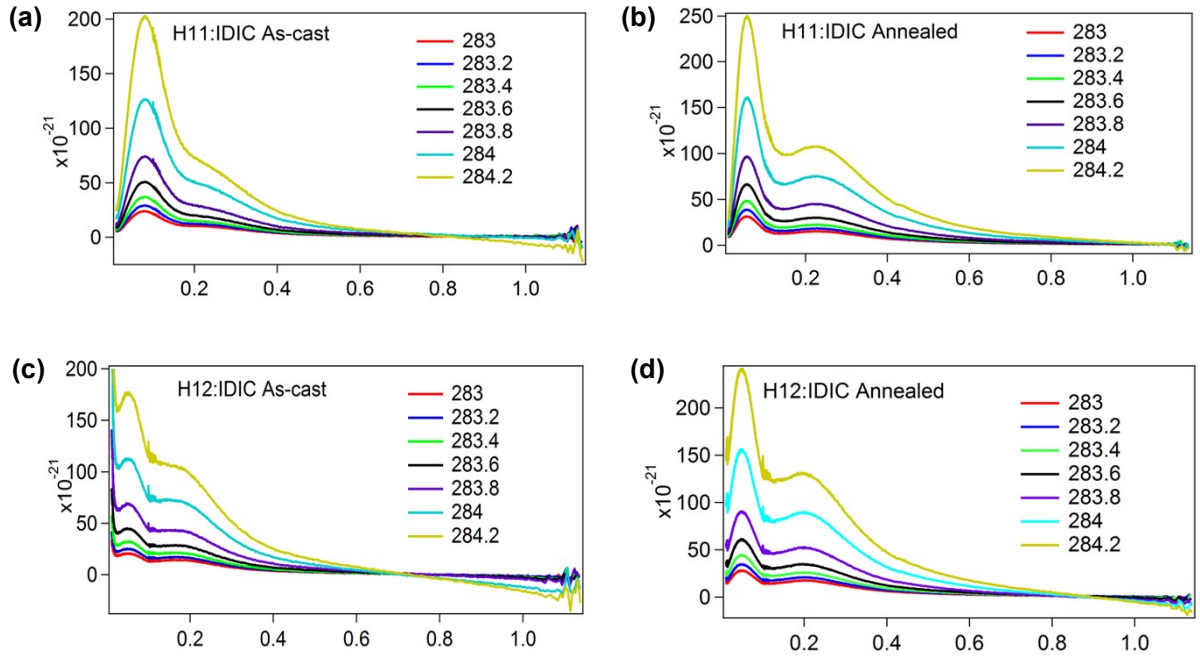

Figure S1. RSoXS profiles at different energies for both as-cast and annealed blends.

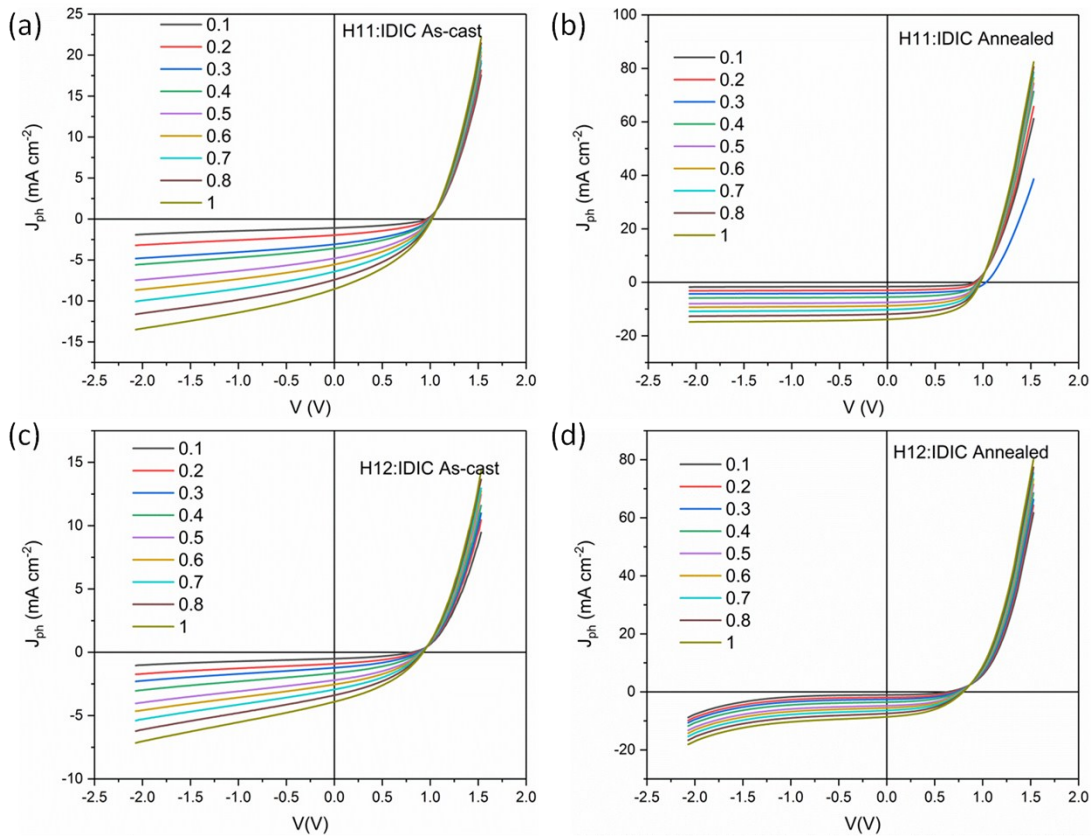

Figure S2- Light intensity dependence of J_{ph} for both as-cast and annealed blends

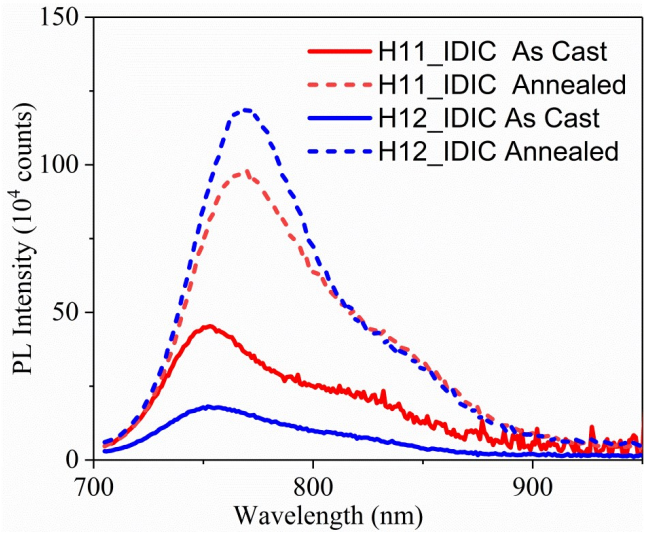

Figure S3. Normalized photoluminescence spectra of as cast and annealed blend films.

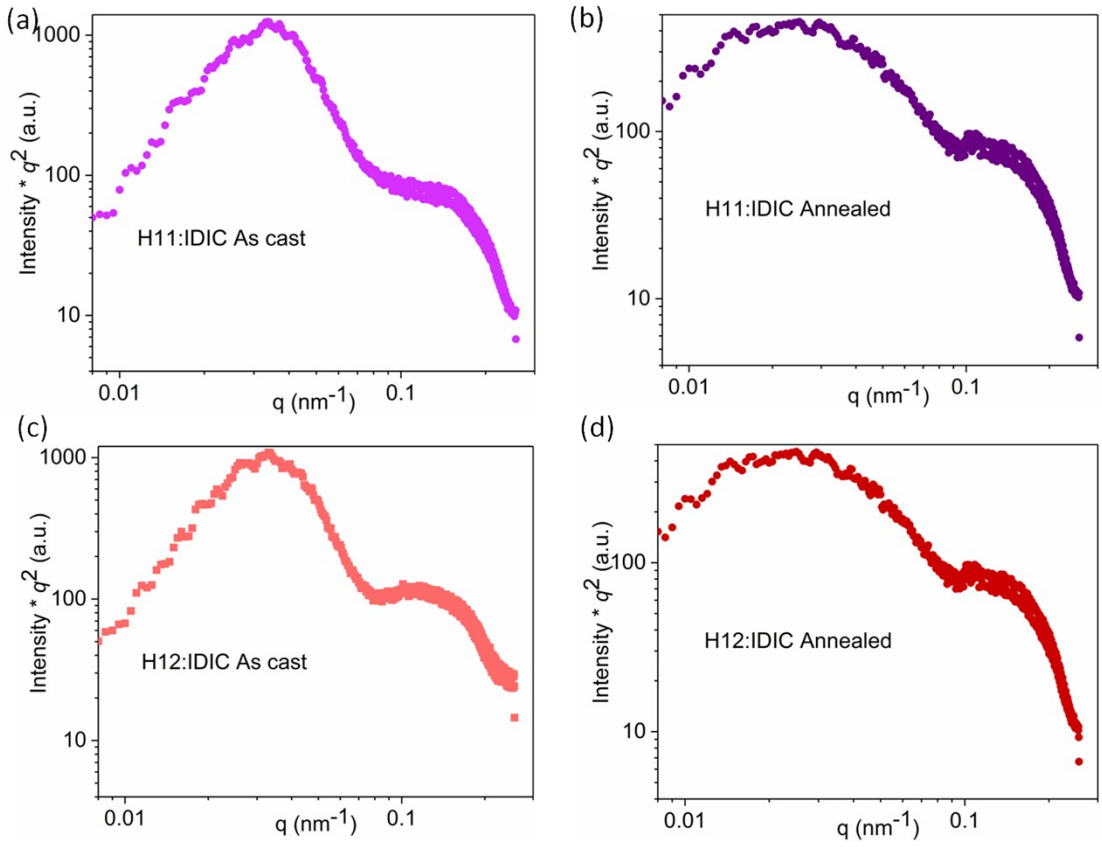

Figure S4- PSD analysis of AFM phase images of the blend films

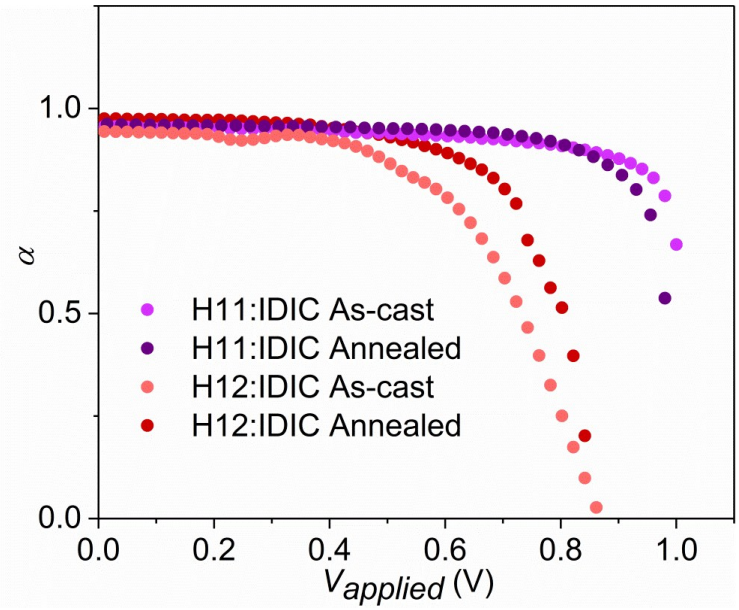

Figure S5- α as a function of the voltage applied to the devices for both as-cast and annealed blends.

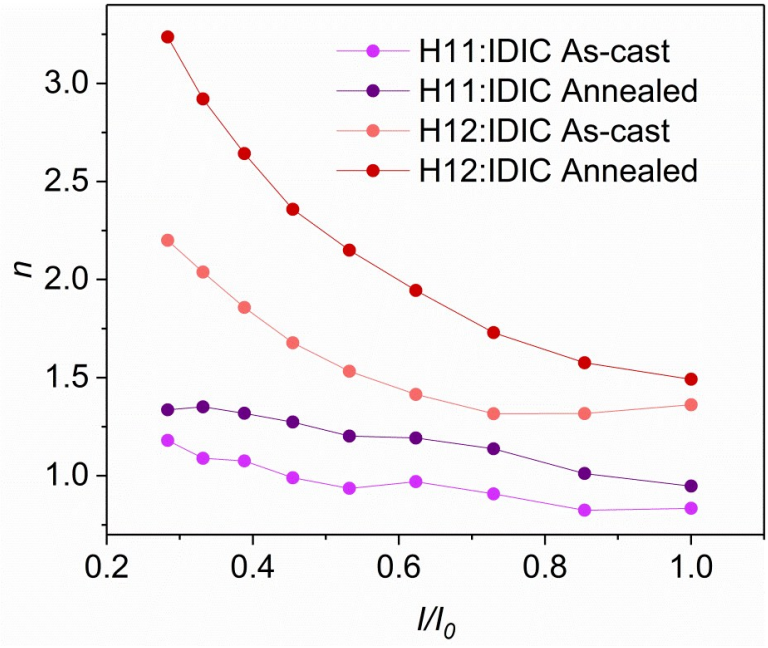

Figure S6- Ideality factor as a function of normalized light intensity where I is the light intensity and I_0 is the maximum light intensity (a non calibrated LED light was used which has a maximum light intensity more than 1 Sun and 1 Sun is around 0.8 of this scale).