

Abstract Submitted  
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**Illumination Alters the Conformation, Assembly and Thermodynamics of Conjugated Polymers**<sup>1</sup> MARK DADMUN, BRIAN MORGAN, University of Tennessee — Our group has recently completed a series of experiments that document the impact of illumination on the conformation, assembly, and thermodynamics of conjugated polymers. We have used small angle neutron scattering and reflectivity to monitor the impact of the presence of light on the changes of conjugated polymers in dilute and gel-forming solutions, as well as the self-assembly of conjugated polymer composite thin films. Ultimately, these works cumulatively provide strong evidence that light exposure dramatically alters the conformation and assembly of conjugated polymers in solutions and the melt. This can have far-reaching implications on the processing of organic electronic materials. Overlooking illumination conditions and failing to provide a consistent ambient light environment throughout device fabrication will result in non-uniform chain conformations and layering architectures, inevitably impacting device performance. However if properly understood and harnessed, these light-induced effects could make possible an entirely novel methodology for in-situ tuning of organic electronic device physical parameters.

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