

Abstract Submitted  
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**Nanoscale Morphology and Charge Transport in Hybrid Solar Cells by Conducting Probe Atomic Force Microscopy** JIEBING SUN, SEAN R. WAGNER, DANIEL ENDERICH, PHILLIP DUXBURY, PENG PENG ZHANG, Physics and Astronomy Department and Center of Research Excellence in Complex Materials, Michigan State University — Measurements of the dependence of photoactive response on nanoscale morphology provide essential insights to further improve processing and achieve morphologies with enhanced device performance. To study the correlation between local morphology and photoactive response, we have fabricated hybrid polymer/zinc oxide thin films and have characterized their electrical properties at nanoscale resolution with conducting probe atomic force microscopy (c-AFM). The charge carrier mobilities were extracted based on local IV characteristics. The surface morphology and current mapping were recorded simultaneously under various illumination and biasing conditions, enabling direct study of morphology dependent transport processes in these photoactive devices.

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