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Nanoscale Thermal Analysis of Organic Solar Cells KYLE KELLEY, EITAN LEES, CORTNEY BOUGHER, TONYA COFFEY, BRAD CONRAD, Appalachian State University, PATRICK HEAPHY, CHRIS COLLISON, SUSAN SPENCER, JEREMY CODY, Rochester Institute of Technology — Our research uses atomic force microscopy (AFM) and a Nanoscale Thermal Analysis (NanoTA) system from Anasys Instruments to correlate the morphology of local structures with the thermal material properties of organic solar cells. The NanoTA system uses AFM probes that can be heated up to 350°C over a 50 nm region to quantify the melting transition temperatures of nanoscale regions. We show results for two materials: $D_iPSQ[OH]_2$ and PCBM, for both pure and systematically blended thin-films. We have characterized the morphology and melting points of the blend films with increasing anneal time, and differences in melting points of blended as compared to pure samples.

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