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**3:30 P.M. Lecture**  
**112 Hamilton Hall**



**“Nanoscale Characterization of Photovoltaic Devices”**

Thin film solar cells are usually based on polycrystalline materials that are structurally and electronically non-uniform. To effectively engineer and mitigate the recombination sources and to further boost the efficiency of such inhomogeneous devices that is currently well below the theoretical limits, it is highly desirable to understand how the grain cores (GCs), grain boundaries (GBs) and other local variations of composition within these materials affect the overall photoelectronic properties. Using mainly CdTe/CdS devices as an example, I will discuss the development and the application of multiple experimental techniques such as photo-conductive atomic force microscopy, near-field optical microscopy, electron-beam induced current, near-field cathodoluminescence and other local probes in combination with sample patterning and sectioning to correlate the micro/nano structure with the device performance.