

Abstract Submitted  
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**Imaging Defects in Semiconductors with a Snapshot Micro-Imaging Technique**<sup>1</sup> KIRSTIN ALBERI, BRIAN FLUEGEL, DAN BEATON, ANGELO MASCARENHAS, National Renewable Energy Laboratory — Polycrystalline or metamorphically grown single crystalline thin films are ubiquitous in energy-related technologies, such as solar cells and light emitting diodes. A detailed understanding of the defects contained within these materials (i.e. dislocations, grain boundaries, inclusions) and the ability to control them play critical roles in their development. We will present the use of a novel “snapshot” micro-imaging technique to evaluate the presence and behavior of defects in a variety of materials and devices. Photoluminescence from a wide area of a sample is imaged onto a Si CCD in a single exposure, enabling real-time mapping with sub-micron resolution. A tunable liquid-crystal filter selects the exact wavelength that is imaged. Combined with a tunable excitation source, this technique is ideal for selectively investigating defects in thin films as well as individual layers in a device.

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