

# The 247<sup>th</sup> MANA Seminar



## 3D X-ray Microscopy – Extending Synchrotron Optics to the Materials Science Laboratory



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 **xradia**<sup>®</sup> (*Xradia Inc., USA*)

3D x-ray microscopy (XRM) has emerged as a powerful non-destructive imaging technique that provides unique microstructural information from a range of materials from polymers to metals to ceramics. Advanced optics with imaging resolutions down to 50 nm, once achievable only at synchrotron beamlines, have recently been extended by Xradia to the laboratory as a complement to electron, scanning probe and optical microscopies. Imaging and quantifying the evolution of microstructure of the same sample region at relevant resolutions remains a unique capacity of 3D x-ray microscopy. Several examples of in situ and '4D' experiments will be presented, including crack propagation in ceramics, porosity and permeability characterization, deformation of polymer foams under load and the evolution of defects in anode materials in Lithium ion batteries.

**Venue: Seminar Room #431, 4F, MANA Bldg.,**

**Date: February 10<sup>th</sup>, Friday Time: 15:30-16:15**

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