

## **A High Resolution Hard X-ray Imaging Facility at SSRL**

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The Stanford Synchrotron Radiation Laboratory (SSRL) in collaboration with Xradia Inc., the NASA Ames Research Center and Cornell University plans to implement a commercial hard x-ray full field imaging microscope on the 54 pole wiggler beam line at SPEAR3. This facility will provide unprecedented analytical capabilities for a broad range of scientific areas and will emphasize research on nanoscale phenomena and structures in materials science, environmental science, and biology. The instrument itself will be a full-field transmission microscope (TXM) based on zone plate optics. This instrument will enable high resolution x-ray microscopy, tomography, and spectromicroscopy in a photon energy range between 3–14 keV. The spatial resolution of the TXM microscope is specified as 20 nm exploiting imaging in third diffraction order. It will be shown that this imaging facility will optimally combine the latest imaging technology developed by Xradia Inc. with the wiggler source characteristics at beam line 6-2 at SSRL. This will result in an instrument capable of high speed and high resolution imaging with spectral tunability for spectromicroscopy, element specific and Zernicke phase contrast imaging.

Furthermore, a scanning microprobe capability will be integral to the system thus allowing elemental mapping and fluorescence yield XANES to be performed with a spatial resolution of 1  $\mu\text{m}$  without introducing any changes to the optical configuration of the instrument.