

Abstract Submitted
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10nm spatial resolution in X-ray PEEM using diamondoid HITOSHI ISHIWATA, Stanford University, HENDRIK OHL DAG, Stanford Synchrotron Radiation Laboratory, ANDREAS SHOLL, Advanced Light Source, OLAV HELLWIG, Hitachi Global Storage Technology, Z.X. SHEN, NICK MELOSH, Stanford University, STANFORD SYNCHROTRON RADIATION LABORATORY COLLABORATION, ADVANCED LIGHT SOURCE COLLABORATION — The spatial resolution in X-ray Photoemission Electron Microscopy typically does not allow imaging features smaller than 25nm. X-ray PEEM resolution is limited by chromatic aberrations caused by large energy spread of secondary electrons coming off of surface. Diamondoids have recently been shown to act as a monochromator for secondary electrons, thus reducing chromatic aberration in X-ray PEEM. In addition to improving the resolution of the microscope the diamondoid coating will also enhance the image intensity by reducing work function of surface. Without the diamondoid coating, X-ray PEEM reaches detection limit on contrast transfer at 25nm spatial resolution. However with diamondoid coating of surface, we have shown that spatial resolution could reach 10nm spatial resolution creating new record for X-ray PEEM spatial resolution.

Hitoshi Ishiwata
Stanford University

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