CONTROL ID: 18259

CONTACT (NAME ONLY): Andreas Scholl

CONTACT (TELEPHONE ONLY): 510 486 4867

CONTACT (FAX ONLY):

CONTACT (E-MAIL ONLY): a_scholl@lbl.gov

Abstract details

CATEGORY: III. Computational Magnetics and Imaging

SUBCATEGORY: D. Magnetic Microscopy and Imaging

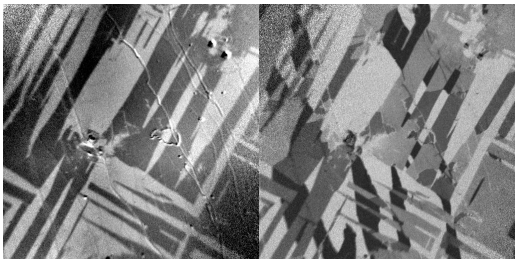
PRESENTATION TYPE: Poster

TITLE:
Imaging of Magnetic Metals Using X-ray Magnetic Linear Dichroism

AUTHORS (ALL): Scholl, Andreas [1]; Doran, Andrew [1]; Ohldag, Hendrik [1, 2]; Stohr, Joachim [2]

INSTITUTIONS (ALL): 1. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, USA;
2. Stanford Synchrotron Radiation Laboratory, Stanford, CA, USA;

ABSTRACT BODY:
We have shown earlier [1,2] that magnetic linear dichroism in x-ray absorption is a valuable tool for the study of antiferromagnetic oxides, such as NiO and LaFeO3, and of their coupling to ferromagnets. Here, we will present new results, showing that magnetic linear dichroism contrast also arises from magnetically ordered metal films and can be used in domain imaging with X-ray Photoemission Electron Microscopy (X-PEEM). The figure below shows XMLD (left) and XMCD (right) images of 3 nm Fe grown on NiO(001). Different domain orientations are visualized by different colors. Note the correspondence of bright domains in the XMLD image and black/white domains in the XMCD image. This finding opens the door for the investigation of the magnetic structure of technologically important, metallic antiferromagnets, such as Mn alloys.

References:: [1] H. Ohldag et al., Phys. Rev. Lett. 86 (2001) 2878.
[2] A. Scholl et al., Science 287 (2000) 1014.

(No Table Selected)