



Contribution ID: 159

Type: **Talk**

Femtosecond Time-Resolved Resonant Soft X-ray Diffraction Studies of Strongly Correlated Materials

Friday, 16 September 2011 12:10 (20 minutes)

Resonant Soft X-Ray Diffraction at the LCLS free electron laser is used to probe stimulated dynamics in two canonical strongly correlated materials. In the first example, I'll discuss the reconstruction of the 3D scattering volume of the $(.25 .25 .5)$ antiferromagnetic reflection in the layered compound $\text{La}_{0.5}\text{Sr}_{1.5}\text{MnO}_4$ measured at the Mn L-edge. Upon stimulation at near infrared wavelengths, the full scattering volume helps us visualize a transient incommensurability in the scattering wave vector, which recovers on a timescale of under 3ps. In the second example, we study the stripe ordered cuprate $\text{La}_{1.875}\text{Ba}_{1.125}\text{CuO}_4$. We measure the structural, LTT-allowed, $(0\ 0\ 1)$ reflection and the stripe ordered $(.25\ 0\ .5)$ reflection at the O K-edge and observe their dynamic decoupling when subjected to IR excitation resonant with an optical phonon.

Please specify poster or talk

Talk

Please specify the session

RIXS

Primary author: Dr TOBEY, R (Department of Condensed Matter Physics and Materials Science, Brookhaven National Laboratory, Upton NY 11793, USA)

Presenter: Dr TOBEY, R (Department of Condensed Matter Physics and Materials Science, Brookhaven National Laboratory, Upton NY 11793, USA)

Session Classification: Resonant Inelastic and Elastic X-ray Scattering

Track Classification: Resonant Inelastic and Elastic X-ray Scattering