



Contribution ID: 115

Type: Talk

## Ultrafast non-thermal dynamics of spin and charge order in striped nickelate via femtosecond resonant soft x-ray scattering

*Friday, 16 September 2011 11:40 (30 minutes)*

In the striped nickelate  $\text{La}_{2-x}\text{Sr}_x\text{NiO}_4$ , spin order coexists with charge order, whose periodicity is half of spin order. So far, most of the studies on the stripe phase were performed in the thermal equilibrium state by varying temperatures; the dynamics of stripe phase in the time domain when the system is driven-out-of-equilibrium has not yet been studied. Using the x-ray free electron laser (XFEL) at the Linac Coherent Light Source (LCLS), we performed time resolved optical-pump and resonant soft x-ray diffraction probe experiments to study the dynamics of the spin and charge order. The dynamics are found to be distinct from the equilibrium properties. Through the analysis of the recovery time scale, the spin-charge order coupling and the vector nature of the spin order can be elucidated.

### Please specify the session

RIXS

### Please specify poster or talk

Talk

**Primary author:** Dr LEE, W S (Stanford Institute for Materials and Energy Science, SLAC National Accelerator Lab, USA)

**Presenter:** Dr LEE, W S (Stanford Institute for Materials and Energy Science, SLAC National Accelerator Lab, USA)

**Session Classification:** Resonant Inelastic and Elastic X-ray Scattering

**Track Classification:** Resonant Inelastic and Elastic X-ray Scattering