

Resonant soft X-ray scattering system for LCLS experiments and hierarchical temporal scales in laser-induced transient state of nickelate

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Electronic orderings in correlated systems can compete and/or cooperate with electron itinerancy and lead to the emergence phenomena like colossal magnetoresistance (CMR) and high temperature superconductivity (HTSC). To understand how these orderings can show up from strong correlations, resonant soft X-ray scattering (RSXS) spectroscopy has been demonstrated as one of the most powerful probes for addressing this question. Although quasi-static nature of orderings has been widely studied with RSXS, nevertheless, their dynamics remains largely unexplored. In this presentation, we will show the construction of a new RSXS end-station equipped with compact-fast CCD camera that allows us to carry out time-resolved RSXS experiments at the LCLS, and the time-resolved RSXS data on stripe-phase nickelate revealing the hierarchical temporal scales for charge and spin stripes in laser-induced transient state.

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