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Resonant Soft X-ray Scattering on Layer Manganite: Observation of Orbital Ordering Effect YI-DE CHUANG, ANTONIO NISSEN, ZAHID HUSSAIN, Advanced Light Source, Lawrence Berkeley National Laboratory, DONG QIAN, M. ZAHID HASAN, Department of Physics, Princeton University, TSUYOSHI KIMURA, YOSHINORI TOKURA, Department of Applied Physics, University of Tokyo, JOHN MITCHELL, Material Science Division, Argonne National Laboratory — We have developed an endstation to perform resonant soft X-ray scattering on highly correlated electron systems. With this instrument, we are able to study the photon energy and temperature dependence of superlattice reflection originating from orbital ordering on bilayer manganite. The intensity of superlattice reflection closely correlates to the resistivity behavior across phase transition boundary, indicating the intimate relationship between them. The correlation length is consistent with results reported previously in hard X-ray studies.

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