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Nematicity in Stripe Ordered Cuprates Probed via Resonant X-Ray Scattering CHRISTOPHER MCMAHON, ANDREW ACHKAR, University of Waterloo, MARTIN ZWIEBLER, Leibniz Institute for Solid State Materials Research IFW Dresden, FEIZHOU HE, RONNY SUTARTO, Canadian Light Source, ISAIAH DJIANTO, ZHIHAO HAO, MICHEL GINGRAS, University of Waterloo, MARKUS HUCKER, GENDA GU, Brookhaven National Laboratory, ALEXANDRE REVCOLEVSCHI, Synthese, Proprietes et Modelisation des Materiaux (SP2M), HARRY ZHANG, None, YOUNG-JUNE KIM, University of Toronto, JOCHEN GECK, Leibniz Institute for Solid State Materials Research IFW Dresden, DAVID HAWTHORN, University of Waterloo — In underdoped cuprate superconductors, a rich competition occurs between superconductivity and charge density wave (CDW) order. Under debate, however, is whether rotational symmetry breaking (nematicity) also plays a central role - whether it occurs intrinsically and generically or merely as a consequence of other orders. Here we employ resonant x-ray scattering in stripeordered $(La,M)_2CuO_4$ to probe the relationship between electronic nematicity of the Cu $3d$ orbitals, structure of the $(La,M)_2O_2$ layers and CDW order. We find distinct temperature dependencies of the structure of the $(La,M)_2O_2$ layers and the electronic nematicity of the CuO_2 planes, with only the latter being enhanced by the onset of CDW order. These results suggest electronic nematicity is an order parameter that is distinct from a purely structural order parameter in underdoped cuprates.

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