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**The electronic structure of tetragonal CuO** SIMON MOSER, Ecole Polytechnique Federale de Lausanne, Advanced Light Source, LUCA MORESCHINI, Advanced Light Source, DAVIDE INNOCENTI, University of Rome Tor Vergata, YOUNG JUN CHANG, AARON BOSTWICK, ELI ROTENBERG, Advanced Light Source, MARCO GRIONI, Ecole Polytechnique Federale de Lausanne — The cupric oxide CuO exhibits an insulating ground state with a correlation-induced charge-transfer gap and antiferromagnetism. It is, in principle, the most straightforward parent compound of the doped cuprates, and therefore has been theoretically studied as a model material for high temperature superconductivity. Bulk CuO crystallizes in a low-symmetry monoclinic form, in contrast to the rocksalt structure typical of late 3d transition metal monoxides. It was recently synthesized by epitaxial growth on $SrTiO_3$ substrates in a higher symmetry tetragonal structure with elongated c-axis (Siemons *et* al. PRB 79, 2009). Extrapolating the behavior of other 3d transition metal monoxides, this phase of CuO is predicted to have a much higher Neel temperature than its bulk counterpart. At beamline 7 of the Advanced Light Source, we have grown tetragonal CuO thin films by pulsed laser deposition and investigated their electronic structure by angle-resolved photoelectron spectroscopy (ARPES). These measurements represent the first mapping of the band structure of this new material, not available in bulk phase, and will serve as a reference point for future doping experiments.

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