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Zhang-Rice singlet hopping on bipartite tetragonal CuO L. MORESCHINI, Advanced Light Source (ALS), Berkeley, USA, S. MOSER, H.-Y. YANG, Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland, D. INNOCENTI, Università di Roma Tor Vergata, Roma, Italy, F. FUCHS, Julius-Maximilian University of Würzburg, Würzburg, Germany, N.H. HANSEN, Julius-Maximilian University of Würzburg, Würzburg, Germany, Y.J. CHANG, K.S. KIM, A. BOSTWICK, E. ROTENBERG, Advanced Light Source (ALS), Berkeley, USA, F. MILA, M. GRIONI, Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland — In the superconducting cuprates, corner sharing CuO_4 plaquettes host the formation and propagation of the Zhang-Rice singlet. Adding a further Cu atom to the center of such plaquettes results in a rare edge sharing geometry. The cupric oxide CuO indeed crystallizes in a lower-symmetry monoclinic form. At beamline 7.0.1 of the Advanced Light Source, we have grown tetragonal CuO thin films by pulsed laser deposition. By in situ angle-resolved photoemission (ARPES), we show that the first ionization state is a singlet propagating on two nearly independent corner sharing sublattices, and we resolve an inter-plaquette coupling of the order of 100 meV.

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