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Unusual Spectral Signatures in Na-doped Oxychloride High Temperature Superconductors M. BRUNNER, University of California, Santa Cruz, K.-H. KIM, H.-G. LEE, S.-I. LEE, Pohang University of Science and Technology, M.R. PETERSON, B.S. SHASTRY, G.-H. GWEON, University of California, Santa Cruz — Electron spectroscopy studies on Na-doped oxychloride samples (Na-CCOC; $(NaCa)_2CuO_2Cl_2$) have received much attention recently, due to the facts that Na-CCOC samples are easy to cleave, the crystal structure is relatively simple among the cuprates, and the spectroscopy reveals enhanced signatures of putative "competing order." Here, we report the electronic structure of Na-CCOC investigated by angle resolved photoelectron spectroscopy (ARPES) as a function of momentum, energy and doping, with an emphasis on unusual nature of some signatures clearly observed in this family of the cuprates. We discuss those signatures in relation to the recently discovered high energy dispersion anomaly and the suggested charge order.

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