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Electronic structure of p-type transparent conducting oxide $CuAlO_2$ SUNG-KWAN MO, ALS, LBNL, JOONSEOK YOON, Yonsei University, Korea, XIAOSONG LIU, WANLI YANG, ALS, LBNL, BONGJIN MUN, GIST, Korea, HONGLYOUL JU, Yonsei University, Korea — $CuAlO_2$ is a prototypical p-type transparent conducting oxide. Despite its importance for potential applications and number of studies on its band structure and gap characteristics, experimental study on the momentum-resolved electronic structure has been lacking. We present angle-resolved photoemission data on single crystalline $CuAlO_2$ using synchrotron light source to reveal complete band structure. Complemented by the x-ray absorption and emission spectra, we also study band gap characteristics and compare them with theory.

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