Abstract Submitted
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Valence Electronic Structure of YBCO Probed by X-ray Standing Waves[1] JORG ZEGENHAGEN, SEBASTIAN THIESS, TIEN-LIN LEE, ESRF, CARMELA ARUTA, INFM, Rome, CHENGTIAN LIN, MPI-FKF, Stuttgart, FEDERICA VENTURINI, NICHOLAS BROOKES, BRUCE C.C. COWIE, ESRF — The photoelectron emission spectrum of the valence band of the high-temperature superconductor $YBa_2Cu_3O_{7-\delta}$ (YBCO) in the X-ray regime is dominated by contributions from the copper sites (d states) because of the comparably large cross section. With the help of the x-ray standing wave (XSW) technique in combination with photoelectron spectroscopy, it is possible to separate the contributions to the valence band originating from different lattice sites, even if they are populated by the same element. In this way, by applying the XSW method with photoelectron spectroscopy, we discriminated the contributions to the YBCO valence band coming from the nonequivalent in-plane and chain copper sites. Within the resolution of our measurements, the contributions of Cu-I and Cu-II to the valence band were found to be identical.

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