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Cu K-edge Resonant Inelastic X-Ray Scattering in Edge-Sharing Cuprates THOMAS DEVEREAUX, Univ. of Waterloo, FRANCOIS VERNAY, BRIAN MORITZ, Univ of Waterloo, GEORGE SAWATZKY, Univ of British Columbia — We present calculations for resonant inelastic x-ray scattering (RIXS) in edge-shared copper oxide systems, such as $CuGeO_3$ and Li_2CuO_2, appropriate for hard x-ray scattering where the photoexcited electron lies above oxygen 2p and copper 3d orbital energies. We perform exact diagonalizations of the multi-band Hubbard model with and without the presence of a photoexcited 1s core hole, and determine the energies, orbital character and resonance profiles of excitations which can be probed via RIXS. We find excellent agreement with recent results on Li_2CuO_2 and $CuGeO_3$ in the 2-7 eV photon energy loss range.

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