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【133】Does ARPES truly represent high-Tc superconductivity in cuprates?

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An imminent doubt has always been around whether angle-resolved photoelectron spectroscopy (ARPES) of high-Tc superconductors, visualizing the superconducting gap in **k**-space, can truly represent the intrinsic bulk spectral function whose response is distorted by energy- and **k**-dependent matrix elements and small photoelectron escape depth. We address this fundamental question with soft-X-ray ARPES of the paradigm high-Tc cuprate Bi2Sr2CaCu2O8. The matrix elements are varied by spanning a dense **k**-space grid formed by the lattice superstructure, and probing depth by changing the emission angle. Invariant magnitude of the measured superconducting gap proves the relevance of ARPES for the bulk superconductivity in Bi2Sr2CaCu2O8 and calls for similar verification experiments on other high-Tc compounds.

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