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Temperature Dependence of Quasiparticle Spectral Weight and Coherence in High T_c Superconductors[1] YANG HE, Harvard University, JESSIE ZHANG, Massachusetts Institute of Technology, JENNIFER HOFFMAN, Harvard University, HOFFMAN LAB TEAM — Superconductivity arises from the Cooper pairing of quasiparticles on the Fermi surface. Understanding the formation of Cooper pairs is an essential step towards unveiling the mechanism of high T_c superconductivity. We compare scanning tunneling microscope investigations of the temperature dependence of quasiparticle spectral weight and quasiparticle interference in several families of high T_c materials. We calculate the coherent spectral weight related to superconductivity, despite the coexistence of competing orders. The relation between pairing temperature and coherent spectral weight is discussed.

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