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Temperature- and momentum-dependent self-energies of cuprate superconductors from ARPES HAOXIANG LI, XIAOQING ZHOU, STEPHEN PARHAM, THEODORE J. REBER, Department of Physics, University of Colorado at Boulder, Boulder, CO 80309, USA, JINSHENG WEN, ZHIJUN XU, Brookhaven National Lab, Upton, New York 11973, USA, GERALD ARNOLD, Department of Physics, University of Colorado at Boulder, Boulder, CO 80309, USA, GENDA GU, Brookhaven National Lab, Upton, New York 11973, USA, HELMUTH BERGER, Dpartment de Physique, Ecole Polytechnique Fdrale de Lausanne, CH-1015 Lausanne, Switzerland, DANIEL S. DESSAU, Department of Physics, University of Colorado at Boulder, Boulder, CO 80309, USA — Electronic correlations, described by the self-energy effects, are understood to be the driving force for a great variety of the most exotic physics of modern materials, with these effects perhaps no more important than in the cuprate high temperature superconductors. Here, we use the latest ARPES data and analysis techniques to study how the self-energy effects of $Bi_2Sr_2CaCu_2O_{8+\delta}$ vary with momentum, temperature, and doping level, giving rich new information about the electronic interactions that drive the strange-metal normal state and the superconducting state of the cuprates.

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