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Probing Many-Body Interactions in High-Tc Superconductor $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ using Time- and Angle-Resolved Photoemission TRISTAN MILLER, Department of Physics, University of California Berkeley, WENTAO ZHANG, Material Sciences Division, Lawrence Berkeley National Laboratory, CHRISTOPHER JOZWIAK, Advanced Light Source, Lawrence Berkeley National Laboratory, CHRISTOPHER SMALLWOOD, Material Sciences Division, Lawrence Berkeley National Laboratory, HIROSHI EISAKI, Electronics and Photonics Research Institute, National Institute of Advanced Industrial Science and Technology, DUNG-HAI LEE, Department of Physics, University of California Berkeley, ALESSANDRA LANZARA, Material Sciences Division, Lawrence Berkeley National Laboratory — Laser-based time- and angle-resolved photoemission spectroscopy (trARPES) is a technique that uses an initial laser pulse to pump a system, and a second pulse to probe it by photoemission. By using trARPES on the high temperature superconductor, $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$, we open a window into its many-body quasiparticle interactions. Here we report on the effect of pumping on the quasiparticle band structure of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$. We will discuss the dynamics of this effect, and its relation to the superconducting state.

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