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Temperature and doping dependent ARPES study of the gaps in Bi2212[1] H.-B. YANG, CMPMSD, Brookhaven National Laboratory, J.D. RAMEAU, CMPMSD, Brookhaven National Laboratory / Stonybrook University, P.D. JOHNSON, T. VALLA, G.D. GU, A.T. TSVELIK, CMPMSD, Brookhaven National Laboratory, CMPMSD, BROOKHAVEN NATIONAL LABORATORY TEAM — High-resolution angle-resolved photoemission (ARPES) is used to probe the development of the gaps around the Fermi surface in Bi2212. A new method of data analysis is presented to remove the complications associated with the experimental resolution. Normalizing by the Fermi function then allows the observation of both the occupied and unoccupied states. The results on the temperature and doping dependence of the gap show that the underdoped system in the normal state behaves differently from all region of the phase diagram in the superconducting state, and point to potentially different origins for the pseudogap.

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