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Observation of the pseudogap features in overdoped Bi2Sr2CaCu2O8+d by breakjunction tunneling spectroscopy[1]

Y. XUAN, H. J. TAO, Z. Z. LI, B. R. ZHAO, Z. X. ZHAO, National Laboratory for Superconductivity, Institute of Physics and Center for Condensed Mater Physics, Chinese Academy of Sciences, China, C.T. LIN, Max-Planck-Institut für Festkörperforschung, 70569 Stuttgart, Germany — Tunneling measurements of Bi2Sr2CaCu2O8+d single crystals with different oxygen doping have been carried out by using breakjunction technique to study the pseudogap in the overdoped regime. The normal-state pseudogap has been observed clearly in the three overdoped crystals with Tc = 90 K, 82 K, and 72 K, respectively. Furthermore, direct measurements on the pseudogap opening temperature T*, by tracing the disappearance of the tunneling conductance peak, reveal that the relationship of T* versus hole concentration is linear and its extrapolation just crosses the end of the superconducting phase boundary.

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