

Intrinsic tunneling study of $\text{Bi}_2\text{Sr}_{1.6}\text{La}_{0.4}\text{CuO}_{6+\delta}$

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We report on a tunneling study of submicron $\text{Bi}_2\text{Sr}_{1.6}\text{La}_{0.4}\text{CuO}_{6+\delta}$ intrinsic Josephson junctions, whose self-heating was sufficiently suppressed. The tunneling spectra were measured from 4.2 K up to the pseudogap opening temperature of 260 K. The gap value found from the spectral peak position was about 35 meV and had a weak temperature dependence both below and above the superconducting transition temperature of 29 K. Since the superconducting gap should have a value of 10-15 meV, our results indicate that the pseudogap plays an important role in the $\text{Bi}_2\text{Sr}_{1.6}\text{La}_{0.4}\text{CuO}_{6+\delta}$ intrinsic tunneling spectroscopy down to the lowest temperature of 4.2 K.