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Mapping the Pseudogap by Fourier Transform Scanning Tunneling Spectroscopy in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ ¹ E.W. HUDSON, MIT, E MAIN, A.E. PIVONKA, I. ZELJKOVIC, Harvard, G. GU, Brookhaven, J.E. HOFFMAN, Harvard — The relationship between pseudogap and superconductivity in cuprate superconductors remains an important open question. To shed light on this issue, we have used Fourier-transform scanning tunneling microscopy to map quasiparticle interference (QPI) patterns as well as the “checkerboard,” a weak charge modulation associated with the pseudogap, as a function of doping and temperature in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$ (Bi-2212). We can extract the doping dependence of the pseudogap transition temperature T^* within the superconducting dome. Our results strongly suggest that the pseudogap is a competing order.

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