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Spectroscopic-imaging STM studies of superconductivity and nematicity in $\mathbf{FeSe_{1-x}S_x}$ T. HANAGURI, Y. KOHSAKA, K. IWAYA, T. MACHIDA, RIKEN Center for Emergent Matter Science, T. SHIBAUCHI, Department of Advanced Materials Science, The University of Tokyo, T. WATASHIGE, S. KASAHARA, Y. MATSUDA, Deptartment of Physics, Kyoto University — $FeSe_{1-x}S_x$ exhibits electronic nematic order that is suppressed with increasing sulfur content x. The nematic order disappears in the bulk above $x \sim$0.17, whereas superconducting transition temperature $T_c = 9 \sim 10$ K remains almost unchanged [1]. We performed spectroscopic-imaging STM experiments on $FeSe_{1-x}S_x$ to investigate the change in the band structure and the superconducting gap across the nematic quantum critical point at $x \sim$0.17. We have found that anisotropy of the in-plane band structure diminishes with increasing x but survives at least locally even at $x >$0.17. Superconducting gap is hardly affected by sulfur doping in the nematic phase but becomes blunt at $x >$0.17. This result may suggest that superconductivity and nematicity are interrelated. [1] S. Hosoi *et al.*, PNAS **113**, 8139 (2016).

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