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The Evolution of Electronic Structure in Electron and Hole-Doped Sr2IrO4 YUE CAO, XIUWEN ZHANG, HAOXIANG LI, XIAOQING ZHOU, University of Colorado at Boulder, RAJENDRA DHAKA, NICHOLAS PLUMB, Swiss Light Source, PSI, TONGFEI QI, JASMINKA TERZIC, University of Kentucky, ALEX ZUNGER, University of Colorado at Boulder, GANG CAO, University of Kentucky, D. S. DESSAU, University of Colorado at Boulder
— How the electronic structure evolves in doped Mott insulators remains debated after decades of study, and affects the interpretations of many bulk and spectroscopic properties, including dc-conductance, quantum oscillations, etc. The recent discovery of the spin-orbital coupled J=1/2 Mott insulator Sr2IrO4 provides a new perspective into the above question. Combining angle-resolved photoemission spectroscopy and first-principles calculations, we present a unified description how the band dispersion, Fermi surface, chemical potential, and Mott gap changes in electron and hole doped Sr2IrO4.

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