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**Observation of Fermi Arcs in a Doped Pseudospin-1/2 Heisenberg Antiferromagnet Strontium Iridate** Y. K. KIM, O. KRUPIN, J. D. DENLINGER, A. BOSTWICK, E. ROTENBERG, Lawrence Berkeley Natl Lab, Q. ZHAO, J. F. MITCHELL, MSD, Argonne Natl Lab, J. W. ALLEN, Ranall Lab of physics, Univ. of Michigan, B. J. KIM, MSD, Argonne Natl Lab, Ranall Lab of physics, Univ. of Michigan,Max Plank institute for Solid state research, Stuttgart — Emergent properties of two microscopically different systems can be similar. Despite manifestly different underlying microscopic electronic structures, the effective low-energy physics of Sr2IrO4 has been shown to be remarkably similar to that of the parent insulators of superconducting cuprates. However, whether the parallel with the cuprates continues to hold for a metallic phase induced by carrier doping remains unclear, which holds the key to the realization of a new high temperature superconductor. In this presentation, we will report that the evolution of the fermiology of Sr2IrO4 with doping and temperature reproduces that observed for the cuprates. Upon surface electron doping through in situ deposition of alkali-metal atoms, angle-resolved photoemission spectra of Sr2IrO4 display disconnected segments of zero-energy states, known as 'Fermi arcs', and a gap as large as 80 meV. The Fermi arc smoothly evolves to a closed Fermi surface at higher surface coverage and at higher temperature.

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