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**Cuprate higher harmonic gap structure: theory vs. experiment** DAVID PARKER, Max Planck Institute for the Physics of Complex Systems, ALEXANDER BALATSKY, Theoretical Division, Los Alamos National Laboratory — We present a detailed comparison to experiment of the generalized gap symmetry predictions of spin-fluctuation mediated superconductivity theory in the hole-doped and electron-doped cuprates, within a weak-coupling BCS framework. We comment on the implications of these results for the ongoing "one gap vs two gap" controversy in the cuprates, and discuss the impact of these results on the quasiparticle lifetime model of the cuprate Fermi arcs.

> David Parker Max Planck Institute for the Physics of Complex Systems

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