

Abstract Submitted
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Chiral Symmetry Breaking and Mott Physics from Gauge/Gravity Duality¹ GARRETT VANACORE, PHILIP PHILLIPS, University of Illinois, Urbana-Champaign — We use holographic techniques to address the origin of the Mott gap and Fermi arcs in the cuprates. We first show that dynamically generated gaps of the Mott kind arise in holographic settings from a bulk coupling that breaks chiral symmetry. We then explore a bulk coupling which breaks rotational symmetry but preserves chiral symmetry and show that Fermi arcs arise in the dual system at the boundary. We draw further lessons for the cuprates through the unambiguous interpretation of chiral symmetry as a combination of particle-hole and time reversal symmetry on the lattice, and suggest that the interplay of these symmetries may be the key to understanding the transition between the Mott insulating phase and the pseudogap.

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