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Fermi arcs and hidden zeros of the Green function in the pseudogap state TUDOR STANESCU, University of Illinois at Urbana Champaign, GABRIEL KOTLIAR, Rutgers University — We investigate the evolution of the low energy properties of a correlated metal in the proximity of a Mott insulator within the planar Hubbard model. We use a generalized version of the Cellular Dynamical Mean Field Theory having cumulants as the basic irreducible objects for re-constructing the lattice quantities from their cluster counterparts. We find that the zero temperature one particle Green function is characterized by the appearance of lines of zeros, in addition to a Fermi surface which changes topology as a function of doping. We show that these features are directly related to the opening of a pseudogap in the one particle spectrum and provide a simple picture for the appearance of Fermi arcs.

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