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**Electronic Structures of Parent Compounds of Iron Pnictides: Study Using a Five-Orbital Model**[1] QINLONG LUO, DAO-XIN YAO, University of Tennessee and ORNL, RONG YU, University of Tennessee and ORNL and Rice University, GEORGE MARTINS, ORNL, ADRIANA MOREO, ELBIO DAGOTTO, University of Tennessee and ORNL — We investigate the electronic structures of the parent compounds of iron pnictides, LaOFeAs, BaFe2As2 and SrFe2As2, based on a three-dimensional five-orbital Hubbard model. The ground state of this model is studied via a spin-density-wave (SDW) mean-field approximation. For these compounds, a metallic SDW ground state with a $(0, \pi)$ magnetic order is found to be stabilized within an intermediate Hubbard U coupling regime. The value of U can be determined by comparing the magnetic moment with neutron scattering experiments. Motivated by recent ARPES experiments, we get the hopping and interaction parameters, determine the Fermi surface, and calculate the single electron spectral function. We show that the shape of the Fermi surface given by the five-orbital model is consistent with those found in recent ARPES experiments.

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