# Spin-wave excitations and Fermi surfaces of iron-pnictide superconductors from the local magnetic moment limit

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Reasonably good agreement with experimental results for the magnetic response and the spectral function are obtained considering that the iron pnictide parent compounds are hole-doped Mott insulators in the vicinity of a quantum critical point separating a hidden ferromagnet from a commensurate spin-density-wave phase. The Fermi surfaces, spectral function and magnetic response are obtained in the framework of a t-J model with 2 Fe orbitals per lattice site, where intra-orbital hopping of the holes, but no inter-orbital hopping, is allowed. Using Schwinger-boson-slave-fermion meanfield theory and Lanczos exact diagonalization to obtain the energy spectrum of one hole, hole-pockets near the Γ-point are found. The incoherent part of the spectral function is also shown to exhibit features with mixed hole and electron character near $\mathbf{k} = (\pi, 0)$, in agreement with experimental results from ARPES. The spectral weight of the spin-waves is vanishingly small at small momenta, in agreement with experimental results for the magnetic response, as observed through inelastic neutron scattering.