

Abstract Submitted  
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**Effective Hamiltonian to describe the magnetic properties of Fe-pnictides** EFSTRATIOS MANOUSAKIS, Department of Physics, Florida State University and Department of Physics, University of Athens, Greece — We discuss an effective Hamiltonian to describe the super-exchange interaction of electrons from two or more different d orbitals of the same Fe site which prefer different types of antiferromagnetic (AF) ordering. Namely, we consider a case where the relationship between nearest neighbor and next nearest neighbor AF couplings is such that the spins occupying the first orbital prefer a columnar AF order while for spins of the second orbital the familiar  $(\pi, \pi)$  AF ordering is preferred. In such cases there is frustration introduced by the Hund's rule coupling. Using spin-wave theory and exact diagonalization we have studied the case of such orbitals coupled through Hund's rule. We will discuss the phase diagram of this system and the consequences of our results for the magnetic properties of the Fe-pnictides.

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