

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

The effect of magnetic order on the superconducting gap in the co-existence phase of Fe-pnictides ALBERTO HINOJOSA ALVARADO, ANDREY CHUBUKOV, University of Wisconsin - Madison — We study the structure and symmetry of the superconducting gap in the presence of spin density wave (SDW) order in iron-based superconductors. We show that SDW order generally induces a spin-triplet component of the gap, in addition to the conventional spin singlet. We further show that, in some range of temperatures below T_c , the phases of superconducting order parameters on different reconstructed Fermi surfaces differ by an amount other than 0 or π , i.e., superconductivity directly reflects the breaking of time-reversal symmetry by SDW order. We specifically consider co-existing SDW and superconducting orders in a model with circular hole pockets and elliptic electronic pockets and present analytical results for the phase diagram and the structure of the superconducting gap at various temperatures.

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Date submitted: 15 Nov 2013

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