

Band energies in tow-band model for FeSCs in the coexistence state

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Abstract. The gap structure and pairing mechanism for iron based superconductors is hotly discussed as a central issue since their discovery. The energy band structure of iron based superconductors is calculated by a tight-binding two band model with the coexistence of superconductivity and Jahn-Teller distortion. We have proposed here a s^{\pm} -wave pairing symmetry of the form $\cos k_x \times \cos k_y$ in a two-band model for the coexistence of the two order parameters in the mean field approximation. The model is solved by Zubarev's double-time Green's function technique to find their selfconsistent gap equations and are solved self-consistently numerically. The band energies are discussed.

Keywords: Iron based superconductors; Superconducting gap; Jahn-Teller effect; Band energies.

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