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Recent studies on the isovalent phosphorous-substituted 122-type iron pnictides YUANYUAN ZHAO, Department of Physics and Texas Center for Superconductivity, University of Houston, Houston, Texas 77204, USA, ANR-RIS TAI, Theoretical Division and Center for Nonlinear Studies, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA, C.S. TING, Department of Physics and Texas Center for Superconductivity, University of Houston, Houston, Texas 77204, USA — Recent experiments demonstrate that isovalent doping system gives the similar phase diagram as the heterovalent doped cases: with the P-doping, the magnetic order is suppressed and the superconductivity emerges. With the help of tight-binding model calculation and self-consistent lattice Bogoliubov-de Gennes (BdG) equation calculation, we choose a minimal two-orbital model and obtain the phase diagram of BaFe2(As1-xPx)2 against the P content x, which could be qualitatively comparable with the experimental results. Besides, we will compare these results with the recent experiments shown QCP in this system.

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