Superconductivity and Magnetism in the Checkerboard Models for Iron-based Superconductors CHEN FANG, Purdue University, XIAOLI LU, YONGJIN JIANG, Zhejiang Normal University, WEI-FENG TSAI, Tokyo University, JIANGPING HU, Purdue University — We study three different checkerboard models for iron-based superconductors and obtain their phase diagrams in the solvable limit of weakly coupled checkerboards. We demonstrate that the strongest superconducting pairing is in the A_{1g}-S wave channel and the development of the superconductivity (SC) is correlated with the emergence of the next nearest neighbor antiferromagnetism (AFM). Moreover, this study suggests that the superconductivity and magnetism are orbital-selective. In the three-band model, the AFM is more robust in the d_{xy} orbital and the superconductivity is easier to be generated in the d_{xz} and d_{yz} orbitals. Comparisons between our theoretical results and current experimental measurements are discussed.

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