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Spin fluctuation mediated extended s-wave pairing from multiple Fermi surfaces in iron pnictide superconductors KAZUHIKO KUROKI, Department of Applied Physics and Chemistry, The University of Electro-Communications and JST, TRIP, SEIICHIRO ONARI, Department of Applied Physics, Nagoya University and JST, TRIP, RYOTARO ARITA, Department of Applied Physics, University of Tokyo and JST, TRIP, HIDETOMO USUI, Department of Applied Physics and Chemistry, The University of Electro-Communications and JST, TRIP, YUKIO TANAKA, Department of Applied Physics, Nagoya University and JST, TRIP, HIROSHI KONTANI, Department of Physics, Nagoya University and JST, TRIP, HIDEO AOKI, Department of Physics, University of Tokyo and JST, TRIP — For the superconducting iron pnictides, we have constructed a minimal model, where all the five Fe d bands turn out to be involved[1]. The model is used to investigate the origin of superconductivity with a five-band random-phase approximation for solving the Eliashberg equation. We conclude that the spin fluctuation modes arising from the nesting between the disconnected Fermi pockets realize basically an extended s-wave pairing, but that the gap function is in fact a matrix with significant off-diagonal elements. [1] K. Kuroki, S. Onari, R. Arita, H. Usui, Y. Tanaka, H. Kontani, and H. Aoki, Phys. Rev. Lett. **101**, 087004 (2008).

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