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Coexistence of Antiferromagnetism and Superconductivity in Bilayer Cuprates and Iron Arsenides TAKAMI TOHYAMA, HIROYUKI YOSHIZUMI, YASUNORI MATSUI, Yukawa Institute for Theoretical Physics, Kyoto University, TAKAO MORINARI, Department of Interdisciplinary Environment, Kyoto University — The coexistence of antiferromagnetism (AFM) and superconductivity (SC) is one of important issues in strongly correlated electron systems. One example is seen in multilayered cuprate superconductors, and another one is in iron-arsenide superconductors. In cuprates, motivated by the recent experiment reporting the enhancement of AFM order below the SC transition temperature, we study the proximity effect of the AFM correlation in a bilayer system and also examine the possibility of the coexistence. We present the result of mean-field theory that is consistent with the experiment and supports the proximity-effect picture [1]. In iron arsenides, we study possible coexistence of AFM with Dirac dispersions and SC with the same and different phase of pairing potential, based on the knowledge of the cuprates. [1] Y. Yoshizumi, T. Morinari, and T. Tohyama, Phys. Rev. B **85**, 184523 (2012).

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