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Functional renormalization group beyond the static approximation and its application to two-dimensional Hubbard model. HIROKAZU TAKASHIMA, University of Tokyo, Dept. Phys., RYOTARO ARITA, University of Tokyo, Dept. Applied Phys., KAZUHIKO KUROKI, University of Electro-Communications, HIDEO AOKI, University of Tokyo, Dept. Phys. — While the functional renormalization group(fRG) is a powerful theoretical method for strongly correlated electron systems which treats diagrams systematically within a framework of quantum field theory, the static approximation is adopted where the Matsubara frequency dependence of the four-point coupling and renormalization for the self-energy are ignored. Here we propose a method to go beyond the static approximation by devising an efficient parameterization for the four-point coupling in the Matsubara frequency space, which is combined with a previous improved algorithm of ours[1] based on a Cartesian box discretization. [1] H. Takashima, R. Arita, K. Kuroki, and H. Aoki, to be published in J. Phys.: Conference Series, *LT25PROC484*.

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