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Diagrammatic Quantum Monte Carlo Solution of Two dimensional Cooperon-Fermion model KAIYU YANG, ETHZ & Boston College — We investigate the two-dimensional Cooperon-fermion model in the strong coupling limit with continuous-time diagrammatic determinant quantum monte carlo (DDQMC). We obtained the same Kosterlitz-Thouless transition temperature T_c for the fermion's off-diagonal long range order χ_{OD} ($\boldsymbol{k}$=0,$\omega = 0$) and cooperon's Greens function $G^b(\boldsymbol{k}=0,\omega = 0)$ as expected. The renormalized cooperon's band (band gap and mass) is examined carefully. The delocalization of the cooperons enhances the diamagnetism. When applied to study the diamagnetism of pseudogap state in high-T_c cuprate, the results we obtained is in good agreement with recent torque magnetization measurements.

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