Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Functional renormalization group study of the pairing symmetry and pairing mechanism in iron-selenide superconductors YUAN-YUAN XIANG, HoHai University, QIANG-HUA WANG, Nanjing University — In iron-selenide superconductors only electron-like Fermi pockets survive, challenging the $s_{\pm}$ pairing based on the quasi-nesting between the electron and hole pockets(as in iron arsenides). By functional renormalization group study we show that an in-phase s-wave pairing on the electron pockets is realized. The pairing mechanism involve two competing driving forces: the strong C-type spin fluctuations cause attractive pair scattering between and within electron pockets via Cooperon excitations on the virtual hole-like pockets, while the G-type spin fluctuations cause repulsive pairing scattering. The latter effect is however weakened by the hybridization splitting of the electron-like pockets. The in phase s-wave pairing symmetry is consistent with the existing experiments.

Yuan-Yuan Xiang
HoHai University

Date submitted: 06 Nov 2015 Electronic form version 1.4