

March 13 (Monday) to March 15 (Wednesday) in the program,
since I have to depart New Orleans on March 16 (Thursday).
I would appreciate your consideration of my request.

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Nematicity, magnetism and superconductivity in FeSe under pressure: Unified explanation based on the self-consistent vertex correction theory YOUICHI YAMAKAWA, HIROSHI KONTANI, Nagoya University — Rich electronic phase diagram in FeSe under pressure vividly demonstrates the strong interplay between the nematicity, magnetism and superconductivity in Fe-based superconductors. Here, we construct the multiorbital Hubbard model for FeSe under pressure by referring to the first-principles calculations, and analyze the electronic states by including the higher-order many-body effects called the vertex correction (VC). When the pressure-induced xz -orbital Fermi pocket appears, the spin fluctuations on the xz orbital are enhanced, whereas those on yz orbitals are reduced. For this reason, nonmagnetic orbital order $O = n_{xz} - n_{yz}$, which is caused by the spin fluctuations on yz orbitals via the VC, is suppressed and replaced with the magnetism of xz -orbital d -electrons. The nodal s -wave state at ambient pressure ($O \neq 0$) and the enhancement of T_c under pressure are driven by the cooperation between spin and orbital fluctuations.

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Date submitted: 11 Nov 2016

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