

March 14 (Monday) to March 16 (Wednesday) in the program,
since I have to depart Baltimore on March 17 (Thursday).

I would appreciate your consideration of my request.

for the MAR16 Meeting of
The American Physical Society

Superconducting mechanism due to the orbital and spin fluctuations in Fe-based superconductors HIROSHI KONTANI, YOUICHI YAMAKAWA, Nagoya University, SEIICHIRO ONARI, Okayama University — The rich variety of the phase diagrams in Fe-based superconductors, such as the non-magnetic/magnetic nematic phase in FeSe/LaFeAsO, is not able to be explained by the mean-field level approximations. Recently, we explained the phase diagrams of FeSe and LaFeAsO in term of the orbital+spin fluctuation theory, by including the Aslamazov-Larkin vertex correction (AL-VC). The nematic orbital order without magnetization in FeSe is well explained [1]. In the present study, we analyze the superconducting states in FeSe and LaFeAsO, by applying the orbital+spin fluctuation theory. Rich variety of the superconducting gap structures are induced by the strong orbital and spin fluctuations driven by the AL-VC (=orbital-spin interplay). We find that the pairing interaction due to the orbital fluctuations is strongly enlarged by the AL-VC for the anomalous self-energy, so the Migdal theory is seriously violated in the orbital-fluctuation pairing mechanism. [1] Y. Yamakawa, S. Onari and H. Kontani, arXiv:1509.01161.

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