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Superfluid state of repulsively interacting three-component fermionic atoms in optical lattices[1] SEI-ICHIRO SUGA, University of Hyogo, KENSUKE INABA, NTT BRL, CREST — We investigate the superfluid state of repulsively interacting three-component (color) fermionic atoms in optical lattices using Feynman diagrammatic approaches and the dynamical mean field theory [1]. When the anisotropy of the three repulsive interactions is strong, atoms of two of the three colors form Cooper pairs and atoms of the third color remain a Fermi liquid. This superfluid emerges close to half filling at which the Mott insulating state characteristic of the three-component repulsive fermions appears [2]. An effective attractive interaction is induced by density fluctuations of the third-color atoms. The superfluid state is stable against the phase separation that occurs in the strongly repulsive region. We determine the phase diagrams in terms of temperature, filling, and the anisotropy of the repulsive interactions.

[1] K. Inaba and S. Suga, *Phys. Rev. Lett.* **108**, 255301 (2012)
[2] K. Inaba, S. Miyatake, and S. Suga, *Phys. Rev.* A **82**, 051602(R) (2009).

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Sei-ichiro Suga
University of Hyogo

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