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Phase space deformation of dipolar Fermi gas[1] HAN PU, Rice Univeristy, TAKAHIKO MIYAKAWA, Tokyo University of Science, TAKAAKI SOGO, Kyoto University, HONG LU, Rice University — We consider a system of quantum degenerate spin polarized fermions in a harmonic trap at zero temperature, interacting via dipole-dipole forces. Under the semi-classical framework, we introduce a variational Wigner distribution function to characterize the deformation and compression of the Fermi gas in phase space and use it to examine the stability of the system. We emphasize the important roles played by the Fock exchange term of the dipolar interaction which results in a non-spherical Fermi surface.

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Han Pu
Rice Univeristy

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