

Abstract Submitted
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Meson condensation analogs in ultracold atomic and molecular dipolar gases¹ KENJI MAEDA, Department of Physics, Colorado School of Mines, TETSUO HATSUDA, Theoretical Research Division, Nishina Center, RIKEN, GORDON BAYM, Department of Physics, University of Illinois — We show how an analog of meson condensation in dense nuclear matter can be realized in an ultracold gas of fermionic atoms, or molecules, with large magnetic dipole moments. We construct an antiferromagnetic-C phase that at high densities has lower energy than the Fermi gas or ferronematic phases. The antiferromagnetic-C phase is a one-dimensional periodic structure in which the fermions localize in layers with their pseudospin direction aligned parallel to the layers, and staggered layer by layer.

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