Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Dipolar Fermions in Layered Systems NIKOLAJ ZINNER, BERNARD WUNSCH, DAVID PEKKER, EUGENE DEMLER, Harvard University — A system of fermions confined to a stack of two-dimensional layers interacting through the long-range dipole-dipole force is expected to have a rich phase diagram with several different types of superfluid states and possible crystallization. We first study this system from the few-body perspective in order to determine what kind of bound structures are possible. Next, we use a mean-field approach to understand the imprint of these structures on many-body states as a function of the densities in the layers.

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Date submitted: 19 Nov 2009 Electronic form version 1.4