Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

The inverted kagome lattice: frustrated bosons without superexchange SEBASTIAN HUBER, Weizmann Instititue of Science, EHUD ALTMAN, Weizmann Institute of Science — The route to quantum magnetism in ultracold atom systems is obstructed by the difficulties of reaching low enough temperatures of the order of the superexchange coupling J. The prospect of simulating the square lattice antiferromagnet, and its expected descendant, the d-wave superconductor arouse a lot of current interest. Here we want to show how a frustrated "quantum magnet" can be obtained with bosons in an inverted kagome lattice without the need for temperatures that are much smaller than the hopping t. We discuss a possible experimental setup and the rich zoo of phases which can be expected in this system: ranging from glassy arrangements of localized states over a coexisting density-wave–superfluid phase to the $\exp(3i\varphi)$ condensate.

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Date submitted: 17 Dec 2009 Electronic form version 1.4