Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Proposal to frustrated spin model in optical lattices YANGHAO CHAN, EMILY LICHKO, LUMING DUAN, Physics Department, University of Michigan — We propose a setup to generate next-nearest neighbor hoppings with the amplitude comparable to nearest neighbor hoppings in optical lattices. The effective model can be described as a frustrated spin model. We also study the phase diagram with the recently developed tensor network algorithm based on infinite projected entangled pair states (iPEPS). The simulation indicates a promising spin liquid phase in a finite parameter region, where magnetic of valence bond solid order vanish.

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Date submitted: 30 Jan 2012 Electronic form version 1.4