

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Realizing Fractional Chern Insulators with Dipolar Spins NORMAN YAO, CHRIS LAUMANN, Harvard University, ANDREAS LAUCHLI, University of Innsbruck, EUGENE DEMLER, Harvard University, JUN YE, JILA, CU Boulder, PETER ZOLLER, University of Innsbruck, MIKHAIL LUKIN, Harvard University, ALEXEY GORSHKOV, IQIM, California Institute of Technology — Strongly correlated quantum systems can exhibit exotic behavior that is determined and controlled by topology. Such topological systems are of interest because they constitute fundamentally new states of matter exhibiting fractionalized excitations and robust chiral edge modes. We theoretically predict that the $\nu = 1/2$ fractional Chern insulator, a recently proposed topological state of lattice bosons, arises naturally in a two-dimensional array of driven, dipolar-interacting spins.

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Date submitted: 09 Nov 2012

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