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Preparation and detection of dipolar fractional Chern insulators

CHRIS LAUMANN, NORMAN YAO, Harvard University, ALEXEY GORSHKOV, IQI, MIKHAIL LUKIN, Harvard University — We describe schemes for preparation and detection of fractional Chern insulators as arise in driven dipolar spin systems. Such topological phases generically compete with superfluid and crystalline orders. We discuss the nature of the phase transitions and describe a dynamical preparation procedure. Prospects for measuring the properties of these topological phases using cold atomic techniques are considered.

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