Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Progress towards a quantum simulator based on ultracold strontium WEI QI, MINGCHENG LIANG, XIBO ZHANG, ICQM, Peking University — Realizing ultracold atoms in the fractional quantum Hall regime has been challenging because of difficulties in suppressing heating and loss due to spontaneous emission and in preparing and manipulating ultracold samples with very small atom numbers. Owing to its ultra-narrow clock transition, ^{87}Sr has become a promising candidate to overcome these difficulties. We report experimental progress towards building a quantum simulator that, on the basis of fermionic strontium 87, uses Raman optical lattices to engineer synthetic gauge fields and induce non-trivial topological flatbands. Microscopy with micrometer resolution and coherent spectroscopy based on an ultrastable clock laser can be integrated into the apparatus for manipulating and measuring novel strongly correlated quantum systems.

Xibo Zhang
ICQM, Peking University

Date submitted: 22 Jan 2017 Electronic form version 1.4