

21COE 物質階層融合科学セミナー
物性コロキウム

日時：8月4日(木) 16:30 - 18:00

場所：理学部 総合研究棟 745号室(大学院講義室)

講師：Guang-Ming Zhang (清華大学, China)

題目：Quadrupolar ordering phase of spinor
ultracold boson atoms in optical lattices

Abstract:

In this talk, I first give a brief review on the superfluid-Mott insulating phase transition of ultracold boson atoms in optical lattices, and then focus on the effective model in the Mott insulating phase with odd number of spin-1 bosons. In terms of an SU(3) boson representation, a valence bond mean field theory is developed. In 1D, a first-order quantum phase transition from a spin singlet to a quadrupole phase with gapful excitations is identified, while on a 2D square lattice a quadrupolar ordering phase with gapless excitations always prevails. In both 1D and 2D cases, we find that the spin structure factor displays dominant antiferromagnetic fluctuations, while the quadrupolar structure factor exhibits strong ferroquadrupolar correlations.

連絡先：倉本 義夫 (795-6435)

16:15 よりコーヒー、紅茶、お菓子を用意します。カップを持ってお集まり下さい。

世話人

岩井 伸一郎 (795-6423)

松井 広志(795-6604)、

内田 就也 (795-7756)、

中島 龍也(795-6441)