

SEMINAR

Tuesday, 26th of February 2013 at 11:30

Institut de Ci ncies Fot niques (ICFO)

Abstract

"Beyond standard Hubbard models"

A natural description of ultracold gases trapped in optical lattices is given by the so-called single-band Hubbard model. We will discuss the additional effects of interaction to induce intra- as well as inter-band scattering to neighbouring sites, which shows up as density dependent correlated tunneling processes. Such processes can spontaneously give rise to various exotic phases. As examples, we will present

- 1) spontaneous creation of non-Fermi liquid smectic metal phases in dipolar Fermions, and
- 2) dynamical generation of exotic lattices in Fermi-Fermi mixtures.