

# 講演会のお知らせ

日時： 1月23日（水）16：00～

場所：金研2号館5階セミナー室

I. 岡本 敏史 氏 (理研 & MPI for Solid State Research)

“ Theory of Orbital Ordering and Orbital Excitations  
in Ferromagnetic Titanates ”

A spin-orbital superexchange Hamiltonian in a Mott insulator with  $t_{2g}$  orbital degeneracy is investigated. In particular, we focus on a spin ferromagnetic state of the model and study a collective behavior of orbital angular momentum degrees of freedom. It is found that angular momentum is quenched at low energies by a static orbital (quadrupole) order. This orbital order is stabilised exclusively by quantum effects through order from disorder mechanism. As a test case for a proposed orbital order, we calculate orbital contribution to the magnetic structure factor. Reflecting a special features of an underlying orbital order, inelastic neutron scattering is predicted to show hot spots and flat dispersion. Including further a relativistic spin-orbital coupling, we derive an effective low energy Hamiltonian in spin sector and calculate a spin wave spectrum. We will discuss the Implications of our results in the recent experimental observations in ferromagnetic  $\text{YTiO}_3$ .

II. 石原 純夫 氏 (東大物工)

“ Theory of orbital excitations and their observations  
in perovskite titanates and vanadates ”

連絡先：金研 前川 禎通 (内 2005)