

SFB 608

Einladung zum Kolloquium

- Ort:** Universität zu Köln
II. Physikalisches Institut, Seminarraum 201
- Zeit:** 01. Juni 2005, 13 Uhr s.t.
- Sprecher:** Dr. Masahiko Isobe,
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Institute for Solid State Physics,
The University of Tokyo, JAPAN
- Thema:** The novel phase transitions of Pyroxene $\text{NaTiSi}_2\text{O}_6$,
Spinel Oxide MgTi_2O_4 , Hollandite $\text{K}_2\text{V}_8\text{O}_{16}$,
Perovskite CaCrO_3 , and a layer compound $\text{Na}_9\text{V}_{14}\text{O}_{35}$

I will present the novel phase transitions of some transition metal oxides. I have searched the material with the unusual physical properties for more than 10 years, for example superconducting behavior, metal-insulator transition, charge ordering, orbital ordering, spin gap behavior, and so on. About 10 years ago, we found a phase transition of NaV_2O_5 . This material is very attractive. The phase transition is still discussed by many people.

Recently we have researched Ti^{3+} compounds. In $\text{NaTiSi}_2\text{O}_6$ and MgTi_2O_4 we observed the phase transition newly. In these transitions, the orbital ordering maybe plays an important role. Last year we obtained the interesting materials $\text{K}_2\text{V}_8\text{O}_{16}$ and CaCrO_3 by high pressure synthesis. $\text{K}_2\text{V}_8\text{O}_{16}$ shows a metal-insulator transition. In CaCrO_3 , we observed a magnetic transition accompanied by a structural change. Also this year I start to study the layer compound $\text{Na}_9\text{V}_{14}\text{O}_{35}$, again. Because it was reported that this compound shows the charge ordering transition last year.

Gez. Prof. M. Braden