Faculty of Engineering
Tokushima University

Microscopic Study of Magnetism in Transition Metal Oxides

Associate Professor Yu Kawasaki

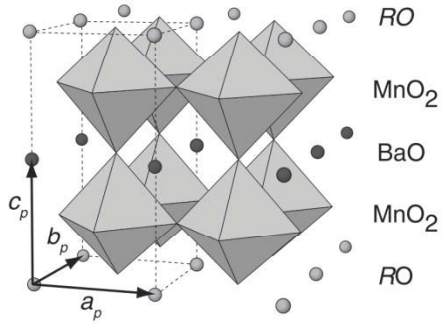

Fig.1 Crystal structure of A-site ordered $RBaMn_2O_6$

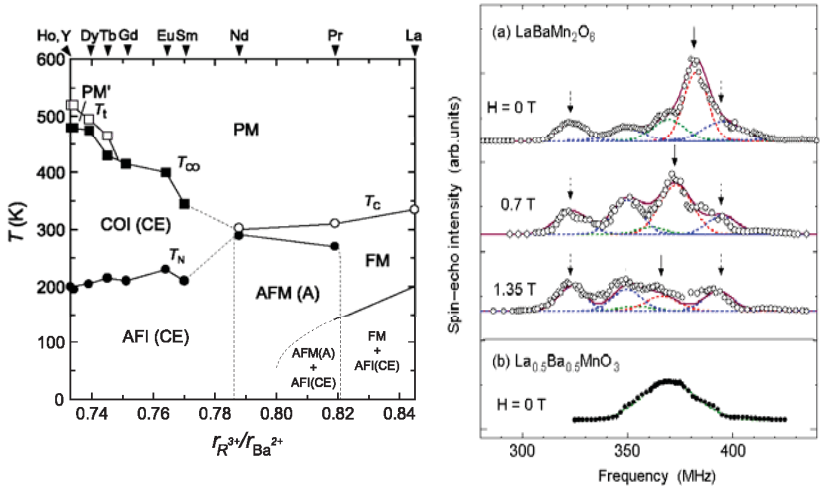

Fig.2 (left) Phase diagram of $RBaMn_2O_6$
(right) Mn-NMR spectra of $LaBaMn_2O_6$

Content:

Transition metal oxides with perovskite structure and their derivatives have been intensively studied in terms of technological application as well as fundamental physics, because of their rich variety of electromagnetic properties, such as high-T_c superconductivity in copper oxides and colossal magnetoresistance in manganese oxides. However, the mechanisms of these physical phenomena are not yet well understood.

To clarify these issues, we study magnetic properties of transition metal oxides by NMR and μSR from a microscopic point of view. For example, we investigate the A-site randomness effect in Ba-based manganites. In this work, we investigate the magnetically ordered states of the A-site ordered $RBaMn_2O_6$ (R: rare earth atoms), which are free from A-site randomness due to the layer-type ordering of R and Ba atoms at the A-site of the structure (Figs.1 and 2).

Keywords: Strongly correlated electron systems,
Magnetism, Superconductivity,
Magnetic Resonance

E-mail: kawasaki.yu@tokushima-u.ac.jp
Tel: +81-88-656-9878
Fax: +81-88-656-9878