第８７回　理学研究流動機構・物質科学専攻 共催　セミナー

Roushown Ali

(Doctor, University of Rajshahi, Bangladesh)

日 時：平成27年7月21日（火）16:50−17:50

場 所：本館1階H116講義室

Diffusion path of oxide ions in perovskite-type $La_{0.64}(Ti_{0.92}Nb_{0.08})O_3$ and apatite-type $La_{9.69}(Si_{5.70}Mg_{0.30})O_{26.24}$

[Abstract]
Oxygen diffusion paths have been investigated in oxide-ion conductors $La_{0.64}(Ti_{0.92}Nb_{0.08})O_{2.99}$ with a double perovskite-type structure, and $La_{9.69}(Si_{5.70}Mg_{0.30})O_{26.24}$ with an apatite-type structure using neutron powder diffraction data by a whole-pattern fitting approach based on the maximum-entropy method (MEM). Nuclear density distribution of $La_{0.64}(Ti_{0.92}Nb_{0.08})O_{2.99}$ perovskite derived from the MEM analysis revealed that oxide ions diffused along the [100] and [010] directions near the (004) planes at 1008°C and 1358°C. On the other hand, apatite-type $La_{9.69}(Si_{5.70}Mg_{0.30})O_{26.24}$ exhibited two migration pathways at 1558 °C. One linear pathway (-O4-O4-) is parallel to the *c*-axis involving vacancy mechanism, while the other (O3-O5-O4-O5-O3) is perpendicular to the *c*-axis involving an interstitial mechanism.

Hosted by Prof. Masatomo YASHIMA（ext.2225）

chair@ircs.titech.ac.jp
http://www.ircs.titech.ac.jp/index-j.html