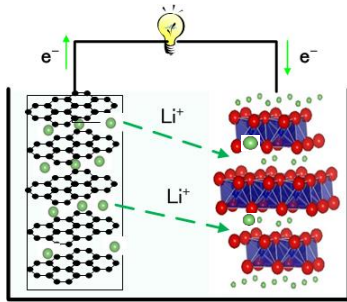




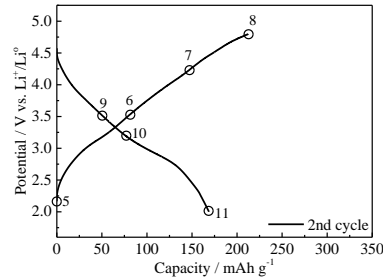
Faculty of
Science and
Technology
Tokushima University

<固体内のイオン・電子の移動ダイナミックに関する研究>

[キーワード:蓄電池, 燃料電池] 准教授 大石昌嗣



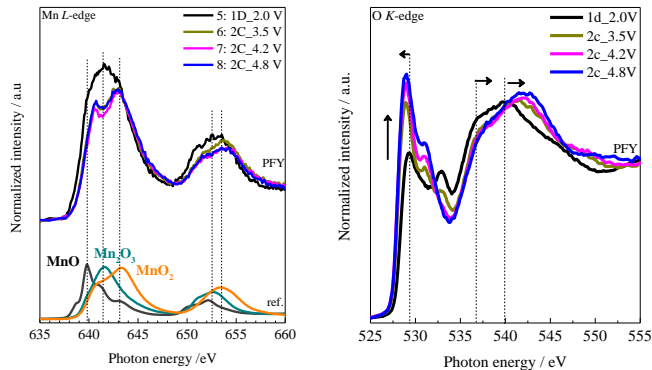
Lithium Ion Battery



Charge/discharge profile of Li_2MnO_3 electrode.



Study on the electronic and local structure using soft X-rays at synchrotron radiation facilities.



Mn L-edge and O K-edge XAS spectra for Li_2MnO_3 electrode.

内容:

地球環境に調和した技術社会の達成への寄与を目標に、高効率エネルギー変換技術に関する電気化学デバイス(蓄電池・燃料電池)の研究を行います。電気化学を基礎に、主に無機化合物におけるイオン・電子の移動ダイナミクスに関する研究(固体イオニクス)、放射光などの分光学的手法を用いた電子構造に関する研究に取り組みます。

- ・リチウムイオン二次電池の金属酸化物正極材料(左図)
リチウムイオンの脱離挿入時の電荷補償における、金属酸化物の酸化還元反応に伴う電子構造の解明を進めています。金属カチオンおよび酸素アニオンのそれぞれの寄与を理解、整理するために放射光を用いたX線吸収分光法の解析に取り組んでいます。
- ・固体酸化物型燃料電池の固体電解質及び電極材料
- ・酸窒化物蛍光体の熱安定性

分野: 材料化学

専門: 電気化学, 固体イオニクス, 蓄電池, 燃料電池

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Tel: 088-656-7367

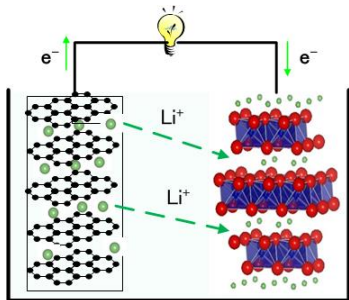
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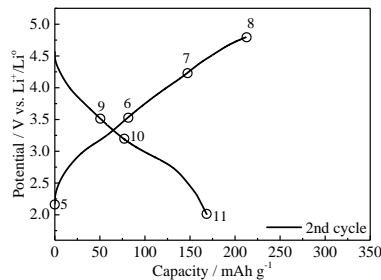


Transport dynamics of ion and electron in solids

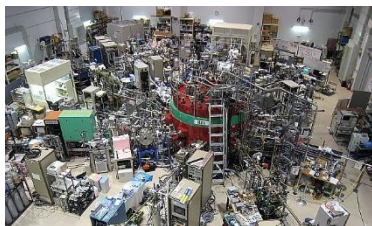
Associate Professor Masatsugu Oishi



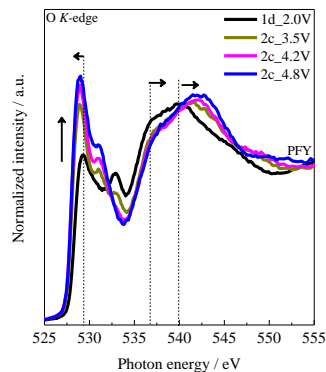
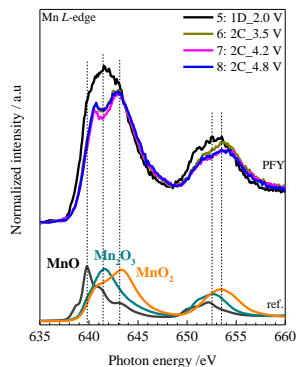
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Content:

Researches on the environmentally friendly-energy conversion devices which achieves high-efficiency energy conversion such as fuel cells and storage batteries, with the goal of contributing to the global environmental problems.

Our study is based on solid-state chemistry, thermodynamics, and electrochemistry. We are working to elucidate the transportation dynamics of ions and electrons, and the electronic structure using spectroscopic techniques such as synchrotron radiations in the solid oxides.

- Li-rich layered oxide materials for the positive electrode in Lithium Ion Secondary Batteries
- Ionic transportation properties in Solid Oxide Fuel Cells
- Thermal stability of (oxy)nitride phosphors for White-LEDs

Keywords: Solid-state chemistry, Electrochemistry, Secondary Battery, Fuel Cell.

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