

LIB用正極活物質Co置換 $\text{Li}_5\text{AlO}_4$ の開発

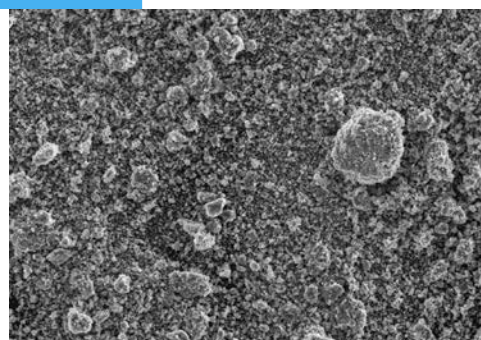
(関西大化学生命工学部) 奥田大輔・石川正司、(東北大多元研) 小林弘明

拠点卓越学生研究員

Electrochemical characteristics and charge-discharge mechanisms of Co-substituted  $\text{Li}_5\text{AlO}_4$  as a novel positive electrode material

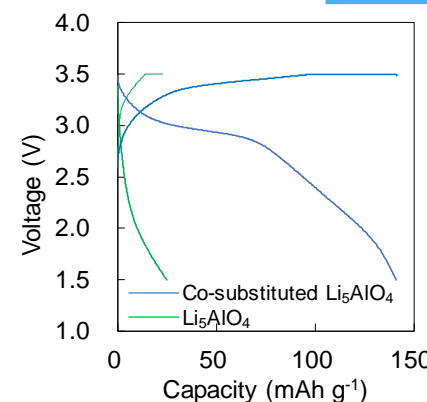
Daisuke Okuda Hiroaki Kobayashi, Masashi Ishikawa

NJRC Excellent Student Researcher



× 500

100.0 μm

Figure 1. SEM image of Co-substituted  $\text{Li}_5\text{AlO}_4$ Fig. 2 Charge-discharge curves of  $\text{Li}_5\text{AlO}_4$  and Co-substituted  $\text{Li}_5\text{AlO}_4$ 

アニオンの酸化還元反応により電荷補償をおこなう活物質(アニオンレドックス型活物質)は高い比容量を示すが、過充電時に分解反応を伴うという問題がある。本研究では、従来のアニオンレドックス型活物質に対し、酸化還元活性を向上させるCoおよびその効果が無いAlを固溶させることで、分解反応の抑制を試みた。その結果、従来のものに比べ高い電位で可逆に充放電可能な活物質の開発に成功した。

Anion-redox type active materials, which are used for charge compensation by anion redox reactions, show a high specific capacity, but the materials have a problem of decomposition reaction during overcharge process. In this study, we have tried to suppress the decomposition reaction of the conventional anion-redox type active material by dissolving Co and Al as catalyst and stabilizer respectively. As a result of the investigation, we successfully developed the active material showing reversible charge-discharge reaction at higher potential than that of conventional anion-redox type active materials.