JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN

ZfM

LaMa-Seminar

with

Prof. Dr. Atsunori Ikezawa

Department of Chemical Science and Engineering, School of Materials and Chemical Technology, Tokyo Institute of Technology

Development of a $Li_7Ti_5O_{12}|Li_4Ti_5O_{12}$ reference electrode for electrochemical analyses of all-solid-state lithium-ion battery systems

Wednesday, 25th of October 2023, 5:00 p.m.

Lecture Hall C 5b, Heinrich-Buff-Ring 19

All students of chemistry, materials science and physics as well as scientific staff of the chemical institutes and neighboring institutes are cordially invited. Guests are welcome!

Zentrum für Materialforschung (ZfM/LaMa) - Justus-Liebig-Universität Gießen
Heinrich-Buff-Ring 16 - 35392 Gießen - Tel.: +49-641-99 33601
www.uni-giessen.de/lama info@lama.uni-giessen.de

Development of a $Li_7Ti_5O_{12}|Li_4Ti_5O_{12}$ reference electrode for electrochemical analyses of all-solid-state lithium-ion battery systems

Atsunori Ikezawa[1]

[1] Tokyo Institute of Technology, 4259 Nagatsuta-cho, Midori-ku, Yokohama-shi 226-8501, Japan

All-solid-state lithium-ion batteries (ASS-LIBs) are attractive candidates for next-generation LIBs. However, ASS-LIBs still have several problems for practical applications, such as low cycle performance and a high mass ratio of solid electrolytes. To overcome these problems, it is necessary to clarify the electrochemical behavior of battery components in ASS-LIB systems. In this study, we develop a $Li_7Ti_5O_{12}|Li_4Ti_5O_{12}$ reference electrode and apply it to sulfide-type ASS-LIB systems. AC impedance measurements using three-electrode cells are successfully performed, and $LiNi_{0.5}Mn_{0.2}Co_{0.3}O_2$ and graphite composite electrodes are electrochemically analyzed. We also investigate Li^+ transfer at interfaces between solid electrolytes using four-electrode cells.