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Neutron diffraction study of dynamic process in Li-ion batteries

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In situ neutron diffraction was used to show that charge/discharge process of $LiFePO_4$ based real Li-ion battery can be effectively studied by time-of-flight technique at the IBR-2 pulsed reactor. The important option of the HRFD diffractometer is a possibility to utilize both high-intensity and high-resolution modes without any changes in the geometry of an experiment. The results clearly show that the kinetics of LiC_n phase's appearance and LiFePO4 ↔ FePO4 transformations are well observable and can be treated quantitatively.

Biography

Sangaa Deleg received his Ph.D. degree in Solid State Physics at the Moscow state University, Russia in 1990. He received the degree of Doctor of Habilitation at the Institute of Physics and Technology, Mongolian Academy of Sciences, Ulaanbaatar, in 2002. He is the author/coauthor of over 80 publications in international journals. He is a senior researcher of National Nano Center, Institute of Physics and Technology in Mongolia. His research program is focused on the study of crystal and magnetic phase transition in different crystals and characterization nanoparticles by different methods, including synchrotron and neutron diffraction.

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