<Research Topics>

High-performance Electrode for Lithium/Sodium-ion Batteries and Charge Storage Mechanism

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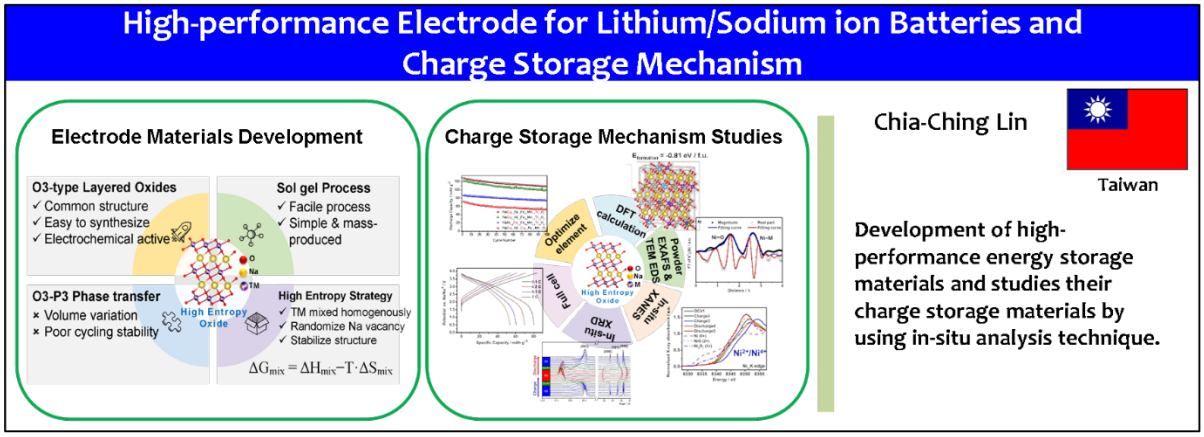

■Research

Among various energy storage devices, lithium-ion batteries (LIBs) have been widely studied. However, future development of high energy-density LIBs is hindered by the low capacity of conventional cathode materials. Increasing capacity and stability of batteries is an important target in my discipline as it can facilitate the sustainable development of green transportation and grid-scale energy storage systems for renewable energy which help to eliminate the air pollution generated from combustion of fossil fuels. Currently, one of the major bottlenecks is the slow development of new cathode materials. My proposed research aims at accelerating such development by providing new ideas and directions for both LIBs and sodium ion batteries (NIBs) cathode materials, as well as novel ways to search for new suitable electrolytes. The fundamental understandings that I will obtain from the results will help to design new materials with higher energy density, longer cycling life, and lower cost to meet different demands from the end users. In addition, I plan to develop DFT calculations and ex-situ/in-situ techniques that can help researchers to develop new materials more efficiently in the future.

■Comments

ICYS provides fantastic opportunity for young researchers, supporting them in initiating independent studies. It provides generous research funding, comprehensive facilities support, the opportunity for international collaboration, and commitment to professional development. I am truly honoured and grateful to be a ICYS member. I look forward to achieving success in my research endeavours with the support of ICYS in the future.

■Link

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