Contribution ID : **39** Type : **Oral**

Probing the Li+/Na+ Storage Mechanism of 2D Transition Metal Dichalcogenides Using Synchrotron-Based X-ray Techniques

Transition metal dichalcogenides (MX2, M = Mo or W and X = S, Se or Te) recently gained research attention as electrode materials for rechargeable lithium/sodium-ion batteries. These materials are promising candidates to realize the demands for superior rate performance, long cycle life, and higher power and energy density requirements. So far, the unclear structural and electrochemical reaction mechanisms are the major challenges for implementing these materials as potential electrodes. As a part of this objective, we have studied a new class of bulk semiconducting transition metal dichalcogenides, specifically, the 2D layered structure of molybdenum ditelluride (MoTe2). MoTe2's relatively high interlayer spacing of about 0.70 nm (graphite (0.335 nm) and MoS2 (0.615 nm)) and its higher electronic conductivity make it an efficient anode material for both lithium/sodium-ion batteries. We have explored the lithium/sodium storage mechanism in the 2H phase of MoTe2 using Synchrotron-based experimental techniques alongside theoretical studies.

Level of Expertise

Experienced Researcher

Presenter Gender

Man

Pronouns

He/Him

Which facility did you use for your research

Australian Synchrotron

Students Only - Are you interested in AINSE student funding

Do you wish to take part in the Student Poster Slam

Yes

Condition of submission

Yes

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