



Kanno Lab

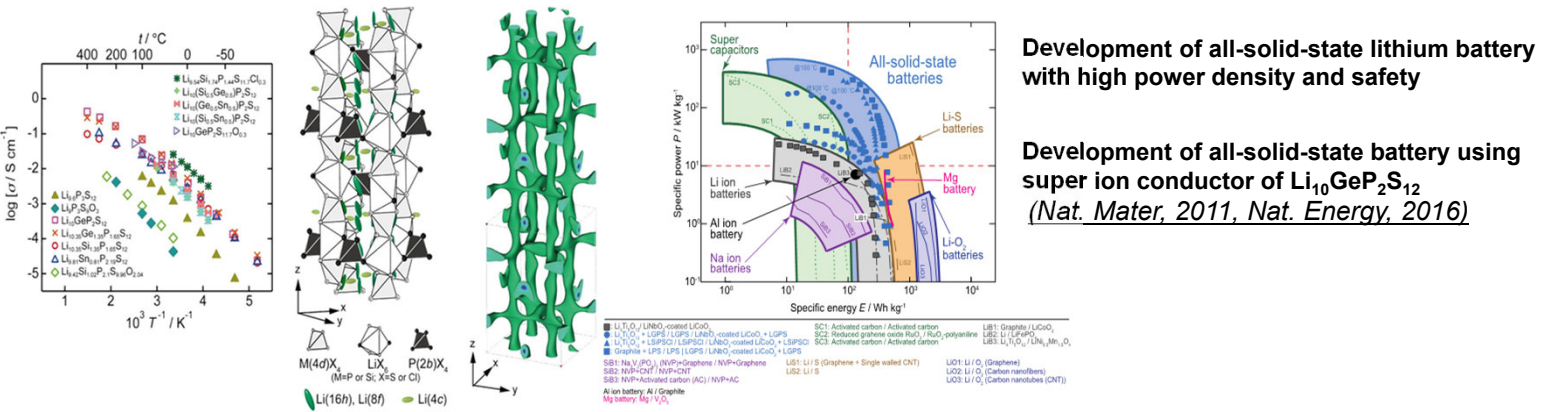
Exploration of the materials intrinsic properties by synthesis, structure, and physical property analysis for developing their applications

All-solid-state battery Unit

<http://www.kanno.chem.titech.ac.jp/english/>

- Solid State Ionics
- Lithium Battery
- Fuel Cells

Examples of our group progress
~From fundamental to application~



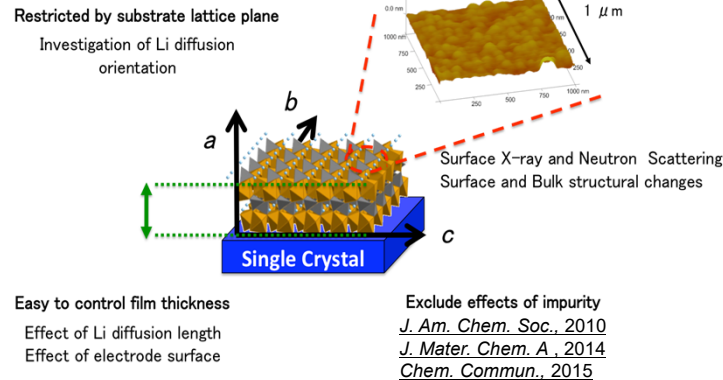
Development of all-solid-state lithium battery with high power density and safety

Development of all-solid-state battery using super ion conductor of $\text{Li}_{10}\text{GeP}_2\text{S}_{12}$
(*Nat. Mater.*, 2011, *Nat. Energy*, 2016)



Analysis and design of electrochemical reaction interface

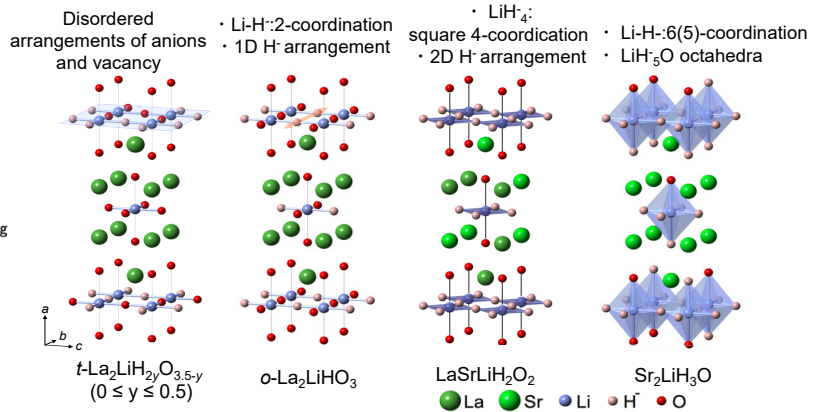
Reaction analysis of electrode/electrolyte interface:
model interface construction for structure analysis



Mechanism elucidation of interfacial reaction Interface design for high power density

Development of novel electrochemical devices

Development of new ion conductor:
Lithium, oxide, hydride ions and proton



Hydride ion conductor with K_2NiF_4 -type structure and its all-solid-state device (*Science*, 2016)



Novel conductor development Conductive mechanism analysis Device construction using novel conduction phenomenon

Nanomaterials, epitaxial thin-film synthesis, electrode materials by high pressure synthesis and magnetic materials are also under investigated.