

A study on the synthesis of nano-sized solid electrolyte for LIB

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Lithium ion battery(LIB) is used in many areas such as electronic instruments, vehicles and renewable energy capacitance, but LIB has big problem which is danger to explosion induced by liquid electrolyte. To solve this problem, it needs to use inorganic solid electrolyte because it makes Li ion transfer only without electrolyte. There are many solid electrolyte which are cataloged to metal sulfide and metal oxide. Above all, metal oxide form is better than sulfide. Metal oxide form is cataloged to NASICON, LISICON, garnet and perovskite. In these things, perovskite structure has good ion mobility. Especially, $\text{Li}_{0.34}\text{La}_{0.51}\text{TiO}_3$ (LLTO) has good ion mobility because LLTO is consisted of irregular La^{3+} and TiO_2 and irregular arrangement induces to make the Li ion channel. Herein, we reported that synthesis of nanosize LLTO to achieve good contact to cathode and anode.