Realization of a low carbon society through game changing technologies

Creation of High Performance Electrode Systems for Lithium Ion Secondary Batteries by Design of Binders/Additives with Specific Functions

Project Leader : Noriyoshi MATSUMI
Professor, School of Advanced Science and Technology,
Japan Advanced Institute of Science and Technology

Summary :

Nowadays, silicon anode materials for Li ion secondary batteries are attracting strong attention due to their remarkably high theoretical capacity. However, their volume changes during charge-discharge tend to destroy Si particle/SEI, and therefore these anode materials do not generally show very high durability. In this project, we are aiming at giving solution to this bottle-neck problem, through the design of polymer binders/additives with specific functions such as conductivity, self-healing properties and so forth. We will also work on development of C/Si composite active materials of controllable morphology, to restrict volume expansion of silicon. Further, a series of additive compounds will be synthesized to improve the stability of MNC cathode.