

# **Nano Materials for Ultimate Li ion battery and beyond**

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Lithium-ion batteries (LIBs), the optimal energy storage device have been constantly innovating through electrochemistry and nano materials to meet the needs of rapid growth of electric vehicle industries and fulfill the strengthened functions of mobile devices.

Now for the challenge towards the ultimate LIB, based on proven principles, implementation of a new material design that can reach the practical limit is required. And for the beyond LIB, innovation of ion storage mechanism is required.

This presentation introduces the concepts of advanced technologies for ultimate LIB. Among them are nano materials such as Si-carbon nanocomposite, functional graphene, multi & single wall nanotube to enhance the performance of active materials are included. In this presentation novel technologies for beyond LIB technologies will be also introduced. Among these, nano-scaled Li metal electroplating guide layers and high conductive sulfide electrolytes for innovative solid state batteries are included.

Along with these, technology roadmap will be proposed for material scientist and engineers to target, which promotes the innovation and sustainable growth of Li ion battery technologies and industries.