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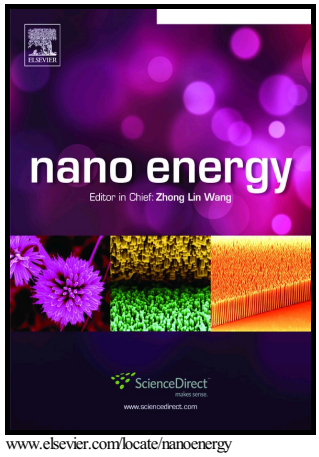

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Depolarization effect to enhance the performance of lithium ions batteries

Jiaxin Zheng,[1] Jun Lu,[2] Khalil Amine,[2] Feng Pan,[1*]*

1. School of Advanced Materials, Peking University, Peking University Shenzhen Graduate School, Shenzhen 518055, China;

2. Chemical Sciences and Engineering Division, Argonne National Laboratory, Argonne, IL 60439;

Corresponding authors' E-mail: panfeng@pkusz.edu.cn (P. Fan) and amine@anl.gov (K. Amine)

Abstract

To meet the future challenges of energy storage, rechargeable lithium ions batteries (LIBs) have attracted great interest. Polarization of LIB electrodes and related active materials is a general problem for LIB applications during cycling, which leads to inhomogeneous environments for LIB electrodes and related active materials and degrades the performance of LIBs (e. g., capacity and voltage, rate capability, and capacity retention during electrochemical cycling). In this article, we offer a review of mechanisms of polarization and strategies of depolarization of LIB active cathode and anode materials and electrodes, including metal doping, nanostructure design, materials compositing, surface and interface engineering, and some other new technologies.

Keywords: Lithium ions batteries, electrode materials, polarization, depolarization