

# Multivalent Batteries and Redox Flow Batteries Towards Low-Cost, Large-Scale and Sustainable Energy Storage

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**Abstract:** To develop clean energy technologies is an important demand of global society. After decades of development, the performance of lithium-ion batteries has reached a bottleneck. The research of other secondary batteries as alternative options, such as Na/Mg/Al-ion batteries and redox flow batteries, has attracted extensive interests. However, it is still challenging to overcome the limited charge transfer properties, slow kinetics dynamics and poor interfacial stability of these batteries. In recent years, our group has been focusing on the key material design and interface engineering of Mg-ion batteries and organic redox flow batteries based on multi-electron redox progresses. The ion storage mechanism and electrochemical performances of these batteries have been investigated by experimental characterizations and theoretical simulations.

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## Biography:



Dr. Zhong Jin received his B.S. degree (2003) and Ph.D. degree (2008) in Chemistry from Peking University. He pursued postdoctoral studies at Rice University (2008-2010) and MIT (2010-2014). Since 2014, he has been appointed as a professor at Nanjing University, China. He has published more than 150 papers on peer-review journals and have been cited for >10,000 times by others researchers with a H-index of 50. His current research is focusing on the rational structural design, interfacial engineering and mechanism studies of high-performance electrode materials for clean energy conversion and storage device applications, such as secondary batteries, fuel cells, solar cells and photocatalytic/electrocatalytic systems.