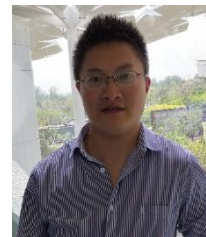


## Graphdiyne-Based Electrochemical Interface for High-Performance Lithium Batteries

Zicheng Zuo\*, Yuliang Li

Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100190, China



### Abstract

Recently, 2D graphdiyne has shown many unique advantages for improving the performance of the electrochemical devices. The synthesis method of high-quality graphdiyne nanosheets is developed. Based on this method, all-carbon graphdiyne nanosheets can be used to protect the silicon nanoparticles and the metal oxides seamlessly, which are two typical lithium-ion battery anode. A 3D all-carbon mechanical and conductive networks with reasonable voids for the silicon and metal oxides can be constructed in situ. This method can effectively restrained their interfacial problems, which is induced by the disintegrations in the mechanical and conductive networks during the repeated volume variations. The as-prepared electrode shows impressive improvements regarding to the capacity and performance retention. Furthermore, this method shows great promises in solving the key problems in other high-energy-density anodes.

### Biography:

Zicheng Zuo has completed his PhD in Institute of Chemistry, Chinese Academy of Sciences and postdoctoral research in University of Texas at Austin. He is now an associate professor in Prof. Yuliang Li's group in Institute of Chemistry, Chinese Academy of Sciences. His research interests focus on the design and synthesis of graphdiyne-based materials and electrochemical interface, and studying their interfacial impacts in the energy conversion devices.

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