Precursor-template Strategy toward Hollow Nanostructured $\text{Li}(\text{Ni}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3})\text{O}_2$ Microspheres Cathode with Enhanced Electrochemical Performance

Zhenya Kang, Yourong Wang*, Mengzhi Yao and Siqing Cheng*

Innovation Center for Nanomaterials in Energy and Medicine (ICNEM), School of Chemical and Environmental Engineering, Wuhan Polytechnic University, Hubei 430023, P. R. China

*E-mail: chengsqing@iccas.ac.cn

doi: 10.20964/2018.07.36

Received: 14 March 2018 / Accepted: 8 May 2018 / Published: 5 June 2018

The hollow nanostructured $\text{Li}(\text{Ni}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3})\text{O}_2$ (NCM) microspheres with low Li/Ni disorder were fabricated by precursor-template approach and investigated electrochemically as lithium ion batteries (LIBs) cathode. The as-obtained NCM microspheres cathode exhibits high specific capacity, good coulombic efficiency and outstanding rate capability. This might mainly be due to the unique hollow nanostructured architectures of the NCM microspheres enabling to shorten Li^+ diffusion and electron transportation paths in the materials, which is verified via the cyclic voltammetry (CV) at various scan rate to obtain the high apparent Li^+ diffusion coefficient for the discharge/charge processes.

Keywords: $\text{Li}(\text{Ni}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3})\text{O}_2$ (NCM); Precursor template; cathode materials; Lithium ion batteries (LIBs); Electrochemical performance.

[FULL TEXT](#)

© 2018 The Authors. Published by ESG (www.electrochemsci.org). This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).