

## Electrochemical Properties of Manganese Oxide Nanocrystals Impregnated in a Mesoporous Carbon for Lithium Ion Battery Anodes

채창주, 윤태균, 이정규\*  
동아대학교  
(jkleee88@dau.ac.kr\*)

Transition metal oxides have high potential to be developed as low cost and high capacity anodes for lithium ion battery. Among these, manganese oxides ( $\text{MnO}$ ,  $\text{MnO}_2$ ,  $\text{Mn}_2\text{O}_3$  and  $\text{Mn}_3\text{O}_4$ ) have high theoretical capacity and long voltage plateau at low voltage. However they have poor cycling performance, resulting from large volume changes during the charge-discharge process and poor electronic conductivity of active material. Manganese oxide/carbon composite could be one solution to alleviate these problems. In this study, manganese oxides nanocrystals were formed in situ in a mesoporous carbon (MC) by simple impregnation of manganese precursor followed by thermal treatment in oxygen or argon ambient at different temperatures. Cyclic voltammetry and galvanostatic cycling electrochemical tests are used to evaluate the electrochemical properties of manganese oxides in MC as anodes for lithium ion battery.