

Mesoporous iron oxide nanoparticle clusters
for high performance lithium ion battery anodes

Seung-Ho Yu, Soo Hong Lee, Aihua Jin, Taeghwan
Hyeon, and Yung-Eun Sung*

Center for Nanoparticle Research,
Institute for Basic Science,
and School of Chemical and Biological Engineering,
Seoul National University, Seoul 151-742, Korea

School of Chemical and Biological Engineering, Seoul
National University, Building 311, Room 315, Daehak-
dong, Gwanak-gu, 151-742, Seoul, Korea

Graphite, which is the most commonly used material for the anode, has performed at a satisfactory level. However, its theoretical capacity is low (372 mAh/g). Iron oxides have attracted a great interest as promising anode materials due to their low cost, environmental friendliness and high specific capacity (around 1000 mAh/g). Mesoporous iron oxide nanoparticle clusters are prepared by a bottom-up self-assembly approach. They show excellent electrochemical performances, which are derived from three-dimensional mesoporous nanostructure. They retain their morphology after cycling, which is confirmed by transmission electron microscope (TEM) analysis.