

## Electrochemical Properties of Ordered Mesoporous Carbon with Tunable Pore Size on Na/SO<sub>2</sub> Batteries

이창현, 원종구, 황윤경, 김 성, 김지만<sup>†</sup>

성균관대학교

(jimankim@skku.edu<sup>†</sup>)

Despite superior electrochemical properties of lithium ion batteries such as high energy density, long life cycle, the limitations of the lithium reserves limit large-scale applications for the electric devices. Sodium based batteries are one possible alternative to the lithium ion batteries due to the low cost and comparatively higher natural abundance of sodium. We suggest that Na/SO<sub>2</sub> batteries are made up of an inorganic electrolyte, sodium as the anode and carbon materials as the cathode. The ordered mesoporous carbon (OMC) known as one of the most promising cathode material has a remarkable characteristic such as a high specific surface areas, large pore volumes, chemical inertness, and controllable porosity. Particularly, the ordered mesoporous carbons with large pore sizes are highly desirable for Na/SO<sub>2</sub> batteries owing to fast mass transfer and diffusion of electrolyte. However, the ordered mesoporous carbons generally have small pore size about 3nm. In this study, ordered mesoporous carbon with controllable pore size were synthesized by hard template method using MSU-H as a silica template, sucrose as a carbon precursor and boric acid as a pore expanding agent.