

## Synthesis of the Hierarchically Ordered Porous Metal Oxide with Macro/Mesophase Separations

주미은, 조창신<sup>1</sup>, 이진우<sup>2,†</sup>

포항공과대학교; <sup>1</sup>University of Cambridge; <sup>2</sup>한국과학기술원

(jwlee1@kaist.ac.kr<sup>†</sup>)

Porous materials have attracted attention owing to their fascinating and various advantages such as large surface areas, enhanced electrochemical and catalytic activity, and the capability of energy conversion and storage. However, it is great challenge to fabricate mesoporous materials with controlled macrostructures. Several researches for developing synthesis of the porous materials have been reported, but they mostly need complicated multi-steps. In this study, a facile method with macro/mesophase separations to synthesize hierarchically ordered porous materials is reported. It can be achieved by both macrophase separation through spinodal decomposition and mesophase separation through block copolymer self-assembly during the solvent evaporation. For characterizing the resulting materials, the analyses of electron microscopy, focused ion beam milling were carried out. Additionally, macro/mesostructured metal oxides have a great performance of transport of electrons and electrolyte.