

### Mesoporous metal oxide catalysts for Preferential Oxidation of CO in Hydrogen-Rich Stream

이정양, 이정호, 박진서, 이정화, 김지만<sup>†</sup>

성균관대학교

(jimankim@skku.edu<sup>†</sup>)

The Mesoporous Mn-Co-Ce mixed oxide catalysts were investigated for CO preferential oxidation (CO PROX) reaction, which was synthesized via nano-replication method using a hard template of KIT-6. The catalysts were characterized by X-ray diffraction, N<sub>2</sub> adsorption-desorption, H<sub>2</sub>-temperature programmed reduction, CO-temperature programmed desorption and X-ray photoelectron spectroscopy. All of the catalysts had uniform mesopores and high surface areas. The distinct catalytic properties of these well-characterized mesoporous materials were demonstrated for preferential CO oxidation. Among them, the (Mn:Co):Ce=(1:3):0.05 system presented the best CO conversion at low temperatures and the best selectivity toward CO<sub>2</sub>. The received mesoporous Mn-Co-Ce mixed oxide possessed excellent textural properties. The structural stability was mainly attributed to the strong and stable interactions between cobalt oxides and manganese oxides.