

Strong Metal-Support Interaction (SMSI) in Pt/CeO₂: Nature and Catalytic Activity

김도희[†]

서울대학교

(dohkim@snu.ac.kr[†])

Platinum group metals (PGMs) are widely used as catalytically active phase in catalyst. Their unique electronic d-band structure allows them to be applied in many kinds of different reactions including CO oxidation, methane oxidation, hydrogenation, and water-gas shift reaction. When PGMs are dispersed on support, they interact electronically with each other, which brings about the physiochemical effects on their catalytic properties. In this regard, metal-support interaction (MSI) between PGM and support has been an interesting topic of many research groups.

Hence, understanding the metal-ceria interaction is of practical importance to provide the rational design of ceria supported PGM catalysts. In the present presentation, the interaction between Pt and CeO₂ has been extensively investigated by combining various characterization methods. Especially, the effect of Pt-ceria interaction under the oxidizing/reducing environment on the thermal stability and the catalytic activity of Pt/CeO₂ catalyst has been focused in detail.