

세미나 초록

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발표 주제	Direct Access to Functional Porous Materials for Energy Conversion and Storage: Electrocatalysts in Porous Architectures
발표 내용	<p>Multifunctional and hierarchical porous materials have attracted much attention as host electrode materials for electrochemical energy conversion and storages. Our research group has developed simple and powerful methods to control multiscale porous inorganic nanostructures via “one-pot method” by employing blends of block copolymers and homopolymers. The new approach allows access to a high degree of control over pore structure and size, particle shape, particle size and chemical composition including metal oxides, metal nitride and conductive carbon. High performance electrocatalysts are integrated into the hierarchically porous materials. A new and intuitive strategy for tuning and enhancing the kinetic activity of Fe-N₄ sites was designed by controlling electro-withdrawing/donating properties of carbon plane. This presentation also includes systematic studies at atomic level to unveil the relationship between cell performance and binding energy of lithium polysulfide (LiPS) on catalytic site, using series of Pt₃M (M = Cu, Fe, Ti, Co) as a model system</p>