

### One-pot synthesis of sulfur containing carbon material for solid acid catalysis

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Post-modified porous silica materials for solid acid catalyst with sulfuric group as active site are reported by many researchers due to larger pore size than zeolite. However, the active easily removed with catalysis because the active site connected to surface by weak bonding and this problem give rise to decreasing of catalytic activity. To solve this problem, we fabricated ordered mesoporous carbon by nano-replication technique with sulfur containing carbon precursor. In the silica removal sequence with hydrofluoric acid, surface modification with sulfonate group was appeared and we used the functionalized acid site for solid acid reaction. To compare sulfur containing carbon material to non-containing carbon material, we synthesized ordered mesoporous carbon with sucrose as carbon precursor, and surface modified ordered mesoporous carbon by post treatment with sulfuric acid. However the ordered mesoporous carbon structure was collapsed by post treatment step, so we fabricated Ia3d structure to maintenance the 3D pore network structure against collapsibility.