Synthesis of core –shell SiO_2@TiO_2 mesoporous particles

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Abstract Rod-like mesoporous TiO_2-SiO_2 particles were synthesized by coating of large pore mesoporous silica by a TiO_2 layer. First, due to avoid collapsing of pores by TiO_2 layer, large pore mesoporous silica by using Hexane as a pore expander was prepared. Then, the synthesized particles were coated with TiO_2 by stirring them in a TiO_2 solution for 1 hour. The prepared materials were characterized by X-ray diffraction (XRD), Small-angle X-ray scattering (SAXS), scanning electron microscopy (SEM) and N_2 adsorption–desorption experiments. The results show that anatase phase is distributed on the mesoporous SiO_2 particles.