Ordered Mesoporous Carbon with Easily Controllable 30 to 100 Angstrom Pores

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Pore size controlled ordered mesoporous carbons (OMCs) have been fabricated by wall thickness controls of ordered mesoporous silicas (OMSs) to find more applications, but they have small variation of pore sizes. In this paper, we prepared OMC materials by nano-casting technique using additive chemical which has an affinity for silica with carbon precursor solution to easily control the pore size.
First of all, ordered mesoporous silica, MSU-H, was synthesized and it was used as silica template. The OMS was infiltrated with mixed aqueous solution of boric acid and sucrose, followed by carbonization and removal of the silica template. The synthesized OMC was characterized with XRD, N_2 sorption, FESEM, HRTEM, and FT-IR.