Support Information

SI 1. (left) XRD patterns of materials synthesized with 2.0M HCl and 2.0M H2SO4, respectively. (right) TEM image of the calcined mesoporous silica with $Ia3d$ symmetry synthesized by 2.0M H2SO4 taken along the [311] direction.

SI 2. From the diagram reported by Che et al., the hydrophobic sequence is $Ia3d > p6mm > P6_3/mmc > Pm3n$. When the reactant compositions are identical except that different acids are employed (the cross point marked in each phase diagram), the use of H2SO4 give rises to $P6_3/mmc$ mesophase while the use of HCl leads to more hydrophilic $Pm3n$ structure. Therefore, it may be concluded that the hydrophobic anion sequence is most likely represented as SO$_4^{2-}$ (HSO$_4^-$) $>$ Cl$^-$. 