

Electronic Supplementary Information (ESI)

**NMR Study on the Mechanisms of Freezing and Melting of Water
Confined in Spherically Mesoporous Silicas SBA-16**

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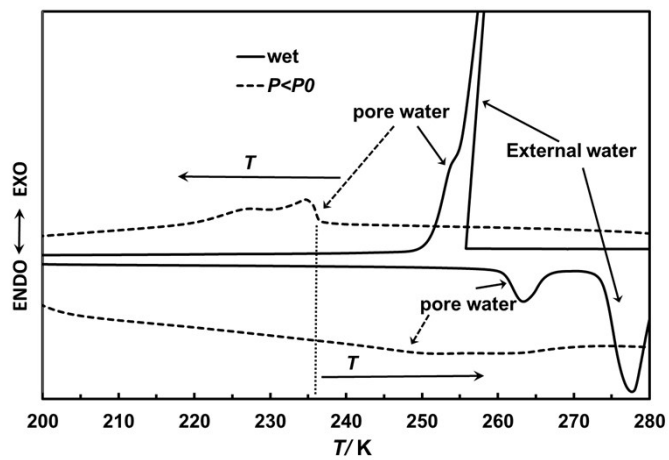
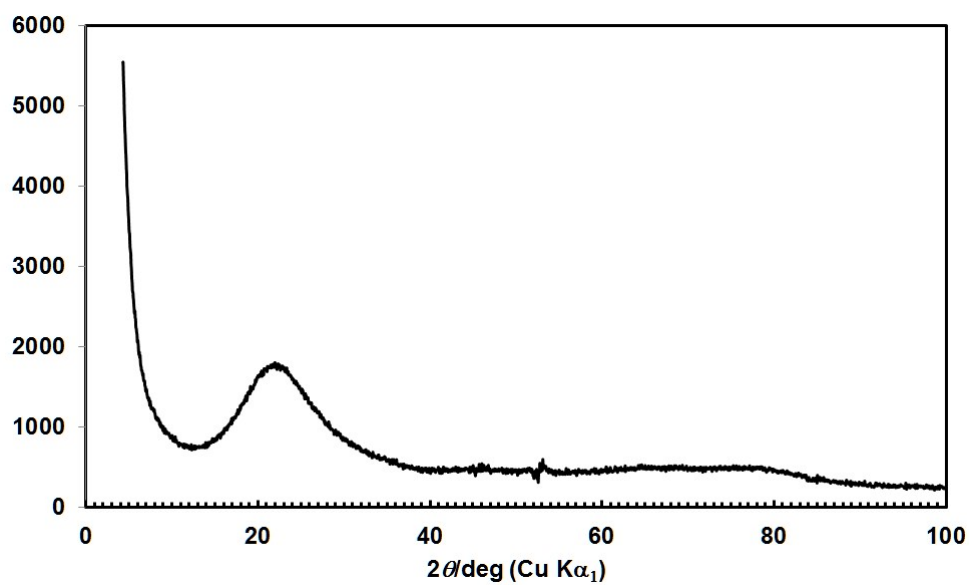


Figure S1. DSC curves of D₂O fully and partially confined in MCM-41(C22).

(a)



(b)

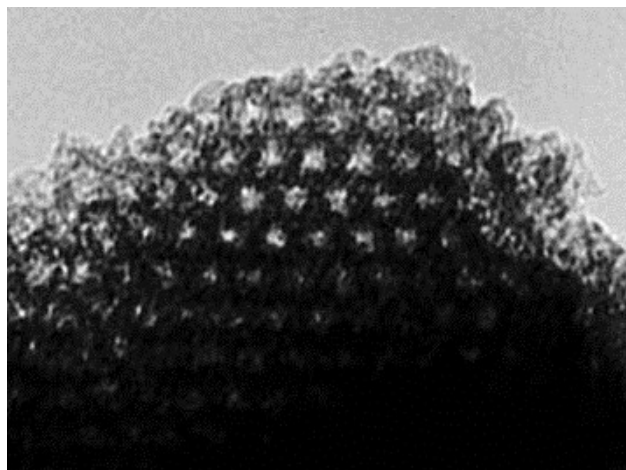


Figure S2. (a) X-ray powder diffraction pattern (XRPD) for SBA-16(80), (b) Transmission electron microscopy (TEM) image for SBA-16(120).

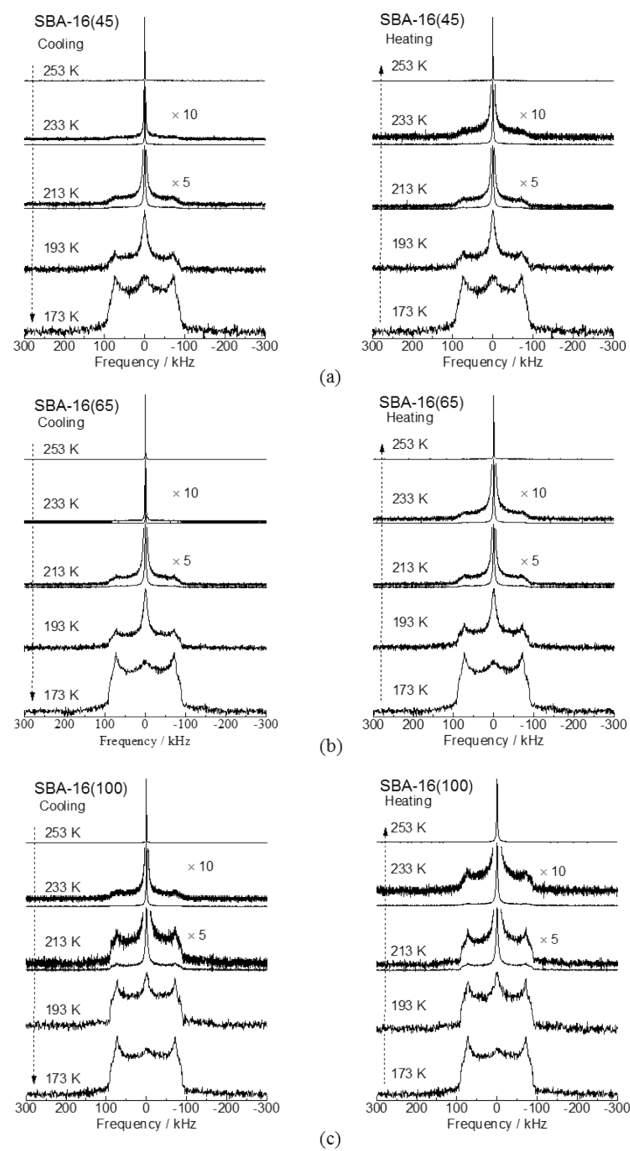


Figure S3. ^2H NMR spectra of D_2O confined in (a) SBA-16(45), (b) SBA-16(65), and (c) SBA-16(100).

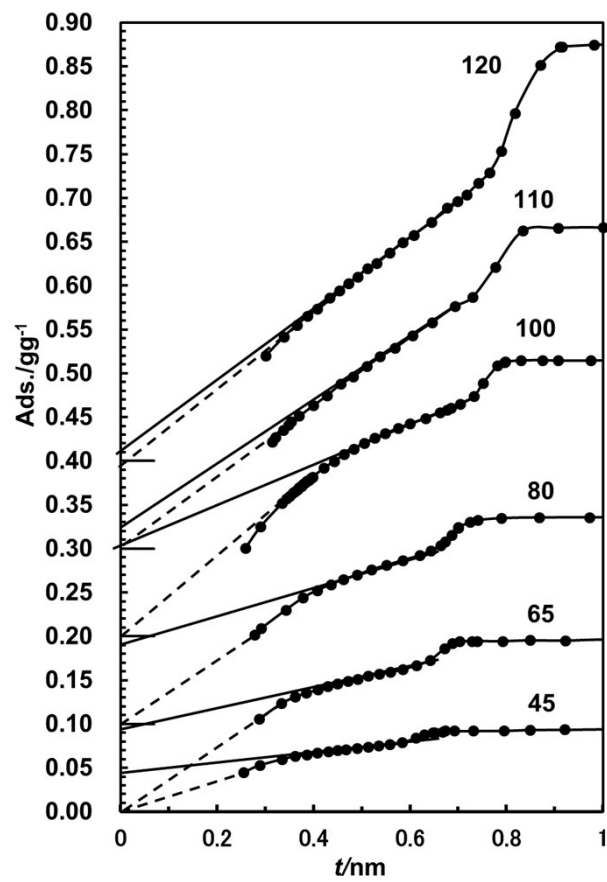


Figure S4. *t*-plot of adsorption isotherms of N₂ on SBA-16. *t*-value is a measure of pore radius (13).

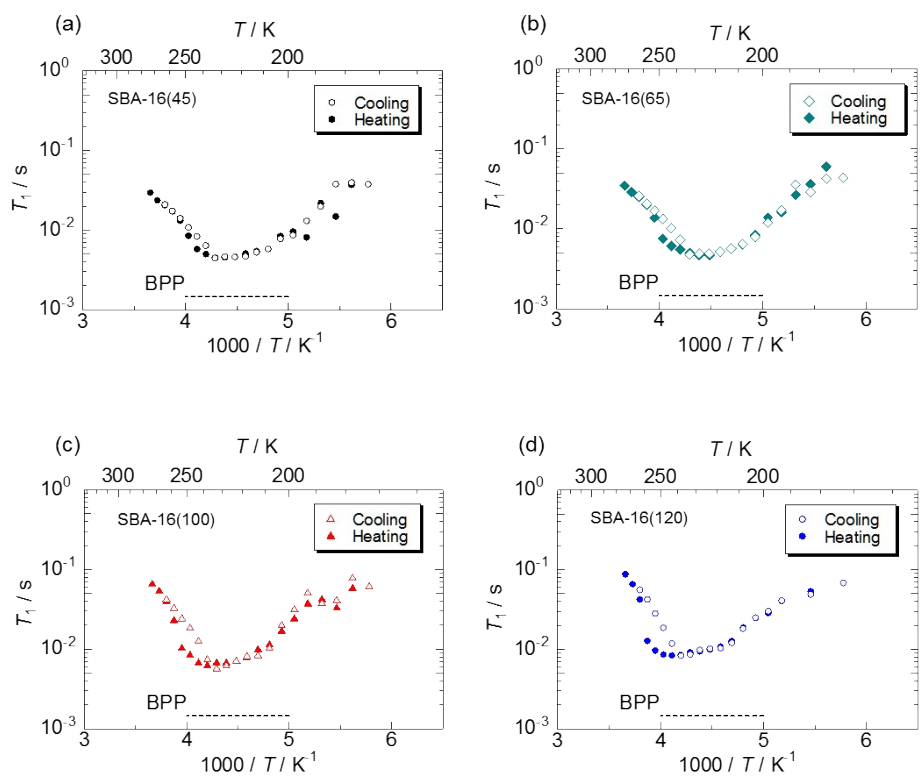


Figure S5. ^2H NMR T_1 of D_2O confined in (a) SBA-16(45), (b) SBA-16(65), (c) SBA-16(100), and (d) SBA-16(120).

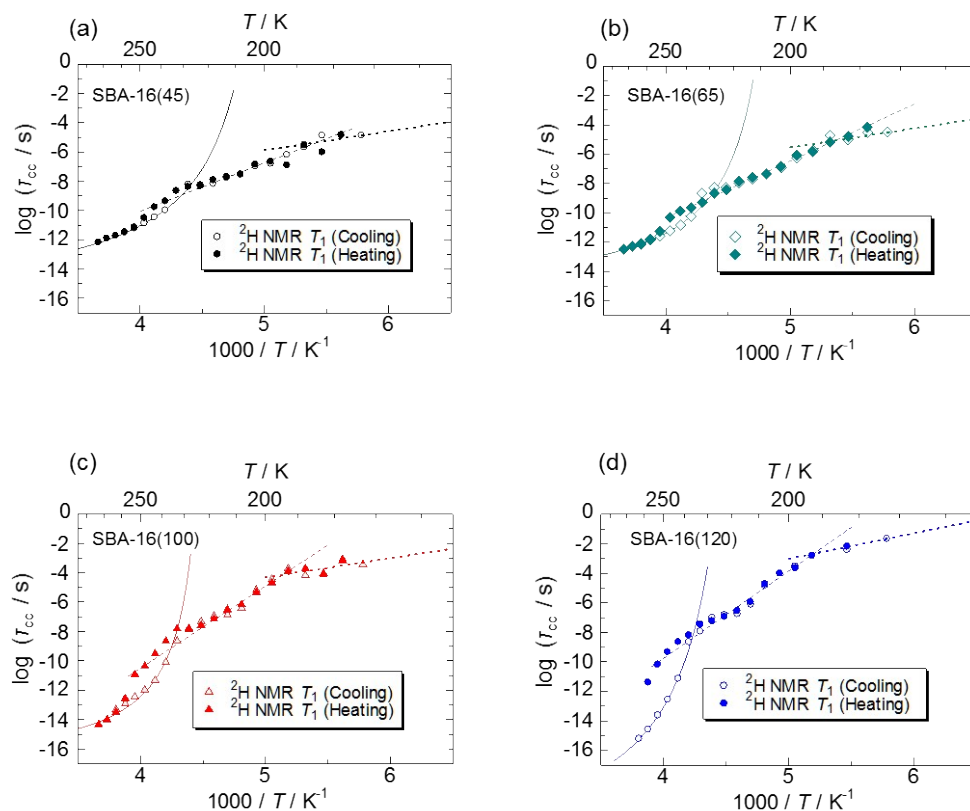


Figure S6. Correlation time of dynamics of D₂O confined in (a) SBA-16(45), (b) SBA-16(65), (c) SBA-16(100), (d) SBA-16(120) as a function of temperature inverse. Solid line shows VFT fitting. Broken and dashed lines are Arrhenius fittings. The fitting parameters are shown in Table 2.