Supporting Information

Synthesis of Ultra-large-pore FDU-12 Silica with Face-centered Cubic Structure

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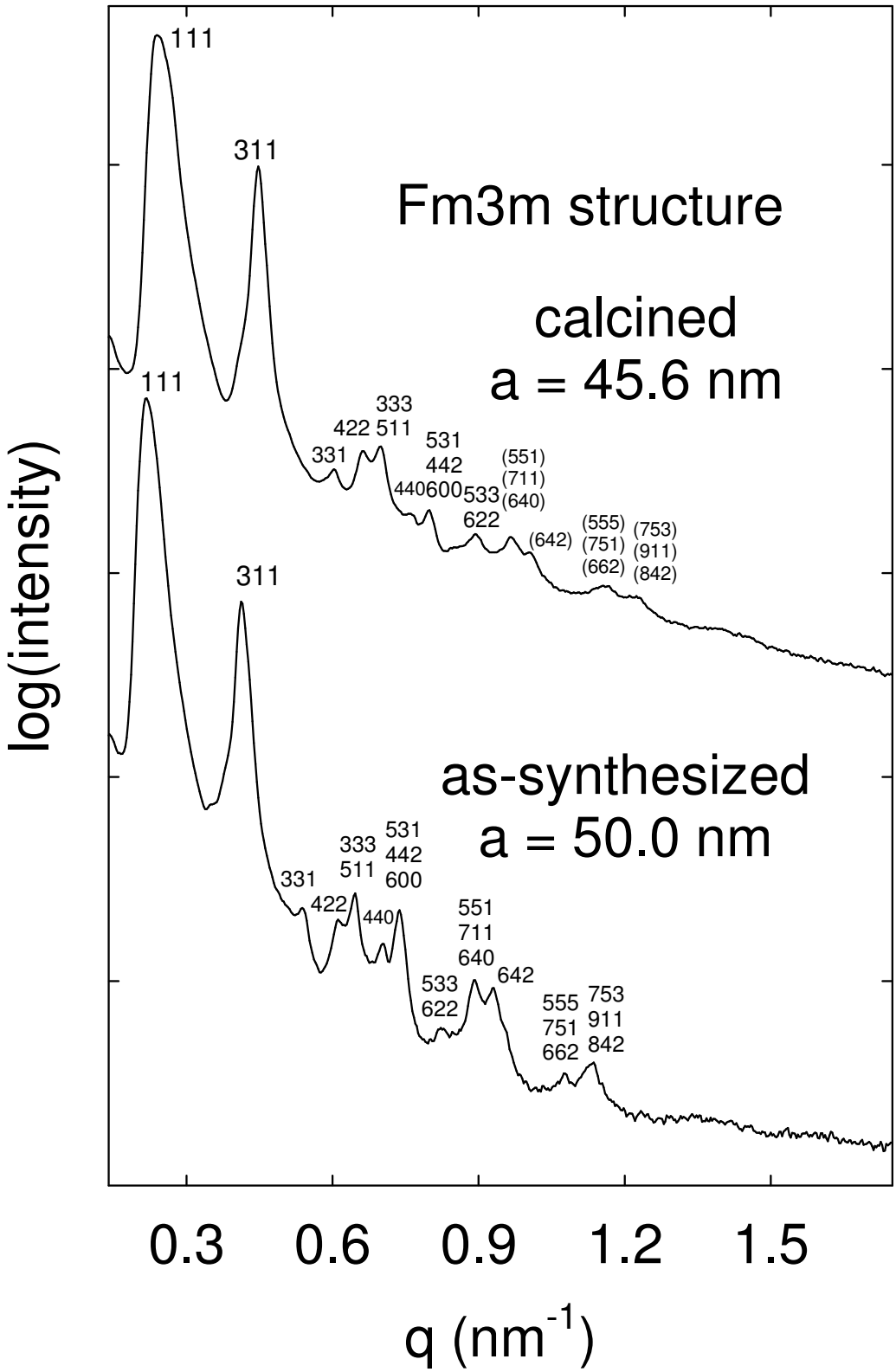
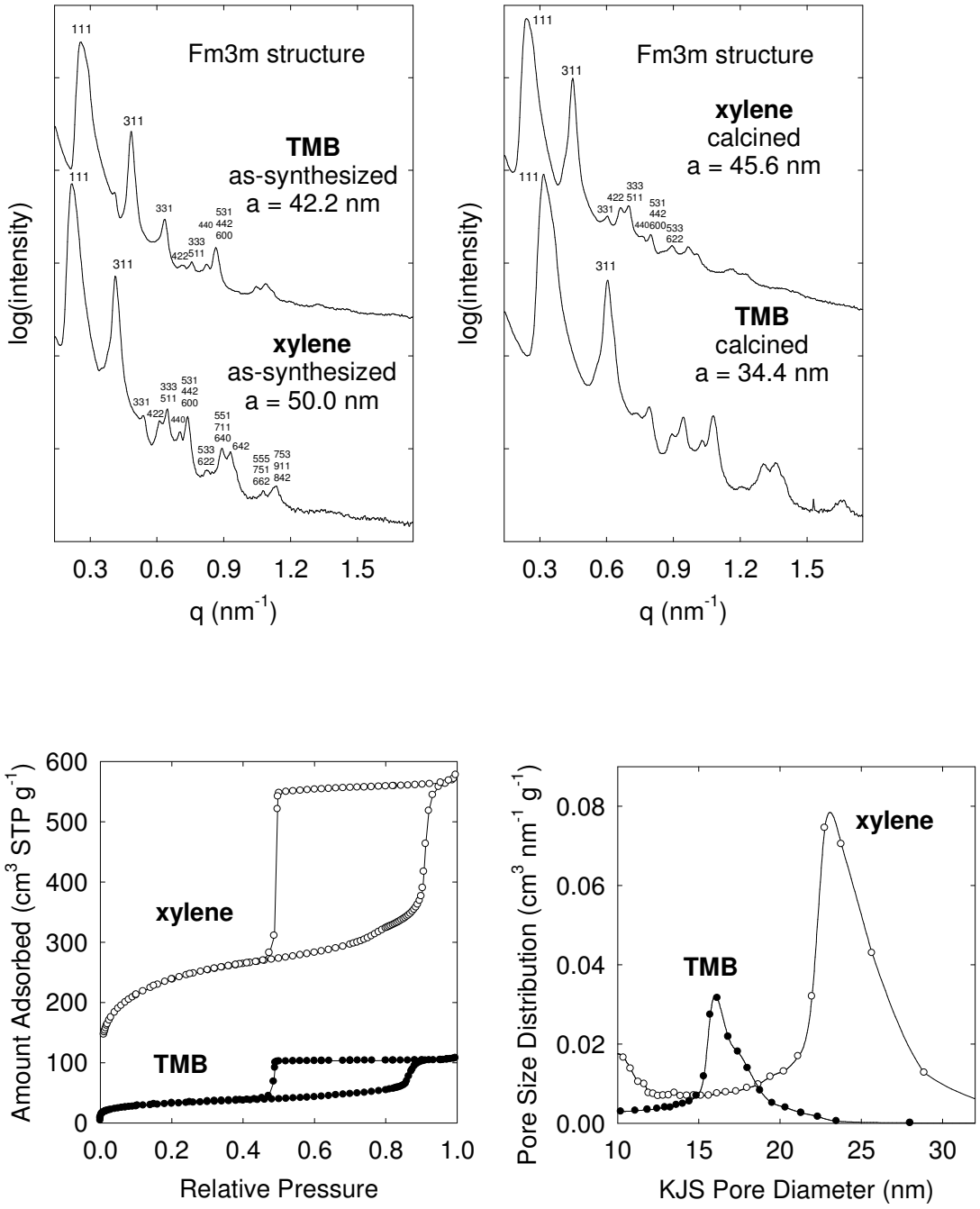
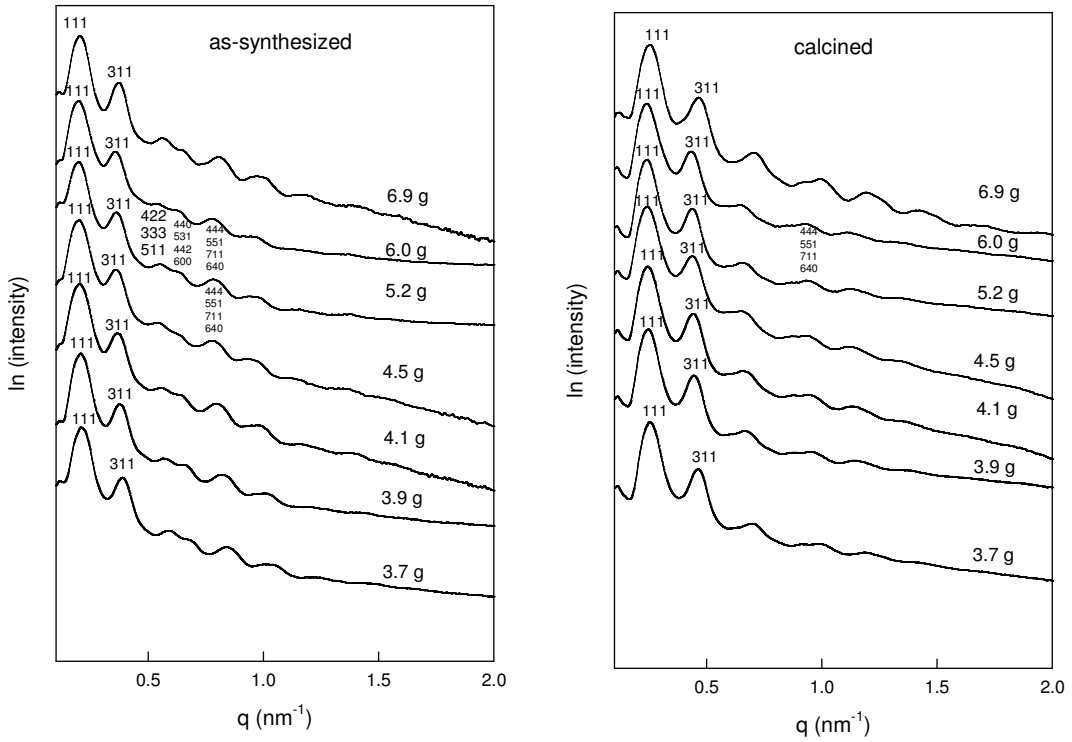


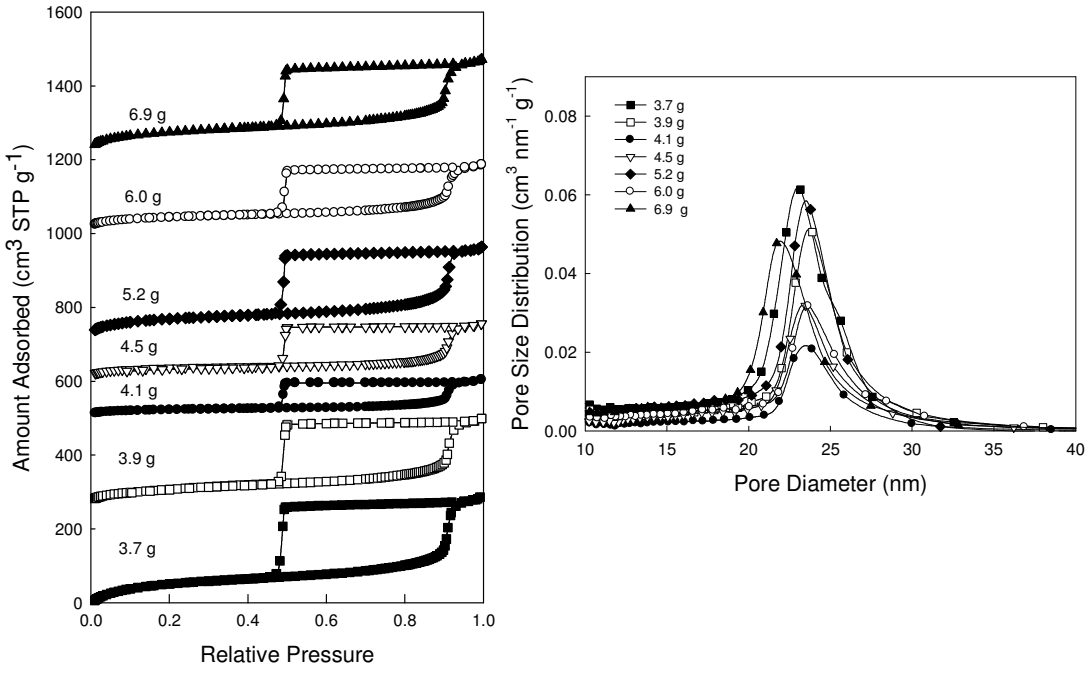
Supporting Figure S1. SAXS pattern acquired using synchrotron X-ray source for ULP-FDU-12 silica.



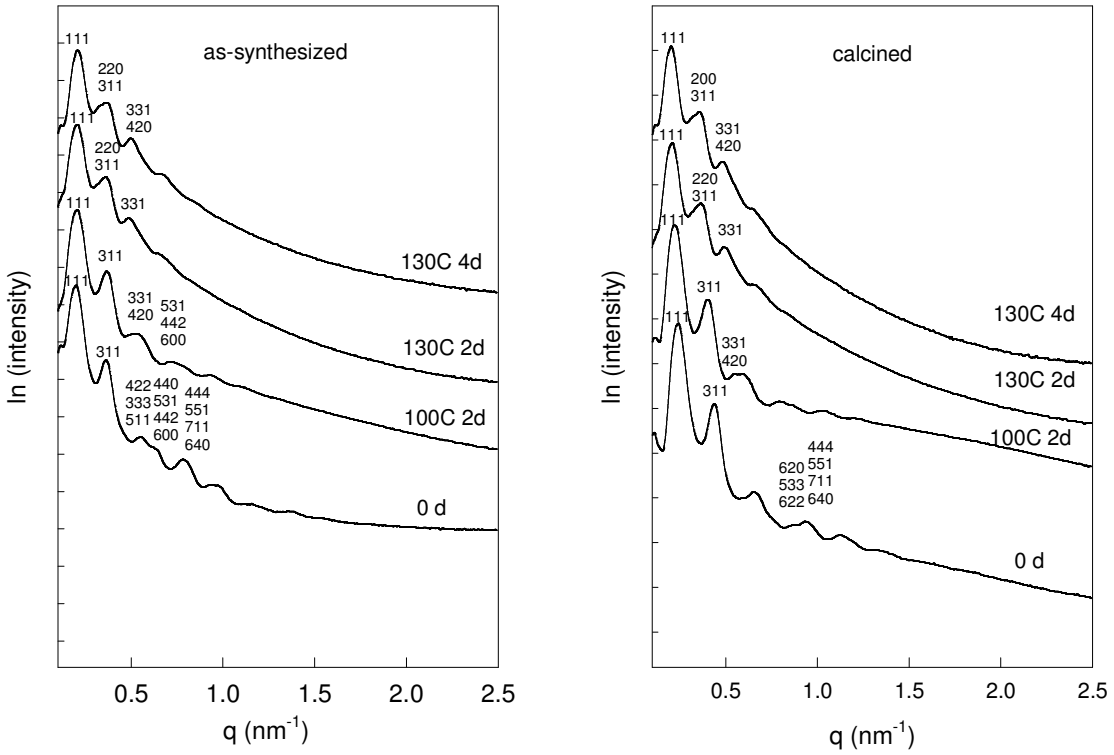
Supporting Figure S2. Comparison of SAXS patterns, nitrogen adsorption isotherms and pore size distributions for LP-FDU-12 silicas synthesized (without the acid treatment) using TMB and xylene as a micelle expander.



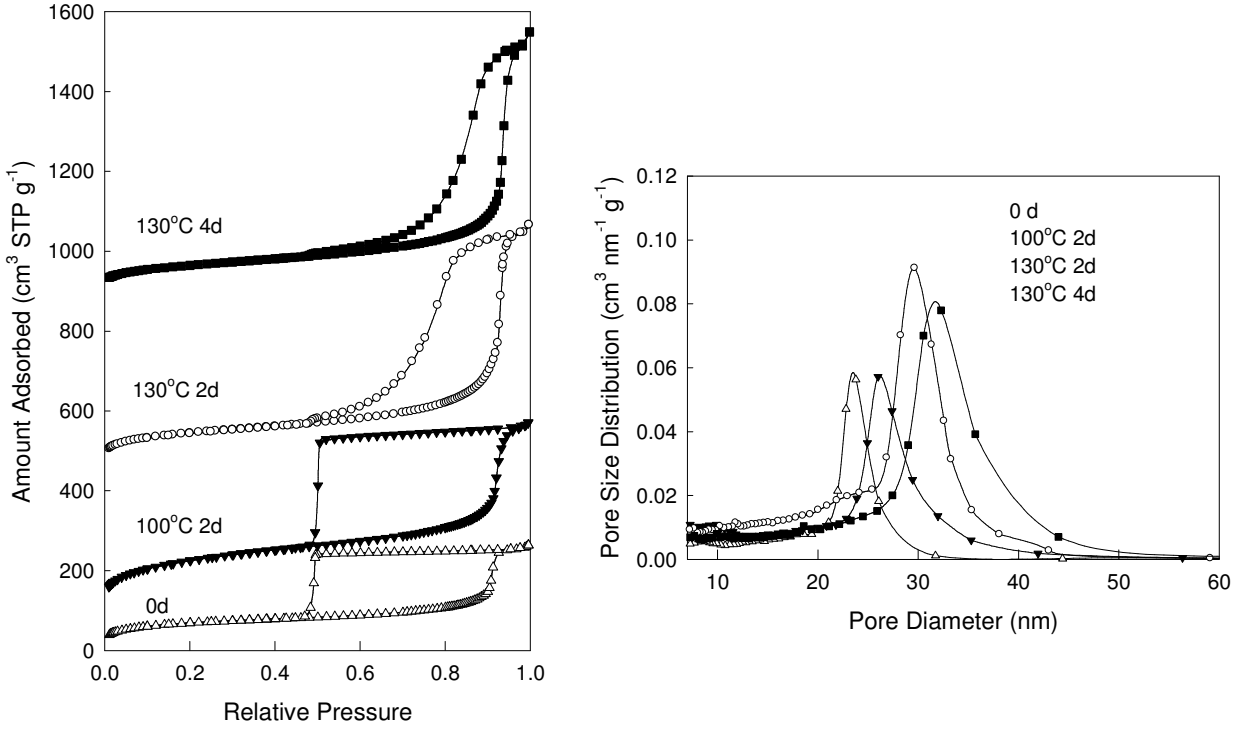
Supporting Figure S3. SAXS pattern of FDU-12 synthesized with different amounts of xylene.



Supporting Figure S4. N_2 adsorption isotherms and pore size distributions for FDU-12 silica synthesized with different amounts of xylene.



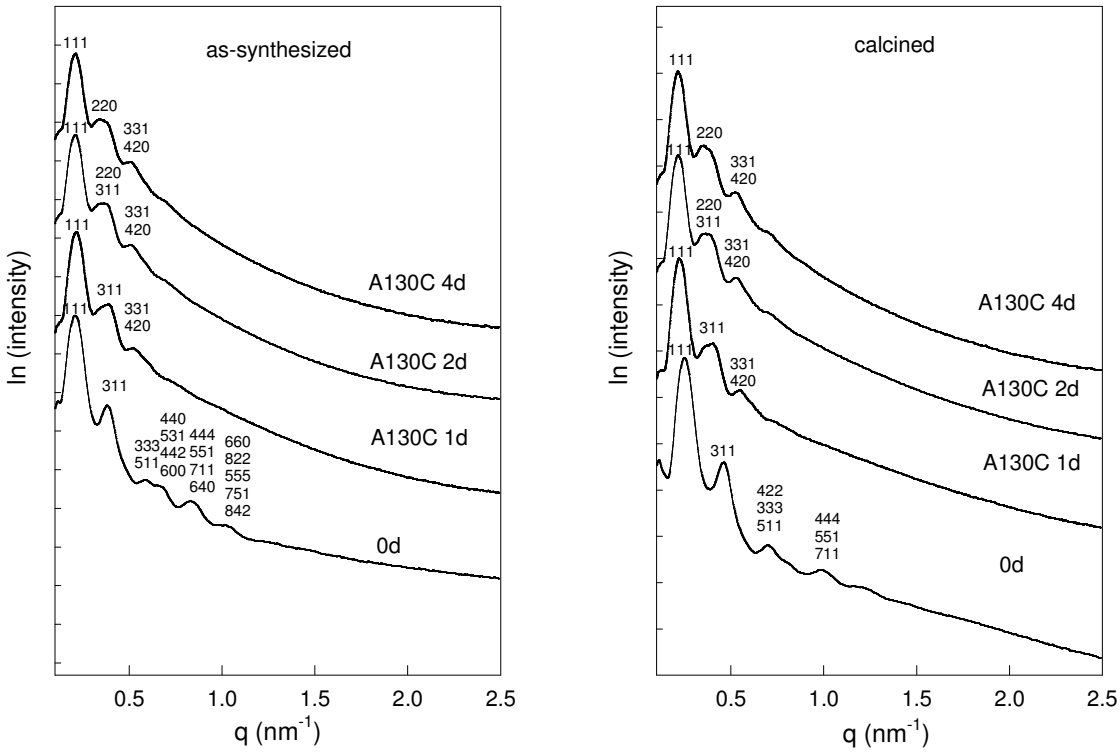
Supporting Figure S5. SAXS pattern for EH5 samples.



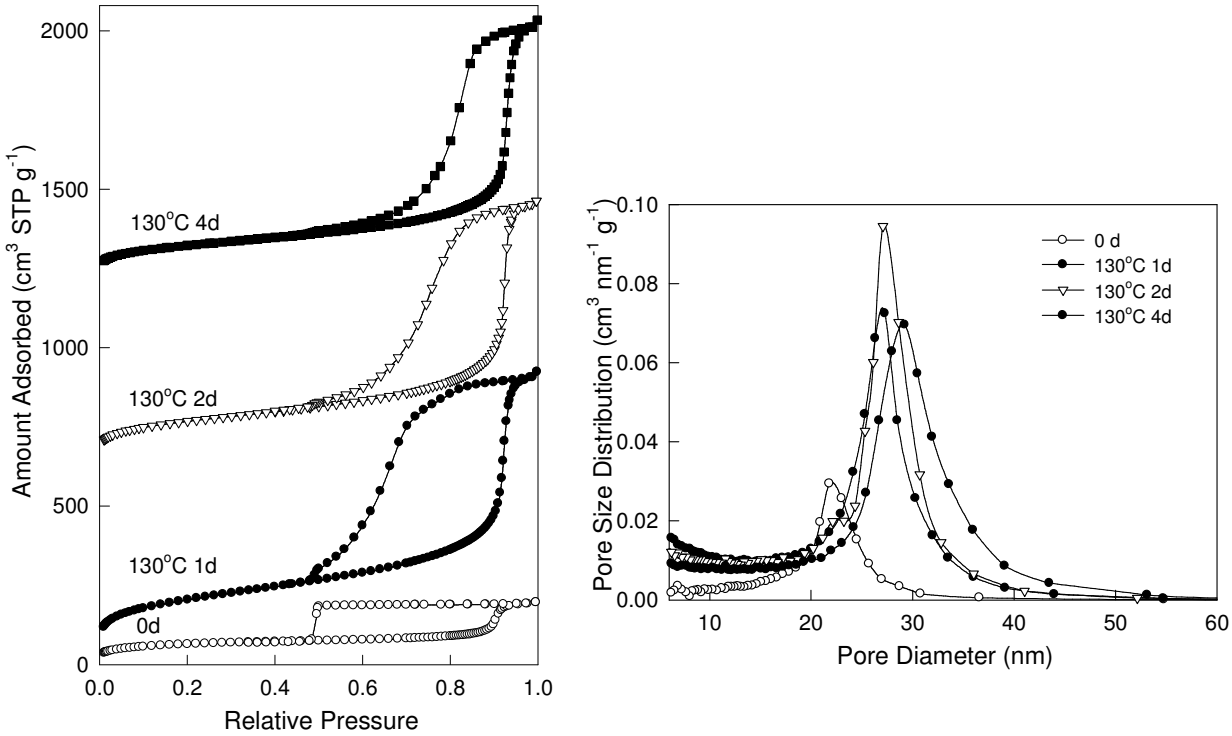
Supporting Figure S6. N_2 adsorption isotherms and pore size distributions for EH5 samples.

Supporting Table S1. Structural parameters for FDU-12 samples prepared from TMOS.

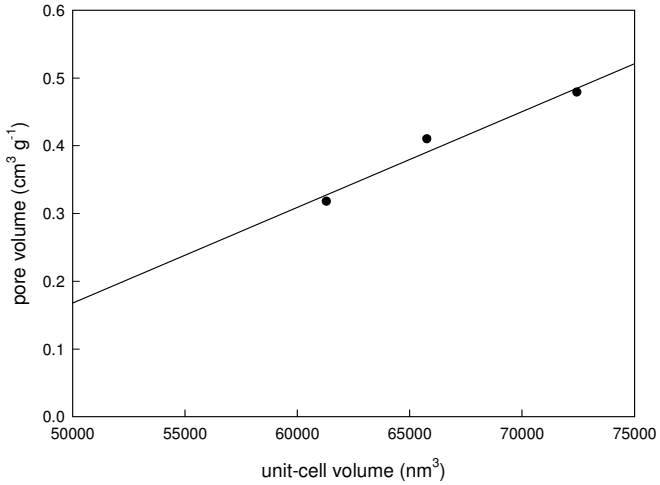
Sample	Mass of TMOS (g)	Stirring speed (rpm)	Mass of xylenes (g)	Unit cell parameter			w_{KJS} (nm)	S_{BET} (m^2/g)	V_t (cm^3/g)	V_{mi} (cm^3/g)	w_{KJS} (nm)
				a_{as} (nm)	a_c (nm)	a_c/a_{as}					
MH1	3.3	350	4.5	50.8	42.2	0.83	21.8	211.0	0.34		
MH1-A-130C-2d				51.8	49.9	0.96	26.6	297.1	0.85	0.011	33.5
MH1-A-130C-4d				52.1	50.4	0.97	28.4	253.4	0.85	0.005	33.9
MH2	3.7	300	4.1	52.8	44.2	0.84	22.0	231.5	0.30		
MH2-A-130C-1d				51.8	49.5	0.96	27.0	424.6	0.83	0.051	32.5
MH2-A-130C-2d				52.1	51.1	0.98	27.2	317.0	0.83	0.014	34.1
MH2-A-130C-4d				52.6	51.3	0.98	29.1	255.6	0.86	0.005	34.6



Supporting Figure S7. SAXS pattern for MH2 samples



Supporting Figure S8. N_2 adsorption isotherms and pore size distributions for MH2 samples



Supporting Figure S9. Pore volume vs. unit-cell volume for E4' sample calcined at different temperatures.

Regression function: $y = 1.41\times10^{-5}\,x - 0.539$