Supporting Information for

Selectively Tuned Pore Condensation and Hysteresis Behavior in Mesoporous SBA-15 Silica: Correlating Material Synthesis to Advanced Gas Adsorption Analysis

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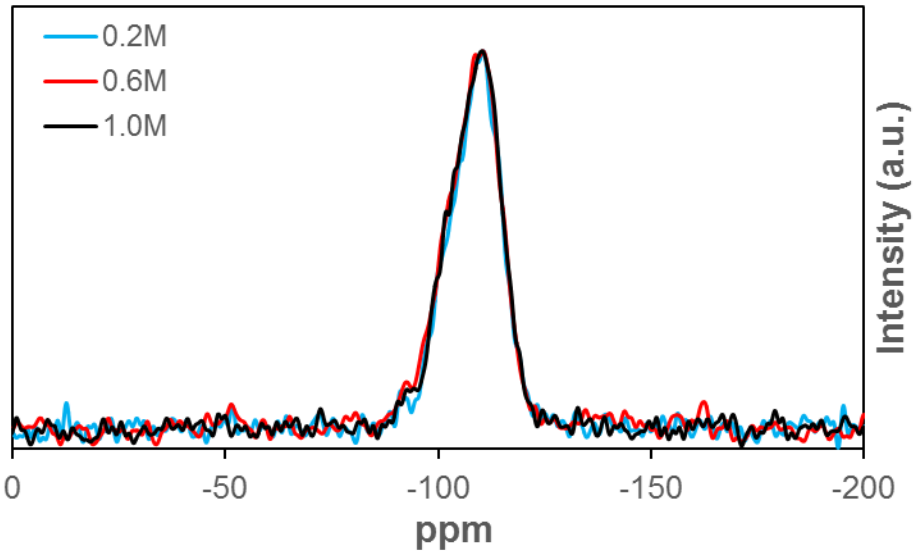

Figure S1. ^{29}Si MAS NMR spectra of calcined w-60-35-80 SBA-15 materials (as indicated). Each spectrum was normalized to its maximum intensity.

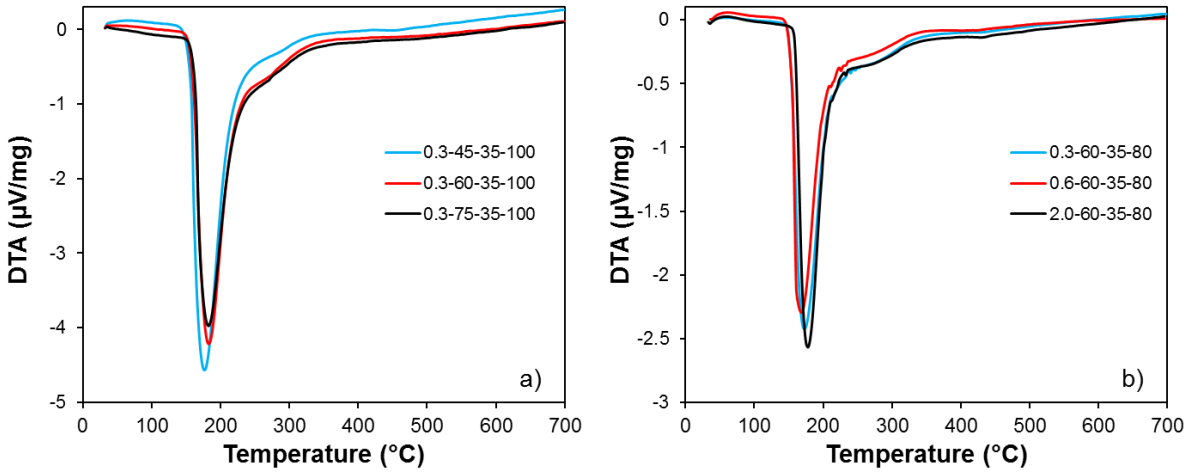

Figure S2. Differential thermal analyses (DTA) of 0.3-x-35-100 (a) and w-60-35-80 (b) SBA-15 materials.

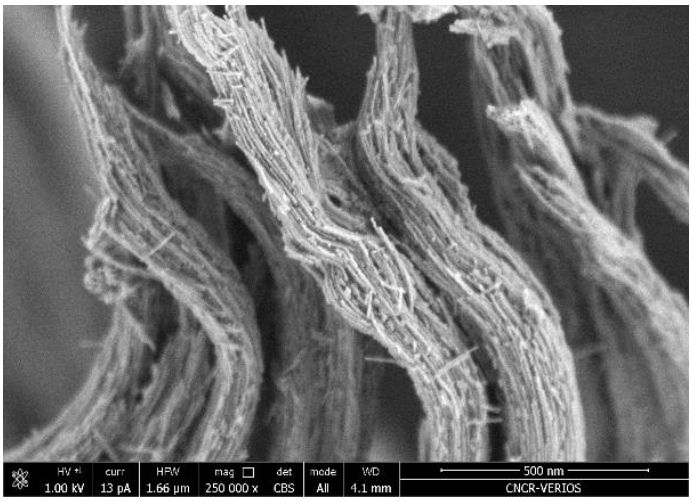

Figure S3. SEM image of a nanocast Co_3O_4 "replica" synthesized using a distorted/corrugated SBA-15 as the template.

Table S1. Physicochemical parameters obtained from N_2 and Ar physisorption experiments for various SBA-15 materials.

Sample	S_{BET} (m^2/g)	S_{DFT} (m^2/g)	$P_{v\text{-}G}$ (cm^3/g)	$P_{micro\text{-}T}$ (cm^3/g)	$P_{v\text{-}DFT}$ (cm^3/g)	$P_{micro\text{-}DFT}$ (cm^3/g)	W_{ads} (nm)	W_{des} (nm)
0.3-45-35-80 (1)	773	706	0.90	0.08	0.89	0.05	6.8	7.0
0.3-45-35-80 (2)	779	708	0.87	0.08	0.88	0.05	6.8	7.0
0.3-60-35-80 (1)	740	735	0.85	0.10	0.85	0.07	6.7	6.5
0.3-60-35-80 (2)	783	751	0.85	0.10	0.84	0.07	6.6	6.3
0.3-60-35-80 (3)	752	752	0.85	0.11	0.84	0.07	6.6	6.3
0.3-75-35-80 (1)	697	714	0.75	0.11	0.74	0.08	6.4	5.9
0.3-75-35-80 (2)	717	715	0.71	0.10	0.69	0.08	6.3	5.7
0.3-60-30-80	722	730	0.85	0.12	0.83	0.07	7.0	7.3
0.3-60-40-80	746	738	0.87	0.11	0.87	0.07	6.6	6.3
0.1-60-35-80 (1)	727	751	0.74	0.14	0.74	0.09	6.8	6.8
0.1-60-35-80 (2)	746	728	0.71	0.13	0.71	0.08	6.8	6.9
0.1-60-35-80 (Ar)	563	693	0.58	-	0.60	0.07	6.7	6.8
0.2-60-35-80 (1)	748	738	0.89	0.10	0.88	0.06	6.8	6.8
0.2-60-35-80 (2)	747	757	0.84	0.11	0.83	0.08	6.8	6.9
0.6-60-35-80 (1)	-	809	0.88	0.12	0.87	0.09	6.6	5.9
0.6-60-35-80 (2)	812	796	0.86	0.11	0.87	0.08	6.6	6.0
0.6-60-35-80 (Ar)	597	752	0.72	-	0.73	0.06	6.2	5.7
1.0-60-35-80 (1)	776	779	0.86	0.12	0.84	0.08	6.6	6.1
1.0-60-35-80 (2)	747	743	0.81	0.11	0.80	0.08	6.6	6.1
1.0-60-35-80 (3)	733	732	0.77	0.11	0.79	0.07	6.5	6.0
1.0-60-35-80 (Ar)	580	711	0.68	-	0.69	0.06	6.2	5.8
1.5-60-35-80	766	751	0.86	0.10	0.84	0.07	6.2	5.7
2.0-60-35-80	686	733	0.76	0.11	0.74	0.08	6.2	5.7
0.2-60-30-90	646	619	0.77	0.07	0.77	0.06	7.6	8.1
0.3-60-30-90	738	721	0.93	0.08	0.91	0.06	7.3	7.6
0.3-60-30-90 (Ar)	627	689	0.88	-	0.88	0.04	7.2	7.6
0.4-60-30-90	741	712	0.92	0.10	0.90	0.05	7.0	7.0
0.4-60-30-90 (Ar)	600	661	0.85	-	0.84	0.04	6.8	6.8
0.5-60-30-90	719	732	0.92	0.08	0.89	0.06	6.8	6.8

0.6-60-30-90	729	719	0.84	0.11	0.83	0.06	6.8	6.3
0.3-45-35-100	899	822	1.24	0.08	1.26	0.04	8.1	8.5
0.3-60-35-100 (1)	835	787	1.07	0.10	1.06	0.05	7.3	7.3
0.3-60-35-100 (2)	840	785	1.05	0.11	1.05	0.06	7.4	7.3
0.3-75-35-100 (1)	824	789	0.97	0.10	0.95	0.06	6.9	6.7
0.3-75-35-100 (2)	820	736	0.91	0.10	0.88	0.05	7.0	6.8
0.6-45-35-100	881	796	1.16	0.06	1.19	0.03	7.3	7.6
0.6-45-35-100 (Ar)	689	707	1.02	-	1.05	0.03	7.1	7.6
0.6-60-35-100	781	739	0.99	0.08	0.98	0.05	7.0	7.0
0.6-60-35-100 (Ar)	693	745	0.96	-	0.96	0.04	6.8	6.8
0.6-75-35-100	769	760	0.86	0.12	0.84	0.07	6.8	6.3
0.6-75-35-100 (Ar)	692	794	0.85	-	0.85	0.07	6.6	6.3
0.3-75-35-60	626	688	0.62	0.11	0.61	0.08	5.9	5.2
0.3-75-35-60 (Ar)	539	714	0.58	-	0.59	0.08	5.7	5.1
0.6-45-35-80	821	767	0.99	0.08	1.00	0.05	6.8	6.8
0.3-45-35-60	-	696	0.79	0.11	0.81	0.07	6.6	6.3
0.3-45-35-70	-	773	0.97	0.09	0.99	0.06	6.6	6.6
0.3-45-35-90	-	725	0.98	0.10	0.99	0.05	7.5	8.0
0.3-45-35-120	888	760	1.46	0.05	1.46	0.01	9.1	9.6
0.3-45-35-130	714	615	1.39	0.04	1.41	0.00	9.4	9.8
0.3-45-35-140	598	553	1.39	0.03	1.42	0.00	10.0	10.5
0.3-75-35-70	-	645	0.65	0.11	0.64	0.07	6.2	5.6
0.3-75-35-90	787	743	0.81	0.12	0.79	0.07	6.7	6.3
0.3-75-35-120	843	700	1.21	0.04	1.19	0.01	7.7	7.9
0.3-75-35-130	693	586	1.14	0.03	1.12	0.00	8.1	8.3
0.3-75-35-140	648	569	1.19	0.03	1.18	0.00	8.4	8.9
0.3-60-40-100	790	746	0.99	0.10	1.00	0.05	7.3	7.3
1.0-75-35-100	760	734	0.90	0.10	0.88	0.06	6.8	6.4
0.3-90-35-120	767	645	1.04	0.03	1.02	0.01	7.3	7.3
0.3-60-30-140	639	601	1.45	0.04	1.44	0.00	9.8	10.5

Samples denoted with (1), (2) or (3) correspond to duplicate or triplicate materials made from independent synthesis.

S_{BET} Specific surface area determined using the BET equation.

S_{DFT} Specific surface area calculated using the kernel of NLDFT metastable isotherms.

$P_{v\text{-}G}$ Total pore volume calculated using the Gurvitch rule.

$P_{micro\text{-}T}$ Micropore volume calculated using the t-plot method.

$P_{v\text{-}DFT}$ Total pore volume calculated using the kernel of NLDFT metastable isotherms.

$P_{micro\text{-}DFT}$ Micropore volume calculated using the kernel of NLDFT metastable isotherms.

W_{ads} Mode pore size calculated using the kernel of NLDFT metastable isotherms.

W_{des} Mode pore size calculated using the kernel of NLDFT equilibrium isotherms.