Electronic supplementary information

COMPOSITE CARBON AEROGELS CONTAINING MANGANESE OXIDE: SYNTHESIS VIA THERMO-OXIDATIVE DECOMPOSITION OF $Mn_2(CO)_{10}$ IN SUPERCRITICAL CO_2

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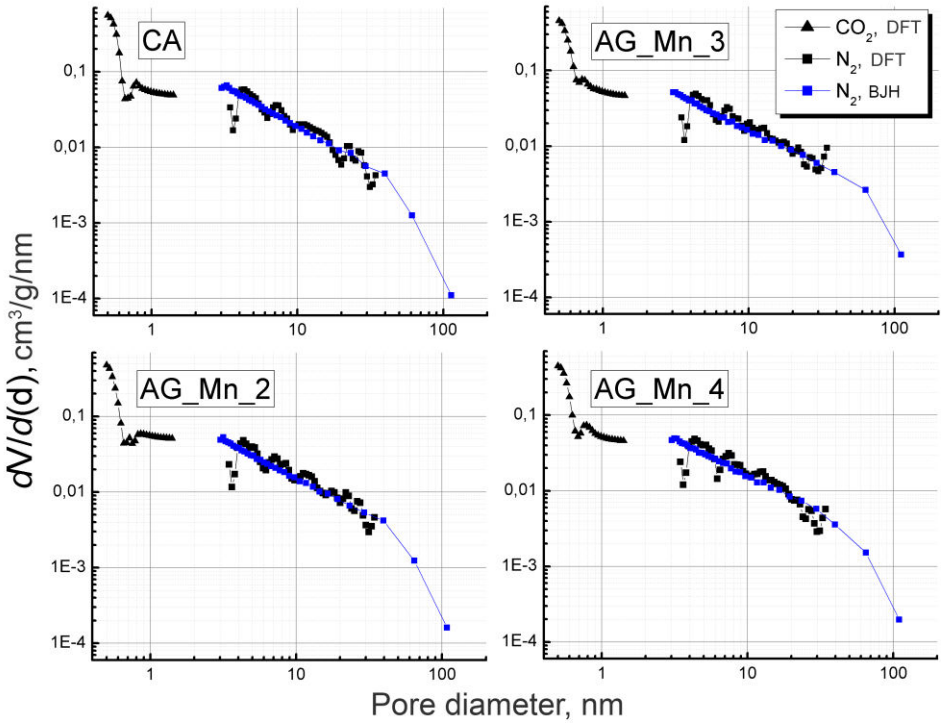

Figure S1. Size distributions of the aerogels calculated based on the results of the adsorption experiments.

Table S1. Characteristics of the porous structure of the resulting aerogels

	N_2					CO_2	
	BET	DFT		BJH		DFT	
	$a_s(BET)$, m^2/g	a_s, m^2/g	V_s, cm^3/g	a_{me}, m^2/g	V_{me}, cm^3/g	a_{mi}, m^2/g	V_{mi}, cm^3/g
CA	841	676	0,78	242	0.53	632	0.17
AG_Mn_2	682	551	0,65	192	0.45	612	0.16
AG_Mn_3	670	521	0,68	204	0.50	568	0.16
AG_Mn_4	672	543	0,65	198	0.46	582	0.16
AG_Mn_5	611	492	0,60	179	0.43		

Size distributions of the pores (**Fig. S1**) were calculated from the N_2 and CO_2 adsorption/desorption measurements using DFT and BJH methods. In the latter case, the large pores featuring a diameter over 3 nm were considered. The size distributions of the pores obtained by the DFT calculations described the diameter ranges of 3.5–34.0 nm (N_2) and 0.3–1.5 nm (CO_2). The size distributions of the pores did not reveal any significant change as the metal carbonyl loading increased from 0 to 40 mg; the mesopores were uniformly distributed by the sizes from 3 to 50 nm without any specific size fractions.

Table S1: a_s, V_s are the specific surface area and specific volume of the pores with a diameter up to 50 nm; a_{me}, V_{me} are the specific surface area and specific volume of the mesopores with a diameter of 3–50 nm; a_{mi}, V_{mi} are the specific surface area and specific volume of the micropores a_{mi} with a diameter of 0.3–1.5 nm. As can be seen from this table, the specific surface area of the micropores composes 582–632 m^2/g and does not exceed $a_s(BET)$. The specific volumes V_{mi} and V_{me} of all the aerogels obtained are 0.16–0.17 cm^3/g and 0.43–0.53 cm^3/g, respectively.