

*Electronic Supplementary Information (ESI)*

**Facile Preparation of Ordered Mesoporous MnCo<sub>2</sub>O<sub>4</sub> for  
Low-temperature Selective Catalytic Reduction of NO with  
NH<sub>3</sub>**

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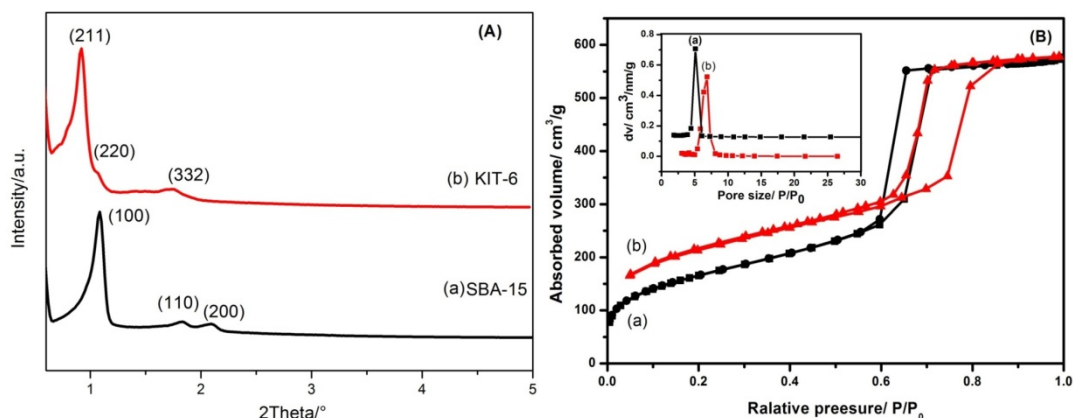


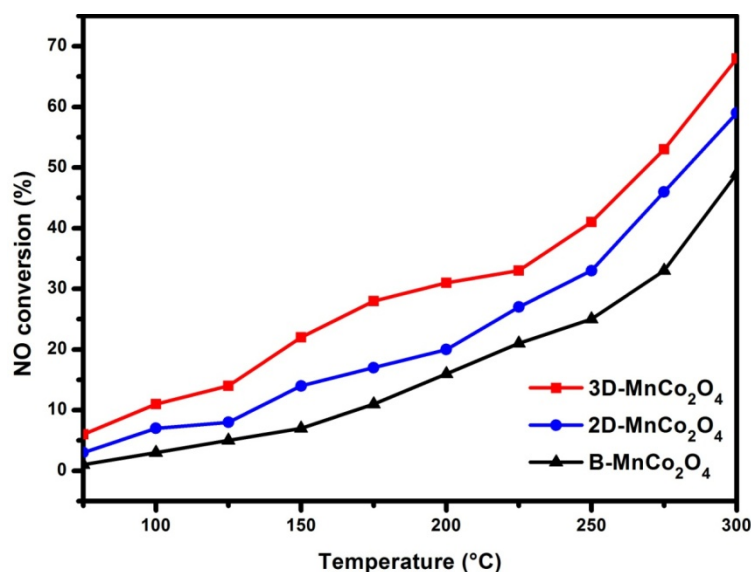
Fig. S1 (A) Low-angle XRD patterns of SBA-15(a) and KIT-6(b).

(B) Nitrogen physisorption isotherms of SBA-15 and KIT-6 (Inset: pore size distribution calculated from desorption branch by BJH method)

Fig. S1 (A) presented the small-angle XRD patterns of KIT-6 and SBA-15. The low-angle XRD reflections confirmed the  $p6mm$  and  $Ia3d$  cubic symmetries of the pore system and the  $N_2$ -physisorption isotherms in Fig. S1 (B) showed the typical type IV isotherms with an H1-type hysteresis loop, indicating the presence of ordered mesopores. The structural parameters were summarized in Table S1.

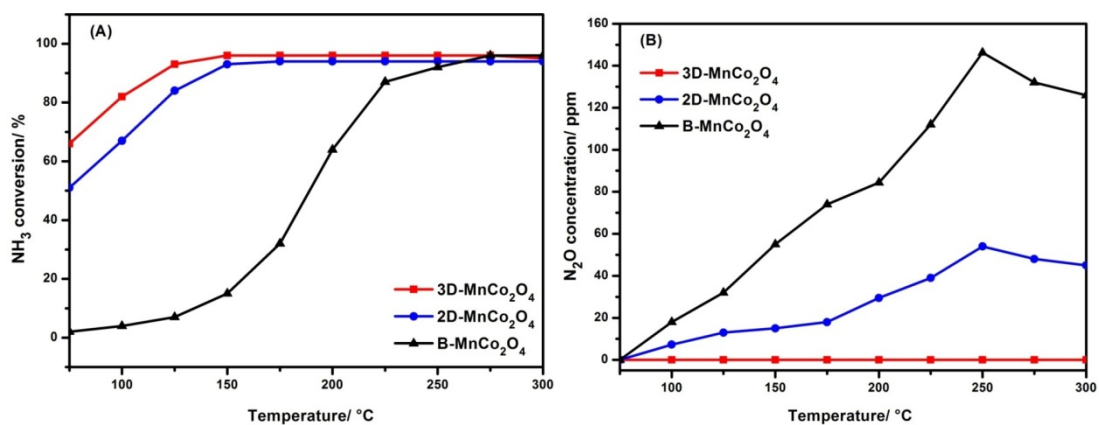
Table S1. Structural parameters of the template obtained from nitrogen physisorption at  $-196.8\text{ }^\circ\text{C}$

sample	$S_{\text{BET}}^{[a]}$ [ $\text{m}^2\text{g}^{-1}$ ]	$D_p^{[b]}$ [nm]	$V_p^{[c]}$ [ $\text{cm}^3\text{g}^{-1}$ ]
SBA-15	603	5.1	0.63
KIT-6	730	6.9	0.52



**Fig. S2.** NO conversion in separate NO oxidation reaction over 3D-MnCo<sub>2</sub>O<sub>4</sub>, 2D-MnCo<sub>2</sub>O<sub>4</sub> and B-MnCo<sub>2</sub>O<sub>4</sub> at GHSV of 32, 000 h<sup>-1</sup>.

For low temperature NH<sub>3</sub>-SCR, NO oxidation to NO<sub>2</sub> is very important to promote deNO<sub>x</sub> efficiency by accelerating the “fast SCR” process. Separate NO oxidation experiments were carried out and shown in Fig. S4, the B-MnCo<sub>2</sub>O<sub>4</sub> sample showed low NO oxidation activity over the whole temperature range, while the relatively higher NO conversion to NO<sub>2</sub> could be achieved over the 2D-MnCo<sub>2</sub>O<sub>4</sub> sample. Over the 3D-MnCo<sub>2</sub>O<sub>4</sub> catalyst, much higher NO conversion to NO<sub>2</sub> could be obtained than with 2D-MnCo<sub>2</sub>O<sub>4</sub> over the whole temperature range (e.g. 31% vs. 20% at 200 °C), which is consistent with the SCR performance. These results clearly indicate that the enhancement of low temperature SCR activity of 3D-MnCo<sub>2</sub>O<sub>4</sub> catalyst is strongly associated with facilitation of a “fast SCR” process.



**Fig. S3.** NH<sub>3</sub> conversion in separate NH<sub>3</sub> oxidation reaction (A) and N<sub>2</sub>O concentration (B) over 3D-MnCo<sub>2</sub>O<sub>4</sub>, 2D-MnCo<sub>2</sub>O<sub>4</sub> and B-MnCo<sub>2</sub>O<sub>4</sub> at GHSV of 32, 000 h<sup>-1</sup>.