Supporting Information

Structure-performance Relationships of MnO_2 Nanocatalyst for the Low-temperature SCR Removal of NO_X under Ammonia

Yi Li*[a], Yanping Li[a], Yuan Wan[a], Sihui Zhan*[b], Qingxin Guan[b], Yang Tian[c]

[a:] *Department of Chemistry, Tianjin University, Tianjin 300072, P. R. China, E-mail: liyi@tju.edu.cn*

[b:] *College of Environmental Science and Engineering, Nankai University, Tianjin 300071, P. R. China, E-mail: sihuizhan@nankai.edu.cn, Tel/Fax: +86-22-23502756;*

[c:] *Department of Chemistry, Capital Normal University, Beijing 100048, P. R. China*

* E-mail: *liyi@tju.edu.cn* or sihuizhan@nankai.edu.cn

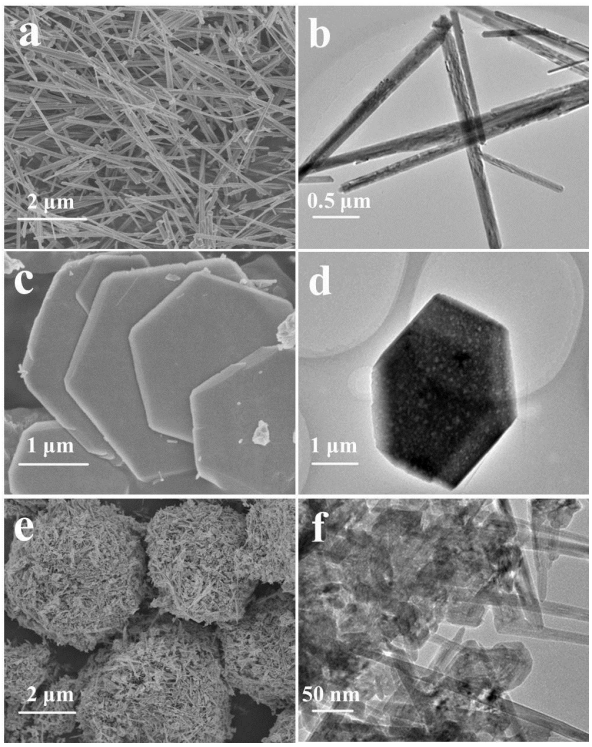

Fig. S1 SEM and HRTEM images of MnO_2 nanorod (a, b), MnO_2 nanosheet (c, d), MnO_2 nanosphere (e, f).

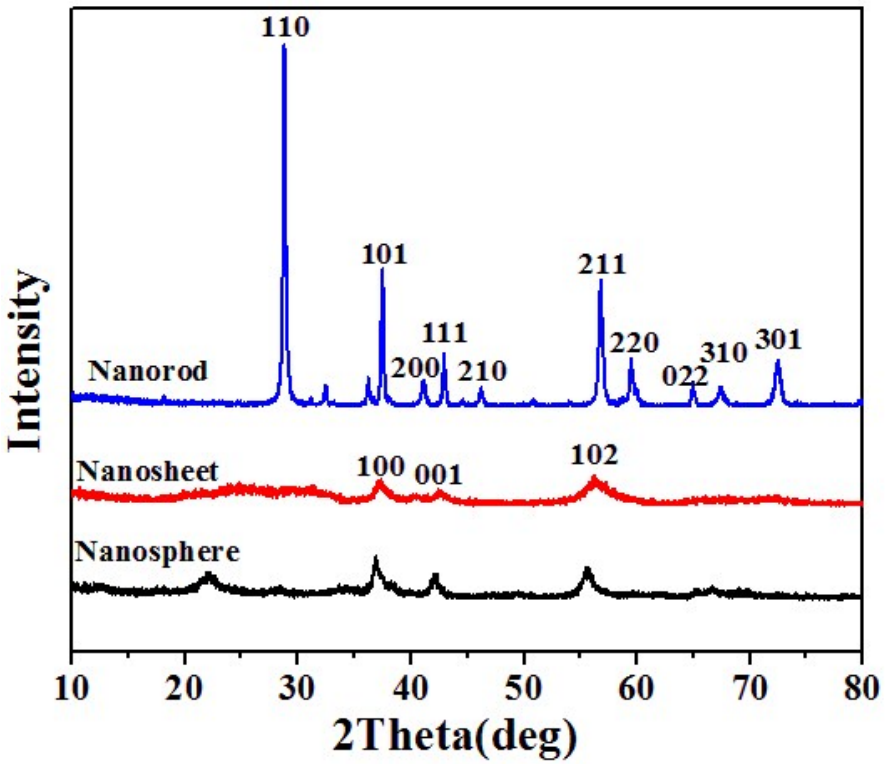

Fig. S2. The XRD patterns of MnO_2 nanomaterials after the reaction

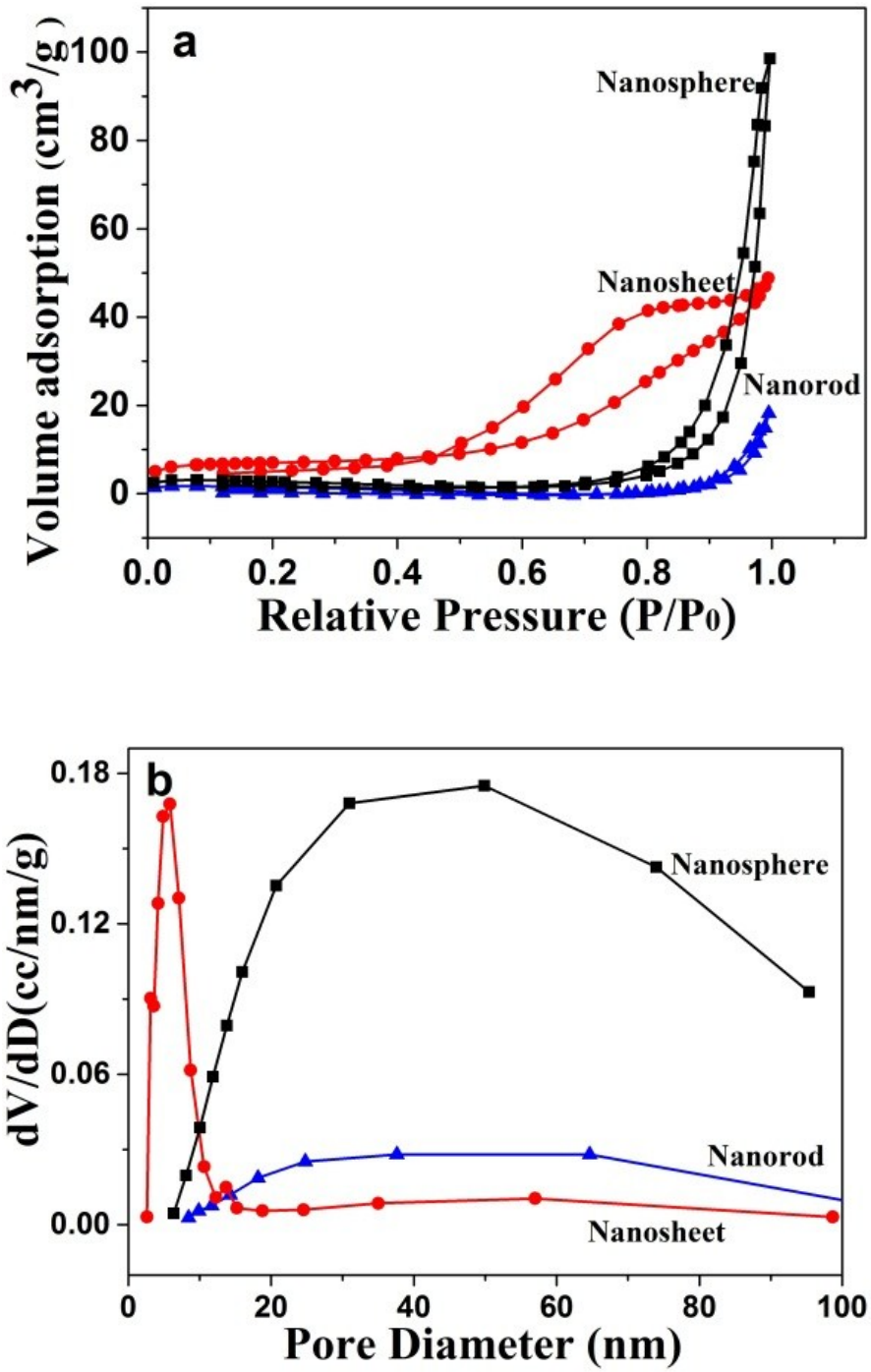

Fig. S3. N_2 adsorption-desorption isotherms (a) and pore diameter distribution (b) of MnO_2 nanomaterials after the reaction

Table S1 Specific area, pore volume and pore diameter distribution of MnO_2 samples

materials	specific area (m^2/g)	pore volume (cc/g)	pore diameter (nm)
MnO_2 nanorod	9.5	0.02	24.75
MnO_2 nanosheet	16.1	0.07	12.57
MnO_2 nanosphere	15.5	0.14	68.78

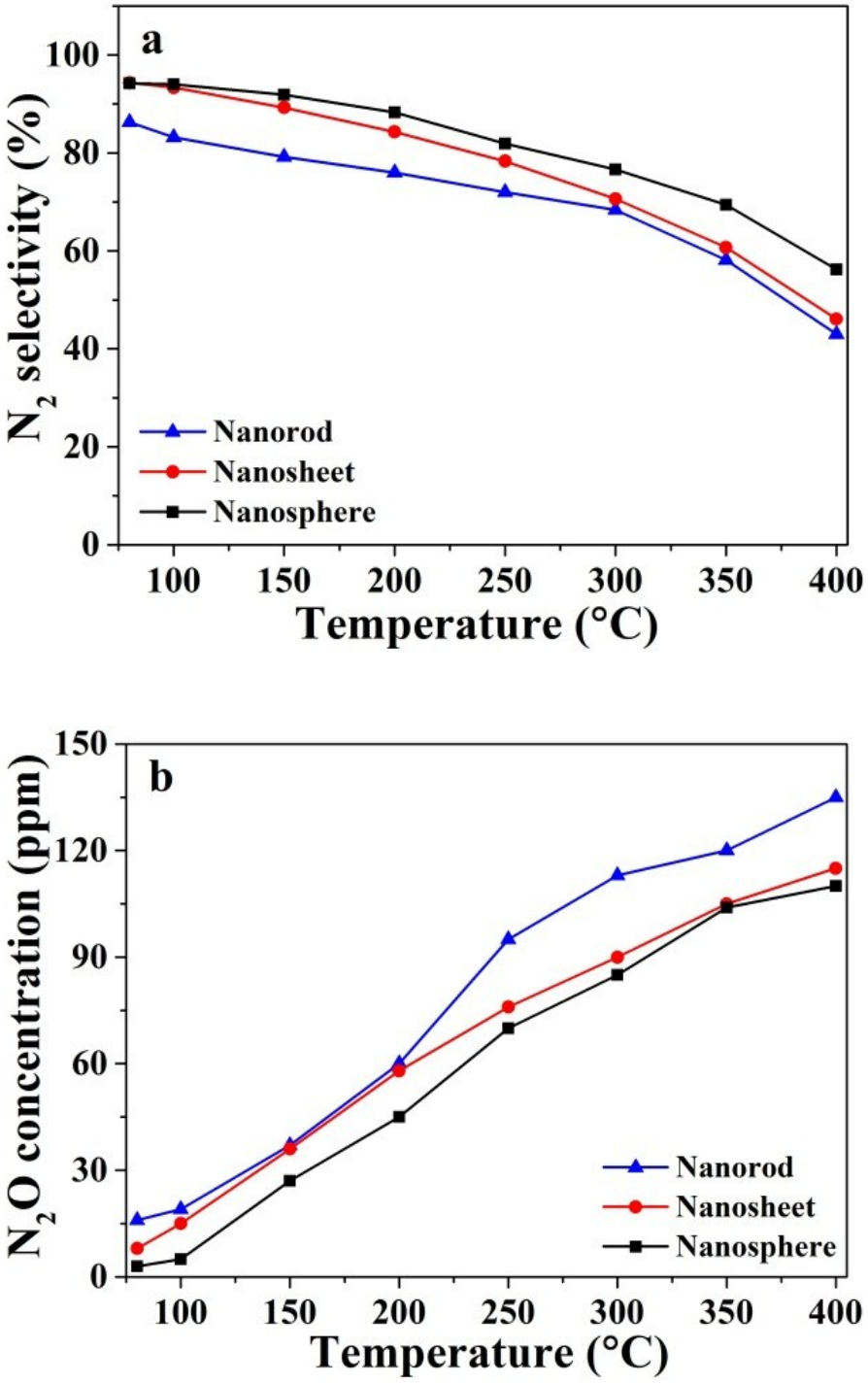

Fig. S5 N_2 selectivity (a) and N_2O concentration (b) in the SCR reaction

Table S2 XPS spectra of MnO_2 nanorod, nanosheet and MnO_2 nanosphere

Surface Atomic Concentration (%)					
Atom	K	Na	Cl	S	N
nanorod	0	-	-	-	-
nanosheet	-	0	0	0.02	0
nonosphere	-	-	-	0.05	0