

Supporting information

Simultaneous removal of PM and NO_x over highly efficient 3DOM W/Ce_{0.8}Zr_{0.2}O₂ catalysts

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Table S1

Simultaneous NO_x reduction and PM combustion over 3DOM catalysts (100 mg catalyst loosely mixed with 10 mg model PM; 1000 ppm NO, 1000 ppm NH₃, 3 % O₂ and balance N₂ at a gas hourly space velocity of 25000 h⁻¹).

Catalyst	Temperature for maximum concentration CO₂	Temperature range for 100 % NO conversion
Ce _{0.8} Zr _{0.2} O ₂	435	390-498
0.5% W/Ce _{0.8} Zr _{0.2} O ₂	421	402-496
0.8% W/Ce _{0.8} Zr _{0.2} O ₂	408	378-492
1% W/Ce _{0.8} Zr _{0.2} O ₂	417	388-476
3% W/Ce _{0.8} Zr _{0.2} O ₂	428	-
0.8% W/CeO ₂	445	398-485
0.8% W/ZrO ₂	461	472-526

Table S2

BET surface area of the different samples

Samples	S _{BET} (m ² /g)
0.8% W/CeO ₂	20.6
0.8% W/ZrO ₂	22.4
0.5% W/Ce _{0.8} Zr _{0.2} O ₂	34.0
0.8% W/Ce _{0.8} Zr _{0.2} O ₂	32.3
1% W/Ce _{0.8} Zr _{0.2} O ₂	31.4
3% W/Ce _{0.8} Zr _{0.2} O ₂	29.1

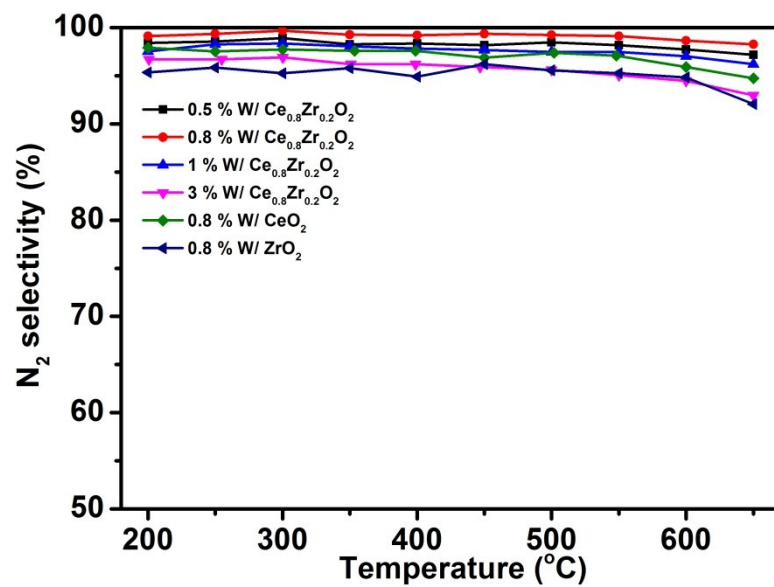


Figure S1. N₂ selectivity for 3DOM 0.8% W/CeO₂, 0.8% W/ZrO₂ and x% W/Ce_{0.8}Zr_{0.2}O₂ catalysts

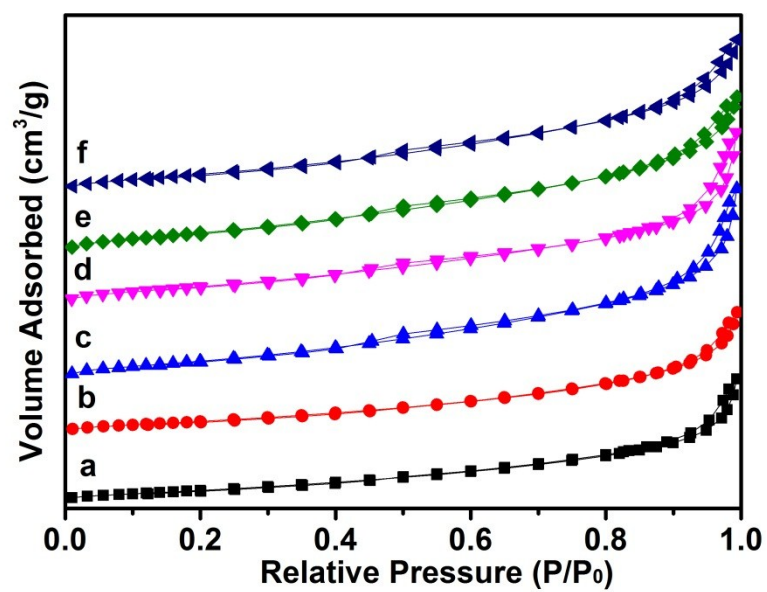


Figure S2. Nitrogen adsorption-desorption isotherms of 3DOM catalysts (a) 0.8% W/CeO₂ (b) 0.8% W/ZrO₂ (c) 0.5% W/Ce_{0.8}Zr_{0.2}O₂ (d) 0.8% W/Ce_{0.8}Zr_{0.2}O₂ (e) 1% W/Ce_{0.8}Zr_{0.2}O₂ (f) 3% W/Ce_{0.8}Zr_{0.2}O₂

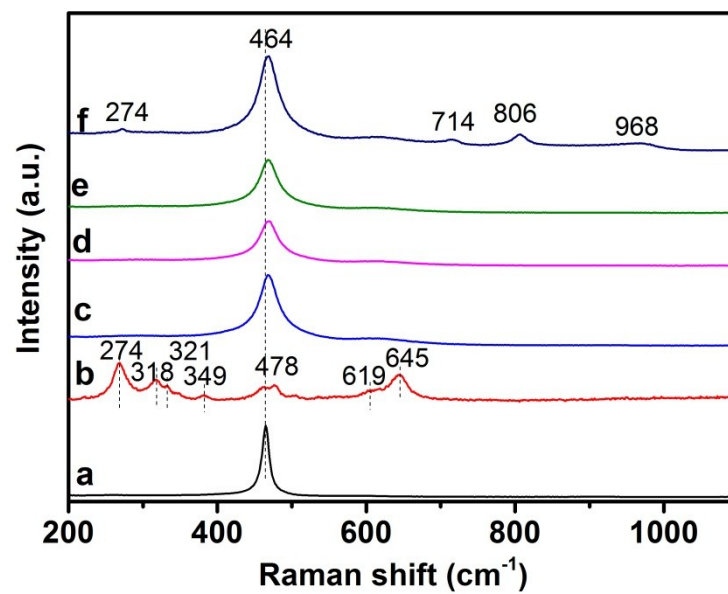


Figure S3. Raman spectra of 3DOM catalysts (a) 0.8% W/CeO₂ (b) 0.8% W/ZrO₂ (c) 0.5% W/Ce_{0.8}Zr_{0.2}O₂ (d) 0.8% W/Ce_{0.8}Zr_{0.2}O₂ (e) 1% W/Ce_{0.8}Zr_{0.2}O₂ (f) 3% W/Ce_{0.8}Zr_{0.2}O₂

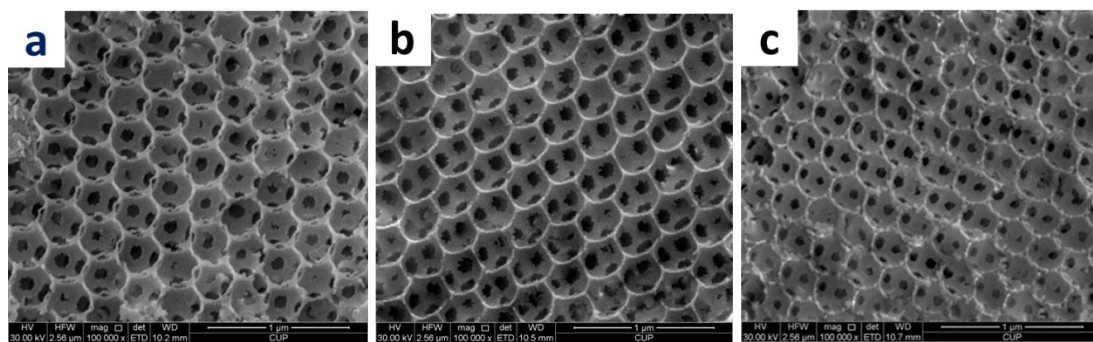


Figure S4. SEM images of 3DOM catalysts (a) 0.8% W/CeO₂ (b) 0.8% W/ZrO₂ (c) 0.8% W/Ce_{0.8}Zr_{0.2}O₂

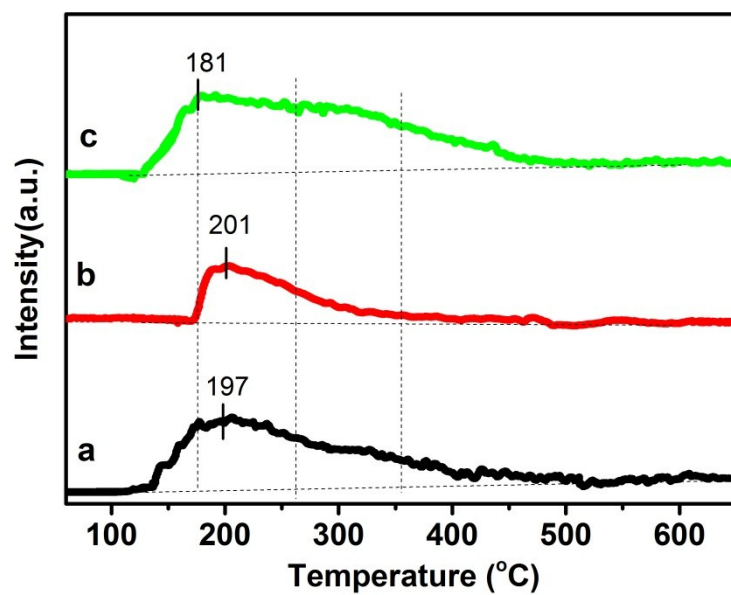


Figure S5. NH₃-TPD curves of 3DOM catalysts (a) 0.8% W/CeO₂ (b) 0.8% W/ZrO₂ (c) 0.8% W/Ce_{0.8}Zr_{0.2}O₂