

Electronic Supplementary Material

Alkali metal enhanced cerium manganese-based three-dimensional ordered macroporous catalyst for NO oxidation and soot combustion

Xuebin Wang,^a Miao He,^a Ping Wang,^a Jiasai Yao,^a Jing Xiong,^b Xin Zhang^a, Xiaohua Sun,^{*a} Yuechang Wei^{*b} and Zhenxing Li^{*a}

^aState Key Laboratory of Heavy Oil Processing, College of New Energy and Materials, China University of Petroleum (Beijing), Beijing 102249, China. E-mail: hua82@126.com; lizx@cup.edu.cn

^bCollege of Science, China University of Petroleum (Beijing), Beijing 102249, China. E-mail: weiyu@cup.edu.cn

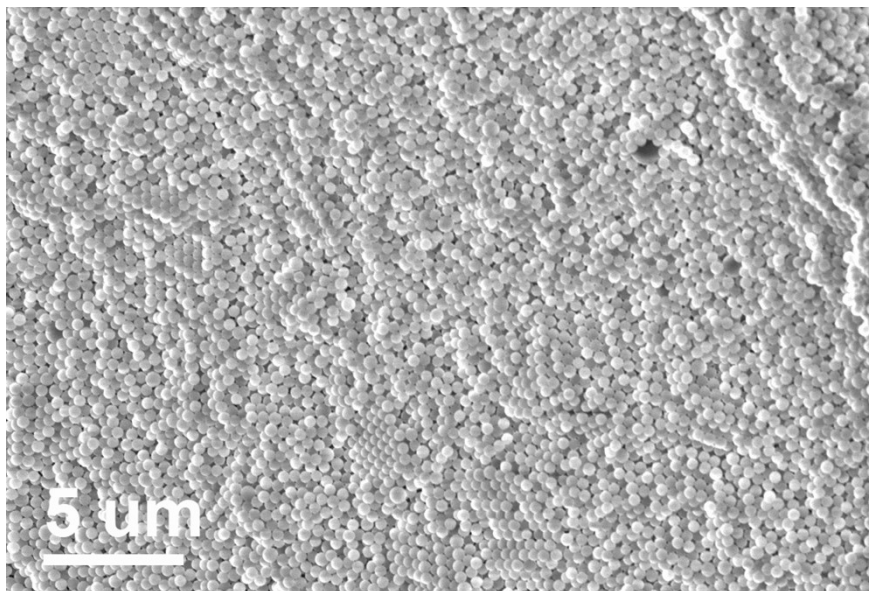


Fig. S1. SEM of PMMA

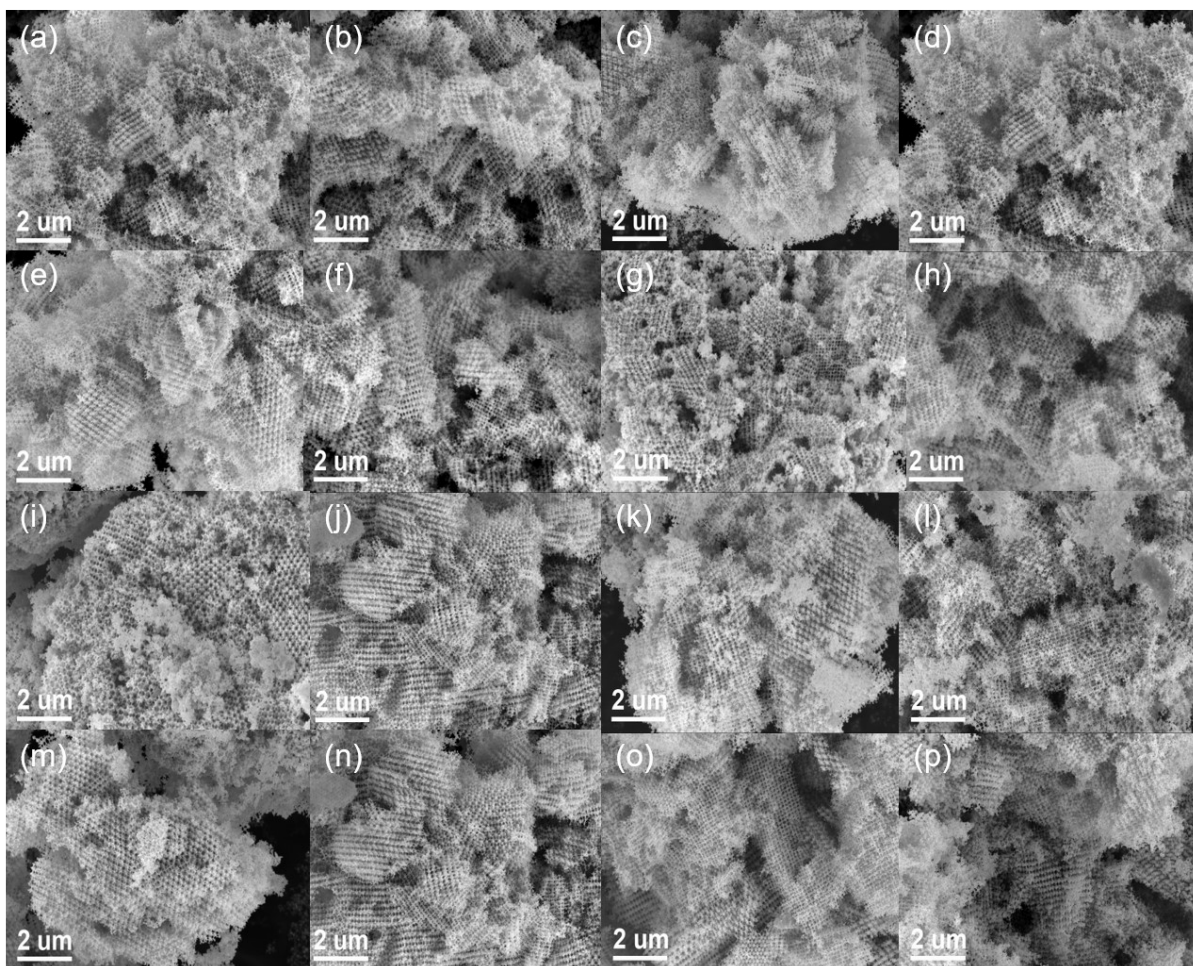


Fig. S2. SEM of (a)CM, (b)CM-3Li, (c)CM-5Li, (d)CM-8Li, (e)CM-3Na, (f)CM-5 Na, (g)CM-8 Na, (h)CM-3K, (i)CM-5K, (j)CM-8K, (k)CM-3Rb, (l)CM-5Rb, (m)CM-8 Rb, (n)CM-3Cs, (o)CM-5Cs, (p)CM-8Cs

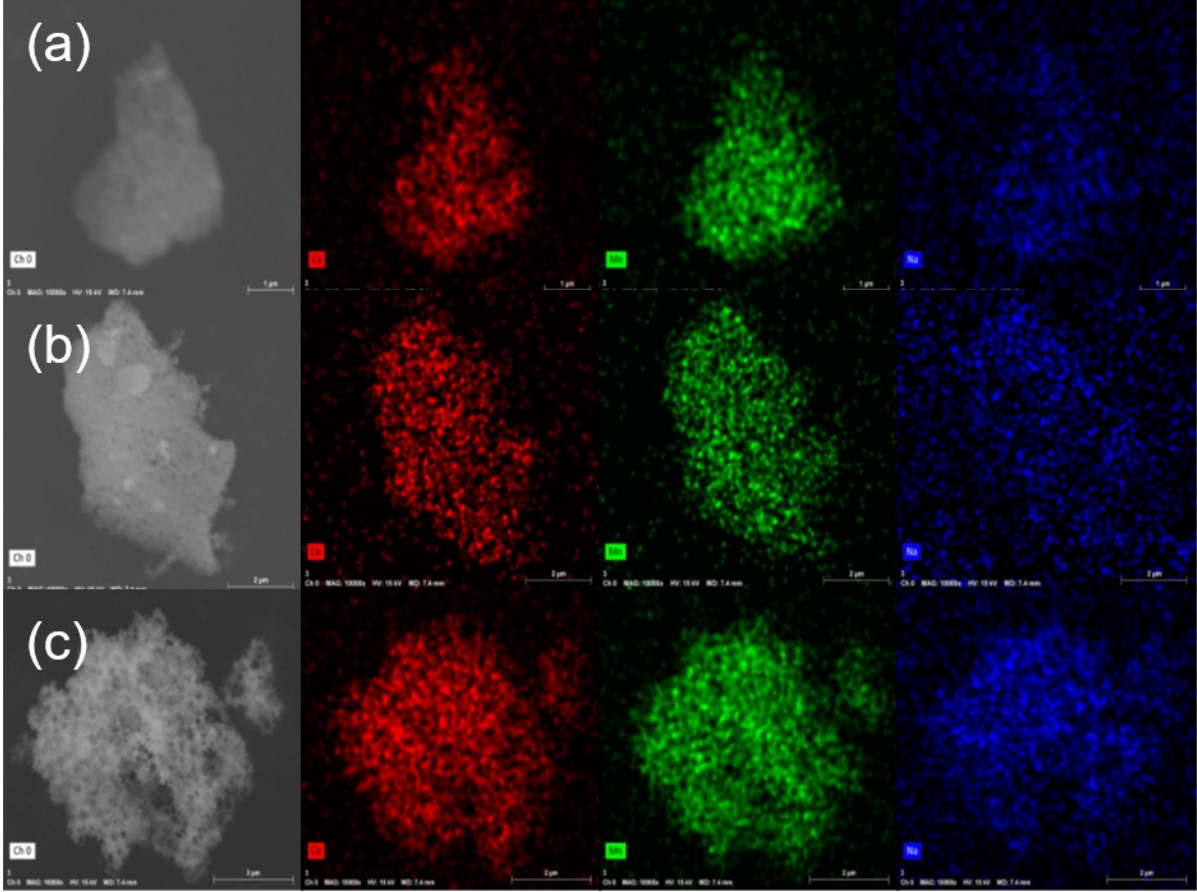


Fig. S3. EDS of (a)CM-3Li、(b)CM-5Li、(c)CM-8Li

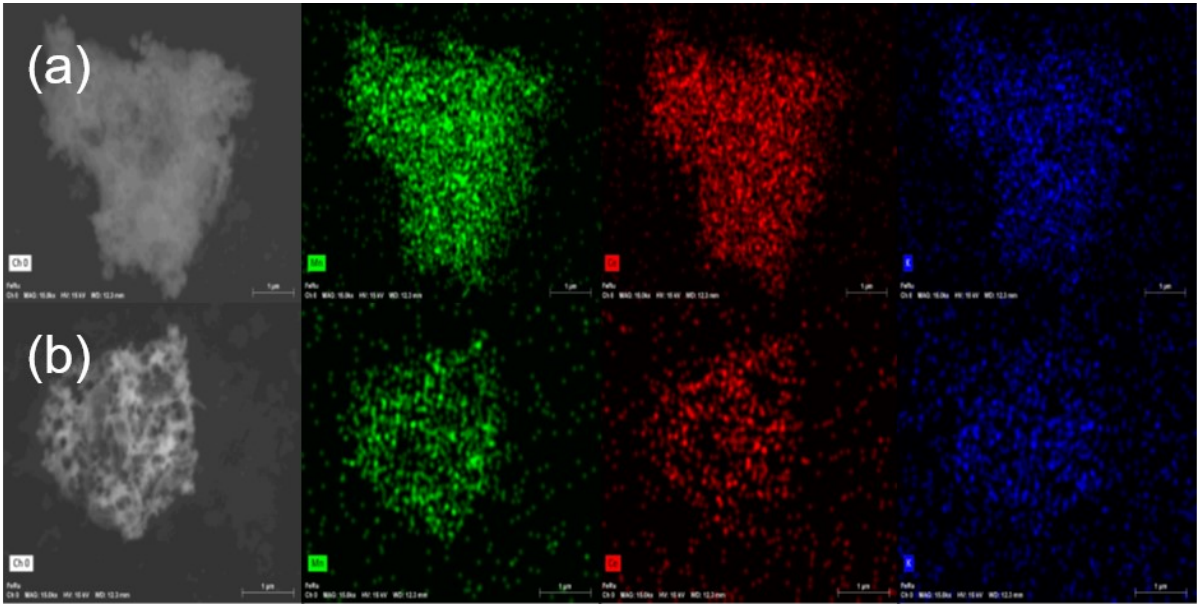


Fig. S4. EDS of (a)CM-3K、(b)CM-8K

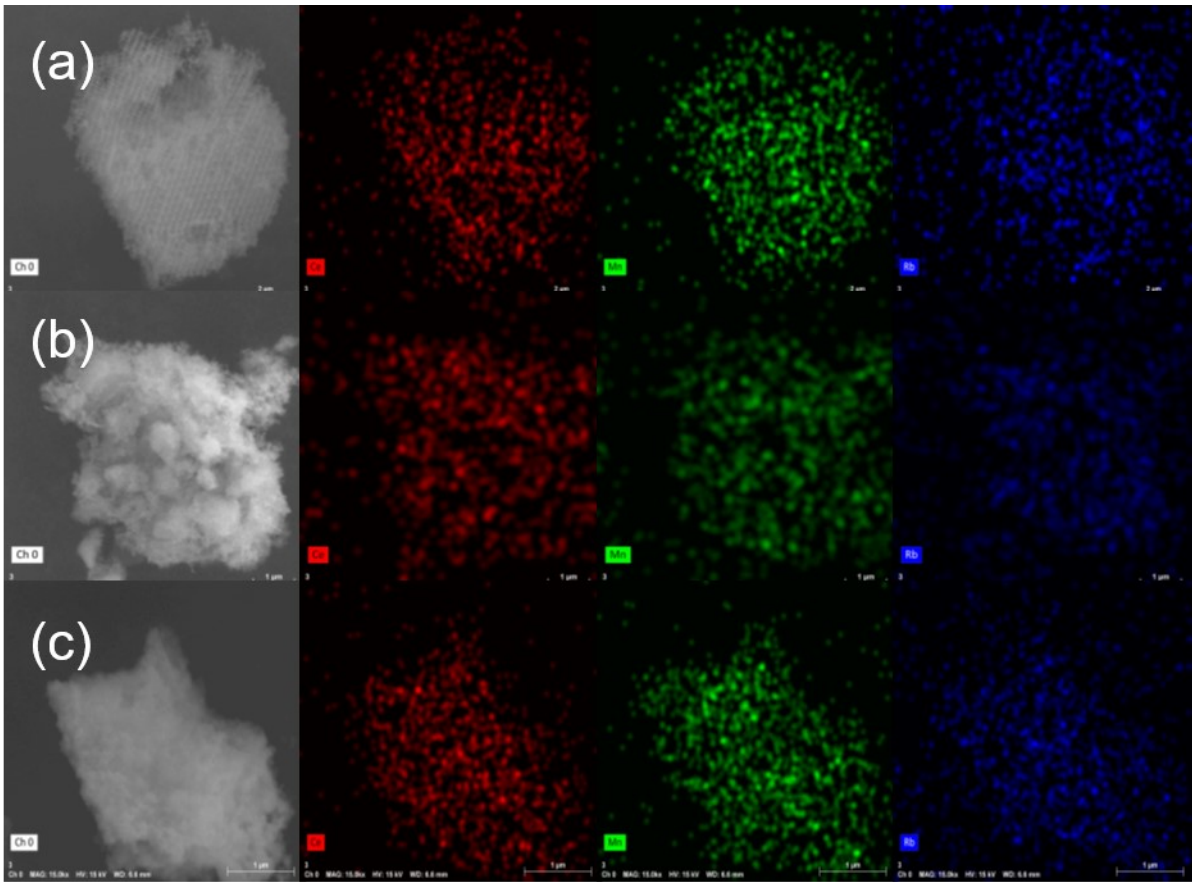


Fig. S5. EDS of (a)CM-3Rb、(b)CM-5Rb、(c)CM-8Rb

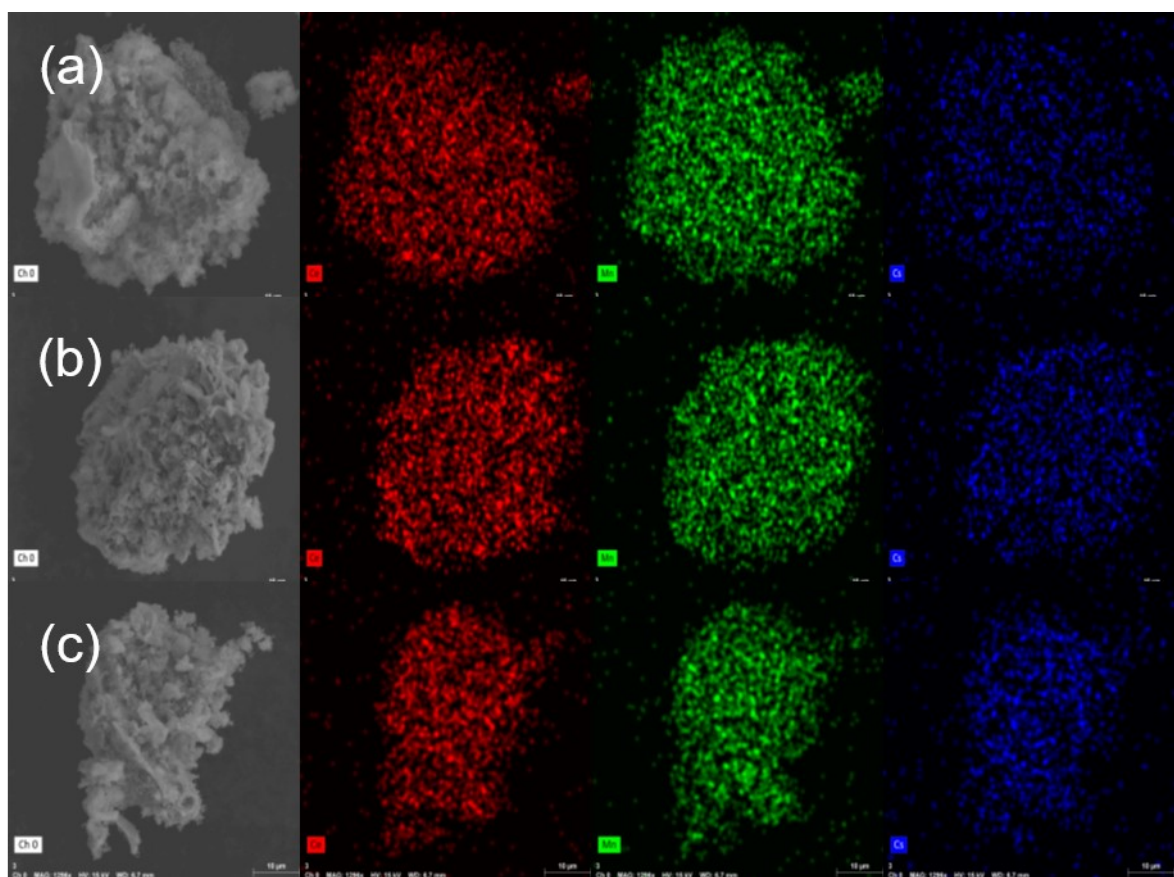


Fig. S6 EDS of (a)CM-3Cs、(b)CM-5Cs、(c)CM-8Cs

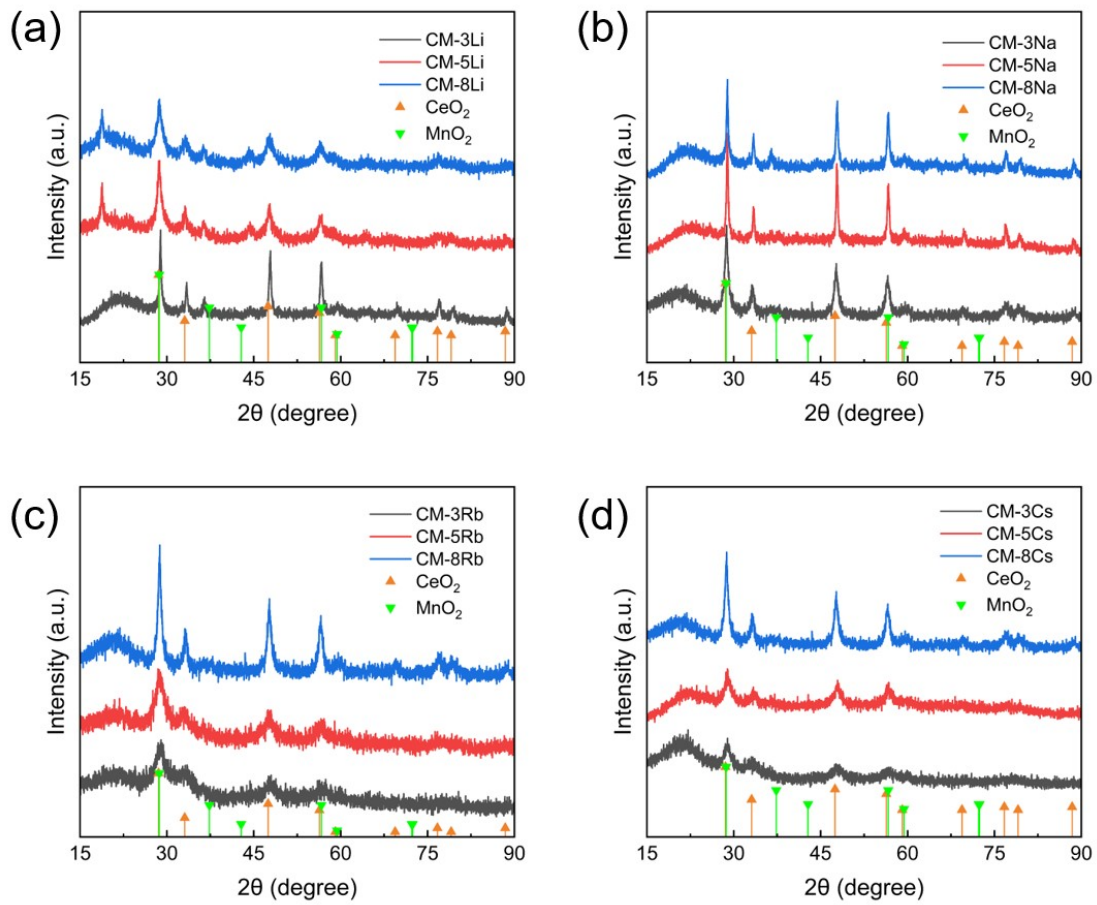


Fig. S7 XRD of (a)CM-Li, (b)CM-Na, (c)CM-Rb, (c)CM-Cs

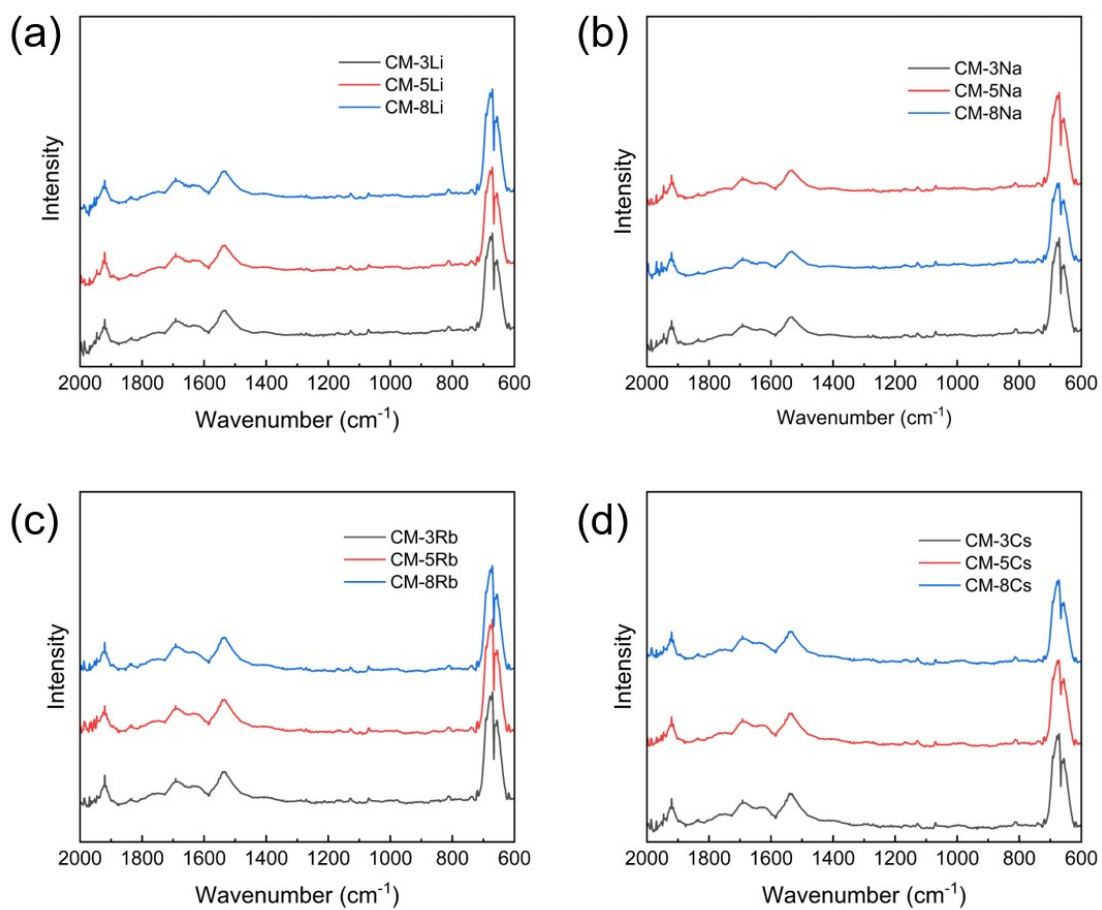


Fig. S8 IR of (a)CM-Li、(b)CM-Na、(c)CM-Rb、(c)CM-Cs

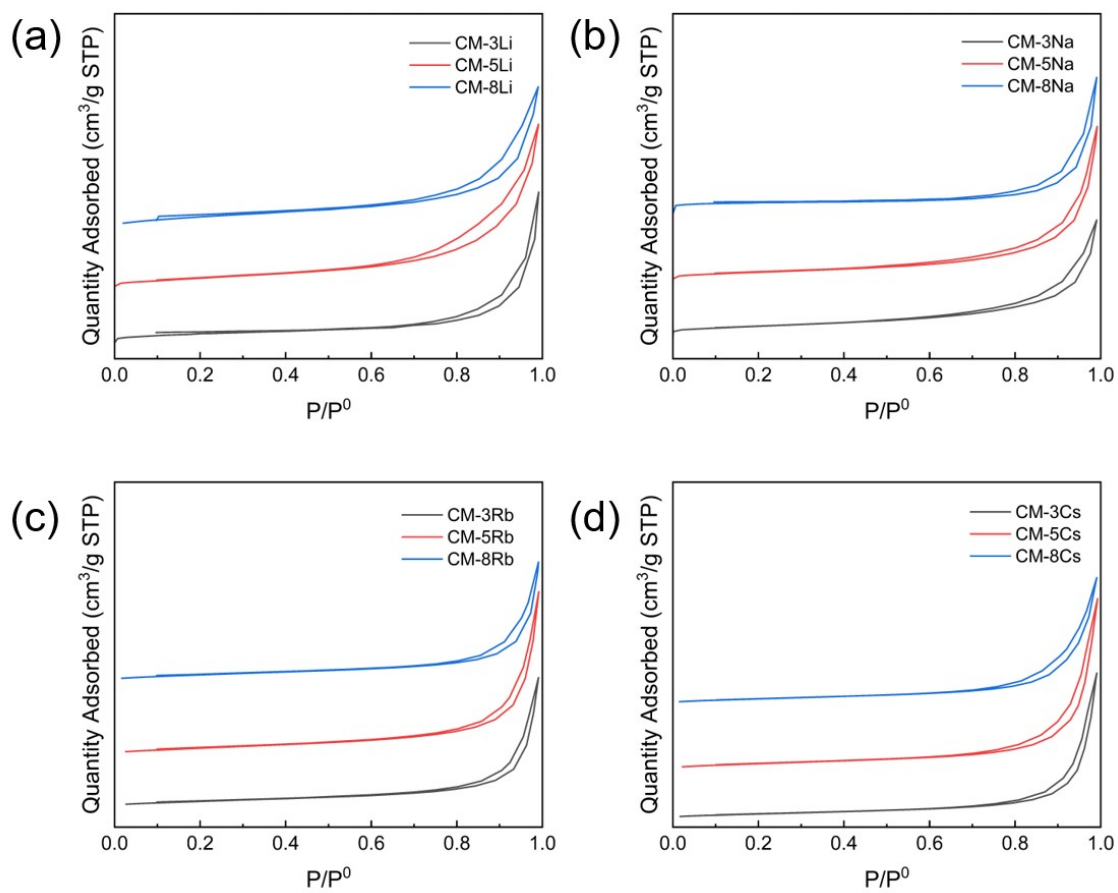


Fig. S9 BET of (a)CM-Li、(b)CM-Na、(c)CM-Rb、(c)CM-Cs

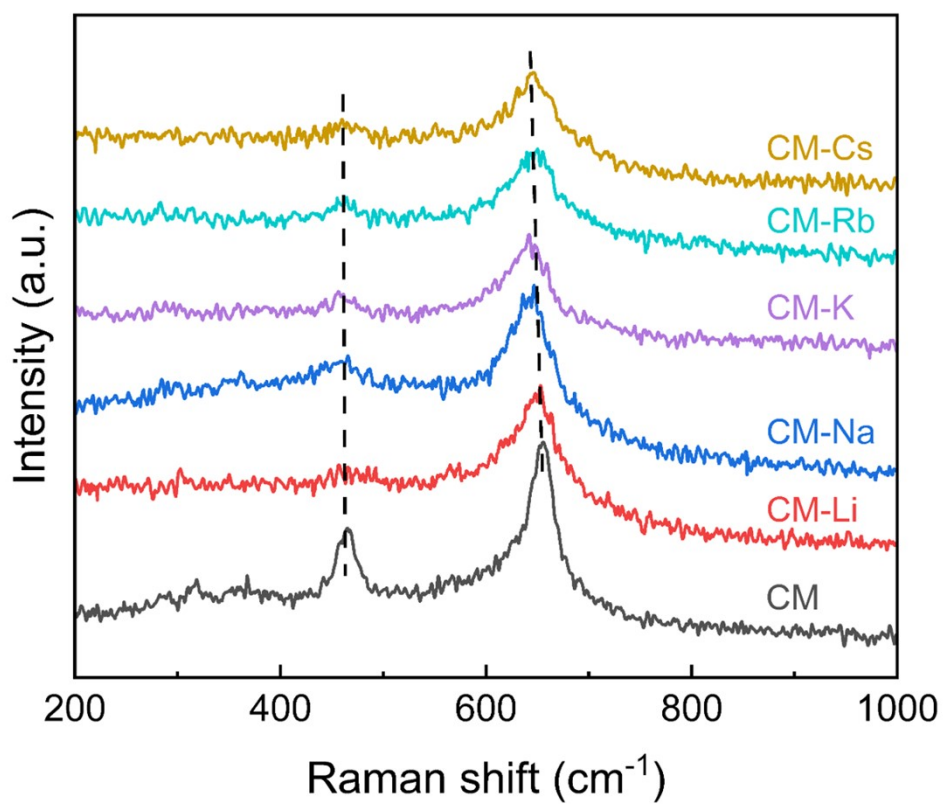


Fig. S10 Raman of CM, CM-Li, CM-Na, CM-Na, CM-Rb, CM-Cs

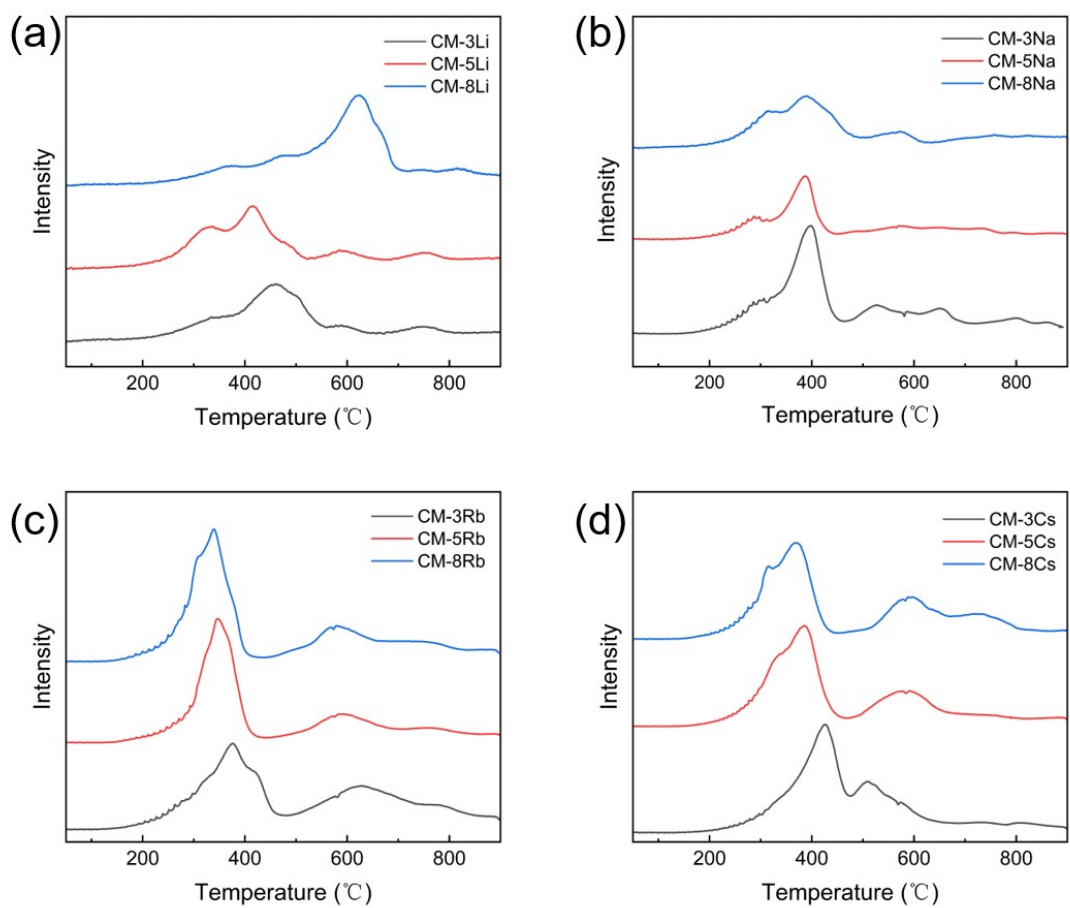


Fig. S11 H₂-TPR of (a)CM-Li, (b)CM-Na, (c)CM-Rb, (c)CM-Cs

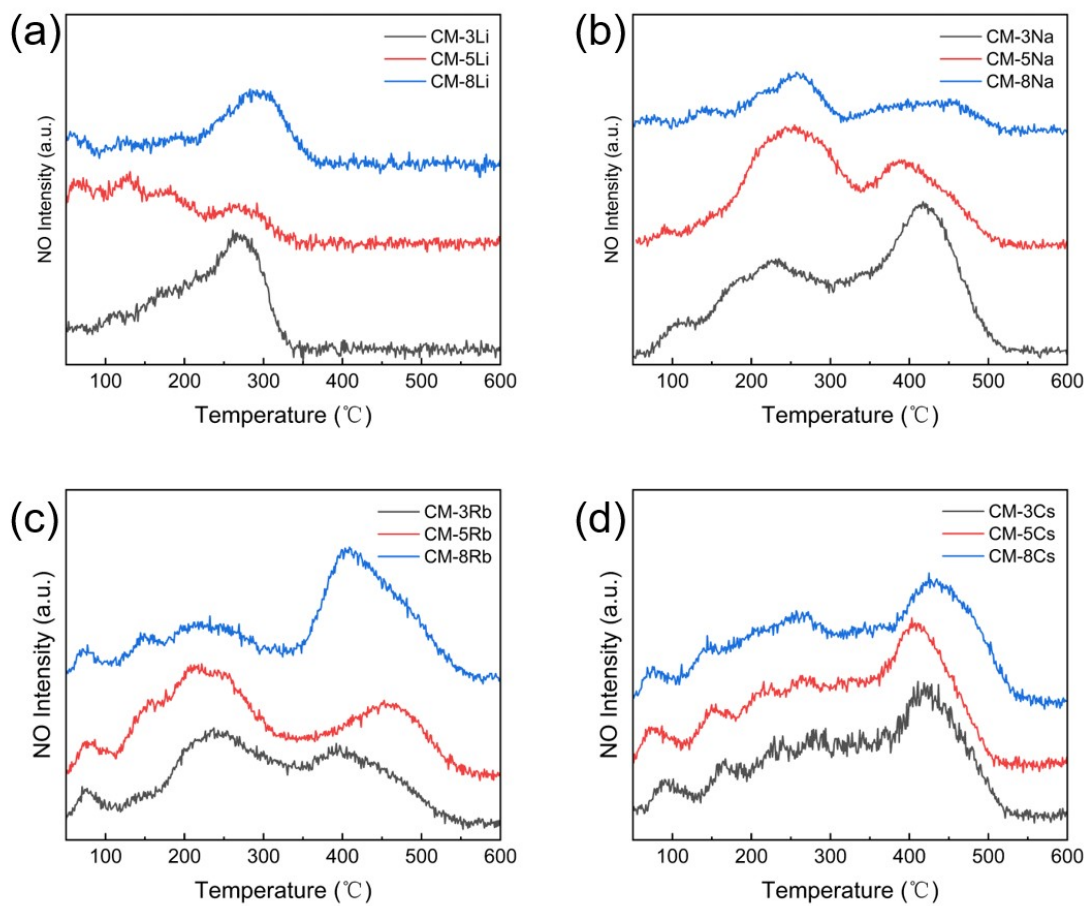


Fig. S12 NO-TPD of (a)CM-Li, (b)CM-Na, (c)CM-Rb, (c)CM-Cs

Table S1 Elemental composition of CM-5K

Element	Content(%)
Ce	30.8
Mn	60.0
K	9.2
SUM	100

Table S2 The BET surface area of catalyst

Catalysts	Surface area(m ² /g)
CM-3Li	47.2
CM-5Li	62.1
CM-8Li	54.9
CM-3Na	50.8
CM-5Na	61.3
CM-8Na	50.2
CM-3Rb	51.3
CM-5Rb	66.5
CM-8Rb	57.6
CM-3Cs	51.4
CM-5Cs	63.7
CM-8Cs	54.0