

Supplementary Information

Control of the Cu ion species in Cu-SSZ-13 via the introduction of Co²⁺ co-cations to improve the NH₃-SCR activity

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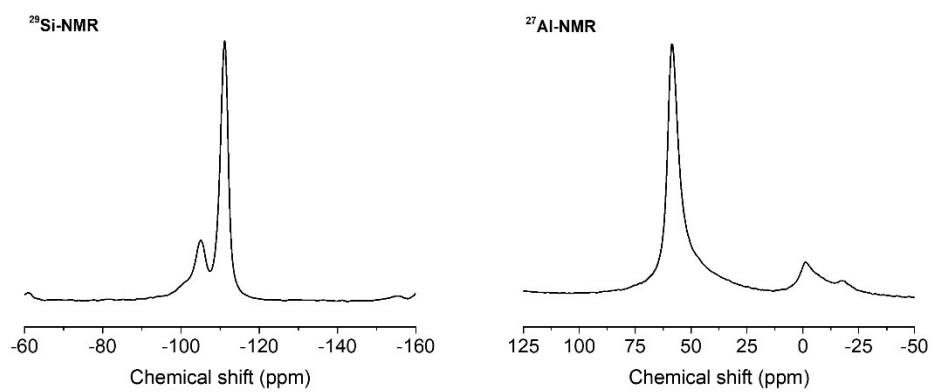


Fig. S1 $^{29}\text{Si-NMR}$ and $^{27}\text{Al-NMR}$ spectra of H-SSZ-13.

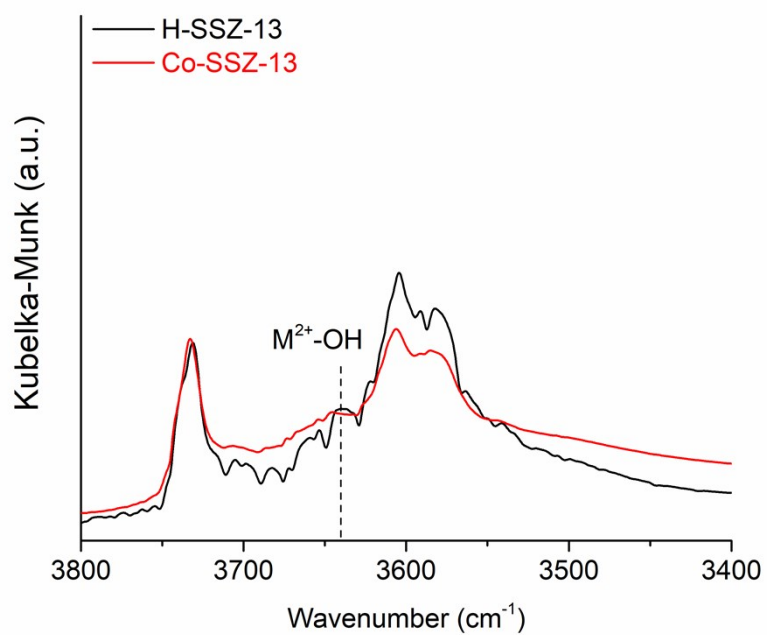


Fig. S2 IR vibration peaks of hydroxyl group in the DRIFT spectra of H-SSZ-13 and Co-SSZ-13 at 200 °C.

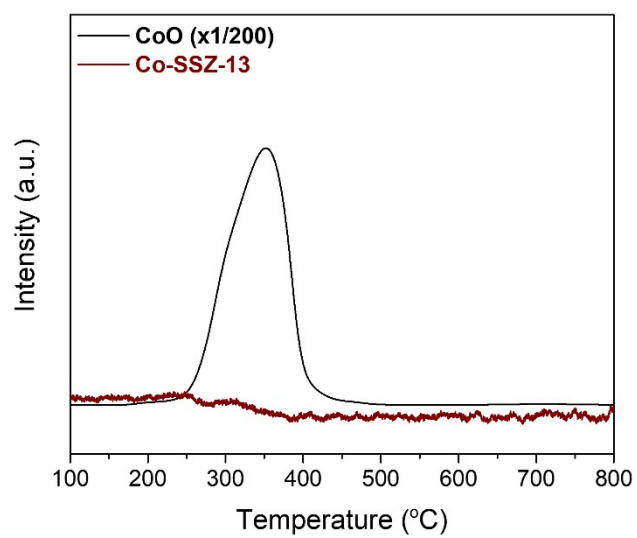


Fig. S3 H₂-TPR profiles of Co-SSZ-13 and CoO reference.

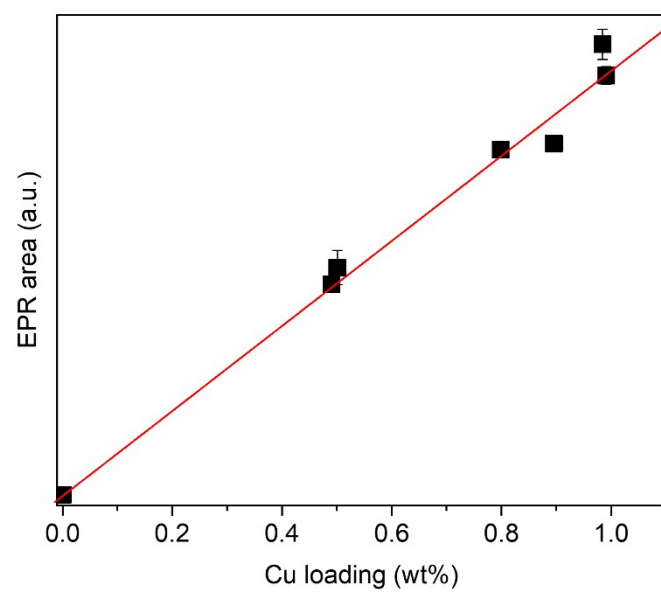


Fig. S4 Correlation between area of EPR spectra and amount of Cu.

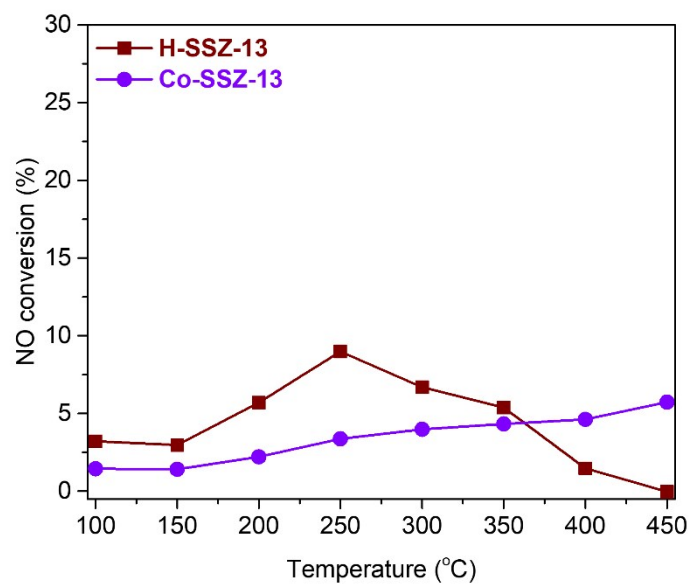


Fig. S5 NO oxidation reactivity of H-SSZ-13 and Co-SSZ-13 under 500 ppm NO and 10% O₂ balance with N₂ GHSV: 120,000 h⁻¹.

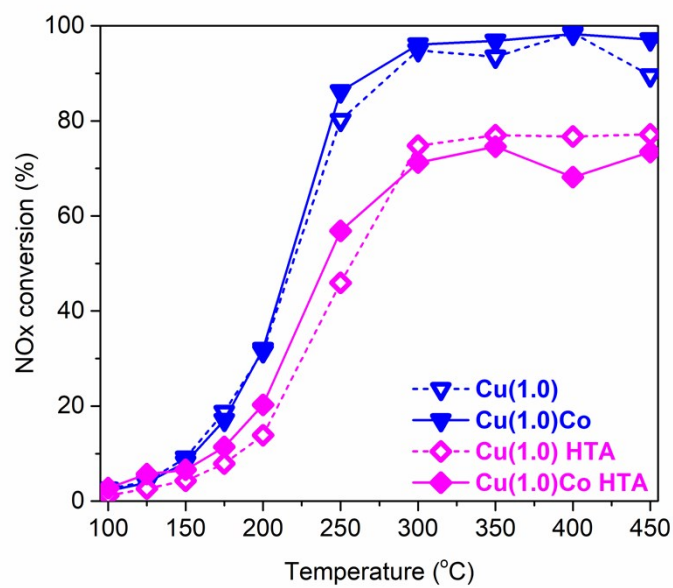


Fig. S6 NO_x conversion of HTA aged Cu(1.0) and Cu(1.0)Co catalysts. The catalysts were aged under air condition with 10% H₂O at 850 °C for 16 h.

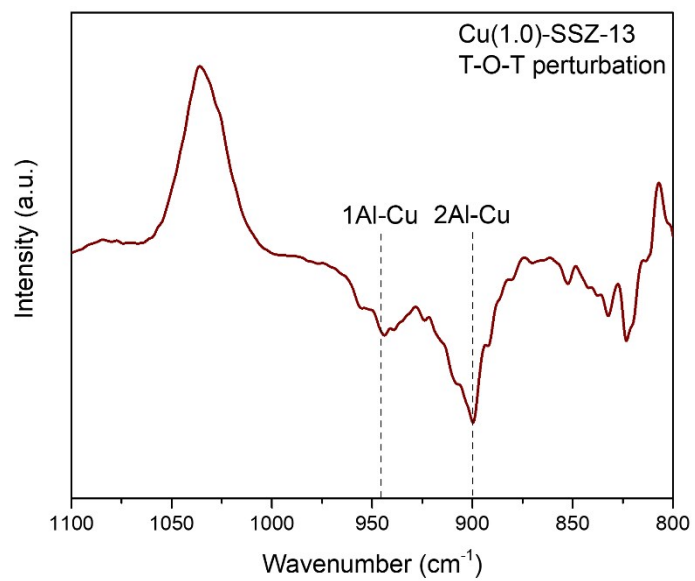


Fig. S7 DRIFT spectra of T-O-T vibration at Cu(1.0)-SSZ-13 catalyst after NH₃ adsorption.

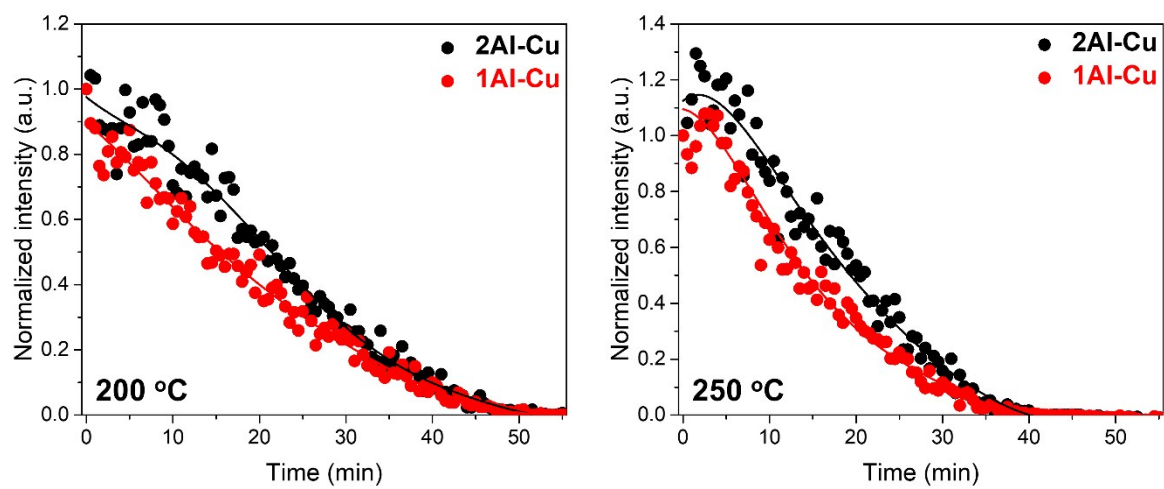


Fig. S8 DRIFT spectra of T-O-T vibration of 1Al-Cu and 2Al-Cu species during the reaction of $\text{NO} + \text{O}_2$ with pre-adsorbed NH_3 on Cu(1.0) catalyst at 170, 200 and 250 °C.