Supporting Information

Tailoring the simultaneous abatement of methanol and NO_x on Sb-Ce-Zr catalysts via copper modification

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Table S1 The experimental conditions of TPD, TPR, and TPO experiments.

Experiments	Conditions
NH_3-TPD	4% NH_3 adsorbed for 30 min, He swept, and then desorbed in He stream
NO-TPD	0.06% NO + 5% O_2 adsorbed for 30 min, He swept, and then desorbed in He stream
(NO+C)-TPD	0.06% CH_3OH + 0.06% NO + 5% O_2 adsorbed for 30 min, He swept, and then desorbed in He stream
(NH_3+C)-TPD	0.06% CH_3OH pre-adsorbed for 30 min, followed by 30 min exposure to 4% NH_3, He swept, and then desorbed in He stream
TPR	6 % H_2
TPO	5 % O_2

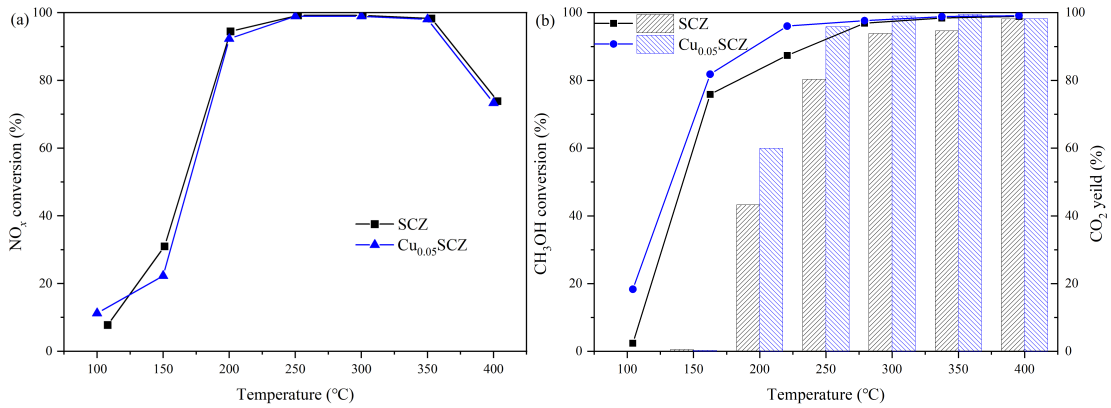

Fig. S1 The individual activity of NH_3-SCR reaction and CH_3OH catalytic oxidation experiments. Reaction conditions: [NO] = [NH_3] = 0.06%, [CH_3OH] = 0.12%, [O_2] = 5 vol.%, [H_2O] = 5 vol.%, N_2 balance, GHSV = 100000 h^{-1}.

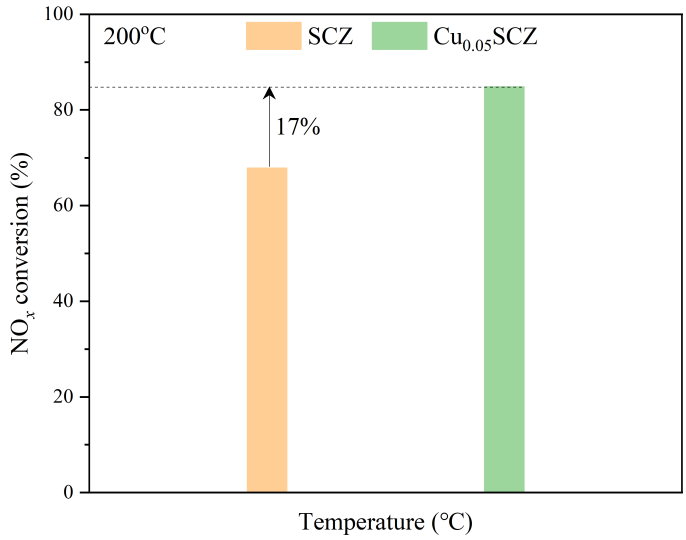

Fig. S2 NO_x conversion in presence of methanol over Cu_xSCZ catalysts. Reaction conditions: [NO] = [NH_3] = 0.06%, [CH_3OH] = 0.06%, [O_2] = 5 vol.%, [H_2O] = 5 vol.%, N_2 balance, GHSV = 100000 h^{-1}.

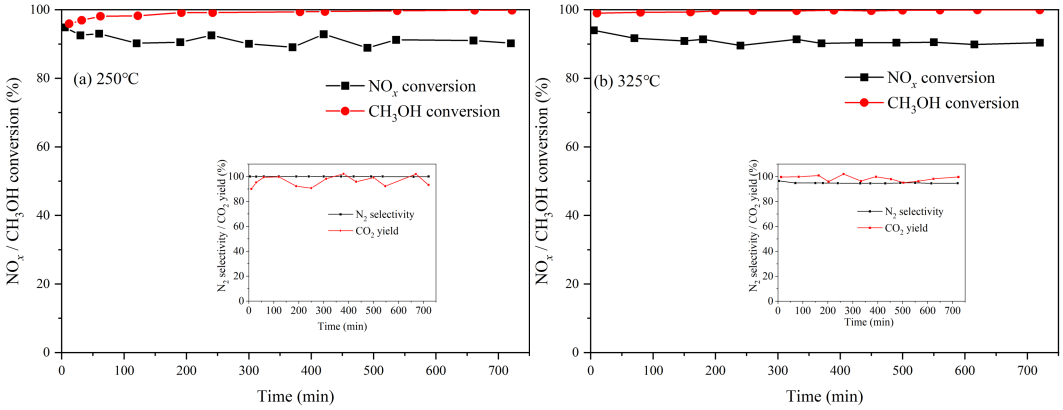

Fig. S3 Stability tests of the $Cu_{0.05}SCZ$ catalyst at (a) 250°C and (b) 325°C. Reaction conditions: [NO] = [NH_3] = 0.06%, [CH_3OH] = 0.12%, [O_2] = 5 vol.%, [H_2O] = 5 vol.%, N_2 balance, GHSV = 100000 h^{-1}.

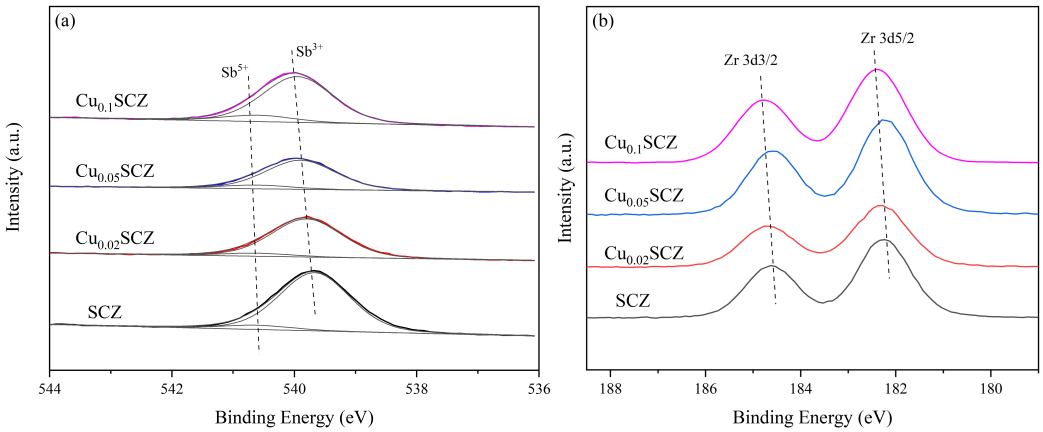

Fig. S4 XPS spectra of Sb 3d (a) and Zr 3d (b) for various catalysts.

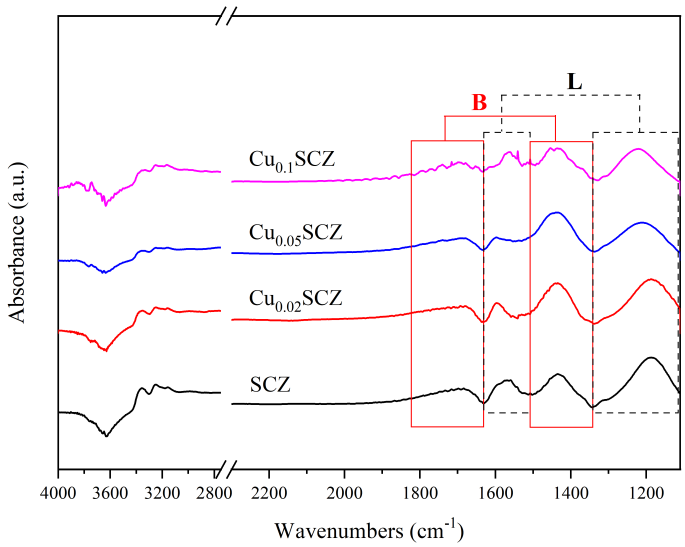

Fig. S5 *In situ* DRIFT spectra of 0.10% NH_3 adsorption over different catalysts for 30 min at 200°C.

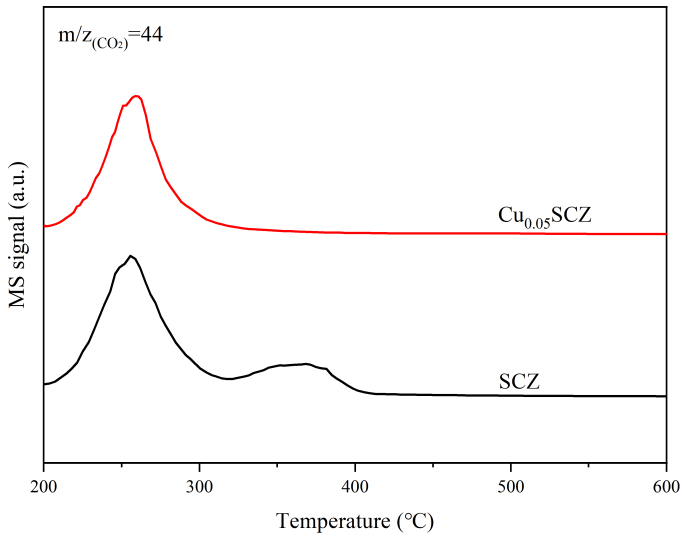

Fig. S6 MS signals of CO_2 in the temperature programmed oxidation.