Supplementary Material (ESI) for Chemical Communications

(ELECTRONIC SUPPLEMENTARY INFORMATION)

Hybrid catalytic-DBD plasma reactor for the production of hydrogen and preferential CO oxidation (CO-PROX) at reduced temperatures

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Additional information regarding the characterization of the copper-manganese is included below. The formation of a spinel phase of $Cu_{1.5}Mn_{1.5}O_4$ was predominant as pointed out by the XRD pattern depicted in Figure S3. A second phase of Mn_2O_3 was expected and detected according to the initial weight ratios of Cu/Mn precursors used in the synthesis process. XPS analysis also confirms the existence of this spinel phase since copper with two different valence states is identified in Figure S1. Normally, Cu2+ corresponds to octahedral sites and Cu+ can be ascribed to tetrahedral positions in the spinel lattice structure. Moreover, the position of Mn2p main peak in the XP spectrum (Figure S2) and the FWHM suggests the existence of manganese with different oxidation states (Mn^{2+} - Mn^{3+} - Mn^{4+}).

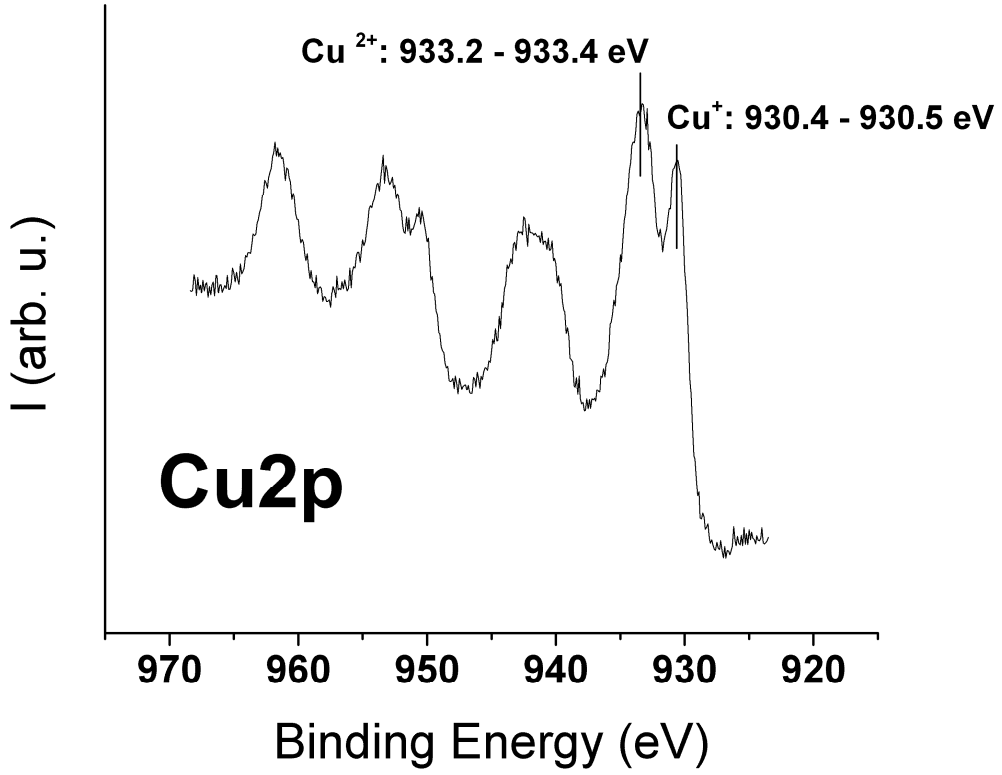

Figure S1: Cu2p XP spectra of the Cu-Mn catalyst

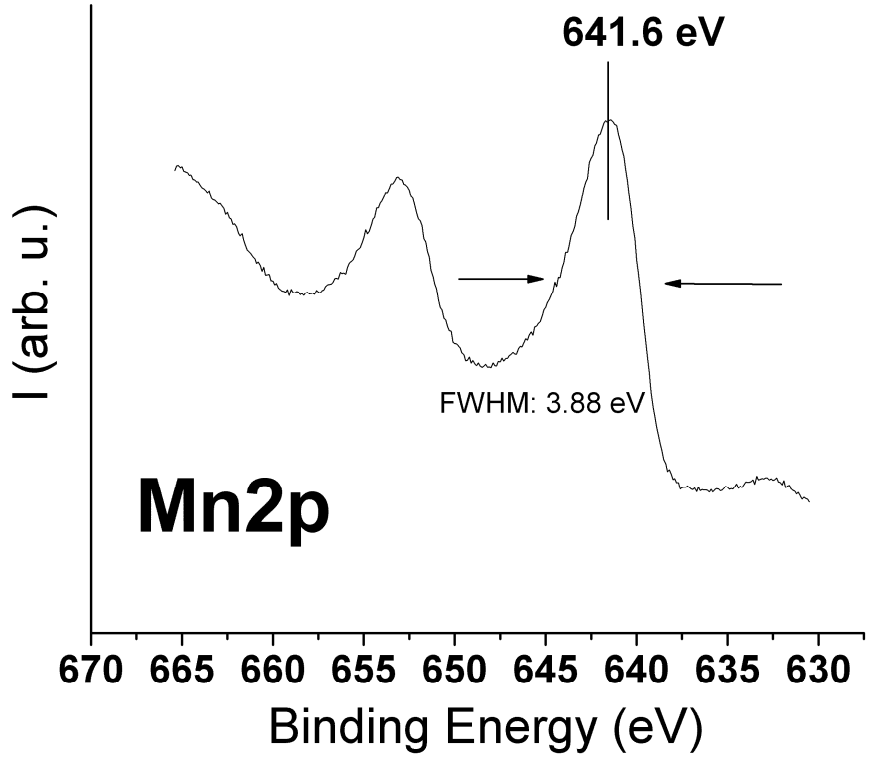

Figure S2: Mn2p XP spectra of the Cu-Mn catalyst

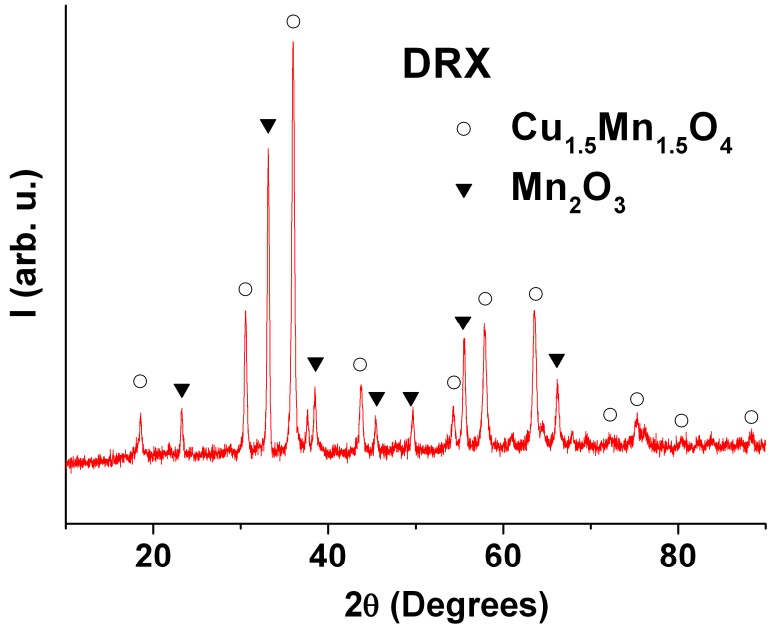

Figure S3: XRD pattern of the Cu-Mn catalyst after annealing at 500 ºC (4 hours).