How do the Unique Au/α-Fe$_2$O$_3$ Interfacial Structures Determine Activity in CO Oxidation

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Fig. S1 CO conversion (a) and CO conversion rates (b) on α-Fe$_2$O$_3$-THB, α-Fe$_2$O$_3$-QC, α-Fe$_2$O$_3$-HS with a GHSV = 30,000 mL g$^{-1}$ cat h$^{-1}$
Fig. S2 Durability test of Au/α-Fe₂O₃-THB at CO conversion of (a) ca. 70% and (b) 90% (GHSV = 120,000 mL g⁻¹ h⁻¹).
Fig. S3 Durability test of Au/α-Fe₂O₃-HS at CO conversion of (a) ca. 70% and (b) 90% (GHSV = 120,000 mL g⁻¹ h⁻¹).
Fig. S4 Temperature-dependence of CO conversion in the -40~30°C range over Au/α-Fe₂O₃-THB and Au/α-Fe₂O₃-HS (GHSV = 120,000 mL g⁻¹ h⁻¹).

Fig. S5 CO₂ signals during CO-TPSR for the α-Fe₂O₃ substrates (α-Fe₂O₃-THB, α-Fe₂O₃-QC, and α-Fe₂O₃-HS) and the Au-loaded samples (Au/α-Fe₂O₃, Au/α-Fe₂O₃-QC, and Au/α-Fe₂O₃-HS).
Fig. S6 Au4f XPS profiles of the Au-loaded samples (Au/α-Fe₂O₃, Au/α-Fe₂O₃-QC, and Au/α-Fe₂O₃-HS).

Fig. S7 FTIR spectra collected on the Au-loaded samples (Au/α-Fe₂O₃-THB, Au/α-Fe₂O₃-QC, and Au/α-Fe₂O₃-HS) at RT. Type I (♠): formate; type II (♥): non-coordinated carbonate; type III (♣): bi-dentate carbonate; type IV (♦): mono-dentate carbonate.
Fig. S8 FTIR spectra collected (a) on $\alpha$-Fe$_2$O$_3$-THB, $\alpha$-Fe$_2$O$_3$-QC, and $\alpha$-Fe$_2$O$_3$-HS at 200 °C, (b) on Au/$\alpha$-Fe$_2$O$_3$-THB, Au/$\alpha$-Fe$_2$O$_3$-QC, and Au/$\alpha$-Fe$_2$O$_3$-HS at RT, and (c) on Au/$\alpha$-Fe$_2$O$_3$-THB, Au/$\alpha$-Fe$_2$O$_3$-QC, and Au/$\alpha$-Fe$_2$O$_3$-HS at 60 °C.