

Supplementary Materials

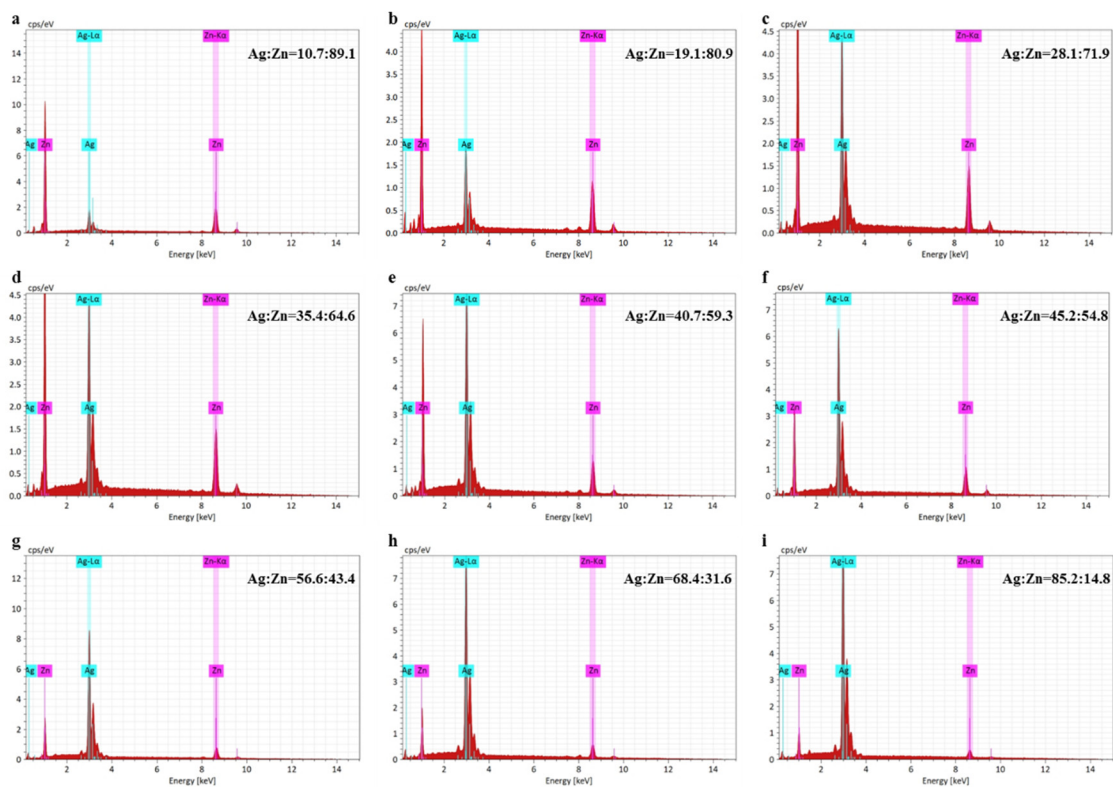


Figure S1. Typical EDX spectra of (a) $\text{Ag}_{10}\text{Zn}_{90}$, (b) $\text{Ag}_{20}\text{Zn}_{80}$, (c) $\text{Ag}_{30}\text{Zn}_{70}$, (d) $\text{Ag}_{35}\text{Zn}_{65}$, (e) $\text{Ag}_{40}\text{Zn}_{60}$, (f) $\text{Ag}_{45}\text{Zn}_{55}$, (g) $\text{Ag}_{55}\text{Zn}_{45}$, (h) $\text{Ag}_{70}\text{Zn}_{30}$ and (i) $\text{Ag}_{85}\text{Zn}_{15}$ films .

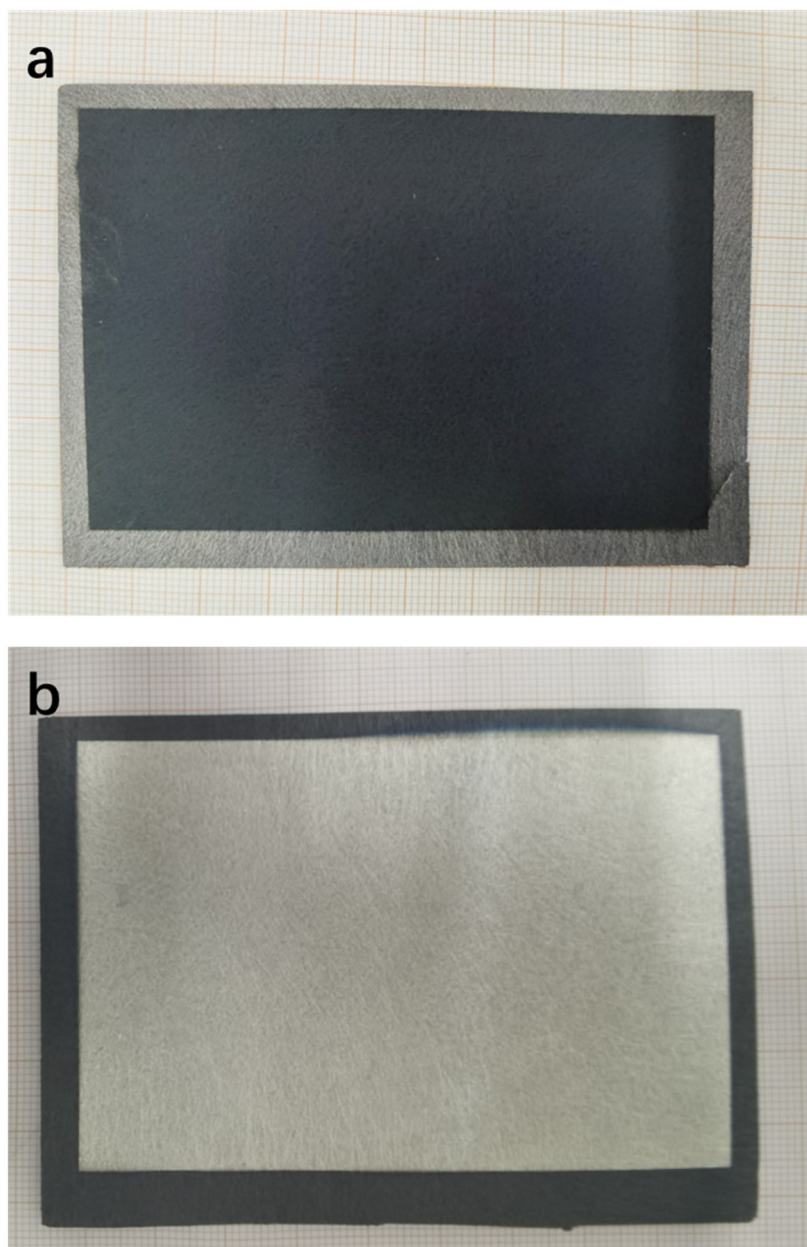


Figure S2. Macroscopic view of the (a) Zn film and (b) Ag film.

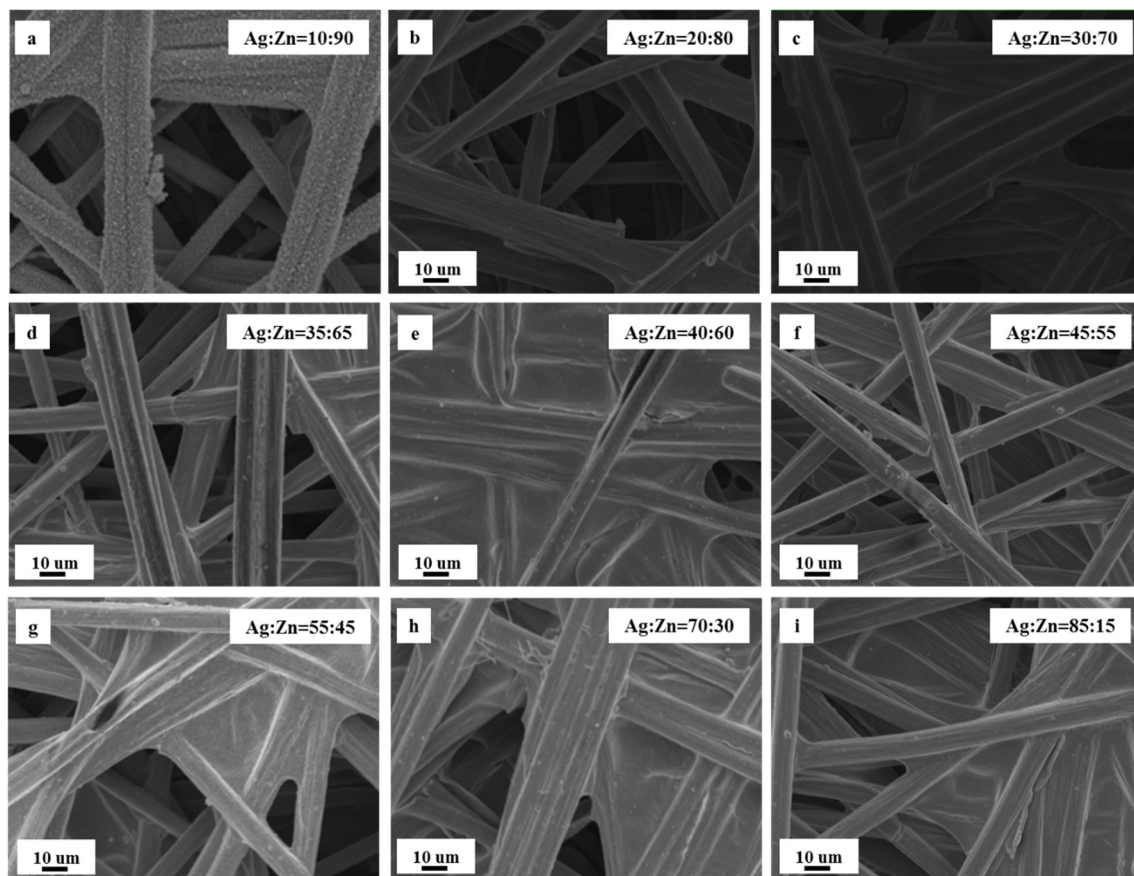


Figure S3. SEM images of (a) $\text{Ag}_{10}\text{Zn}_{90}$, (b) $\text{Ag}_{20}\text{Zn}_{80}$, (c) $\text{Ag}_{30}\text{Zn}_{70}$, (d) $\text{Ag}_{35}\text{Zn}_{65}$, (e) $\text{Ag}_{40}\text{Zn}_{60}$, (f) $\text{Ag}_{45}\text{Zn}_{55}$, (g) $\text{Ag}_{55}\text{Zn}_{45}$, (h) $\text{Ag}_{70}\text{Zn}_{30}$ and (i) $\text{Ag}_{85}\text{Zn}_{15}$ films.

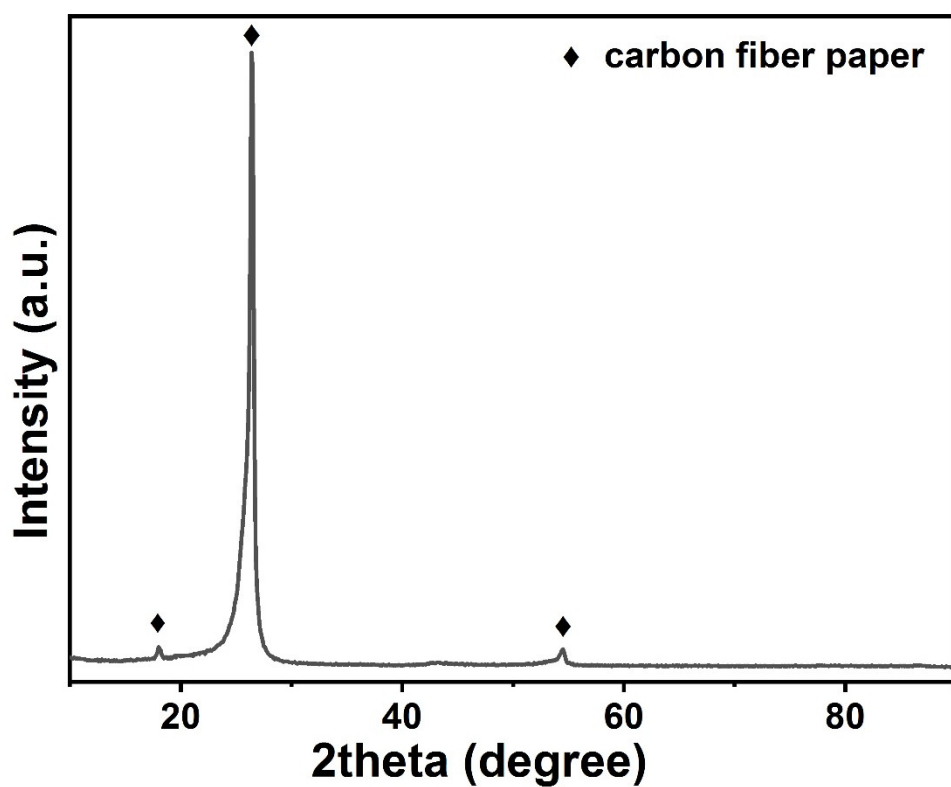


Figure S4. XRD pattern of the CFP.

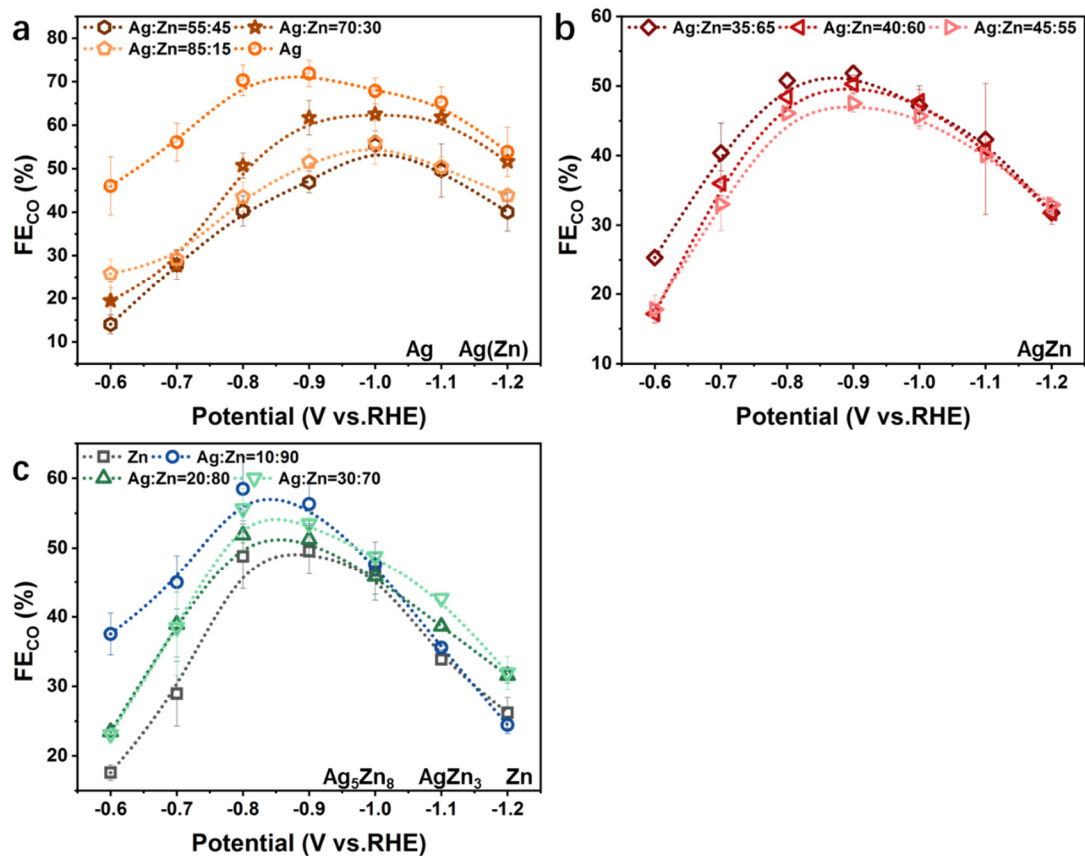


Figure S5. FE_{CO} for the (a) Ag, Ag(Zn), (b) AgZn, (c) Ag₅Zn₈, AgZn₃, and Zn phase catalysts.

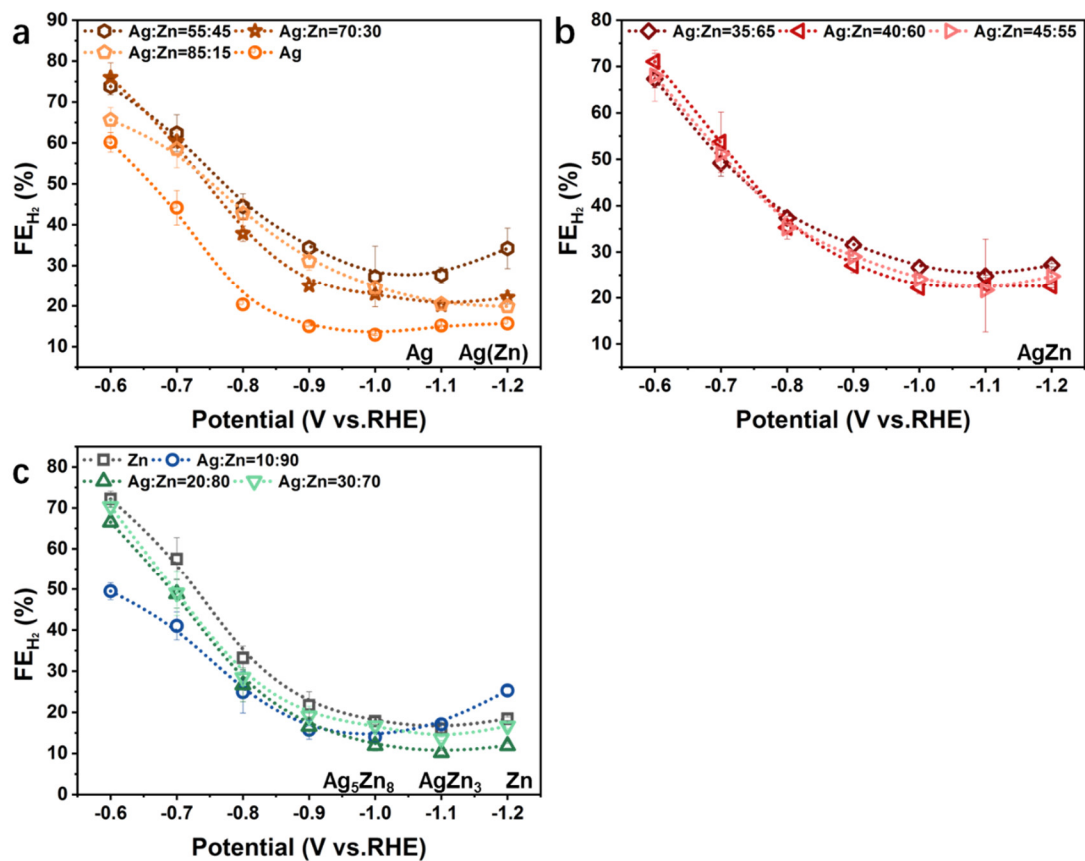


Figure S6. FE_{H₂} for the (a) Ag, Ag(Zn), (b) AgZn, (c) Ag₅Zn₈, AgZn₃, and Zn phase catalysts.

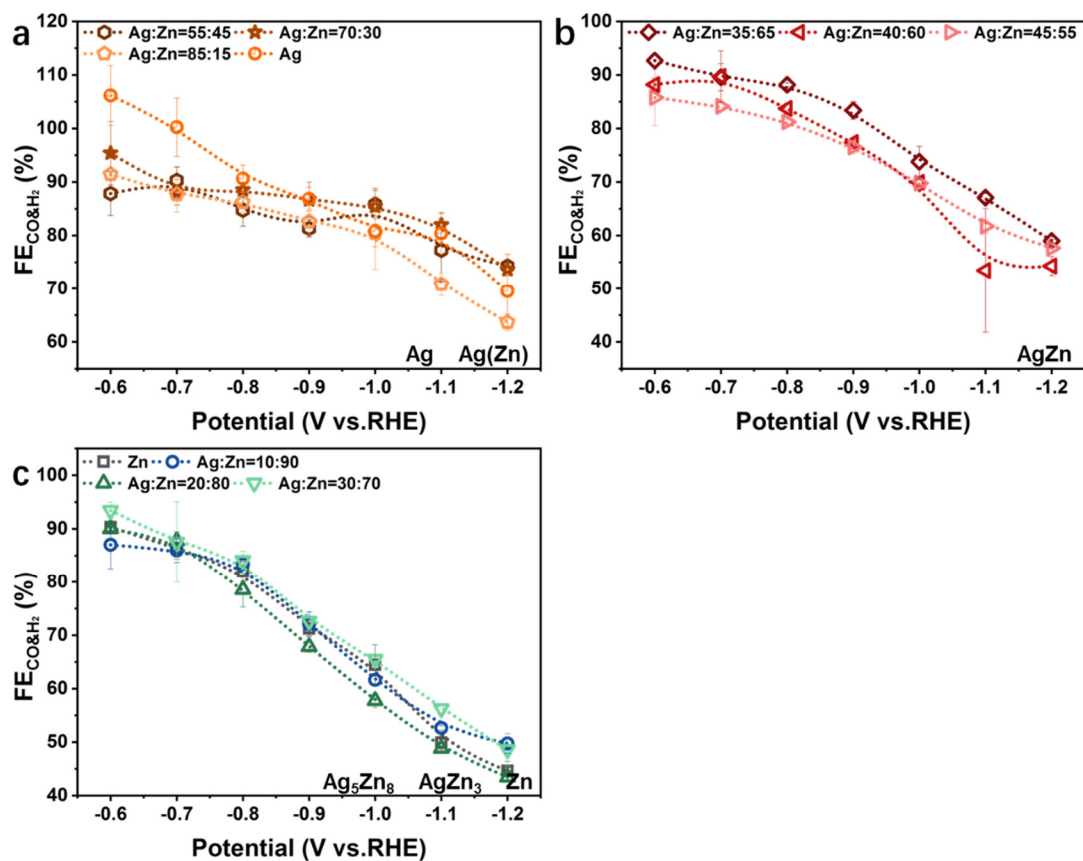


Figure S7. $FE_{CO\&H_2}$ for the (a) Ag, Ag(Zn), (b) AgZn, (c) Ag₅Zn₈, AgZn₃, and Zn phase catalysts.

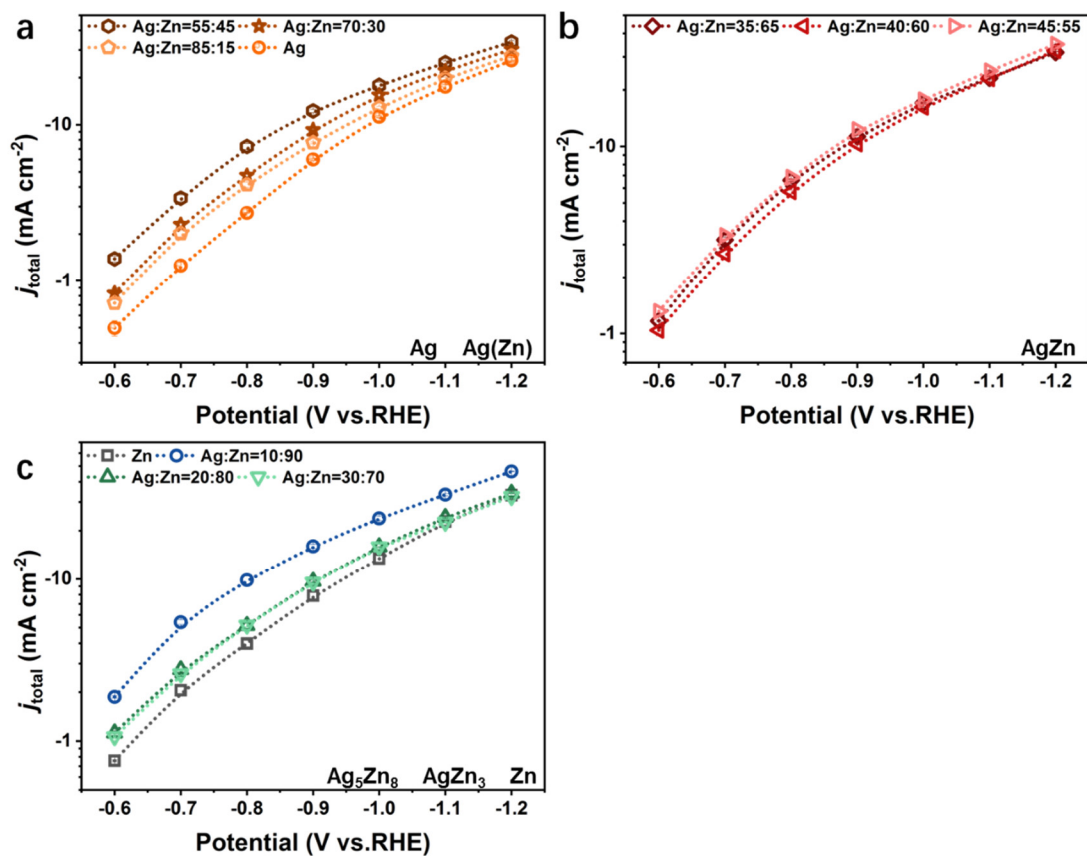


Figure S8. j_{total} for the (a) Ag, Ag(Zn), (b) AgZn, (c) Ag₅Zn₈, AgZn₃, and Zn phase catalysts.

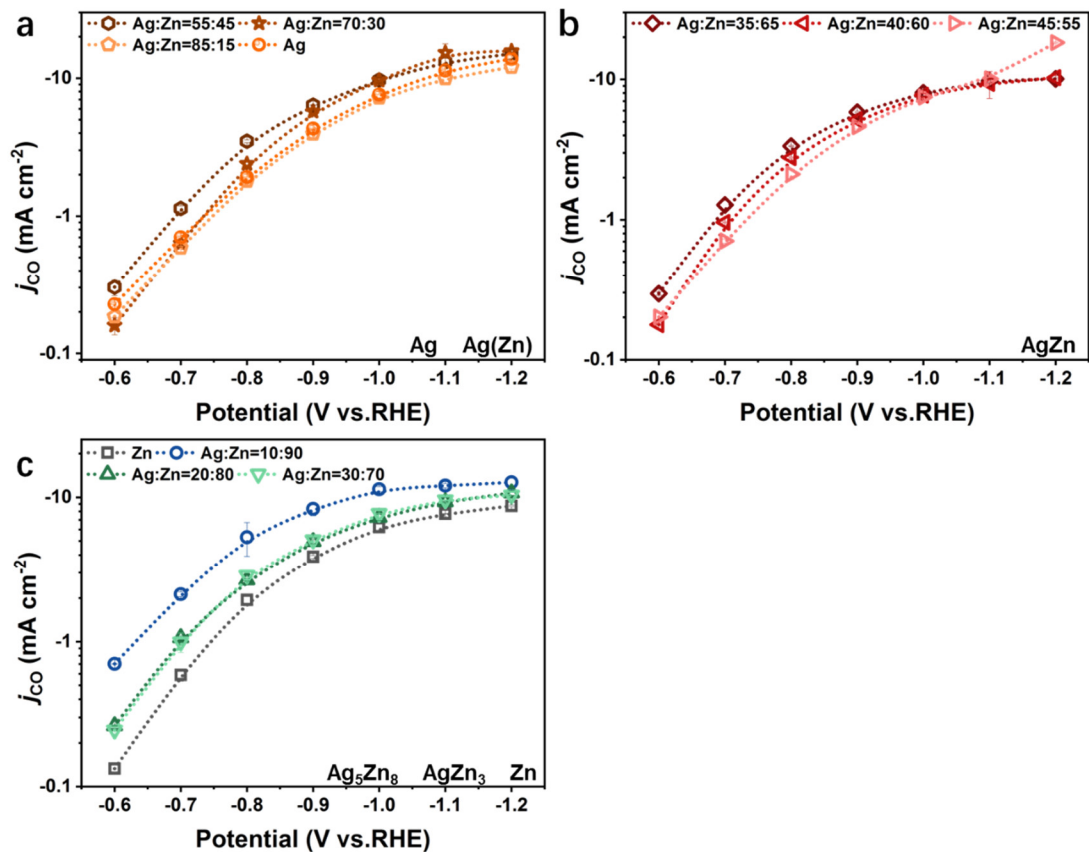


Figure S9. j_{CO} for the (a) Ag, Ag(Zn), (b) AgZn, (c) Ag₅Zn₈, AgZn₃, and Zn phase catalysts.

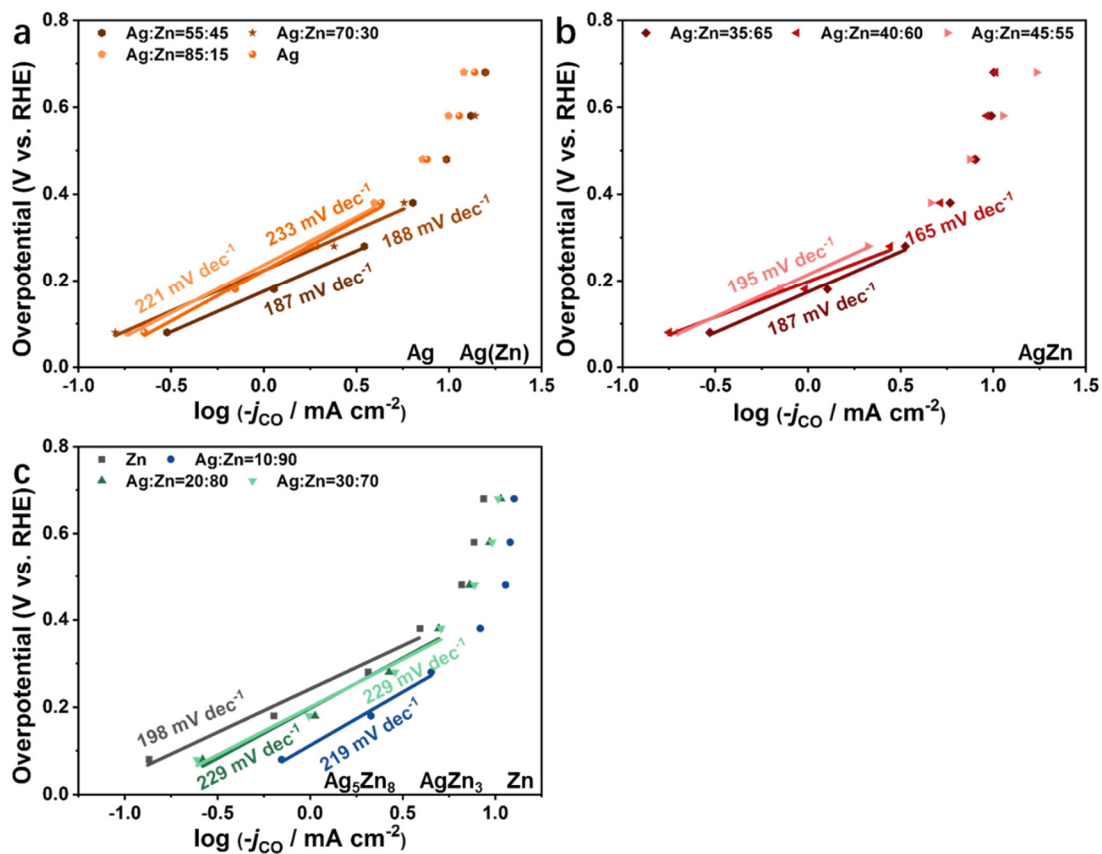


Figure S10. Tafel plots of the (a) Ag, Ag(Zn), (b) AgZn, (c) Ag₅Zn₈, AgZn₃ and Zn phase catalysts.

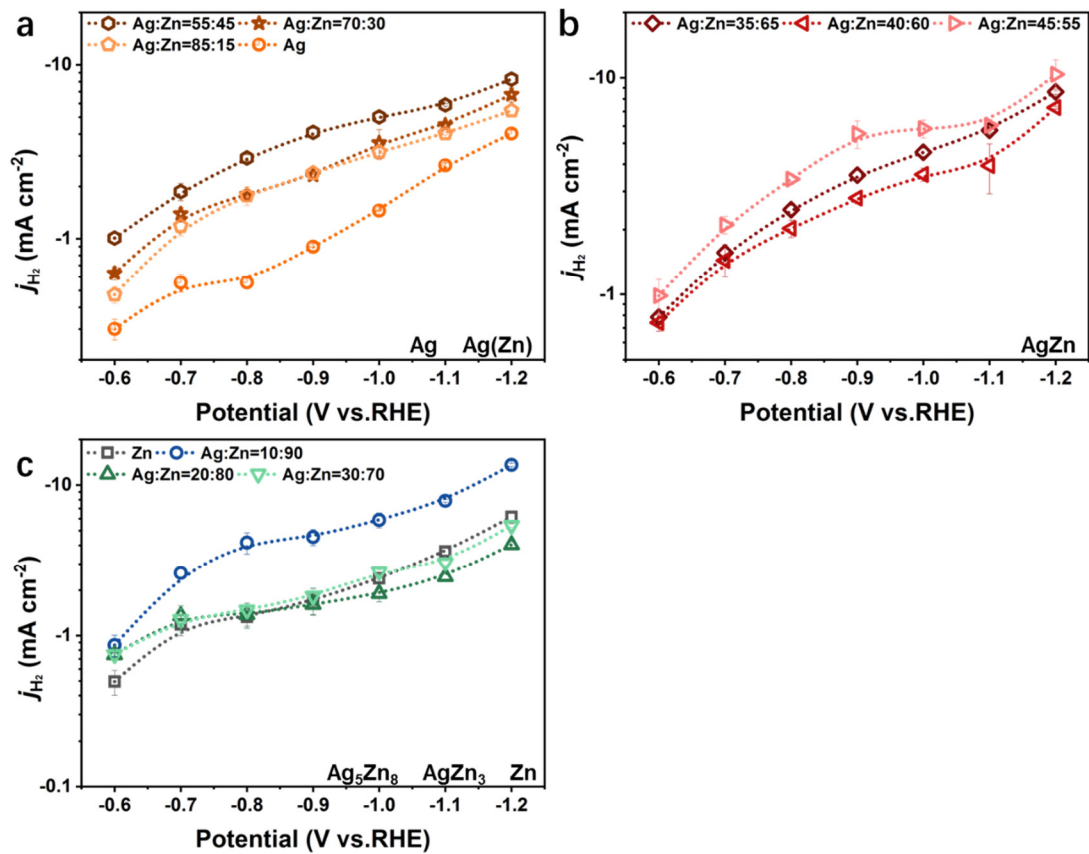


Figure S11. j_{H_2} for the (a) Ag, Ag(Zn), (b) AgZn, (c) Ag₅Zn₈, AgZn₃, and Zn phase catalysts.