

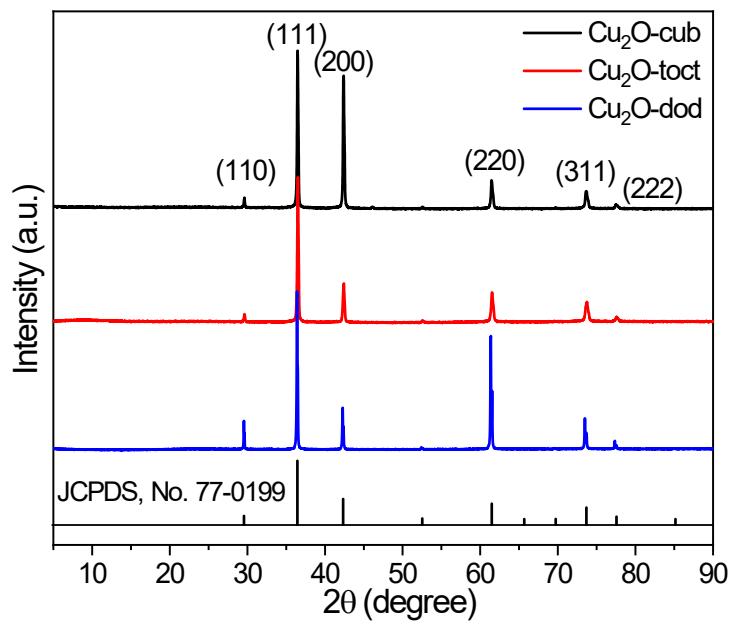
## Supporting Information

# **Regulating the electronic structure of plasmonic Co/Cu catalysts through morphology engineering to enhance visible-light-driven hydrogen generation from aqueous ammonia borane**

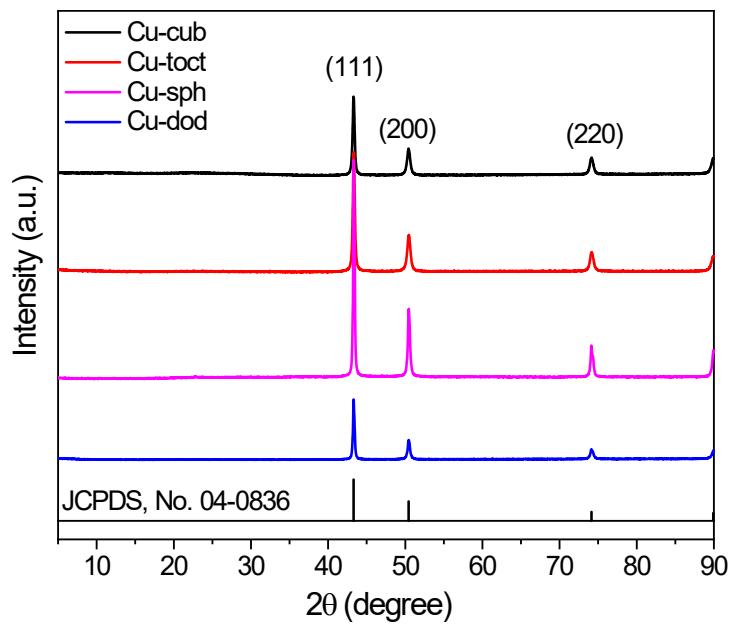
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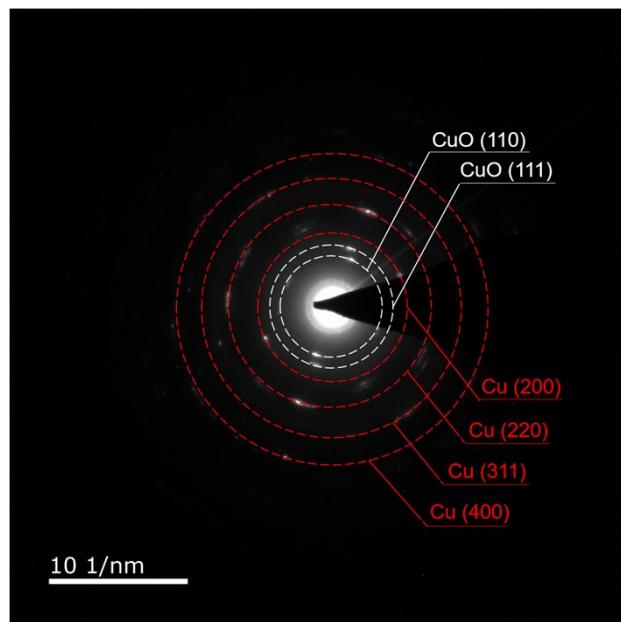
E-mail: dingjf@imu.edu.cn; xiaojun.gu@imu.edu.cn



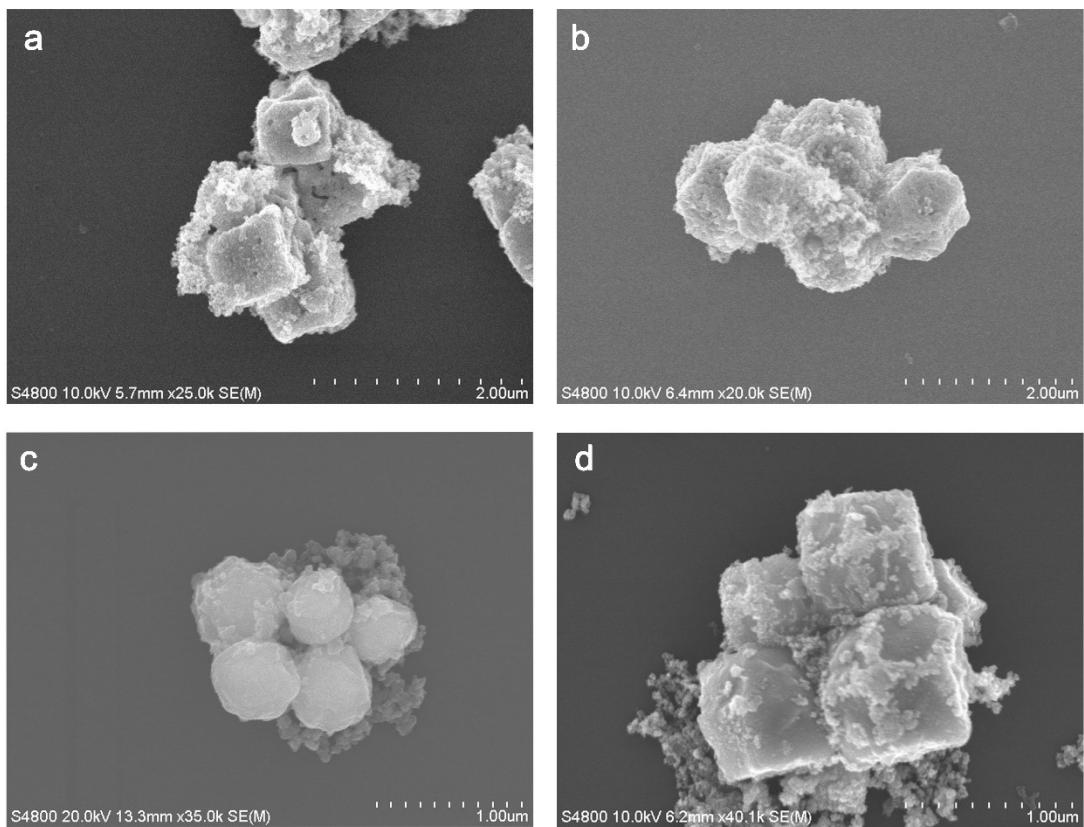
**Fig. S1** XRD patterns of  $\text{Cu}_2\text{O}$  precursors with different morphologies.



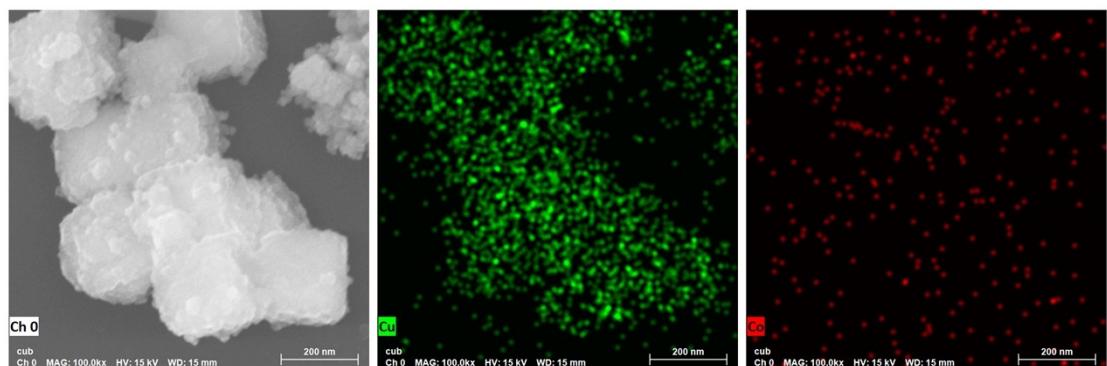
**Fig. S2** XRD patterns of Cu supports with different morphologies.



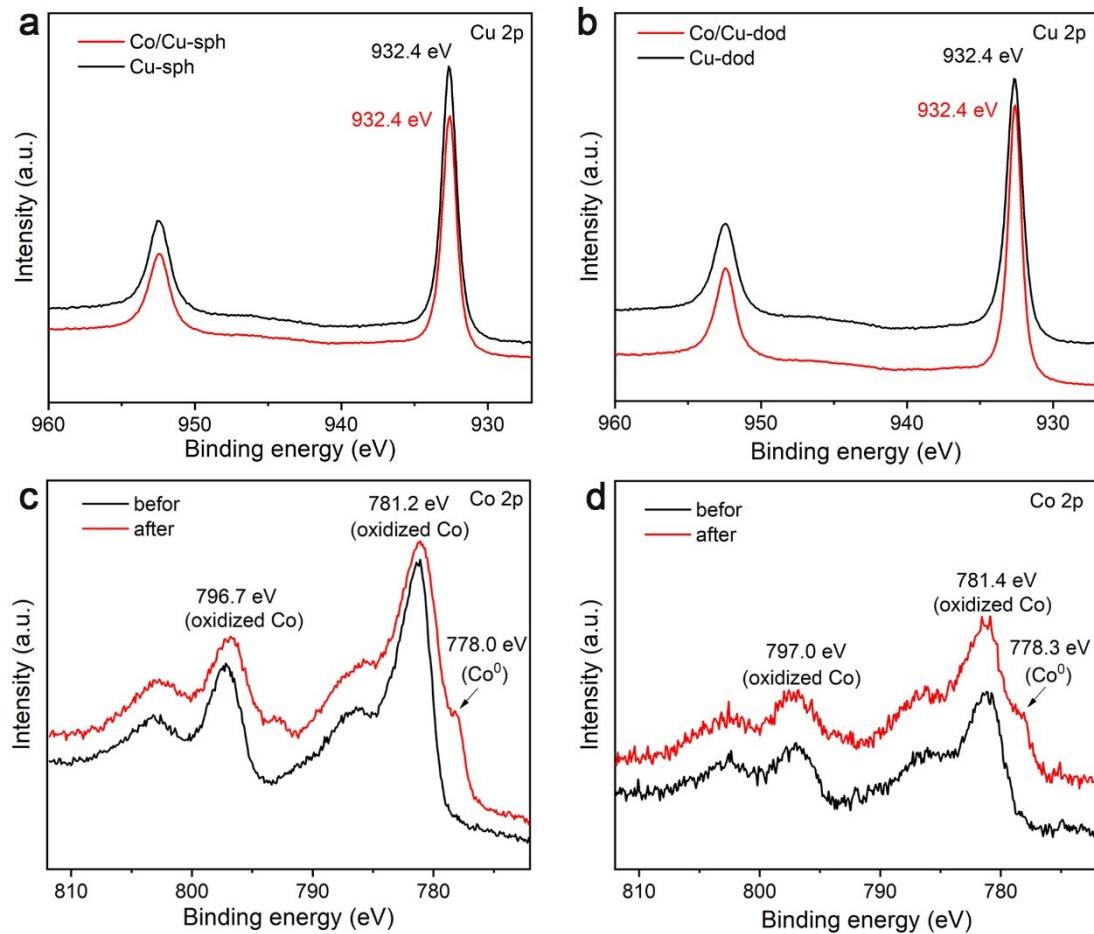
**Fig. S3** SAED patterns of Co/Cu-cub.



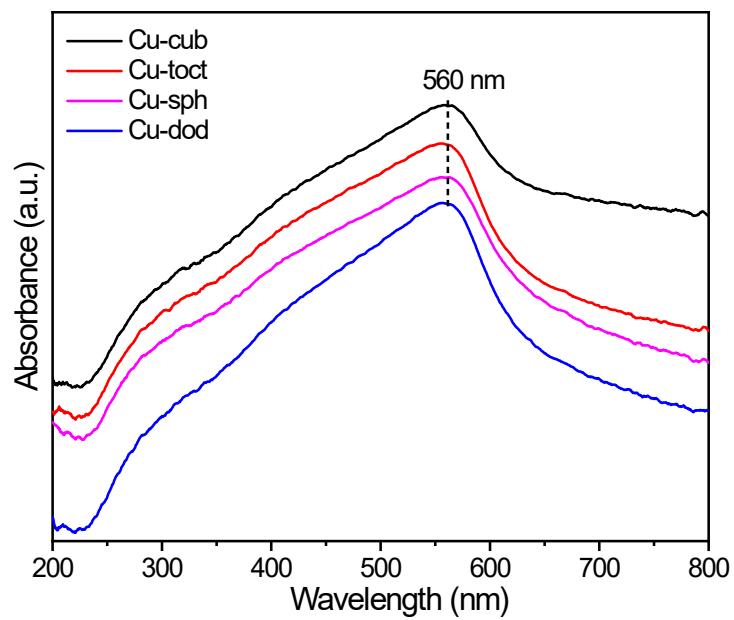
**Fig. S4** SEM images of (a) Co/Cu-cub, (b) Co/Cu-toct, (c) Co/Cu-sph and (d) Co/Cu-dod.



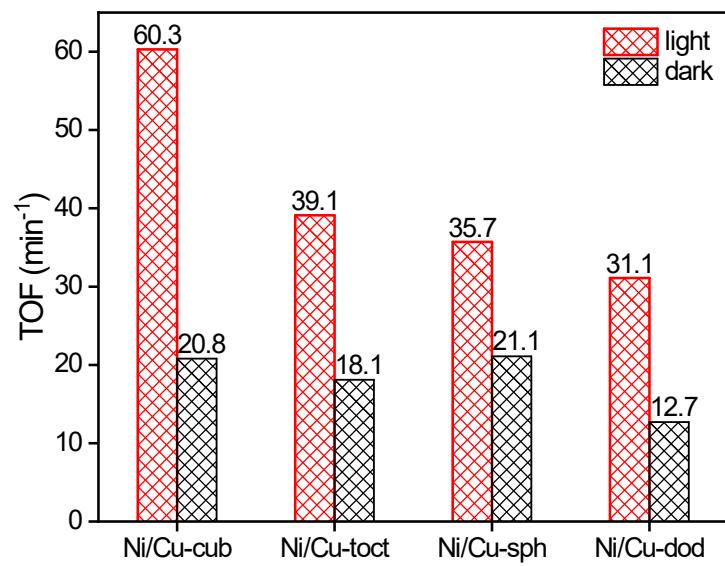
**Fig. S5** Elemental maps of Co/Cu-cub catalyst.



**Fig. S6** XPS spectra of Cu 2p for (a) Cu-sph and Co/Cu-sph and (b) Cu-dod and Co/Cu-dod and Co 2p for (c) Co/Cu-sph and (d) Co/Cu-dod before and after Ar etching.



**Fig. S7** UV-vis spectra of Cu supports with different morphologies.



**Fig. S8** TOF values of Ni/Cu catalysts with different morphologies under the visible light irradiation or in the dark.