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Supplementary Materials: Co-catalytic Action of Faceted Non-noble Metal Deposits on Titania Photocatalyst for Multielectron Oxygen Reduction

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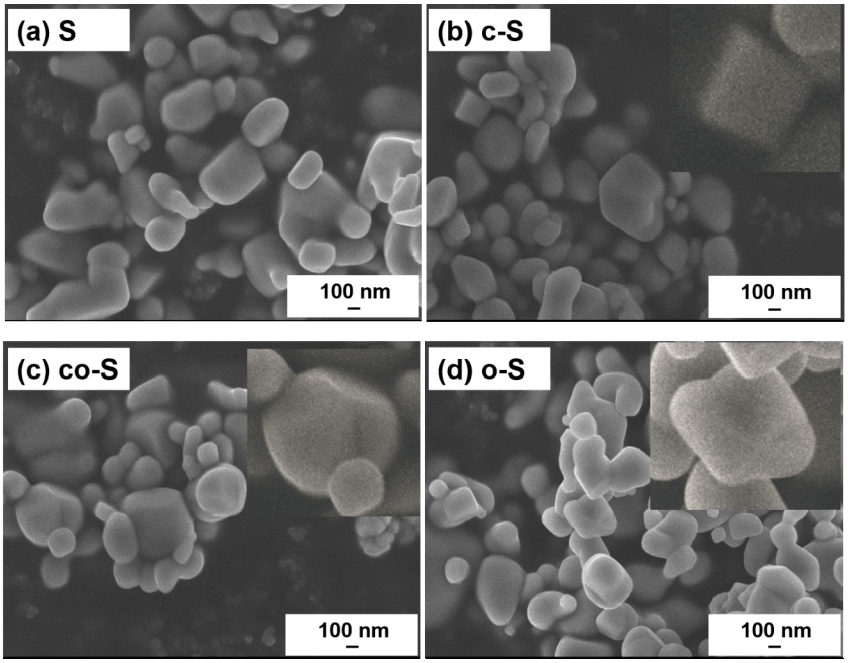

Figure S1. SEM images of titania and FCP-loaded titania synthesized at 328 K.

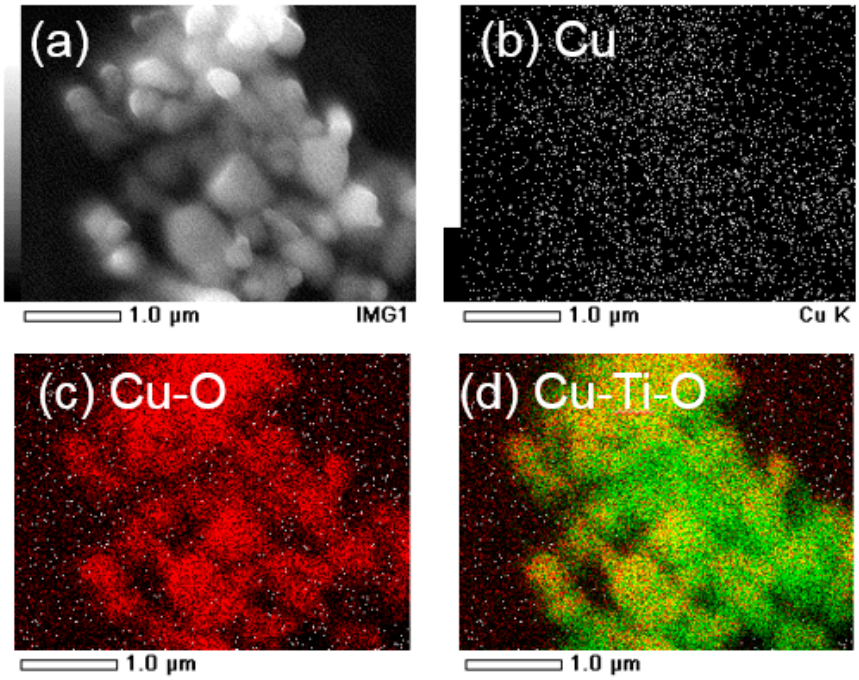

Figure S2. SEM images and EDS mapping results of o-S.

EDS mapping was carried out on o-S composites. The loading amount of faceted Cu_2O particles was 2wt%, which is quite low. Full image mapping was performed in the first place. Due to the overlap of Cu_2O and titania powder, low loading amount of Cu_2O and sensitivity limitation of FESEM in our institute, it is difficult to distinguish the Cu_2O and titania particles by element mapping. Thus, in order to prove the existence of faceted Cu_2O particles, point scan on single particle was performed.

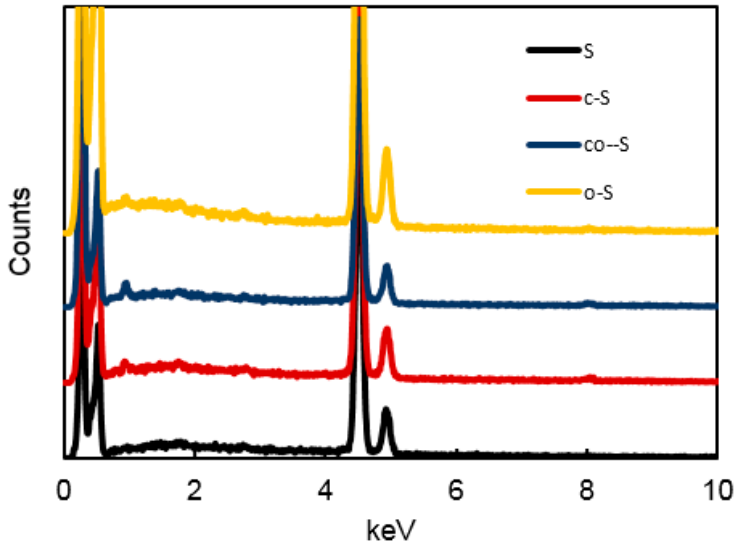

Figure S3. EDS spectra of titania and FCP-loaded titania synthesized at 328 K.

EDS spectra show that no peaks of Cu element were detected on ST-G2 powder. In comparison, a peak with energy of 0.930 keV was observed for all FCP-loaded ST-G2 composites (c-S, co-S and o-S). This implies that Cu_2O was successfully loaded onto ST-G2 by the wet chemical synthesis, which is in good agreement with XRD spectra.

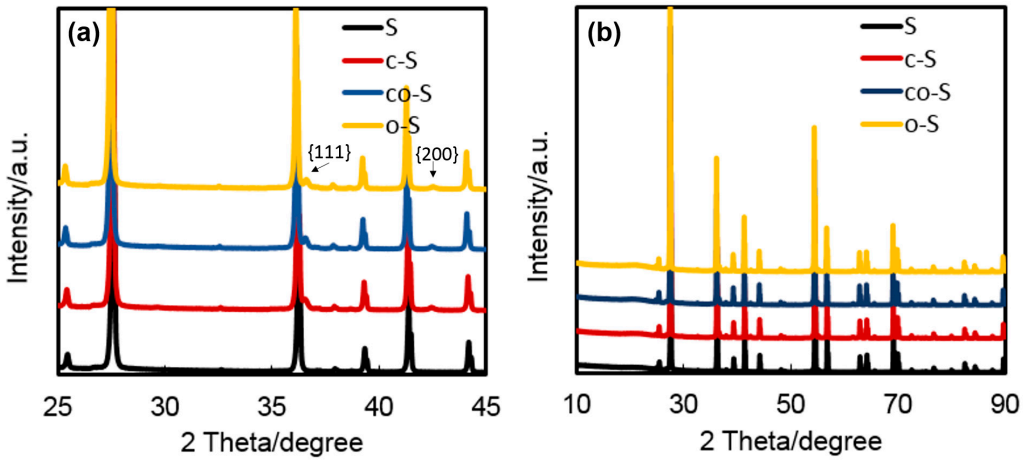

Figure S4. XRD patterns of titania (ST-G2) and FCP-loaded titania. (a) is the zoom-in XRD patterns between 25° to 45 °.

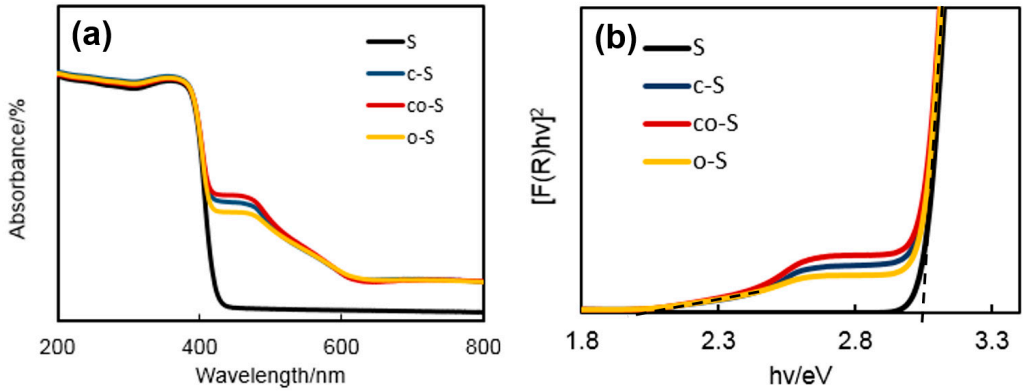

Figure S5. (a) Diffuse reflectance spectra and (b) Tauc plots with Kubelka–Munk function derived from reflection spectra of titania (ST-G2) and FCP-loaded titania.