

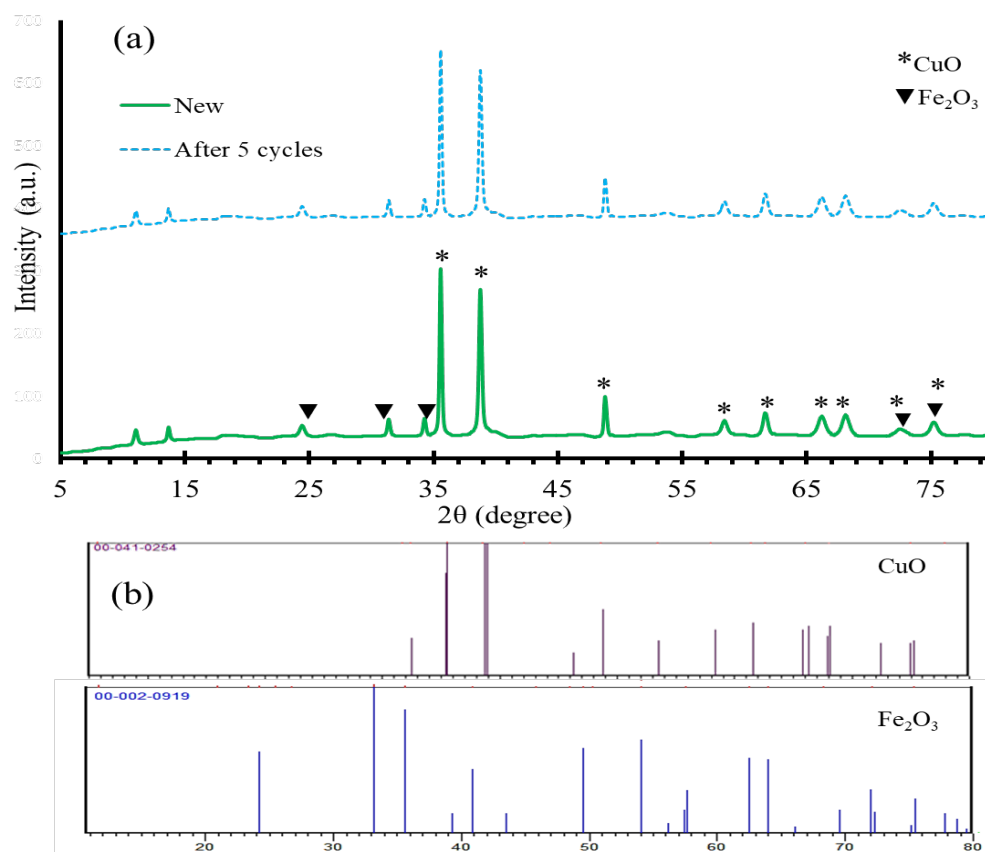


Fig. S1. (a) XRD pattern of the synthesized $\text{Fe}_2\text{O}_3@\text{CuO}$ nanoparticles, (b) reference diffraction pattern of Fe_2O_3 used for phase identification

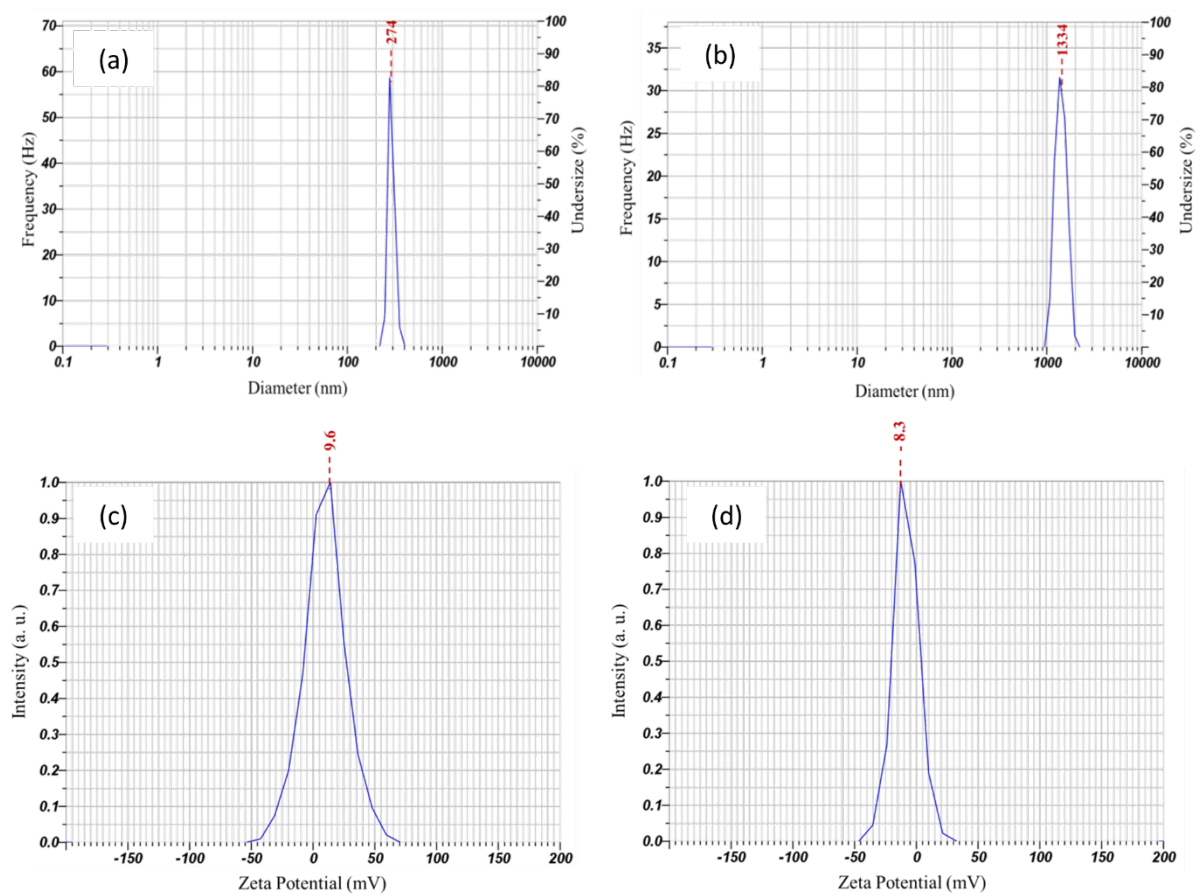


Fig. S2. (a) DLS of $\text{Fe}_2\text{O}_3@\text{CuO}$. (b) DLS of $\text{Fe}_2\text{O}_3@\text{CuO}$ with H_2O_2 after 5 min under sunlight. (c) Zeta potential of $\text{Fe}_2\text{O}_3@\text{CuO}$. (d) Zeta potential of $\text{Fe}_2\text{O}_3@\text{CuO}$ with H_2O_2 after 5 min under sunlight (catalyst dosage: 1 mg; H_2O_2 volume: 400 μL).

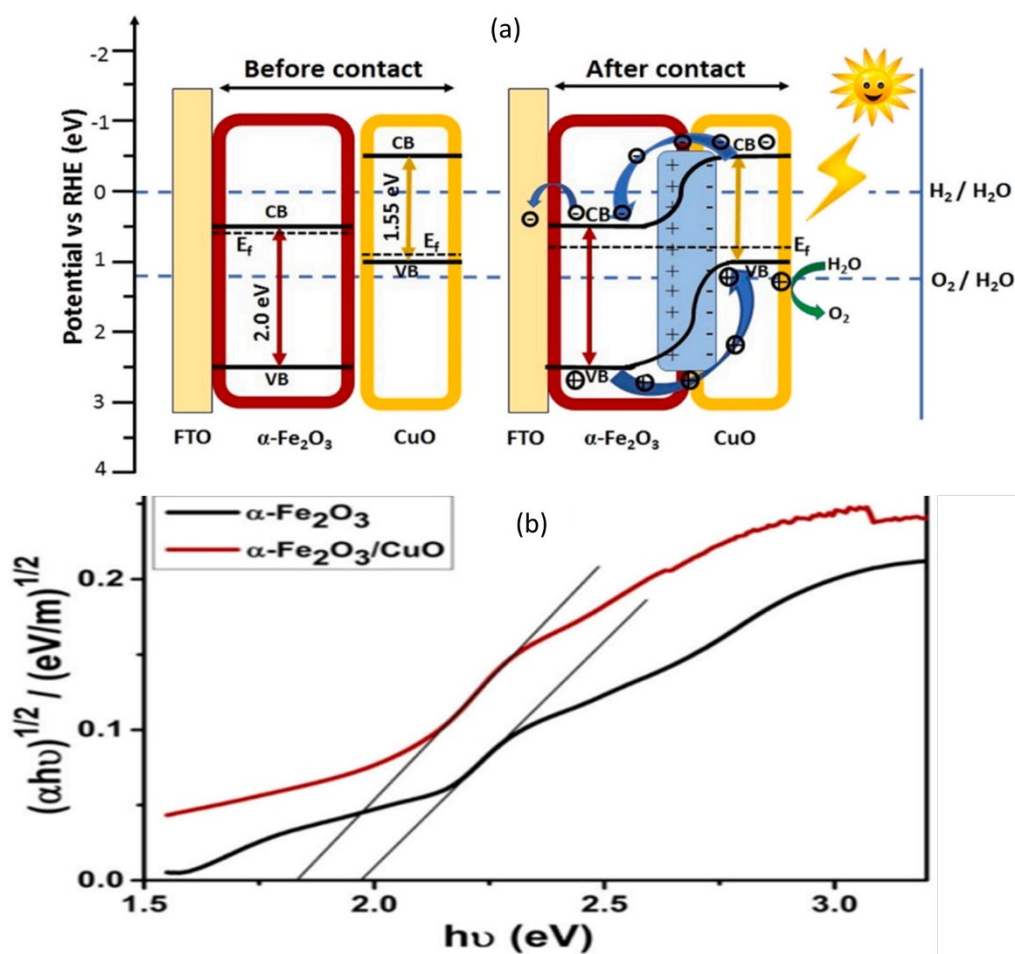


Fig. S3. (a) Energy diagram and charge transfer processes for $\alpha\text{-Fe}_2\text{O}_3/\text{CuO}$ heterojunction structure. (b) Tauc approximation for indirect band gaps of $\alpha\text{-Fe}_2\text{O}_3$ and $\alpha\text{-Fe}_2\text{O}_3/\text{CuO}$ films. Reproduced from Ref. [52], with permission from Kyesmen et al., Journal of Alloys and Compounds, 683, 158724 (2021), Elsevier

