

## Supporting Information

### Phosphating core-shell graphdiyne/CuI/Cu<sub>3</sub>P S-scheme heterojunction confirmed with in situ XPS characterization for efficient photocatalytic hydrogen production

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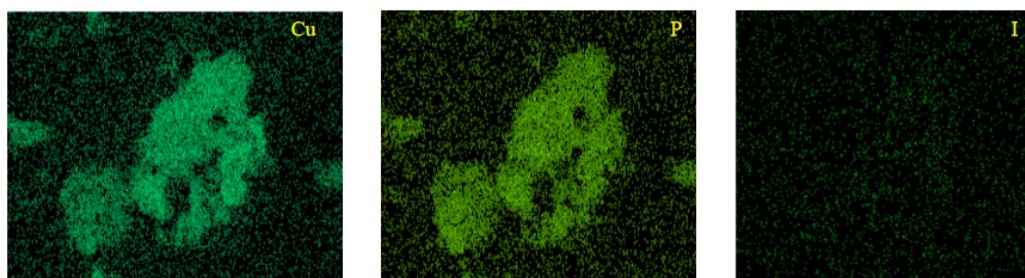


Fig. S1 (a) SEM mapping smages of Cu<sub>3</sub>P.

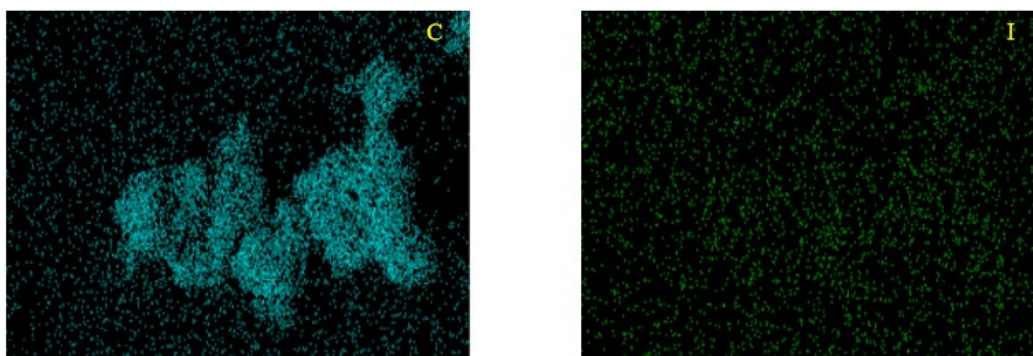


Fig. S1 (b) SEM mapping smages of GDY.

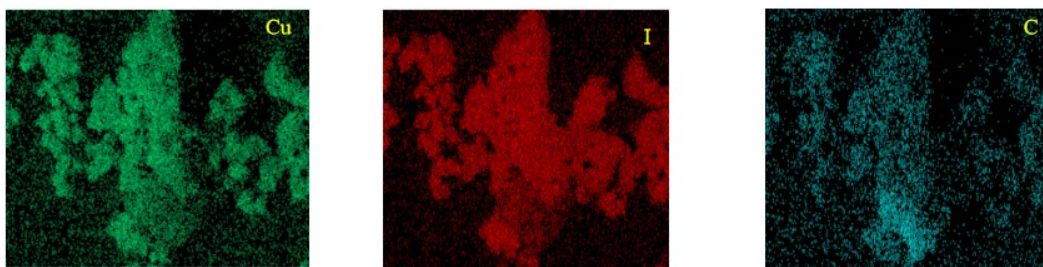


Fig. S1 (c) SEM mapping smages of GC.

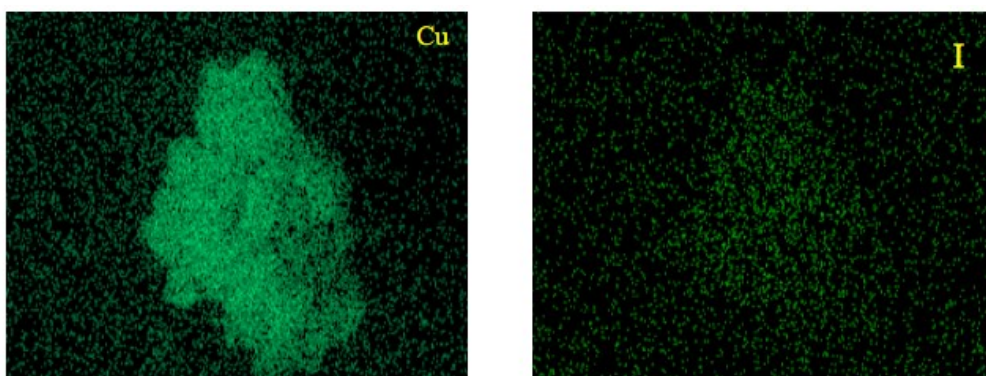


Fig. S1 (d) SEM mapping smages of CuI/Cu<sub>3</sub>P.

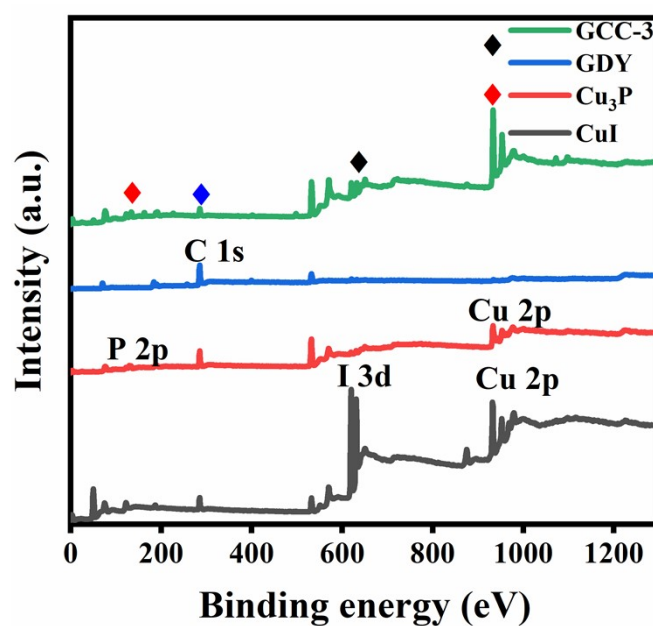


Fig. S2 XPS full spectrum of GDY, CuI, Cu<sub>3</sub>P, GCC-3.

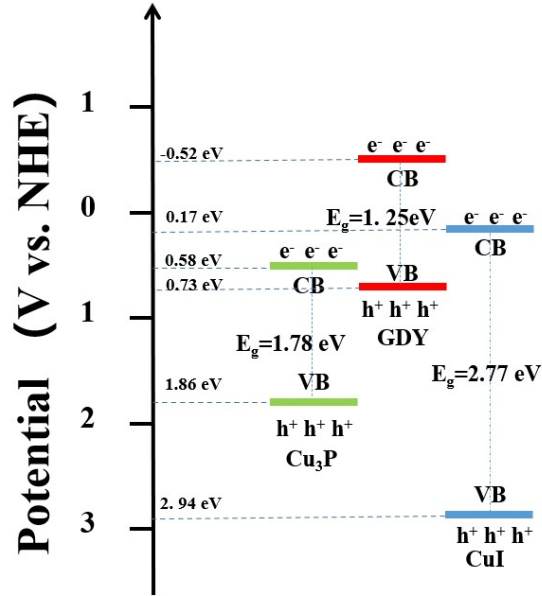


Fig. S3 band gap structures of GDY, Cu<sub>3</sub>P and CuI.

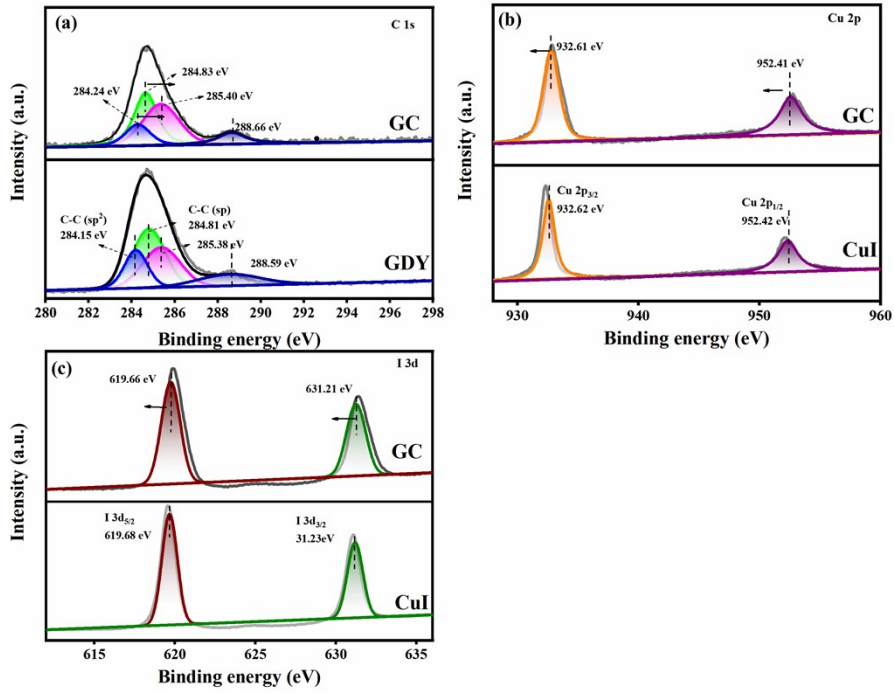


Fig. S4 XPS spectra of (a) C 1s; (b) Cu 2p; (c) I 3d.

