

Supporting Information

Enhanced photocatalytic degradation of p-chlorophenol by ZnIn₂S₄ nanoflowers modified with carbon quantum dots

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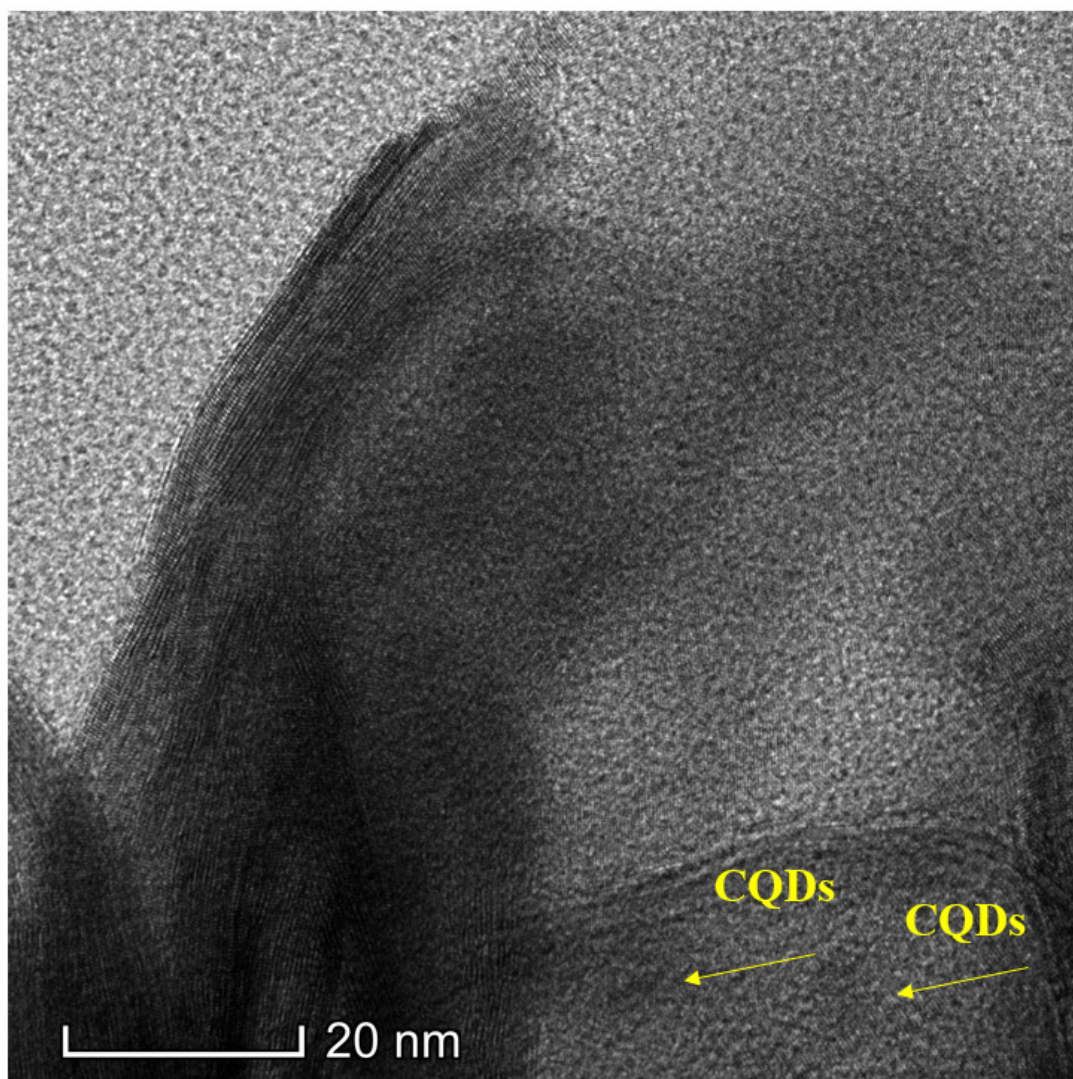


Figure S1. The HRTEM image of CQDs/ZnIn₂S₄-2.

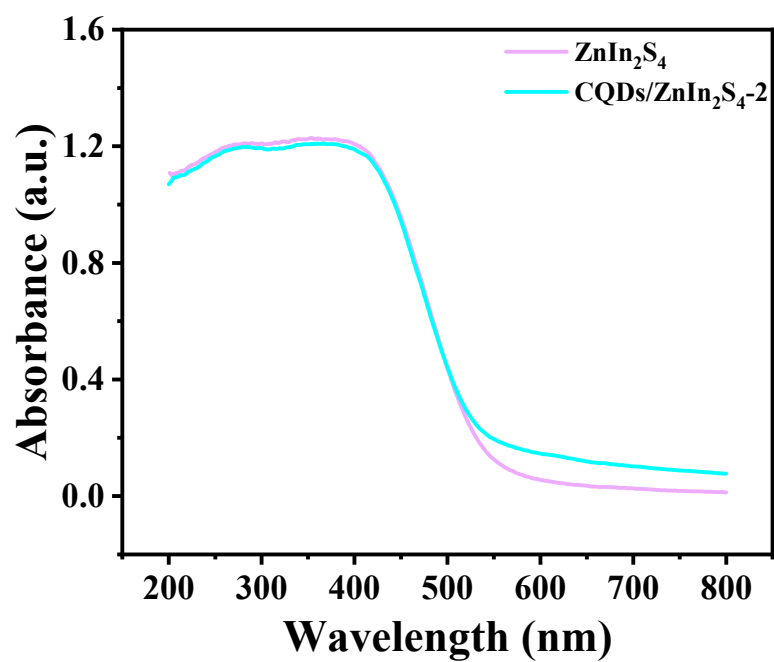


Figure S2. UV-vis absorption spectra of ZnIn₂S₄ and CQDs/ZnIn₂S₄-2.

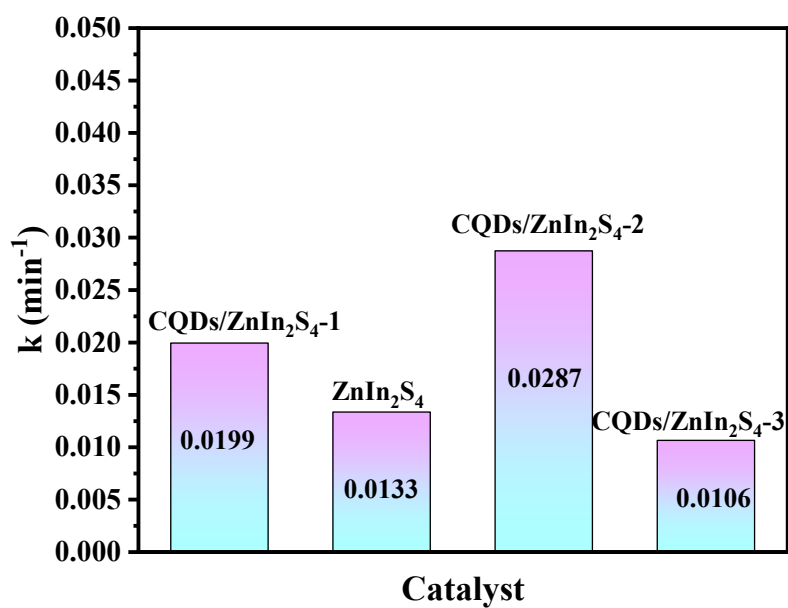


Figure S3. The pseudo-first-order reaction kinetics.

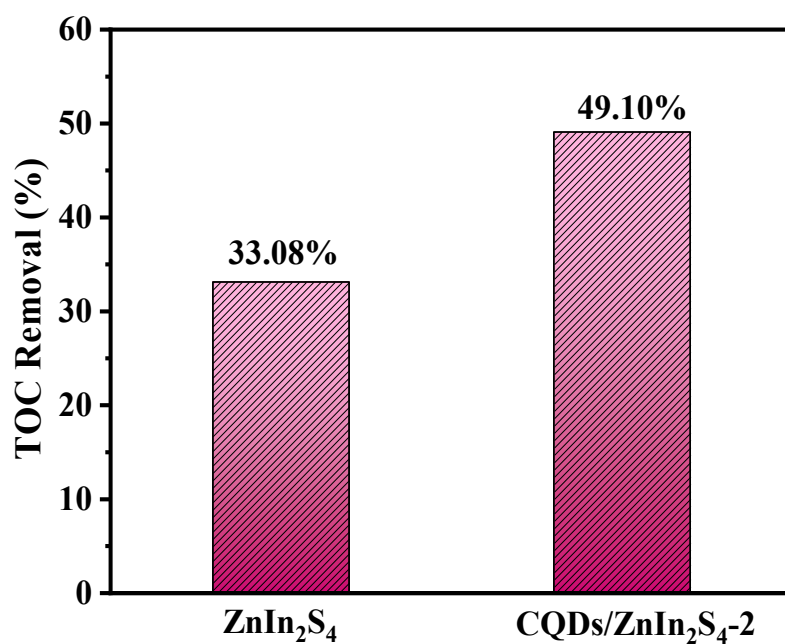


Figure S4. TOC removal efficiency of 4-CP by ZnIn₂S₄ and CQDs/ZnIn₂S₄-2.

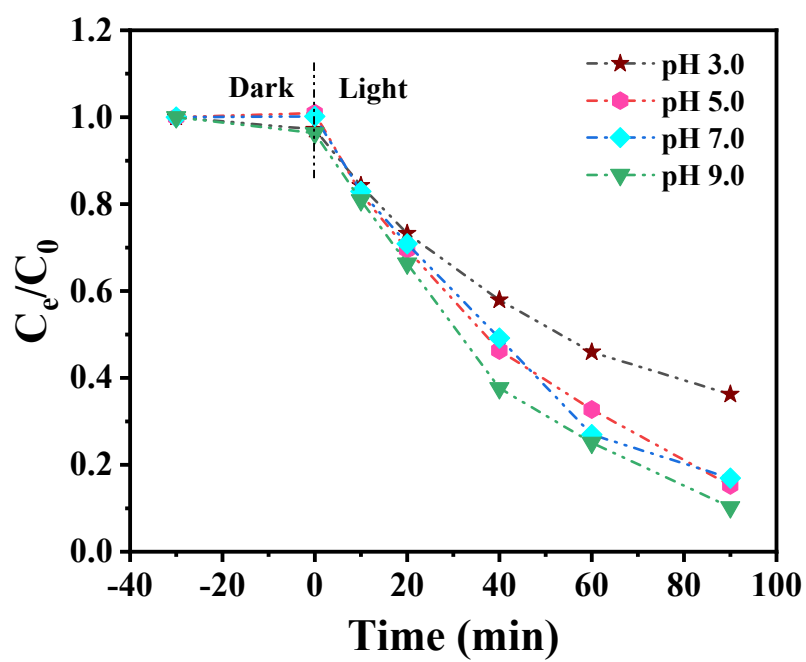


Figure S5. Effect of initial pH value for 4-CP degradation on CQDs/ZnIn₂S₄-2.

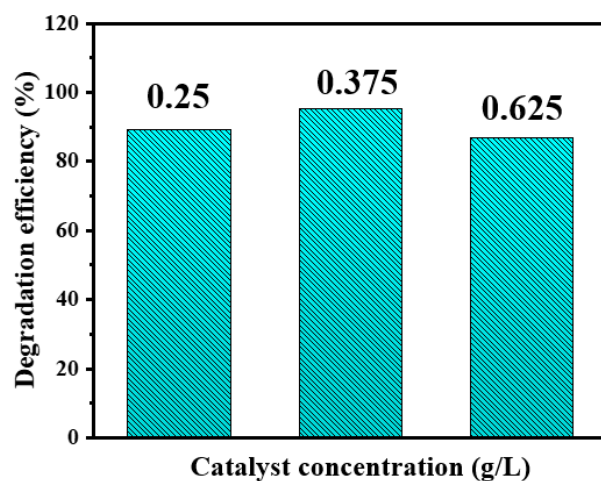


Figure S6. Effect of catalyst concentration on 4-CP degradation.

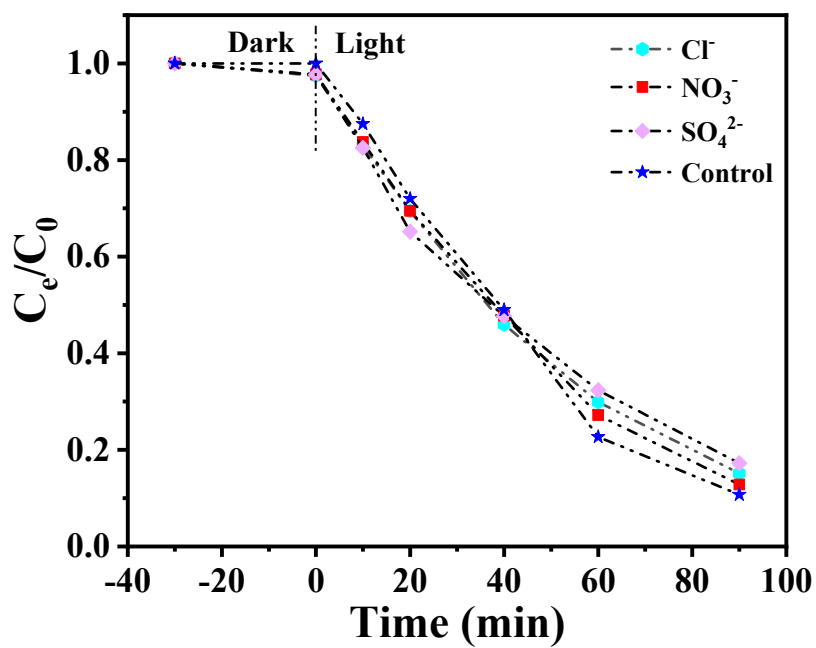


Figure S7. Effect of inorganic anions for 4-CP degradation on CQDs/ZnIn₂S₄-2.

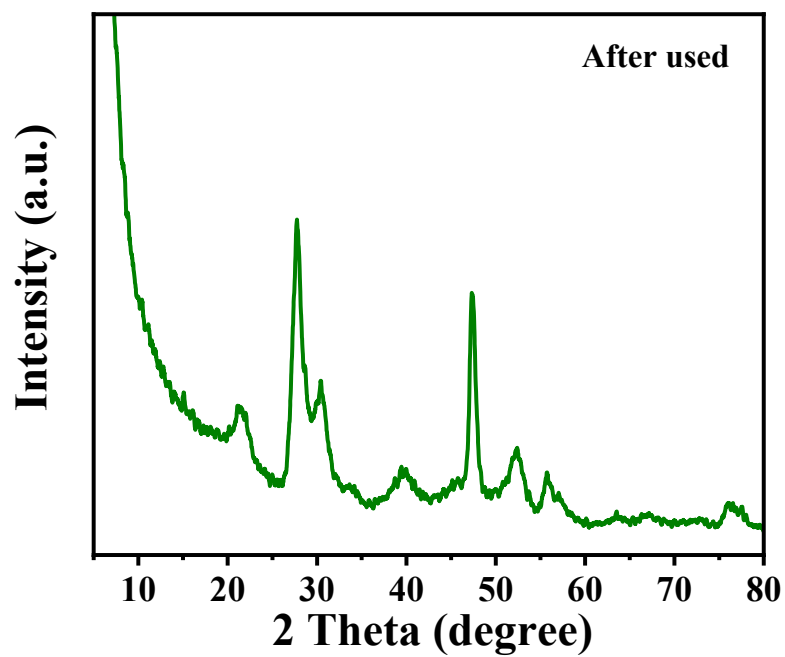


Figure S8. XRD pattern of CQDs/ZnIn₂S₄-2 after used.

Table S1. Comparison of 4-CP degradation performance of this work and reported photocatalysts.

| Photocatalysts | Condition | | | | |
|--|-----------|--------------|---------|-------------|------------|
| | Dosage | 4-CP Content | Time | Degradation | References |
| g-C ₃ N ₄ /BiOI | 100 mg | 100 ppm/L | 180 min | 22% | [1] |
| BiVO ₄ /g-C ₃ N ₄ | 10 mg | 0.1 ppm | 100 min | 89% | [2] |
| g-C ₃ N ₄ /ZnO | 100 mg | 0.1mmol/L | 80 min | 100% | [3] |
| g-C ₃ N ₄ /PTCDI-Br | 50 mg | 5 ppm | 60 min | 100% | [4] |
| YFeO ₃ /g-C ₃ N ₄ | 50 mg | 0.01mmol | 300 min | 38% | [5] |
| CQDs/ZnIn ₂ S ₄ -2 | 10 mg | 10 ppm | 90 min | 89.8% | This work |

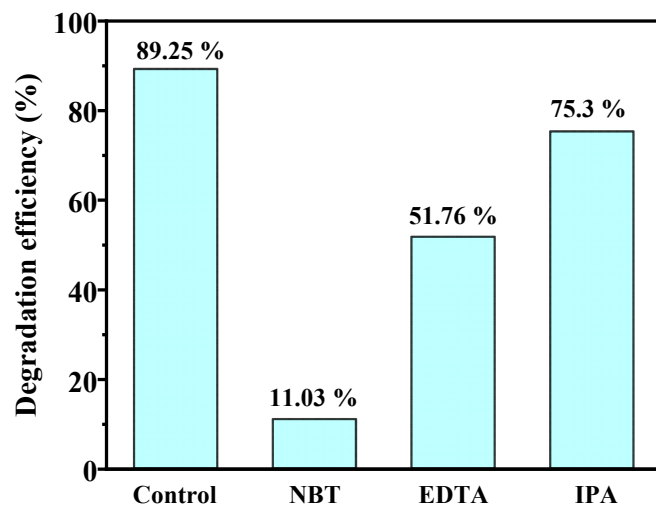


Figure S9. Trapping experiment of active species for photocatalytic degradation of 4-CP.

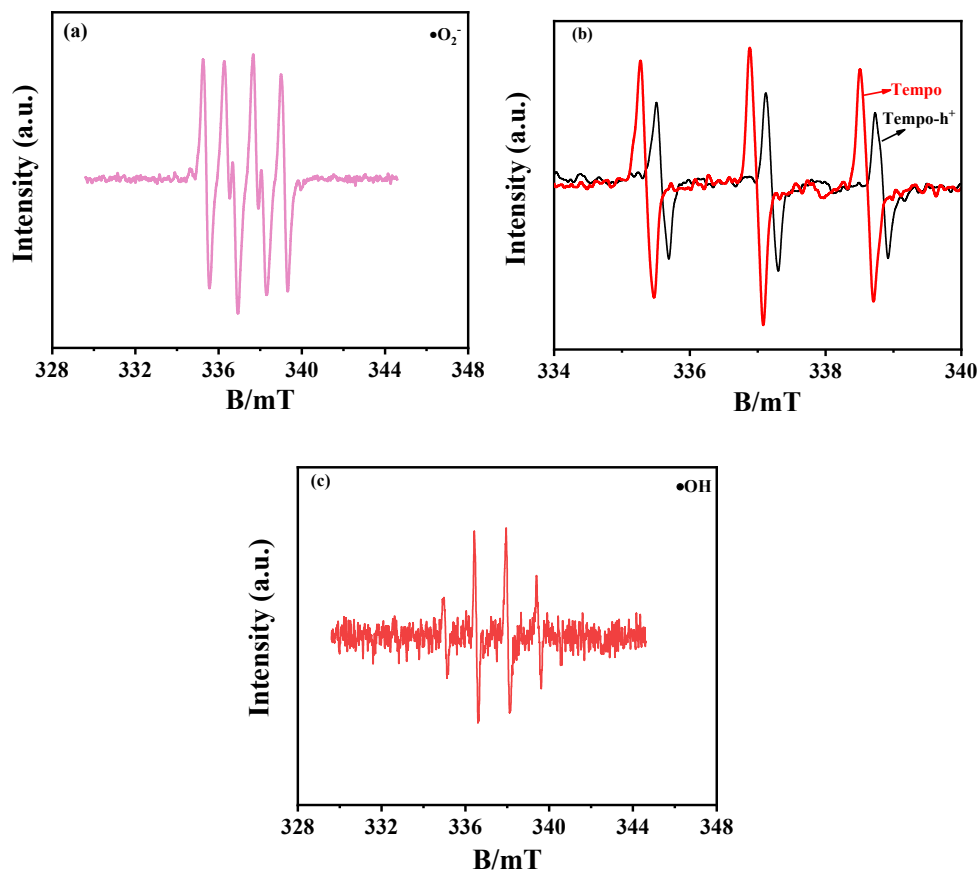


Figure S10. EPR spectra of CQDs/ ZnIn_2S_4 -2 in methanol dispersion for DMPO- $\bullet\text{O}_2^-$ (a), water dispersion for DMPO- $\bullet\text{OH}$ (c) and TEMPO- h^+ (b) under Xe lamp irradiation.

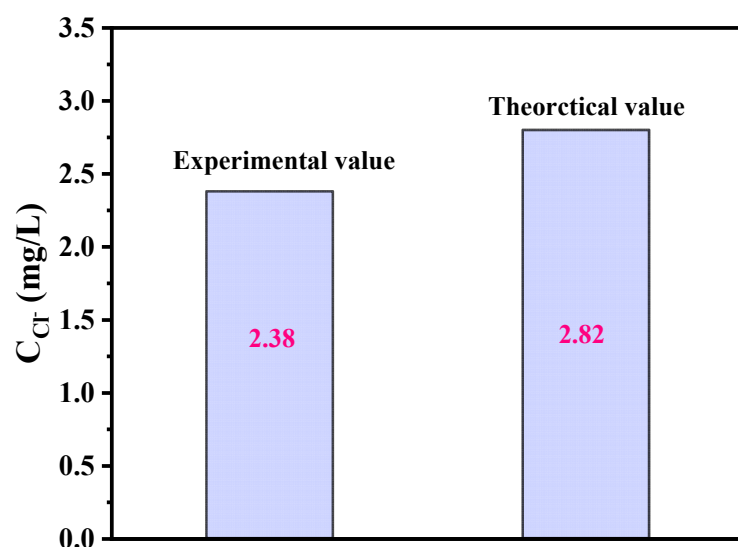


Figure S11. Cl^- concentration of 4-CP.

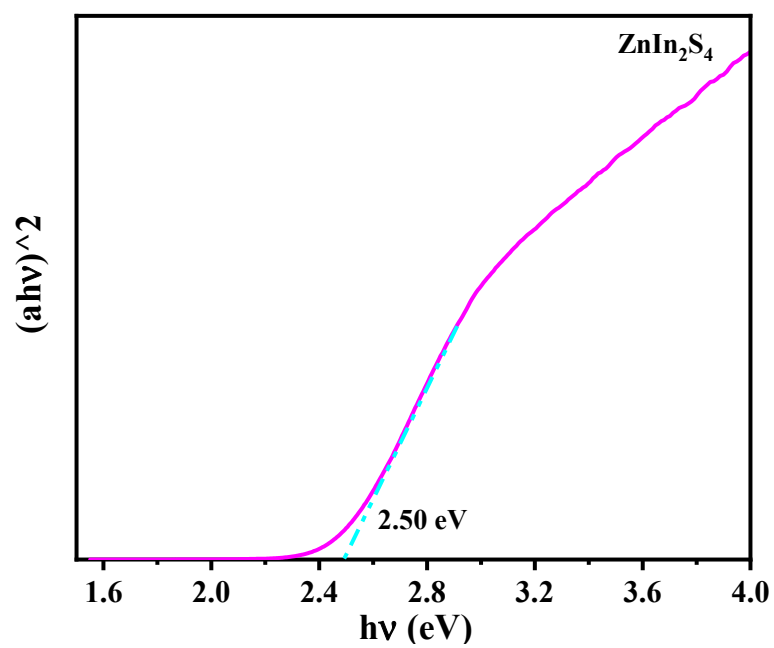


Figure S12. The band gap of $ZnIn_2S_4$.

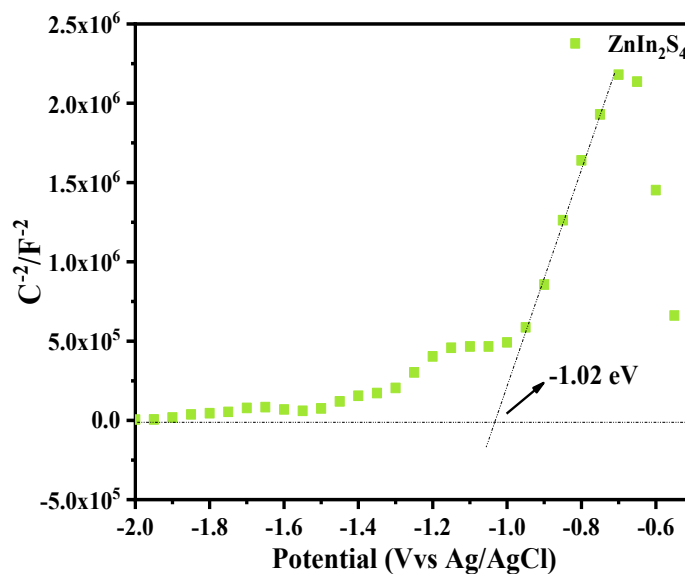


Figure S13. Mott-Schottky plot of ZnIn_2S_4 .

References

- [1] J. Di, J. Xia, S. Yin, H. Xu, L.i. Xu, Y. Xu, M. He, H. Li, Preparation of sphere-like $\text{g-C}_3\text{N}_4/\text{BiOI}$ photocatalysts via a reactable ionic liquid for visible-light-driven photocatalytic degradation of pollutants, *J. Mater. Chem. A* 2 (15) (2014) 5340.
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