

## Supporting Information

### ZnS microsphere/g-C<sub>3</sub>N<sub>4</sub> composite photocatalyst with greatly enhanced visible light performance for hydrogen evolution: Synthesis and synergistic mechanism study

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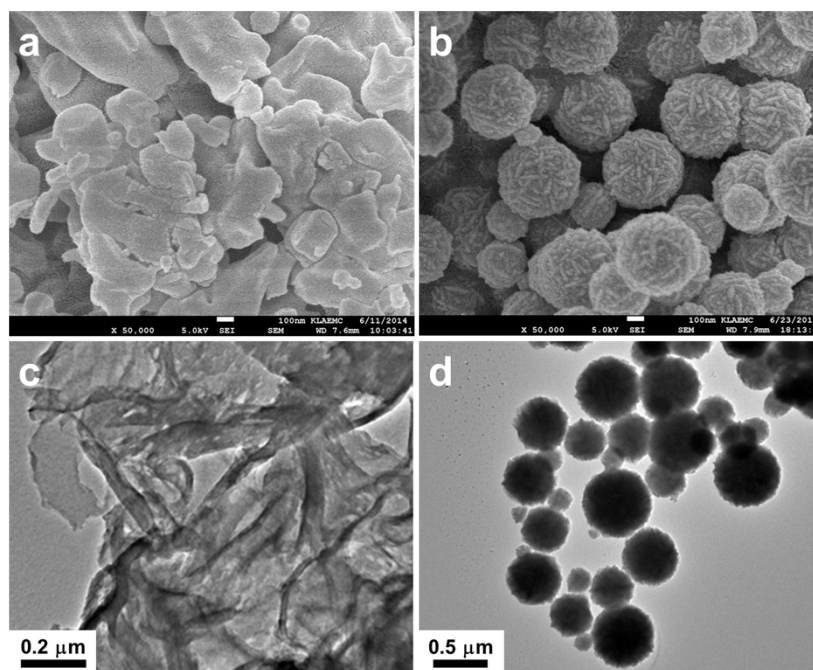


Fig. S1. SEM and TEM images of the pure g-C<sub>3</sub>N<sub>4</sub> (a,b) and ZnS (c,d).

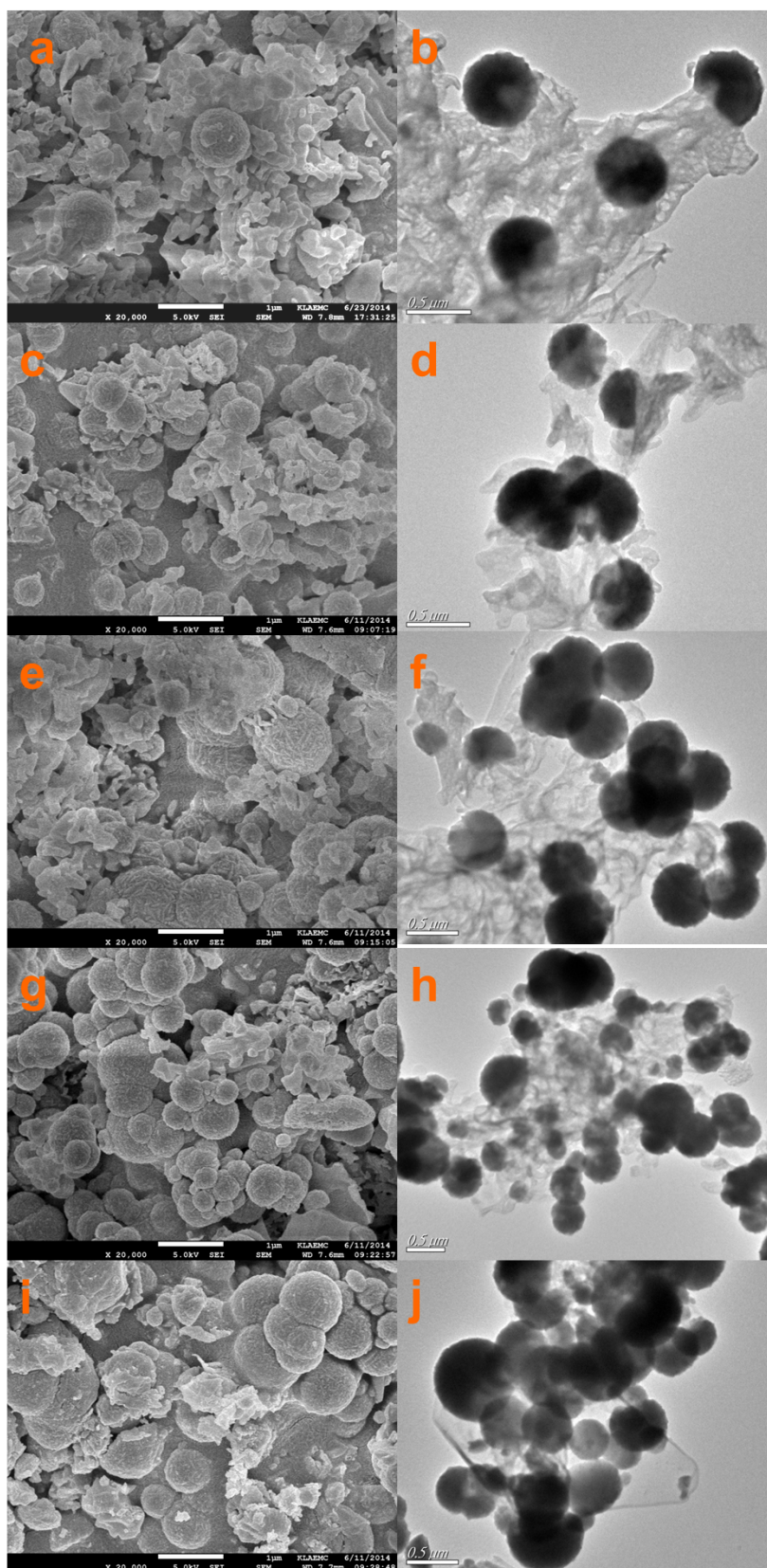


Fig. S2. SEM and TEM images of the resulted samples: (a,b) 20% ZnS/g-C<sub>3</sub>N<sub>4</sub>, (c,d) 30% ZnS/g-C<sub>3</sub>N<sub>4</sub>, (e,f) 40% ZnS/g-C<sub>3</sub>N<sub>4</sub>, (g,h) 60% ZnS/g-C<sub>3</sub>N<sub>4</sub>, (i,j) 70% ZnS/g-C<sub>3</sub>N<sub>4</sub>.

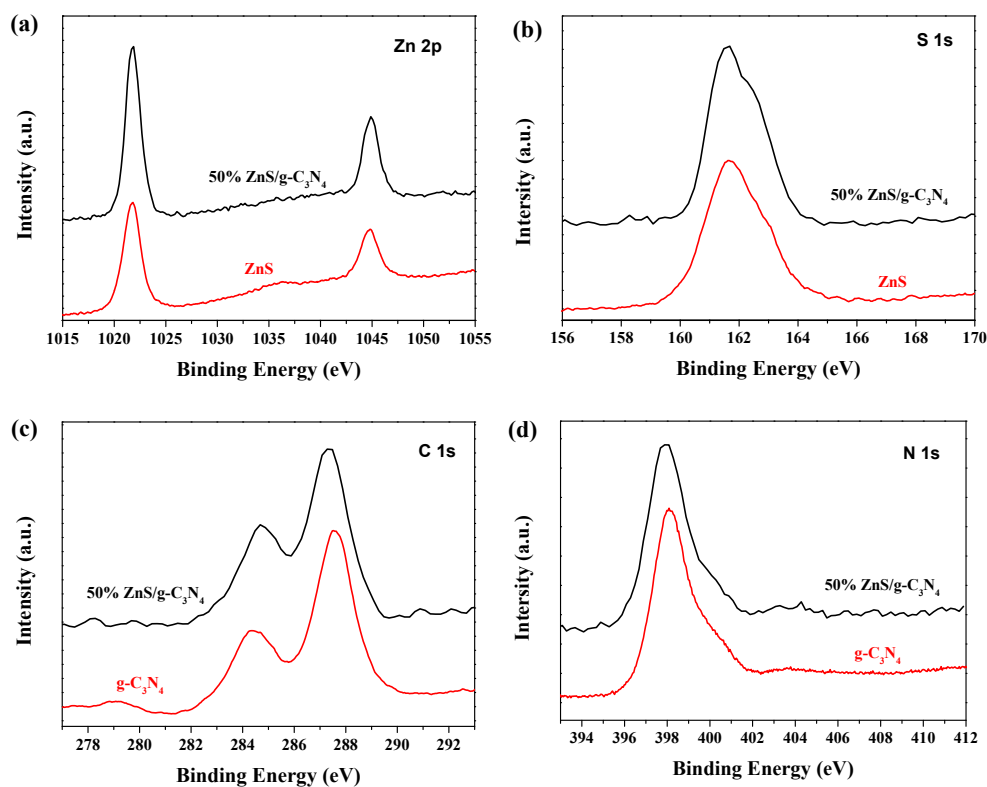


Fig. S3. XPS spectra of g-C<sub>3</sub>N<sub>4</sub>, ZnS, and 50 % ZnS/g-C<sub>3</sub>N<sub>4</sub> samples: (a) Zn 2p, (b) S 1s, (c) C 1s and (d) N 1s.

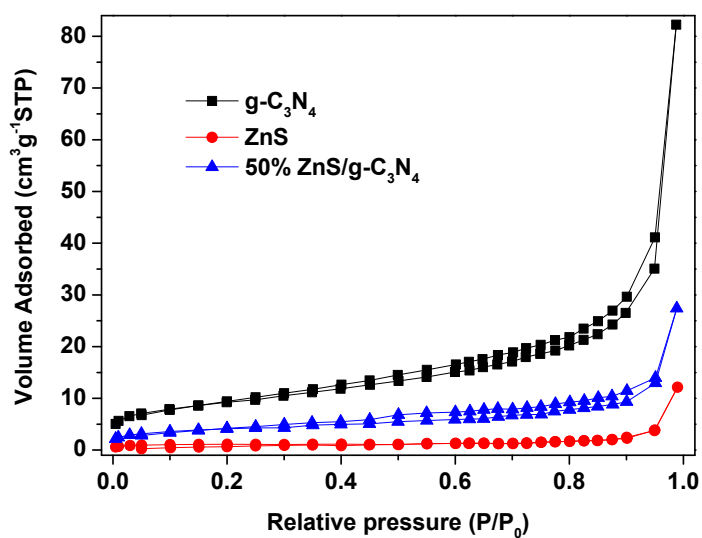


Fig. S4. N<sub>2</sub> adsorption/desorption isotherms of g-C<sub>3</sub>N<sub>4</sub> and 50% ZnS/g-C<sub>3</sub>N<sub>4</sub>.