**SUPPORTING INFORMATION**

**Ternary ZnS/ZnO/graphitic carbon nitride heterojunction for efficient and stable hydrogen photocatalytic production**

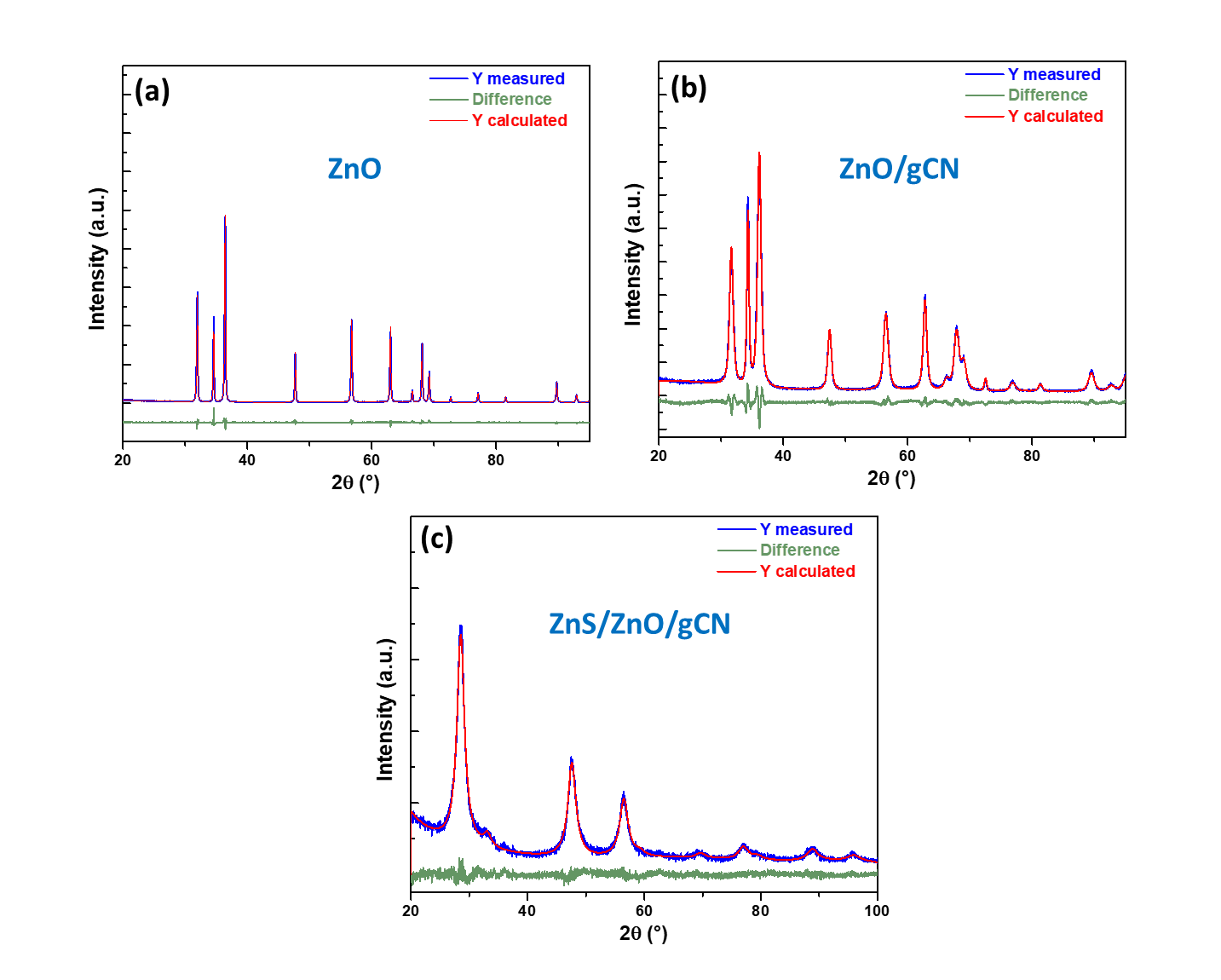
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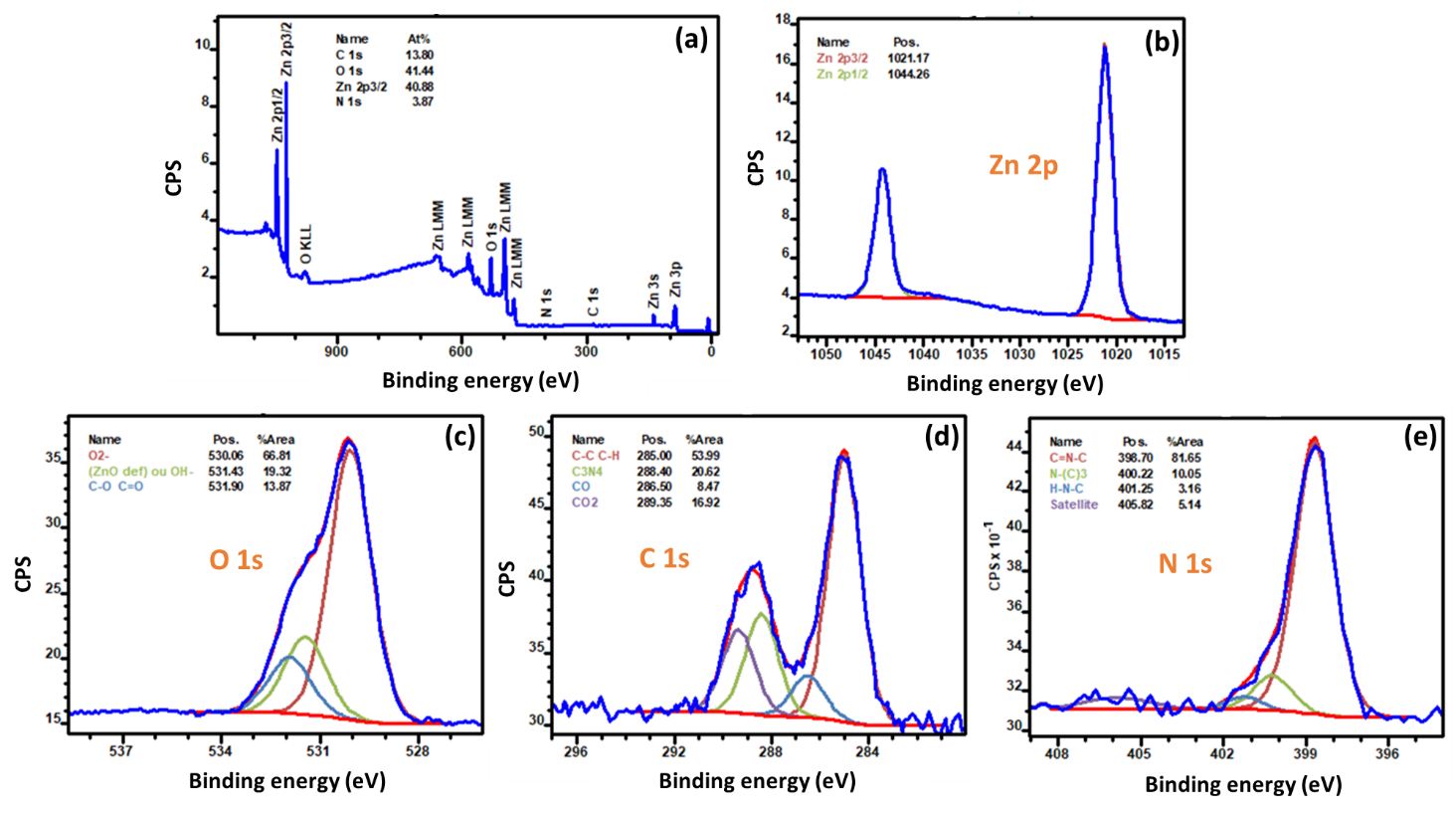
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**Figure S1**. Rietveld refinement result of the powder XRD data for (a) ZnO, (b) ZnO/gCN and (c) ZnS/ZnO/gCN. The green curve illustrates the difference between data (blue curve) and simulation (red curve).



**Figure S2**. (a) Overview XPS spectrum of the ZnO/gCN (20%) photocatalyst. (b-e) are the HR-XPS spectra of Zn 2p, O 1s, C 1s and N 1s elements, respectively.

**Table S1**. Impedance parameters obtained after fitting the EIS curves with the Randles equivalent model.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sample | Rs (Ω) | Q (F.sα-1) | α | Rct (Ω) |
| gCN | 72.83 | 6,912.10-6 | 0.9519 | 946489 |
| ZnO | 24.81 | 4,859.10-6 | 0.7396 | 560225 |
| ZnO/gCN | 56.57 | 20,94.10-6 | 0.5917 | 83745 |
| ZnS/ZnO/gCN | 234.2 | 13,21.10-6 | 0.955 | 43651 |