

Controlled Synthesis and Photoelectric Application of ZnIn₂S₄ Nanosheet/TiO₂ Nanoparticle Composite Films

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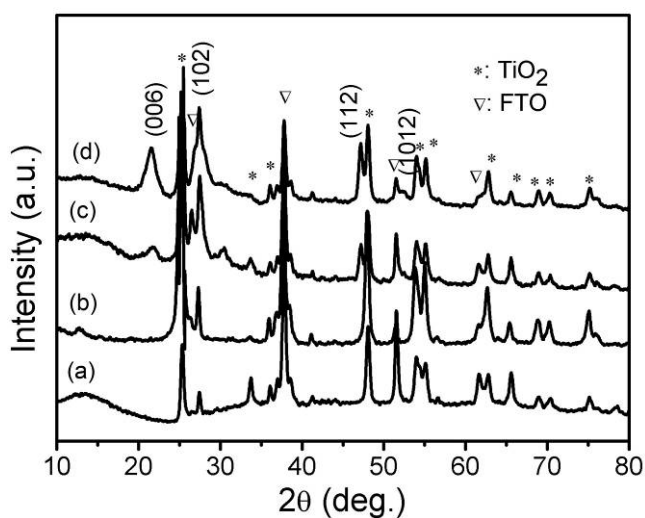
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¹⁵ **Fig. S1** XRD patterns of the ZnIn₂S₄/TiO₂ films obtained by using 0.25 mM of reactant concentration at different temperatures: 90 °C (a), 120 °C (b), 180 °C (c), and 210 °C (d) for 12 h, respectively.

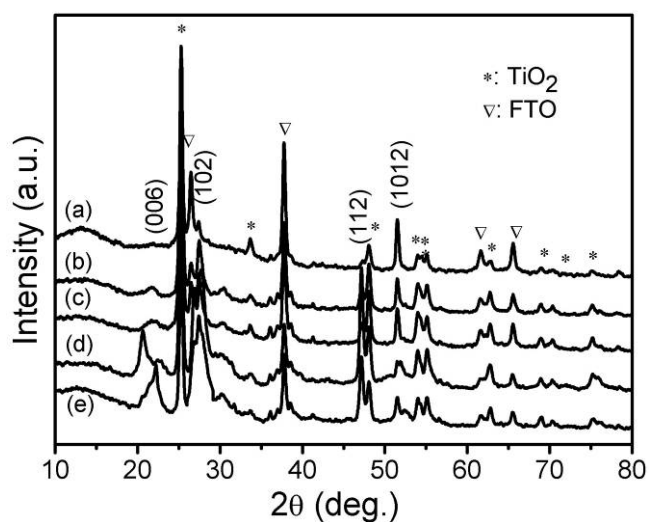


Fig. S2 XRD patterns of the $\text{ZnIn}_2\text{S}_4/\text{TiO}_2$ films obtained by using 0.25 mM of reactant concentration at 150 °C for different times: 1 h (a), 6 h (b), 18 h (c), 24 h (d), and 48 h (e), respectively.

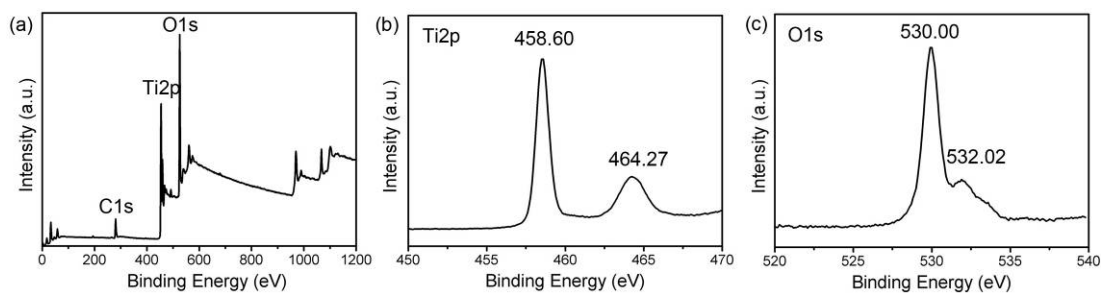


Fig. S3 XPS survey (a), Ti2p (b), and O1s (c) of the screen-printing TiO_2 film.

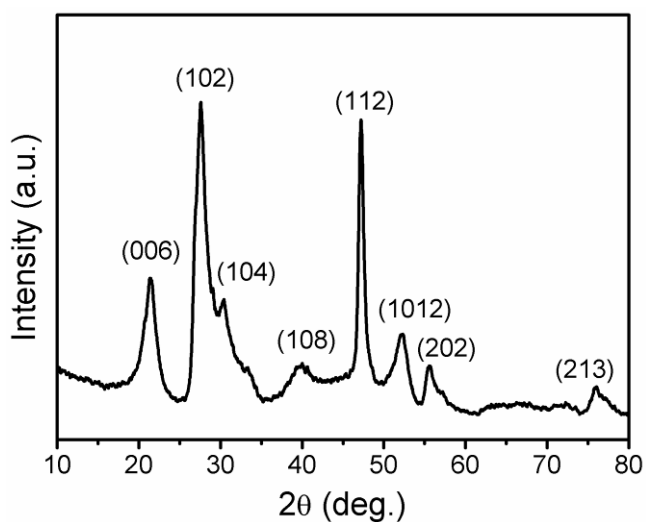


Fig. S4 XRD pattern of ZnIn_2S_4 precipitant product powder at the bottom of the autoclave.

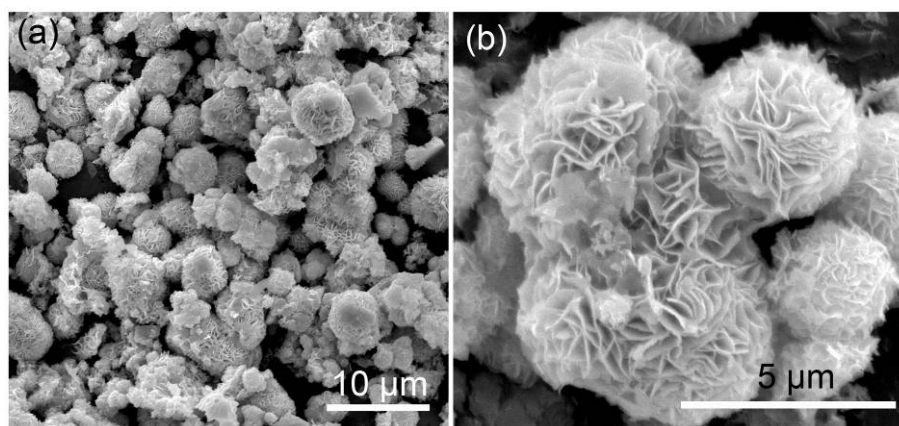


Fig. S5 SEM images of ZnIn₂S₄ precipitant product powder at the bottom of the autoclave.

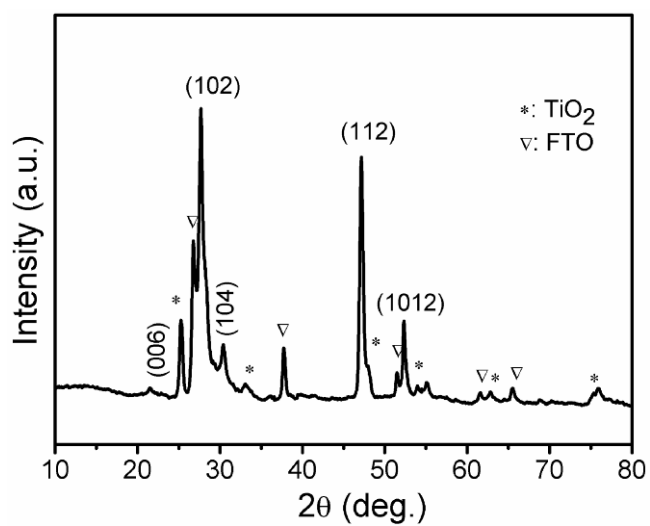


Fig. S6 XRD pattern of the ZnIn₂S₄/TiO₂ film (sample I) after heat treatment at 400 °C for 30 min under vacuum.

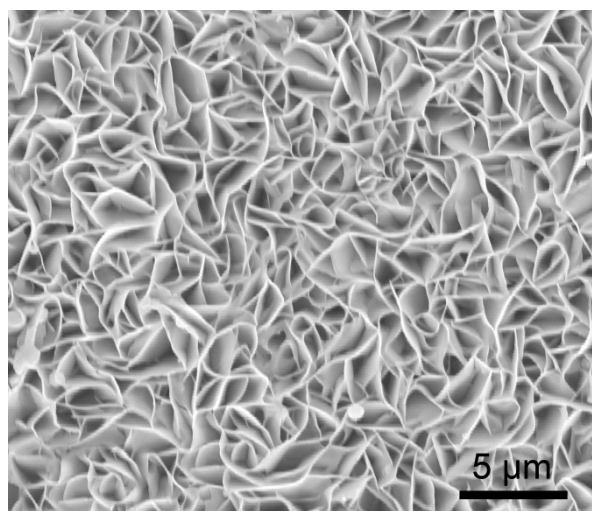


Fig. S7 SEM image of the ZnIn₂S₄/TiO₂ film (sample I) after heat-treatment at 400 °C for 30 min under vacuum.

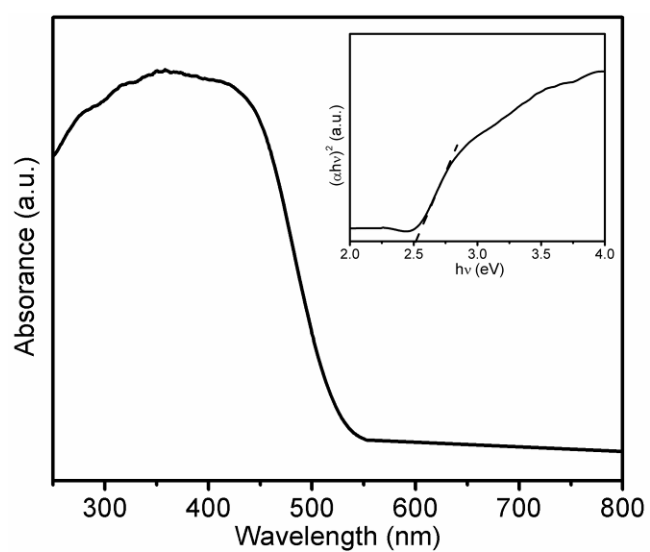
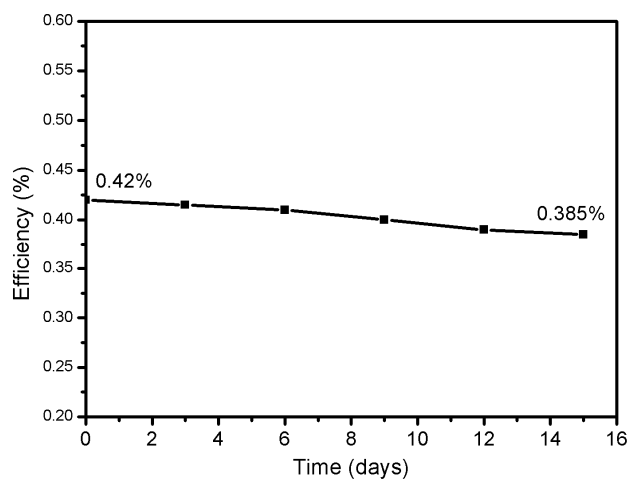


Fig. S8 UV spectrum of the ZnIn₂S₄/TiO₂ film (sample I) after heat-treatment at 400 °C for 30 min under vacuum.



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Fig. S9 A short-term evaluation of the stability of the sealed Cell IV, which was tested in ambient atmosphere.