

Supporting Information

Synthesis of $\text{In}_2\text{O}_3/\text{In}_2\text{S}_3$ core/shell nanostructures with inverted type-I heterojunction for photocatalytic H_2 generation

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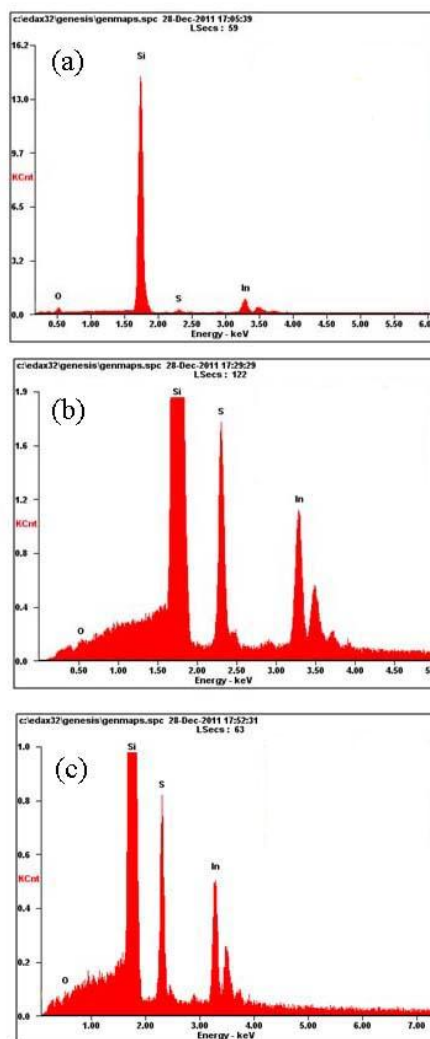


Figure S1. EDS of (a) $\text{In}_2\text{O}_3/\text{In}_2\text{S}_3$ core/shell structures obtained at 60 °C, (b) $\text{In}_2\text{O}_3/\text{In}_2\text{S}_3$ core/shell structures obtained at 90 °C, (c) Structures obtained at 120 °C.

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Table S1. Composition of materials obtained at different temperatures

Element (At%) Temperature	In	O	S	Si ^a
60 °C	5.4	11.1	1.5	82.0
90 °C	3.4	1.0	7.1	88.5
120 °C	2.2	0.3	8.6	89.9

^a Si are from the substrate.

Table S2. Result of BET surface area for different materials

Samples	In ₂ O ₃ nanorods	Core/shell In ₂ O ₃ / In ₂ S ₃ (60 °C)	Core/shell In ₂ O ₃ / In ₂ S ₃ (90 °C)	Hollow In ₂ S ₃ (120 °C)
BET(m ² /g)	102.9	111.2	113.5	130.9

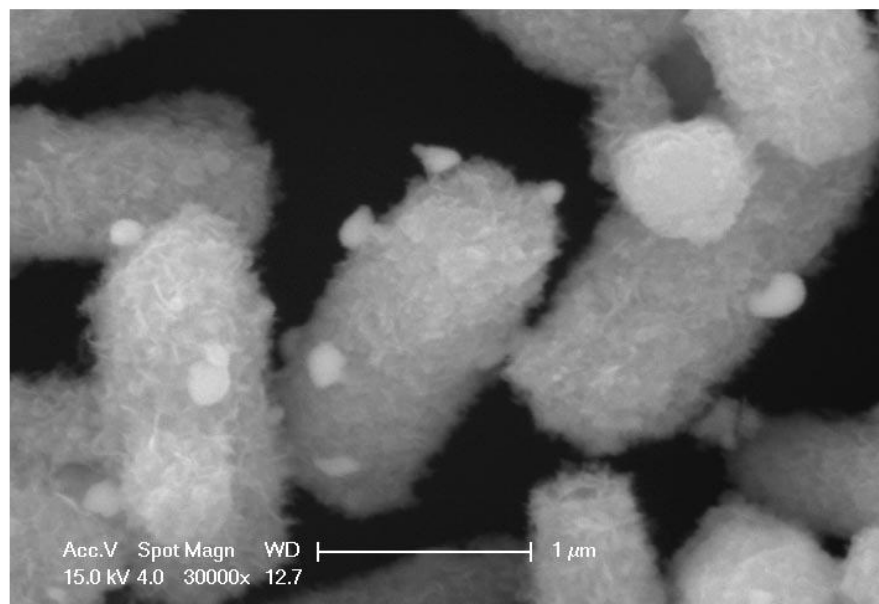


Figure S2. SEM image of 90 °C core/shell In₂O₃/In₂S₃ nanostructures after photo reaction test for 5 runs.

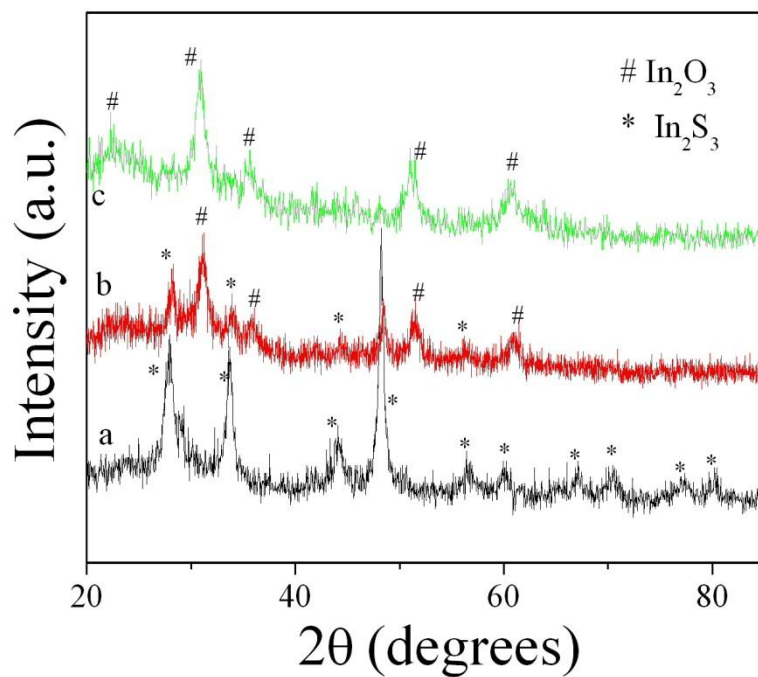


Figure S3. XRD pattern of (a) In₂S₃ obtained by hydrothermal method at 120 °C, (b) In₂S₃ sample after heating at 480 °C in air for 20 minutes and (c) In₂S₃ sample after heating at 480 °C in air for 1 hour. “#” and “*” are for In₂O₃ and In₂S₃, respectively.

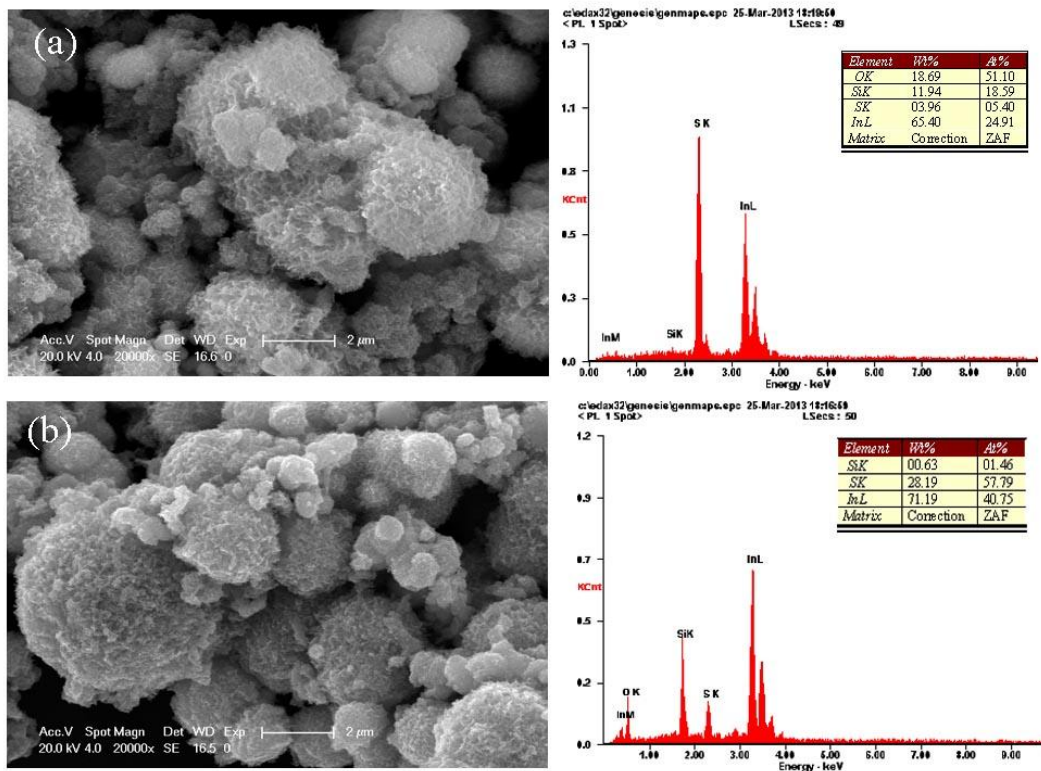


Figure S4. SEM and EDS results for (a) In_2S_3 and (b) partially oxidized In_2S_3 .

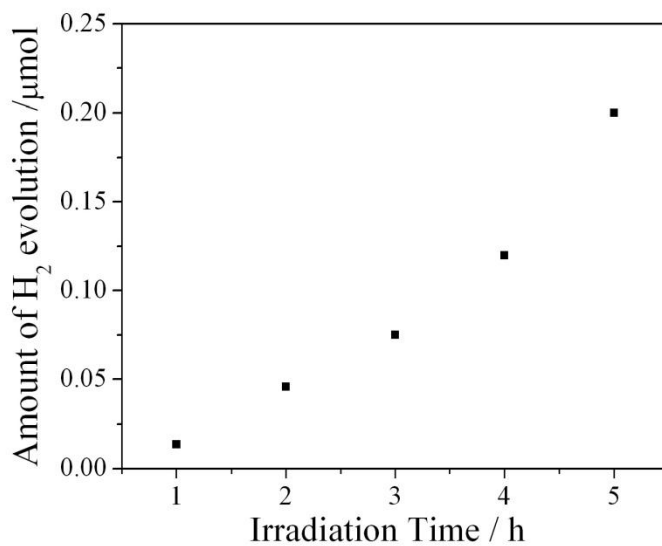


Figure S5. Photocatalytic hydrogen evolution of the partially oxidized In_2S_3 .