

Supplementary Information

**Converting 2D Inorganic-organic ZnSe-DETA Hybrid
Nanosheets into 3D Hierarchical Nanosheet-based ZnSe
Microspheres with Enhanced Visible-light-driven
Photocatalytic Performances**

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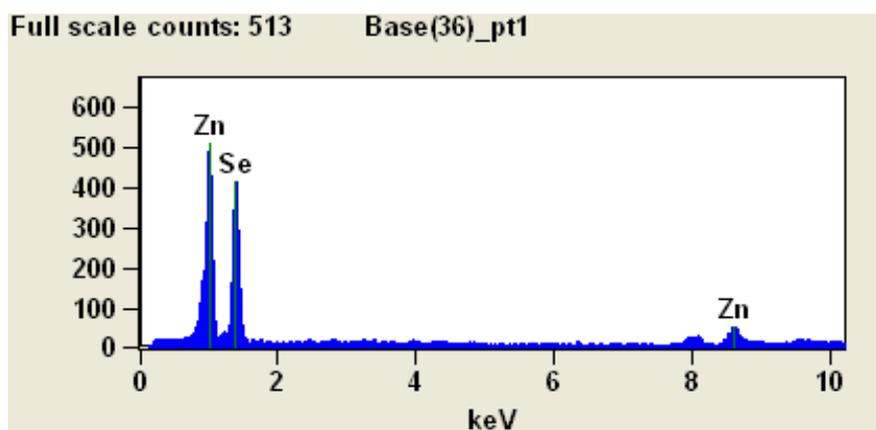


Figure S1. EDX spectra of the as-prepared hierarchical nanosheet-based ZnSe microspheres.

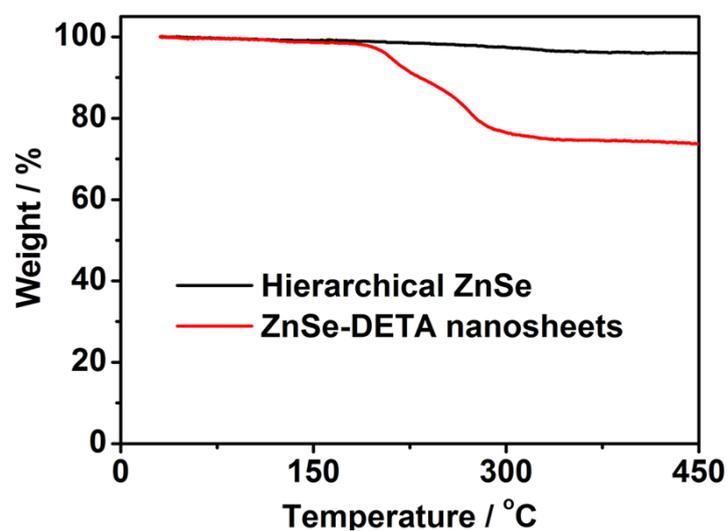


Figure S2. TGA curves of 3D hierarchical ZnSe products (black line) and ZnSe precursor (red line).

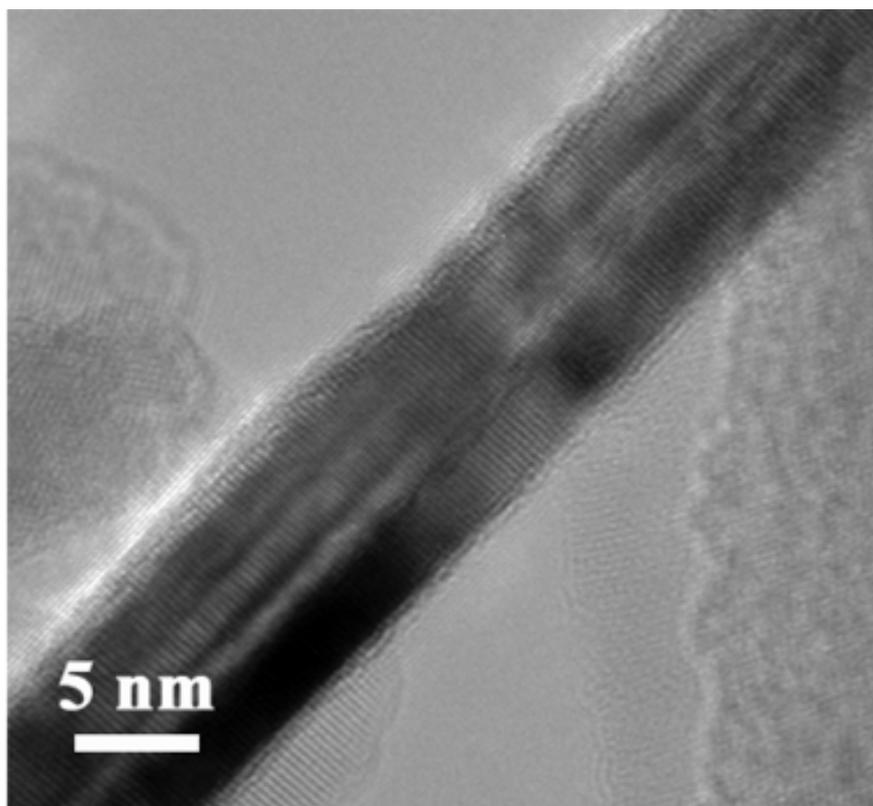


Figure S3. TEM image of a perpendicularly isolated ZnSe nanosheet that constructed the hierarchical nanostructures obtained at 150 °C.

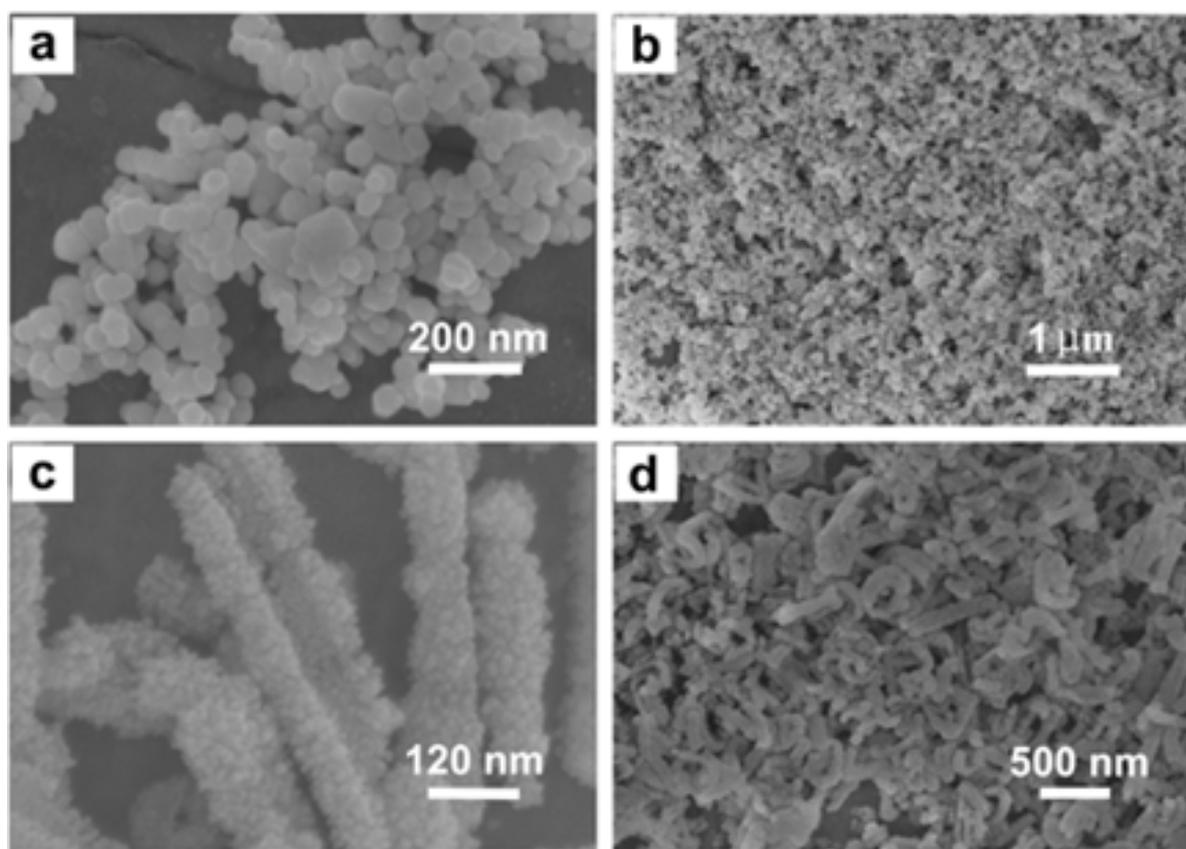


Figure S4. SEM images of the products obtained through the organic-component depleted reaction of the rinsed ZnSe-DETA hybrid nanosheets: ZnSe nanoparticles (a, b) obtained by removing the DETA and $\text{N}_2\text{H}_4\cdot\text{H}_2\text{O}$ in the reaction solution and nanoparticle arrayed ZnSe (c, d) obtained by introducing $\text{N}_2\text{H}_4\cdot\text{H}_2\text{O}$ (0.8 mL) in the absence of DETA in the reaction system.

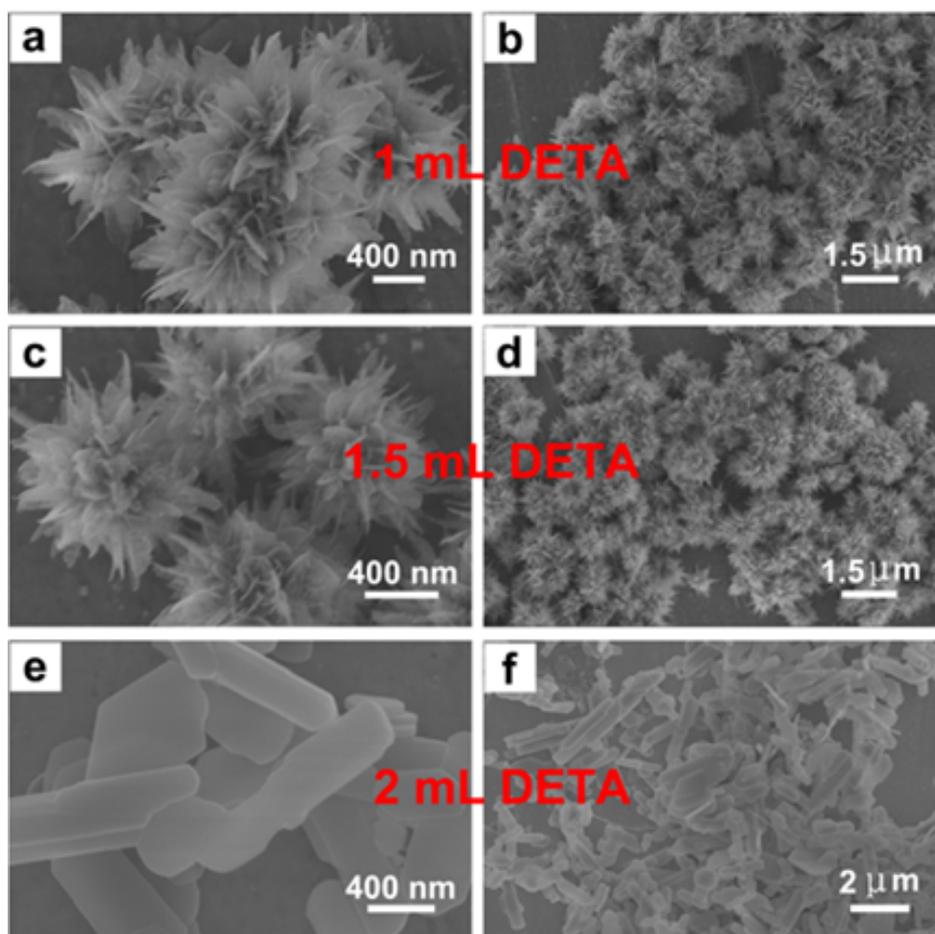


Figure S5. SEM images of the products obtained through the transformation reaction of the rinsed ZnSe-DETA sheets by introducing different amounts of DETA into the reaction systems: a, b): 1 mL DETA; c, d): 1.5 mL DETA; e, f): 2.0 mL DETA.

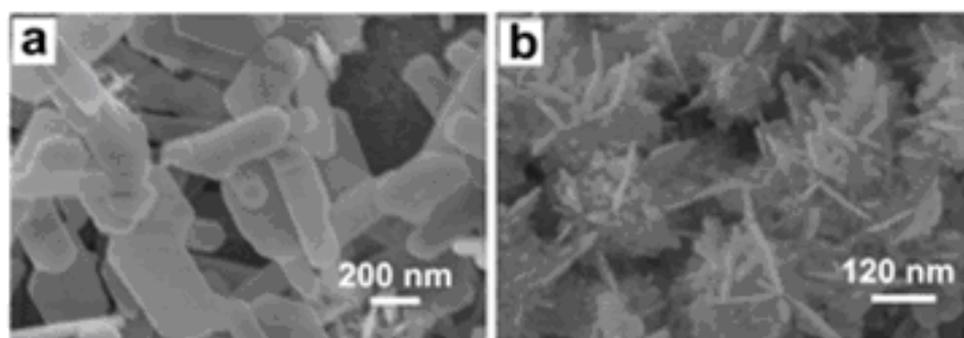


Figure S6. SEM images of the products obtained at different reaction temperatures: 140 °C (a) and 180 °C (b).

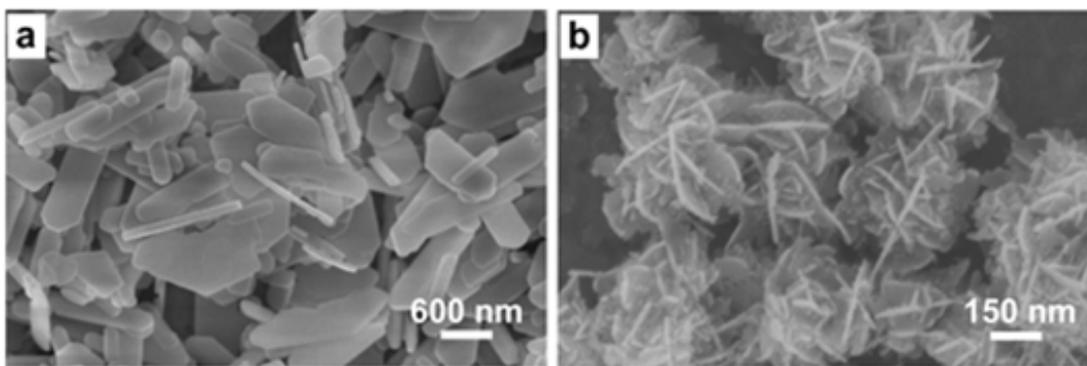


Figure S7. SEM images of the products prepared by the transformation reaction of inorganic-organic hybrid ZnSe-DETA nanosheets in EG at 150 °C (a) and 180 °C (b).

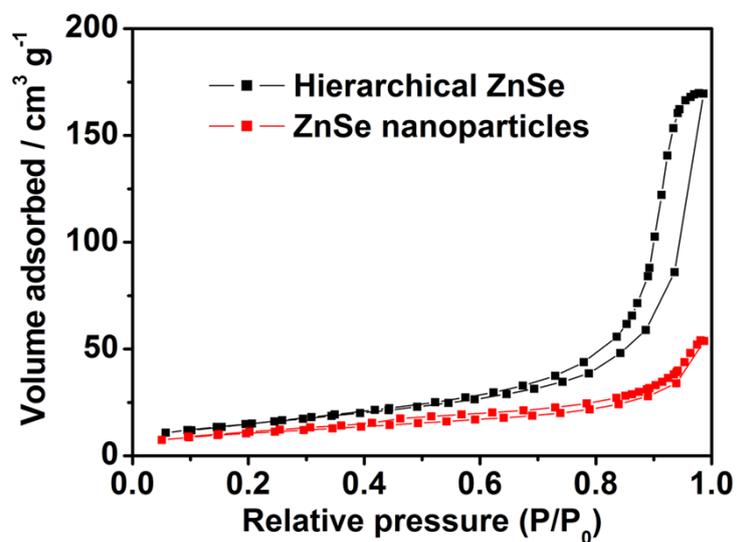


Figure S8. N₂ adsorption isotherm curves of hierarchical nanosheet-based ZnSe microspheres (black line) and ZnSe nanoparticles (red line).

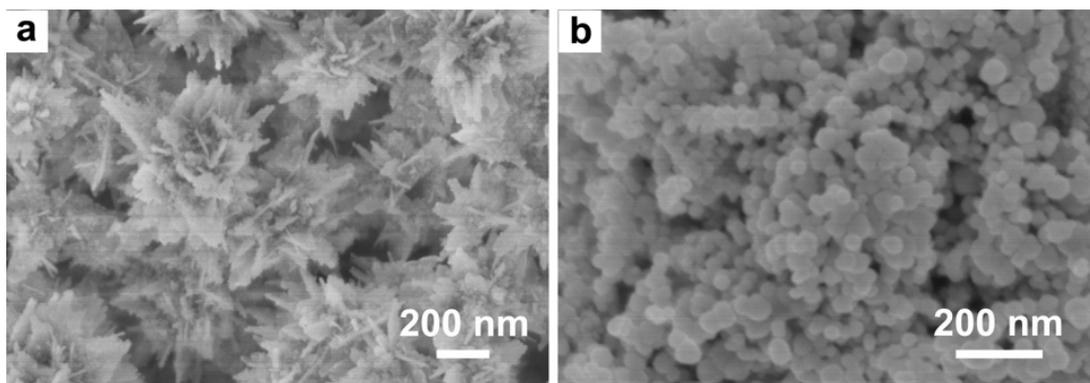


Figure S9. SEM images of the ZnSe flower (a) and the ZnSe particle (b) after the 12 h photocatalytic hydrogen evolution.