Supplementary Material

Bioinspired ZnO-Based Solar Photocatalysts for the Efficient Decontamination of Persistent Organic Pollutants and Hexavalent Chromium in Wastewater

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X-ray diffraction patterns of ZnO-based photocatalysts

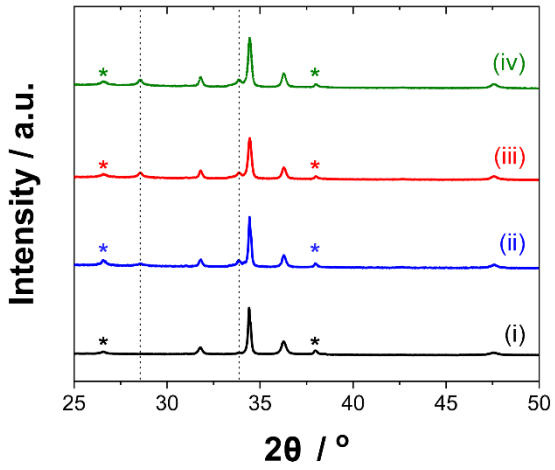

Figure S1: XRD patterns of (i) ZnO, (ii) ZnO@ZnS(4h), (iii) ZnO@ZnS(8h), and (iv) ZnO@ZnS(12h) micro/nanoferns. The diffraction peaks that correspond to the ZnS blende and fluorine-doped tin oxide substrate structures are indicated with a dashed line and *, respectively.

Field emission electron microscopy micrographs of ZnO-based micro/nanoferns

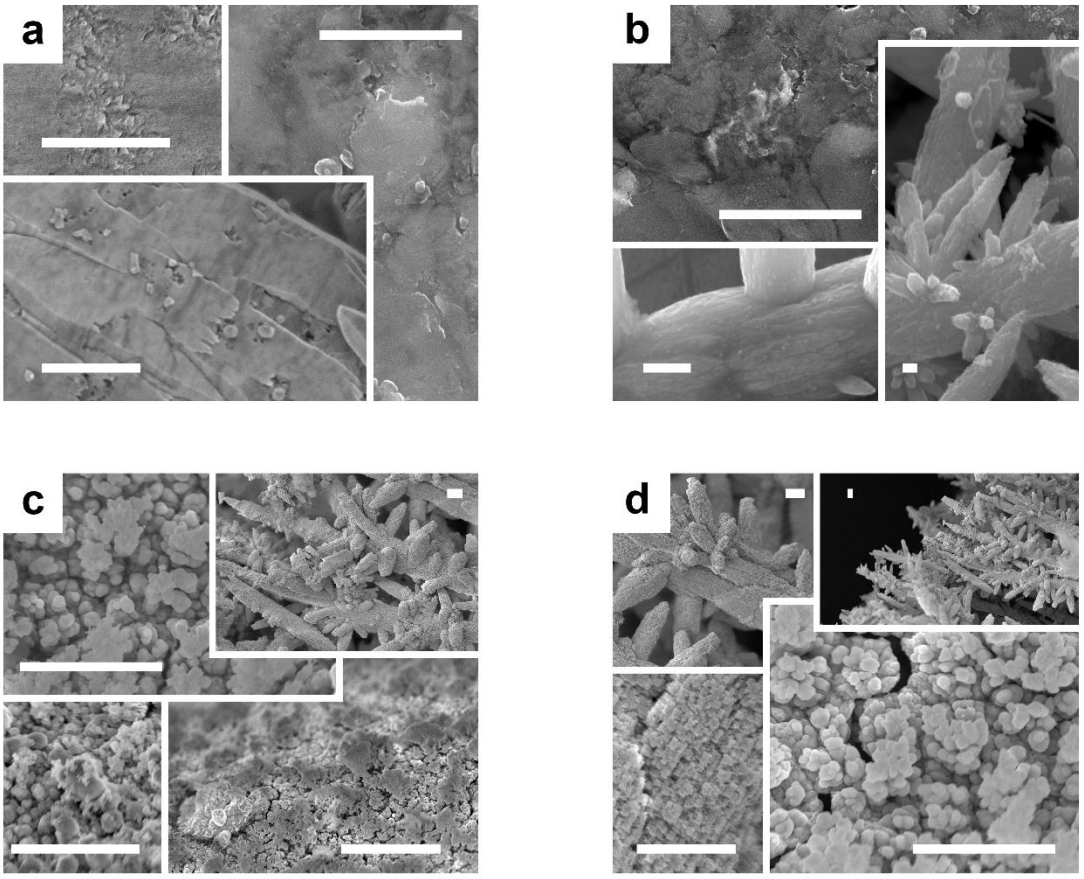

Figure S2: FE-SEM micrographs of (a) ZnO, (b) ZnO@ZnS(4h), (c) ZnO@ZnS(8h), and (d) ZnO@ZnS(12h) micro/nanoferns. Scale bar: 200 nm.

Photolysis of MB, 4-NP, and Rh-B

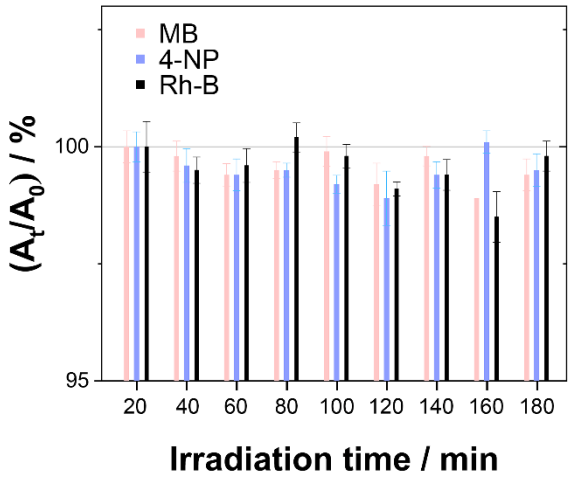

Figure S3: Time dependent maximum absorbance of a 5 ppm of MB, 5 ppm of 4-NP, or 5 ppm of Rh-B under artificial UV-filtered sunlight. Photocatalyst dose = 0 mg mL^{-1}.

Photocatalytic degradation of MB

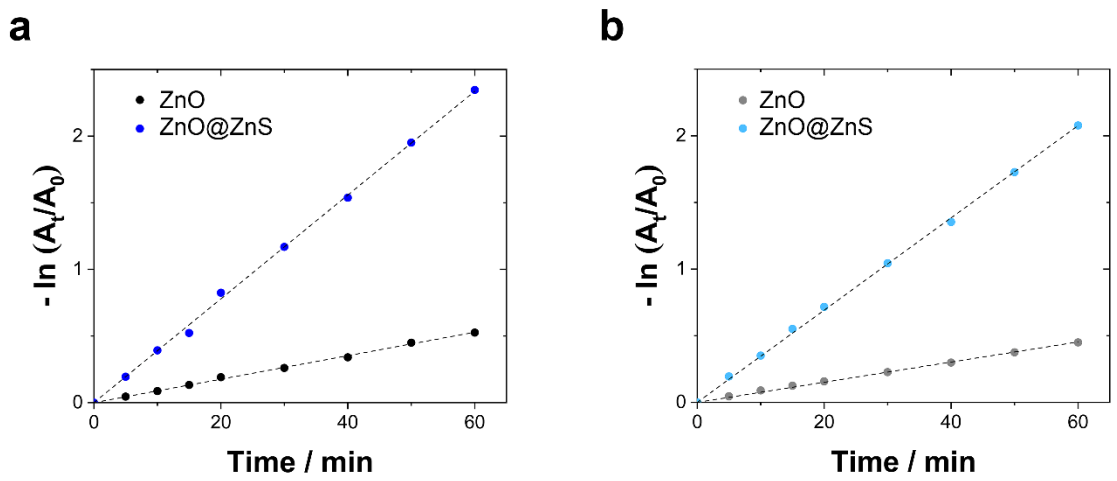

Figure S4: Fitted curves of $-\ln(A_t/A_0)$ against reaction time under (a) artificial and (b) natural UV-filtered sunlight. Photocatalyst dose = 0.4 mg mL^{-1}.

Photocatalytic degradation of 4-NP and Rh-B

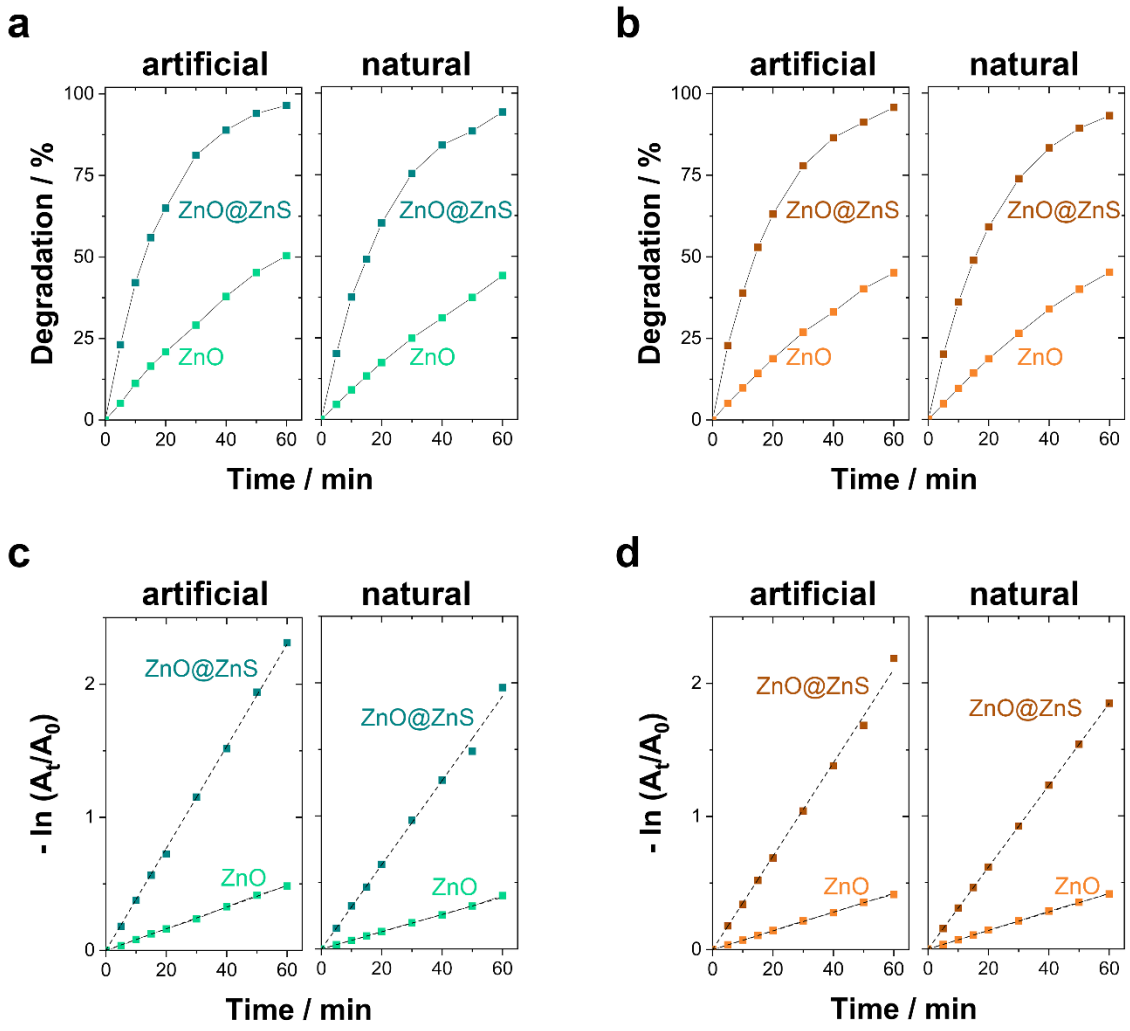

Figure S5: Time-dependent photodegradation efficiency of (a) 4-NP (5 ppm) and (b) Rh-B (5 ppm) under artificial and natural UV-filtered ($\lambda > 400$ nm) sunlight in the presence of 0.4 mg mL^{-1} of ZnO micro/nanoferns and ZnO@ZnS micro/nanoferns. Fitted curves of $-\ln(A_t/A_0)$ against reaction time of (c) 4-NP (5 ppm) and (d) Rh-B (5 ppm) under artificial and natural UV-filtered sunlight.

Photoreduction of Cr(VI)

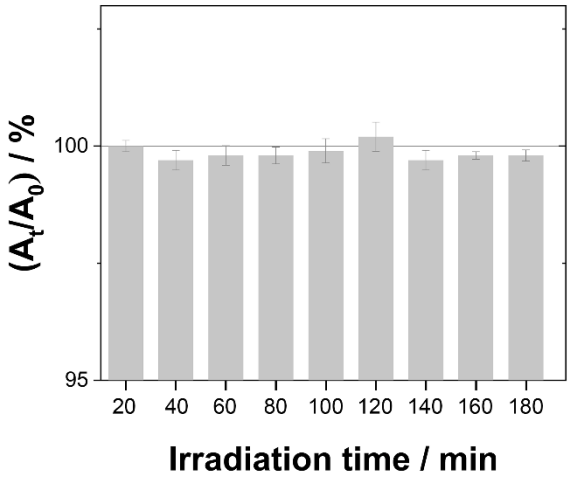

Figure S6: Time dependent maximum absorbance of a 20 ppm of Cr(VI) under artificial UV-filtered sunlight. Photocatalyst dose = 0 mg mL^{-1}.

Photoreduction of Cr(VI)

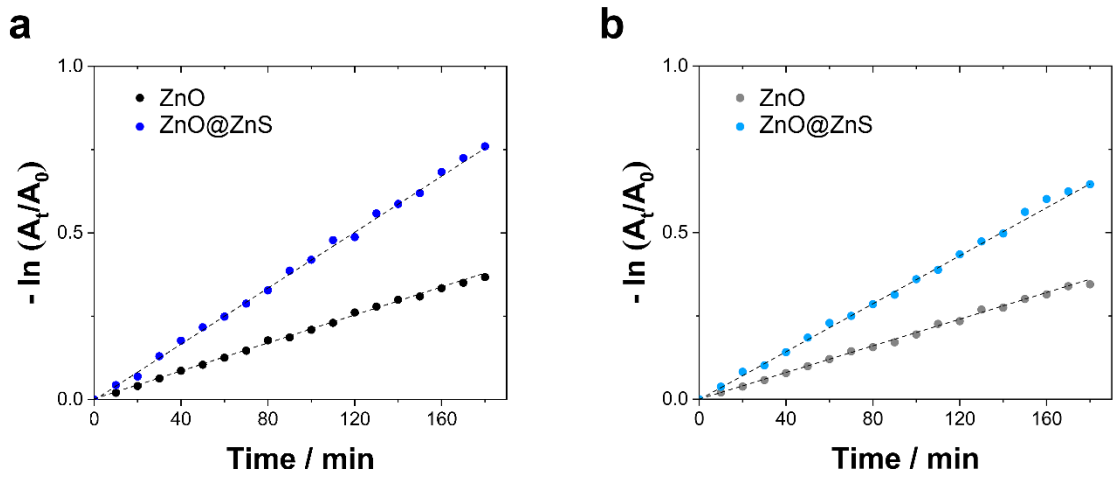

Figure S7: Fitted curves of $-\ln(A_t/A_0)$ against reaction time under (a) artificial and (b) natural UV-filtered sunlight. Photocatalyst dose = 0.4 mg mL^{-1}.