

Electronic Supplementary Information (ESI)

Direct Z-scheme hierarchical heterostructures of oxygen-doped g-C₃N₄/In₂S₃ with efficient photocatalytic Cr(VI) reduction

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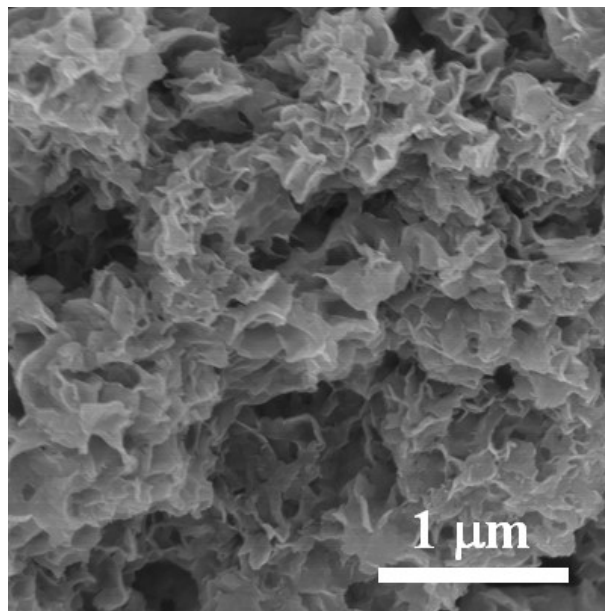


Fig. S1 SEM image of the OCN/IS-0.9 after being coated onto a slice of FTO glass.

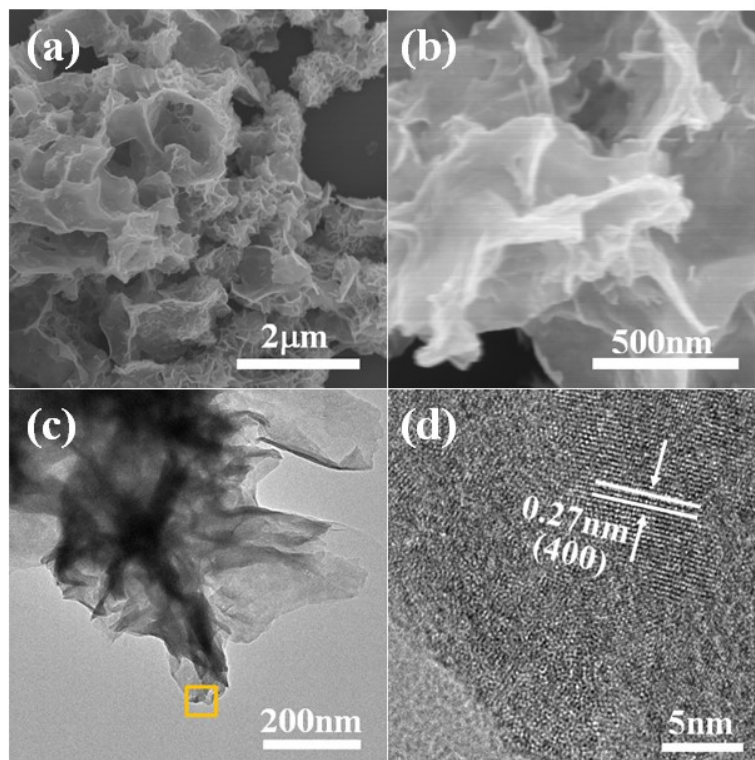


Fig. S2 (a,b) FE-SEM and (c) TEM images of the pure IS; (d) HRTEM image of the area marked by the orange square in (c).

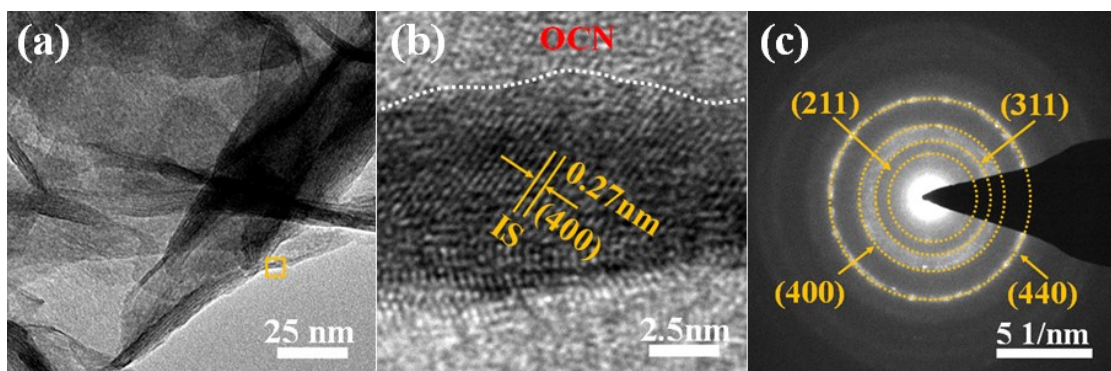


Fig. S3 (a) TEM image of the OCN/IS-0.9; (b) HRTEM image of the area marked by the orange square in (a); (c) showing the corresponding SAED patterns in (b).

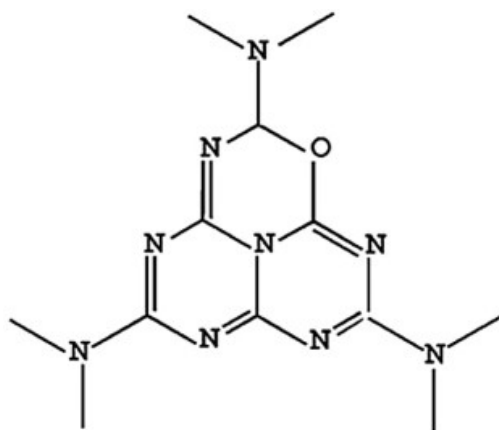


Fig. S4 Diagram of O-doped tri-s-triazine unit. Copyright permission from Ref. S1.

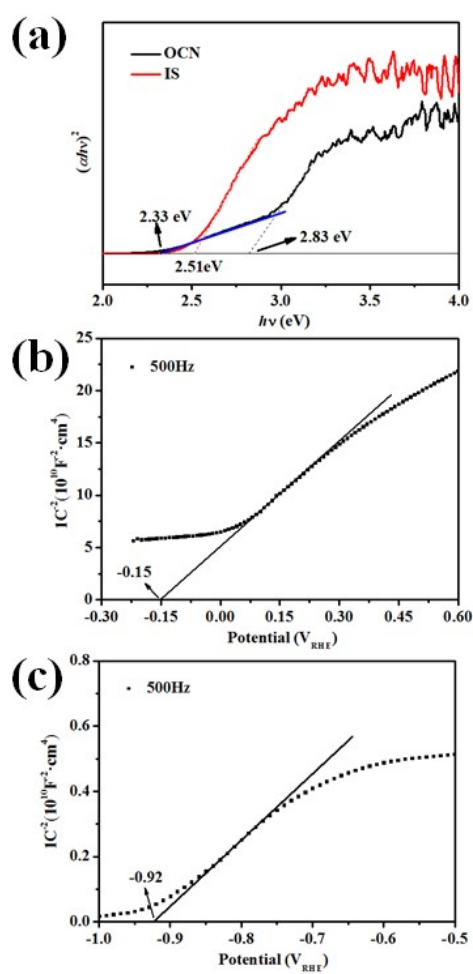


Fig. S5 (a) The band edges of OCN and IS; Mott-Schottky plots of (b) OCN, and (c) IS.

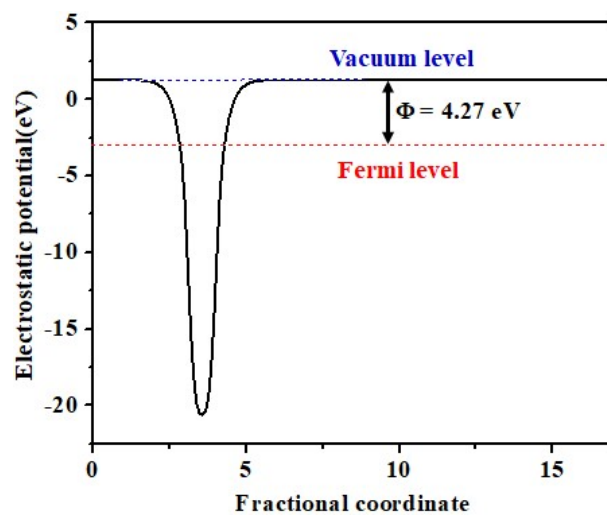


Fig. S6 Electrostatic potentials of OCN (001) facet.

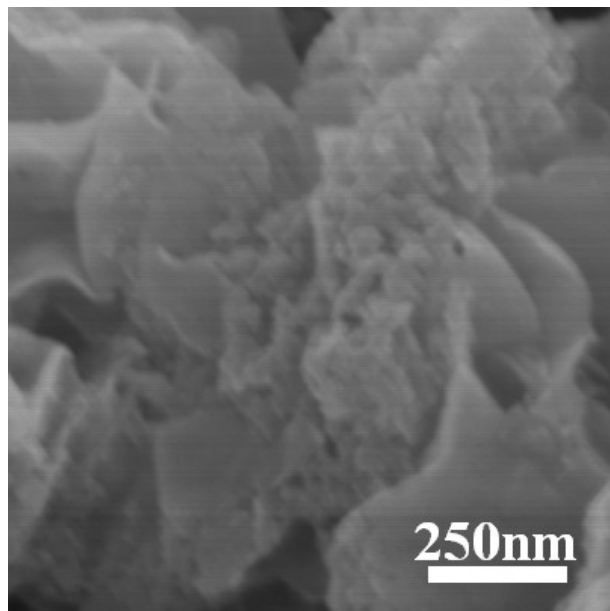


Fig. S7 SEM image of the OCN/IS-1.05 sample.

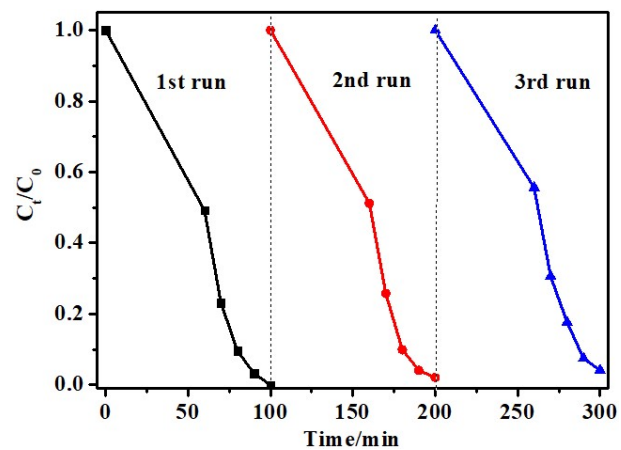


Fig. S8 Multiple cycles of the OCN/IS-0.9 sample in the photoreduction of Cr(VI) into Cr(III) under UV visible-light irradiation for 40 min.

Table S1. Comparison of Cr(VI) photoreduction activity of OCN/IS-0.9 with the well-known catalysts reported in the recent literatures.

Photocatalyst	Catalyst Quality (mg)	Initial Cr(VI) concentration (mg/L)	Time(min)	Reduction rate (%)	Reference
O-doped C ₃ N ₄ /In ₂ S ₃	50	35	40	100	This work
CoS ₂ /gC ₃ N ₄ -rGO nanocomposites	10	20	120	99.8	2
α -Fe ₂ O ₃ /g-C ₃ N ₄ composite	100	10	150	98	3
CoFe-LDH/g-C ₃ N ₄	50	50	90	100	4
Phosphorus-doped g-C ₃ N ₄ /SnS nanocomposite	50	100	60	100	5
Zero Valent Iron Doped g-C ₃ N ₄ /MoS ₂	30	20	120	91.4	6
In ₂ S ₃ /Gd ₂ O ₃	50	50	55	96.3	7
Bi ₂ S ₃ -In ₂ S ₃ heterojunction	20	70	140	99.86	8
In ₂ S ₃ /TiO ₂ hierarchical heterostructures	50	20	80	98	9
Mo ₂ C/MoS ₂ /In ₂ S ₃ composite	50	40	90	99.1	10
BiVO ₄ /Bi ₂ S ₃	5	20	60	91.2	11
Bi ₂ MoO ₆ /ZnO	100	50	150	100	12
PANI/SnS ₂ /NRG	300	50	60	100	13
BiVO ₄ /Bi ₂ S ₃	300	50	150	100	14

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