Supporting Information

Sn-doped 3D ATO Inverse Opal/Hematite Hierarchical Structures: Facile Fabrication and Efficient Photoelectrochemical performance

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**FigS1.** (a) Diffuse reflectance UV-Vis absorption and (b) Tauc-Plots of Sn-doped and undoped ATO IO(330)/Fe₂O₃ sample and planar control sample.
Table S1 Comparison of PEC performances of reported Fe$_2$O$_3$ based nanostructured photoanodes

| Fe$_2$O$_3$ based nanostructured photoanodes | Preparation of Fe$_2$O$_3$ | $J_{1.23}$ [mA/cm$^2$]$^a$ | Ref. |
|---------------------------------------------|---------------------------|--------------------------|------|
| Sn-doped Fe$_2$O$_3$ Nanowires               | hydrothermal              | 0.45                     | 1    |
| Sn-doped Fe$_2$O$_3$ films                  | nonpolar organic solution process approach | 1.05 | 2 |
| Sn-doped Fe$_2$O$_3$ nanorod arrays         | hydrothermal              | 1.00                     | 3    |
| 3D FTO IO @ Fe$_2$O$_3$                     | hydrothermal              | 0.46                     | 4    |
| Fe$_2$O$_3$/graphene IO                     | Chemical bath deposition  | 1.62 mA/cm$^2$ at 1.5V vs. RHE | 5    |
| Fe$_2$O$_3$/ITO IO                          | ALD                       | 1.60 mA/cm$^2$ at 1.53 V vs. RHE | 6    |
| 3D ATO/ Fe$_2$O$_3$ nanorods                | hydrothermal              | 1.10                     | 7    |

$^a$): Unless otherwise specified, the photocurrent density is collected at 1.23V vs. RHE with AM 1.5G illumination(100 mW/cm$^2$) in 1M NaOH.

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