Electronic Supplementary Information

Effect of crystallinity on photocatalytic performance of Co$_3$O$_4$

water-splitting cocatalyst

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Figure S1. XRD spectra of 1 layer Co$_3$O$_4$ (annealed at 500 °C) on WO$_3$. Only WO$_3$ and FTO are detected, as the XRD is not sensitive enough to detect the ultra-thin Co$_3$O$_4$ layer.

Figure S2. Cross-sectional view of Co$_3$O$_4$/WO$_3$ film
Figure S3. EDX analysis of Co$_3$O$_4$/WO$_3$ film on FTO.

Figure S4. XRD spectra of NiO$_x$ film on silicon at different annealing temperature.
Figure S5. Photocurrent density of bare WO$_3$, and NiO$_x$/WO$_3$ (cocatalyst annealed at 350 °C).

Figure S6. Percentage change in photocurrent (with respect to bare WO$_3$) with cocatalyst annealing temperature for NiO$_x$/WO$_3$ film at 1.2 V vs Ag/AgCl.