**Supporting Information**

**Porous CeO$_2$ Nanowires/Nanowire Arrays: Electrochemical Synthesis and Application in Water Treatment**

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**Fig. S1** Pore size distribution curve of porous CeO$_2$ (a) NWAs and (b) NWs by the BJH method using the desorption isotherm.
Fig. S2 (a, b) SEM, (c) TEM, and (d) HRTEM images of CeO$_2$ nanospheres on FTO substrates prepared in solution of 0.01 M Ce(NO$_3$)$_3$ 6H$_2$O + 10% DMSO with a current density of 2 mA cm$^{-2}$ for 60 min at 70 °C.

Fig. S3 Absorption spectra of a solution of Congo red (100 mg L$^{-1}$, 50 mL) in the presence of porous CeO$_2$ (a) NWAs and (b) NWs (0.02 g) at different time intervals.
Fig. S4 (a) Photo image, and (b) absorption spectra of a solution of Congo red (100 mg L⁻¹, 50 mL) in the presence of TiO₂ nanoparticles (P25, 0.02 g) at different time intervals.

Fig. S5 (a) Photo image, and (b) absorption spectra of a solution of Congo red (100 mg L⁻¹, 50 mL) in the presence of CeO₂ nanospheres (0.02 g) at different time intervals.

Fig. S6 (a) Optical absorption spectrum and (b) \((ahv)^2\) vs \(hv\) curves for the CeO₂ NWs and NWAs.
Fig. S7 (a) Photo image, and (b) absorption spectra of a solution of Congo red (100 mg L$^{-1}$, 50 mL) in the presence of commercial active carbon (0.005 g) at different time intervals.

Fig. S8 (a) Photo image, and (b) absorption spectra of a solution of Congo red (100 mg L$^{-1}$, 50 mL) in the presence of porous CeO$_2$ NWs (0.005 g) at different time intervals.

Fig. S9 Photo images of a solution of Congo red (100 mg L$^{-1}$, 50 mL) in the presence of porous CeO$_2$ NWAs (0.005 g) (a) in air and daytime, and (b) in N$_2$ and dark at different time intervals.
Fig. S10 Photo image of the Congo red solution before and after water treatment in the presence of porous CeO$_2$ NWAs (0.005 g).