Electronic Supplementary Information

Band Gap Engineering of CeO_2 Nanostructure by Electrochemically Active Biofilm for Visible Light Applications†

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Schematic representation of modification process of pure CeO_2 (*p*-CeO_2) by EAB

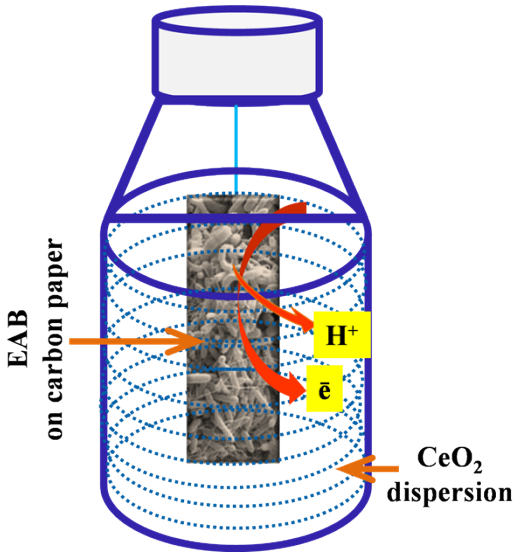

Fig. S1. Schematic representation of the CeO_2 modification by electrochemically active biofil

m.

TEM and HR-TEM images of the *p*-CeO_2 and *m*-CeO_2 nanostructures after photocataly tic reaction

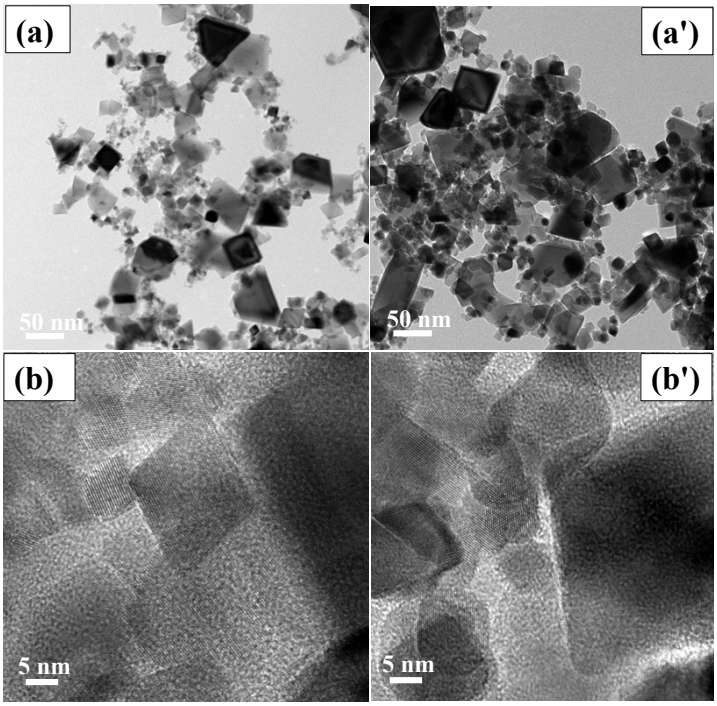

Fig. S2 TEM and HR-TEM images of the *p*-CeO_2 (a and b) and *m*-CeO_2 (a' and b') nanostruct ures after photocatalytic reaction.

Acquire HAADF of the *p*-CeO_2

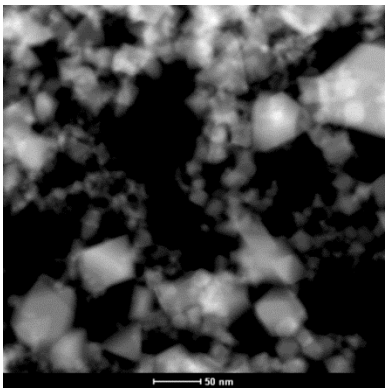

Fig. S3. Representative HAADF FE-TEM image of the *p*-CeO_2.

Acquire HAADF of the *m*-CeO_2

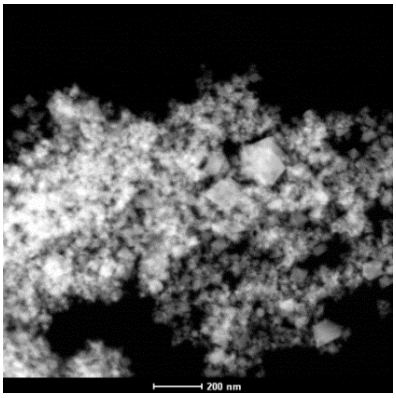

Fig. S4. Representative HAADF FE-TEM image of the *m*-CeO_2.

EDX of the *p*-CeO_2

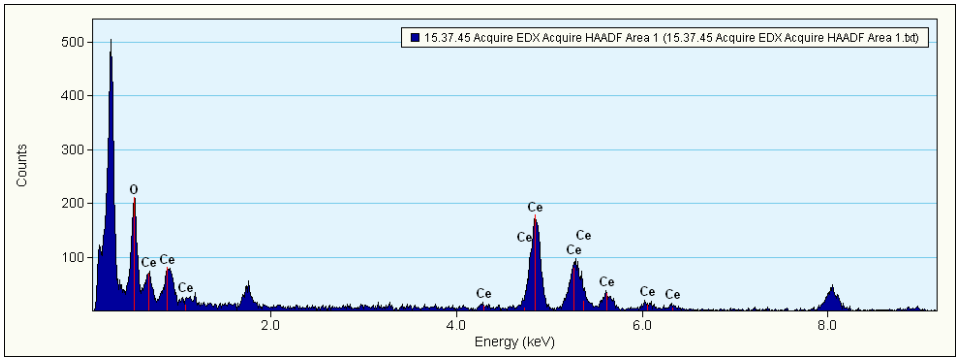

Figure S5. EDX of the *p*-CeO_2.

EDX of the *m*-CeO_2

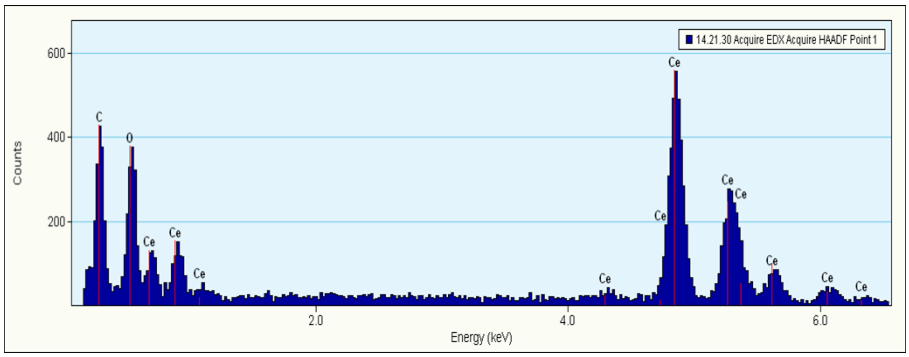

Fig. S6. EDX of the *m*-CeO_2.

UV-vis diffuse reflectance spectra of the *p*-CeO_2 and *m*-CeO_2

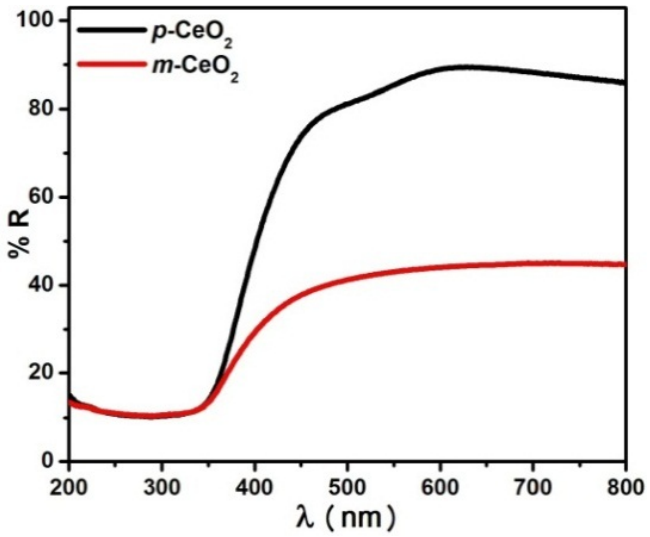

Fig. S7. UV-vis diffuse reflectance spectra of the *p*-CeO_2 and *m*-CeO_2 nanostructures.

UV-vis diffuse absorption spectra of the *p*-CeO_2 and *m*-CeO_2 nanostructures modified a t different time interval

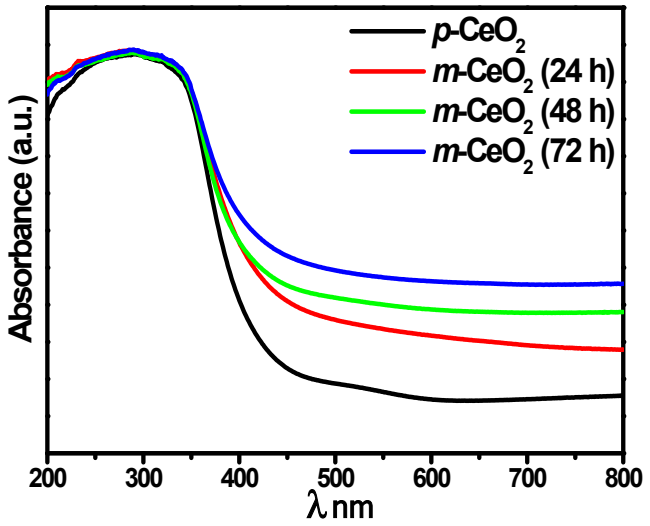

Fig. S8. UV-vis diffuse absorption spectra of the *p*-CeO_2 and *m*-CeO_2 nanostructures modifie d at different time interval.

XPS survey spectra of the *p*-CeO_2 and *m*-CeO_2 nanostructures

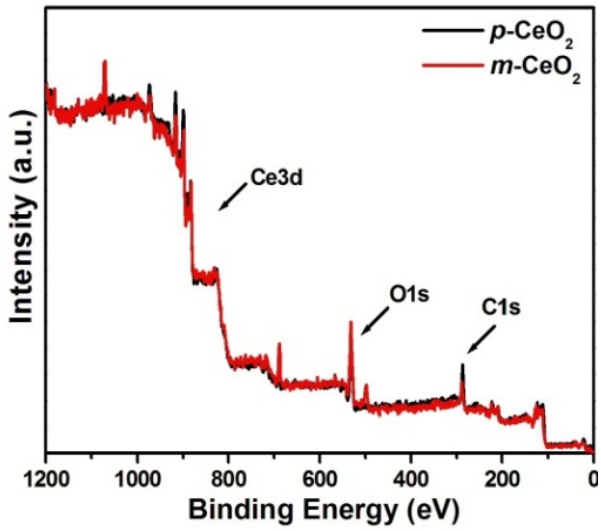

Fig. S9. XPS survey spectra of the *p*-CeO_2 and *m*-CeO_2 nanostructures.

C1s spectra of the *p*-CeO_2 and *m*-CeO_2 nanostructures

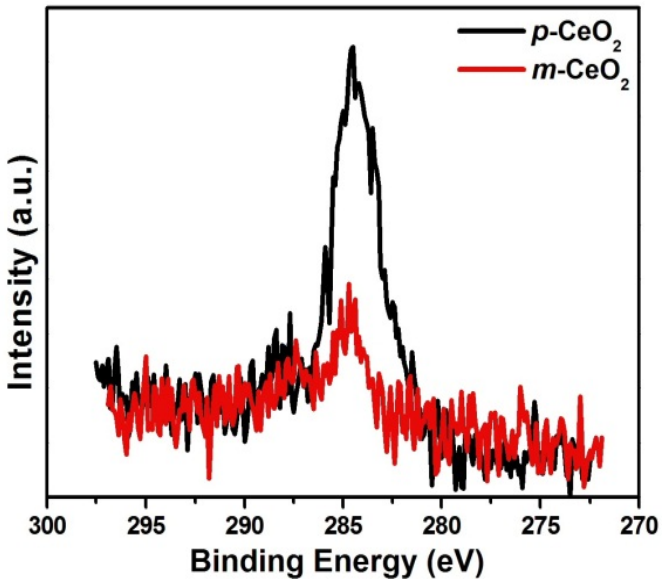

Fig. S10. C1s spectra of the *p*-CeO_2 and *m*-CeO_2 nanostructures.

EPR Spectra of the *p*-CeO_2 and *m*-CeO_2 nanostructures

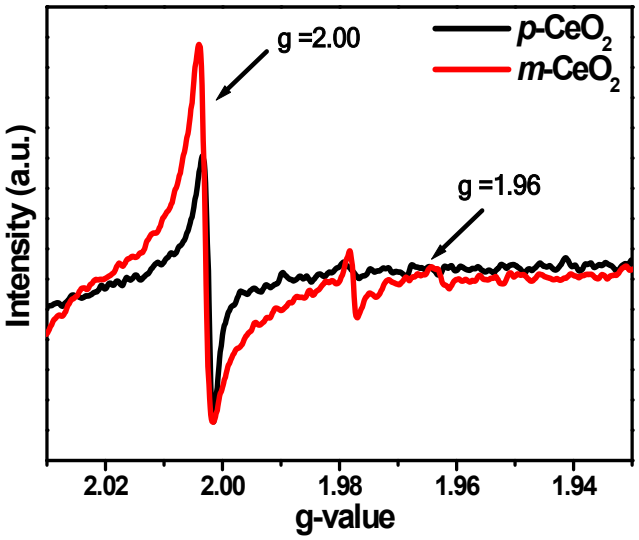

Fig. S11. EPR spectra of the *p*-CeO_2 and *m*-CeO_2 nanostructures.