Supplementary Information

Unexpected Production of Singlet Oxygen by Sub-Micron Cerium Oxide Particles and Enhanced Photocatalytic Activity against Methyl Orange

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I. Methyl orange dye degradation

**FIG. S1.** UV absorption spectrum of Methyl orange dye (15 ppm) with CeO₂ particles.
II. Production of Reactive oxygen Species

FIG S2. UV absorption spectrum of (a) FFA and (b) NBT for singlet oxygen and superoxide anion respectively with CeO$_2$ particles.
III. BET analysis of CeO$_2$ Particles

**FIG S3.** BET adsorption-desorption isotherms of C1 and C3.
FIG S4. HRTEM images of CeO$_2$ particles (a) C1, (b) C2 and (c) C3. Dotted rings: CeO$_2$ Particles of smaller than 10 nm.