

Electronic Supplementary Information

Effects of the SrTiO₃ support on visible-light water oxidation with Co₃O₄ nanoparticles

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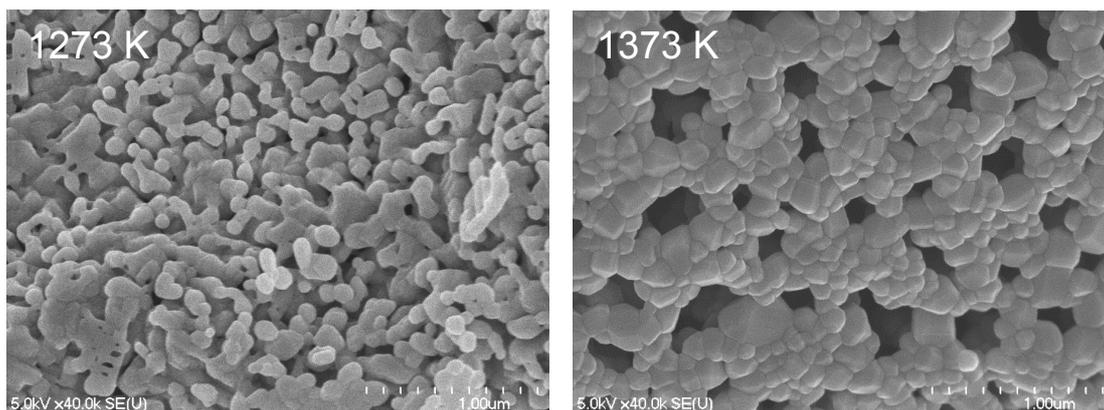


Fig. S1. SEM images of SrTiO₃ calcined at 1273 and 1373 K.

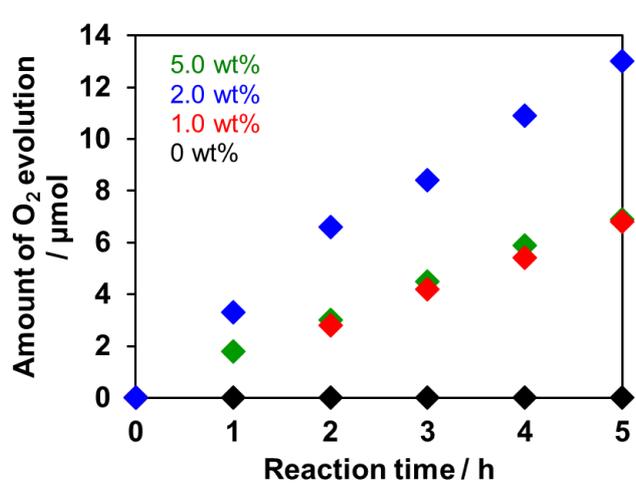


Fig. S2. Time courses of O₂ evolution under visible light ($\lambda > 480$ nm) over SrTiO₃ (1073 K) samples modified with varying amounts of Co₃O₄. Reaction conditions: catalyst, 100 mg (with 200 mg La₂O₃); reactant solution, aqueous AgNO₃ (10 mM, 140 mL); light source, 300 W xenon lamp fitted with a CM-1 mirror and cutoff filters of L-42 and Y-48.

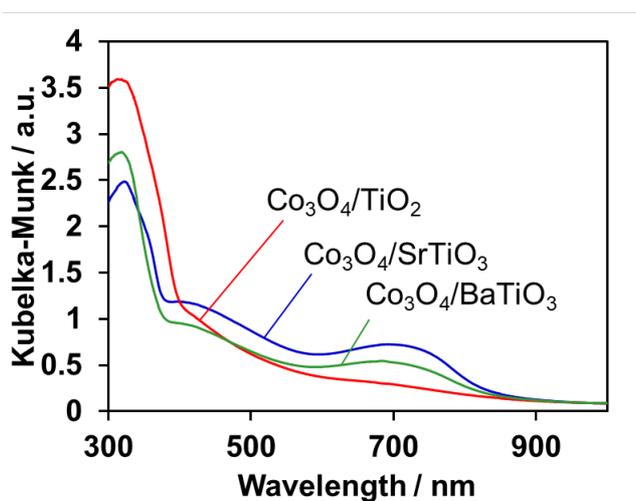


Fig. S3. UV-Vis-NIR diffuse reflectance spectra of rutile TiO₂, SrTiO₃ (PC-1073 K), and BaTiO₃ (PC-1073 K) further modified with 2.0 wt% Co₃O₄.

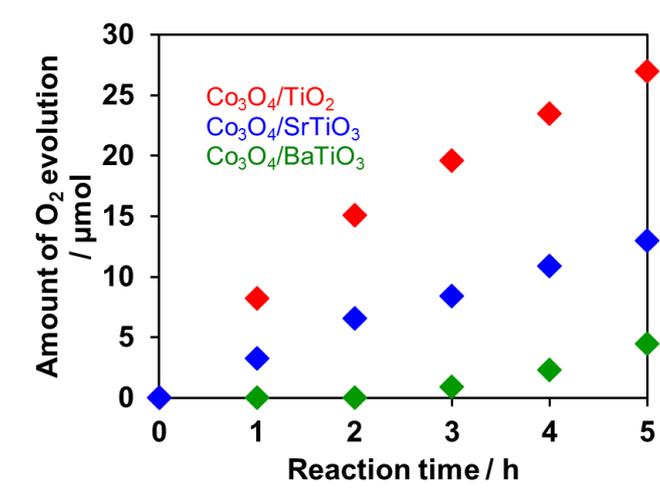


Fig. S4. O₂ evolution over 2.0 wt% Co₃O₄-loaded semiconductors (see Fig. S3) under visible light ($\lambda > 480$ nm). Reaction conditions: catalyst, 100 mg (with 200 mg La₂O₃); reactant solution, aqueous AgNO₃ (10 mM, 140 mL); light source, 300 W xenon lamp fitted with a CM-1 mirror and cutoff filters of L-42 and Y-48.

Table S1. Dependence of the O₂ evolution rate over 2.0 wt% Co₃O₄-loaded SrTiO₃ (1073 K) on the incident light cutoff wavelength^a

Entry	Wavelength of incident light / nm	Rate of O ₂ evolution / $\mu\text{mol h}^{-1}$
1	480 <	2.0
2	600 <	1.3
3	720 <	0.7
4	800 <	0.4
5	850 <	N.D.

^a Reaction conditions: catalyst, 100 mg (La₂O₃ 200 mg); reactant solution, aqueous AgNO₃ (10 mM, 140 mL); light source, 300 W xenon lamp fitted with a total reflection mirror, a L-42 cutoff filter and another cutoff filter. Here an output current of xenon lamp was 10 A.