

Electronic supplementary information

Rapid Evaluation of Oxygen Vacancies–Enhanced Photogeneration of Superoxide Radical in Nano-TiO₂ Suspensions

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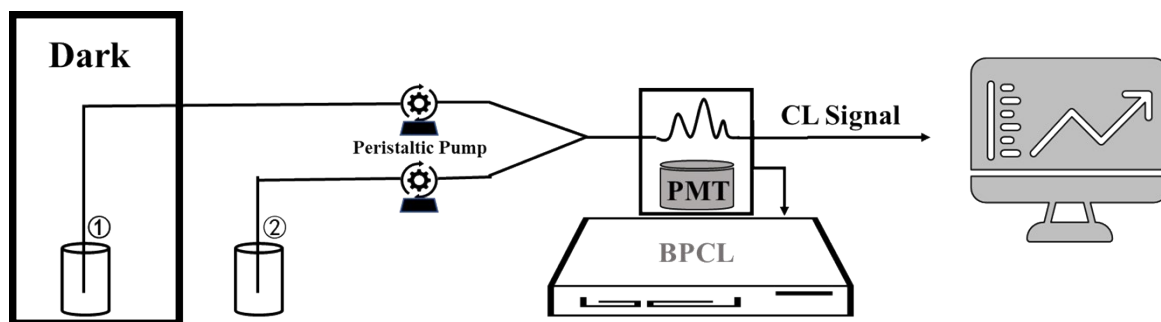


Figure S1. CFCL experimental setup : ① Nano-TiO₂ suspension, ② luminol;

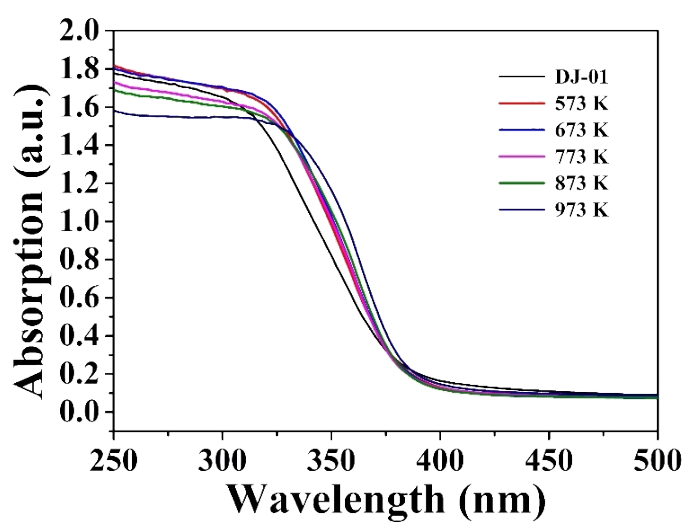


Figure S2. UV-vis diffuse reflectance spectra of TiO₂ nanoparticles.

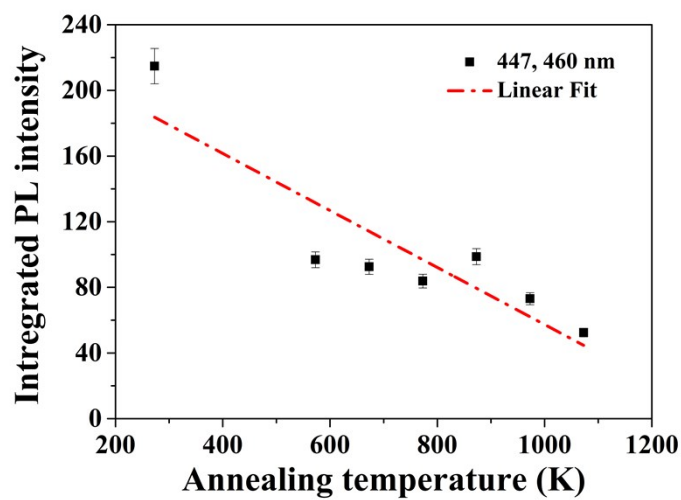


Figure S3. Totally integrated peak intensity at 447 nm and 460 nm for nano-TiO₂ samples.

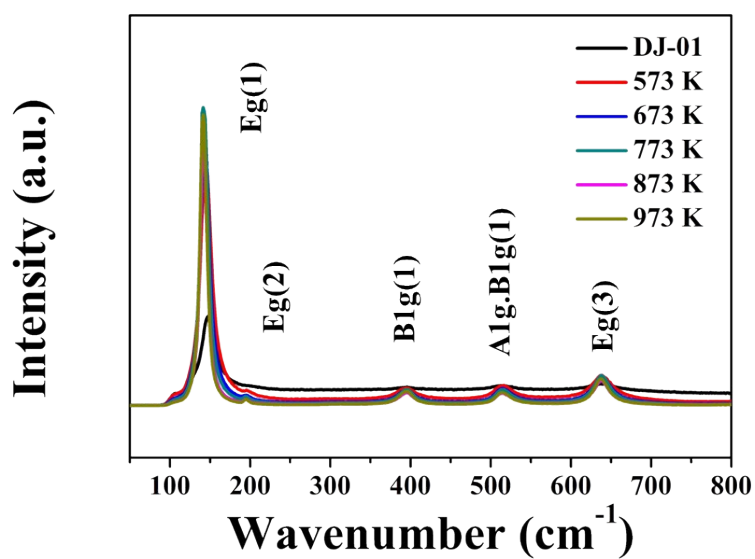


Figure S4. The Raman spectra of nano-TiO₂ samples.

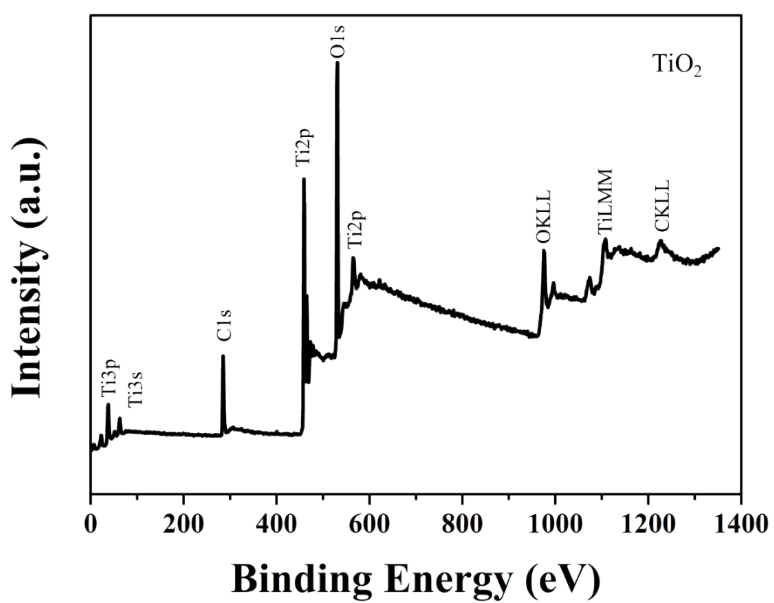


Figure S5. XPS survey scan obtained on TiO₂ (DJ-01) sample.

Table S1. Physical properties of TiO₂ samples.

Samples	Calcination Temperature (K)	Primary Particle size (nm)	Anatase (%)	BET surface area (m² g⁻¹)	Band gap (eV)
DJ-01	Non-calcined	8	100	149	3.10
—	573 K	12	100	88	3.12
—	673 K	17	100	59	3.14
—	773 K	25	100	43	3.16
—	873 K	40	100	31	3.20
—	973 K	66	100	17	3.20

Table S2. XPS results of different chemical states of O elements at the surface of TiO₂ samples.

Samples	Binding energy (eV)				O_L (%)	O_{.OH} (%)	O_s (%)	Evaluated V_O (%)
	O1s (O_L)	O1s (O_{.OH})	O1s (O_s)	Ti2p_{2/3}				
Non-calcined	530.21	531.34	532.60	458.61	66.02%	21.43%	12.55%	32.71%
573 K	530.16	531.01	532.05	458.60	79.49%	12.67%	7.84%	18.43%
673 K	530.11	531.04	532.10	458.64	81.67%	10.94%	7.39%	15.10%
773 K	530.26	531.17	532.15	458.66	85.47%	8.42%	6.10%	9.32%
873 K	530.17	531.23	532.22	458.71	86.90%	7.67%	5.43%	7.25%
973 K	530.18	531.34	532.36	458.65	88.27%	6.41%	5.33%	5.17%