

Table S1. Surface areas, average pore volume, and average pore radii of *a*FS glass samples with ‘*a*’ of 10, 15 and 20.

Catalyst	SBET (m ² g ⁻¹)	Average pore volume ×10 ⁻² (cm ³ g ⁻¹)	Average pore radii (nm)
10FS	6.53	13.3	7.99
15FS	4.32	7.92	7.99
20FS	4.10	6.62	1.21

Table S2. Photocatalytic degradation percentage, and first-order kinetic rate constants for the degradation of methylene blue, rhodamine B, methyl orange, congo red and phenol under visible light irradiation.

Organic pollutants	Concentration	Glass sample	Degradation (%)	First order rate constants (<i>k</i> × 10 ⁻³ min ⁻¹)
Methylene Blue	20 μM	10FS	36	7
		15FS	45	9
		20FS	97	62
Rhodamine B	20 μM	20FS	95	30
Methyl Orange	20 μM	20FS	88	35
Congo Red	20 μM	20FS	78	8
Phenol	50 ppm	20FS	96	5

Fig. S1. Photocatalytic degradation of MB using heat-treated *a*FS glass with '*a*' of 10 (red), 15 (black) and 20 (green) without light irradiation (Dark conditions).

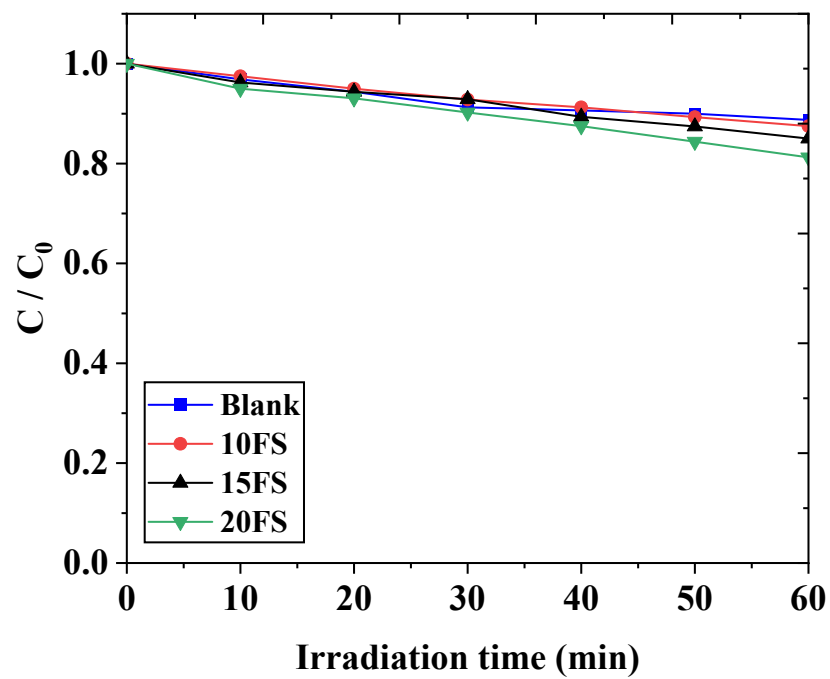


Fig. S2. Photocatalytic degradation of organic dyes using heat-treated 20FS glass sample without light irradiation (Dark conditions).

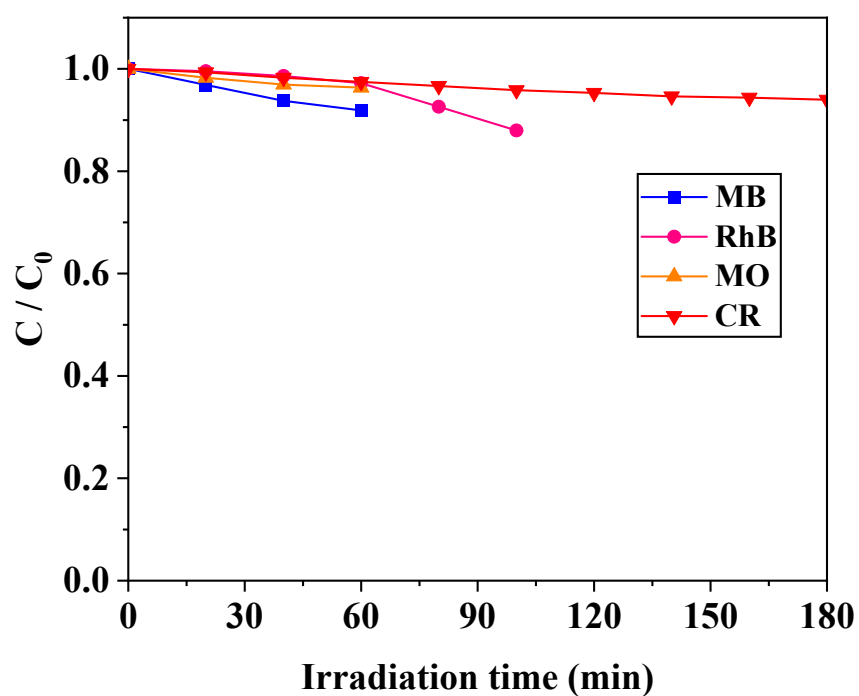


Fig. S3. TOC and COD removal of phenol using 20FS under visible light irradiation.

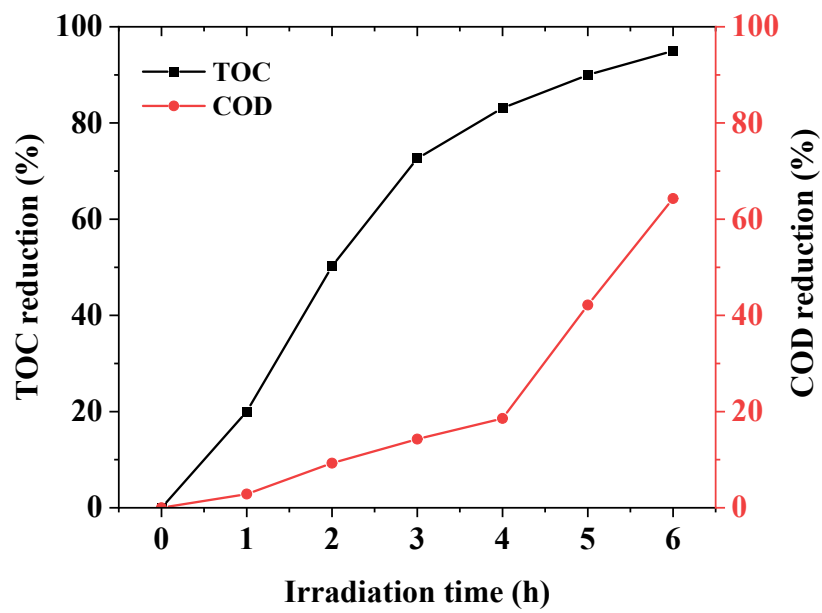


Fig. S4. The proposed mechanism for the photocatalytic degradation of organic pollutants by α - Fe_2O_3 nanoparticles and hydrogen peroxide under visible light irradiation.

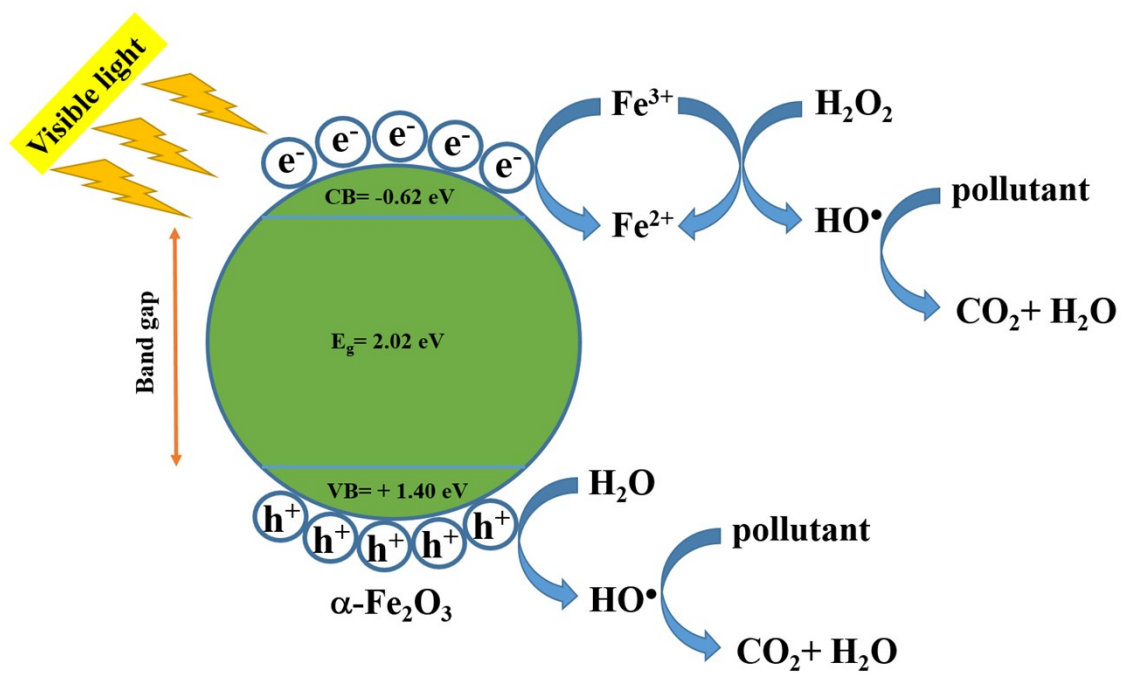


Fig. S5. Factorial effects for the photocatalytic degradation of MB using heat-treated 20FS under visible-light irradiation: (a) Catalyst amount, (b) Initial H_2O_2 concentration, (c) MB dye concentration and (d) wavelength of light irradiation (action spectrum).

