Ce-doped nano-Fe-TiO_2 composites for photocatalytic degradation of Naphthol Blue Black in aqueous medium

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Table S1: Comparison between the prepared doping ratio and the value derived from EDX mapping of the TFCA catalyst.

Doping Ratio	Prepared	EDX mapping	Deviation
Fe/TiO_2	3 wt%	2.79 wt%	7%
Ce/TiO_2	3 wt%	3.67 wt%	22%
Ag/TiO_2	3 wt%	2.46 wt%	18%

Table S2: Mulliken electronegativities (χ) of selected elements

Element	Electron affinity (EA), eV	Ionization energy (IE), eV	$X_{element}$= 0.5×(EA+IE)
Ti	0.07	6.82	3.445
O	1.46	13.61	7.535
Fe	0.15	7.9	4.025
Ce	0.52	5.5387	3.028
Ag	1.30	7.5762	4.439

Table S3: Effect of individual parameters on NBB dye degradation

	Light effect	H_2O_2 effect	Catalyst effect	Light and H_2O_2 effect	All parameters
Catalyst	0	0	TFC	0	TFC
Dye (ppm)	50	50	50	50	50
H_2O_2 (mM)	0	0.25	0	0.25	0.25
pH	3	3	3	3	3
Light	UV	0	0	UV	UV

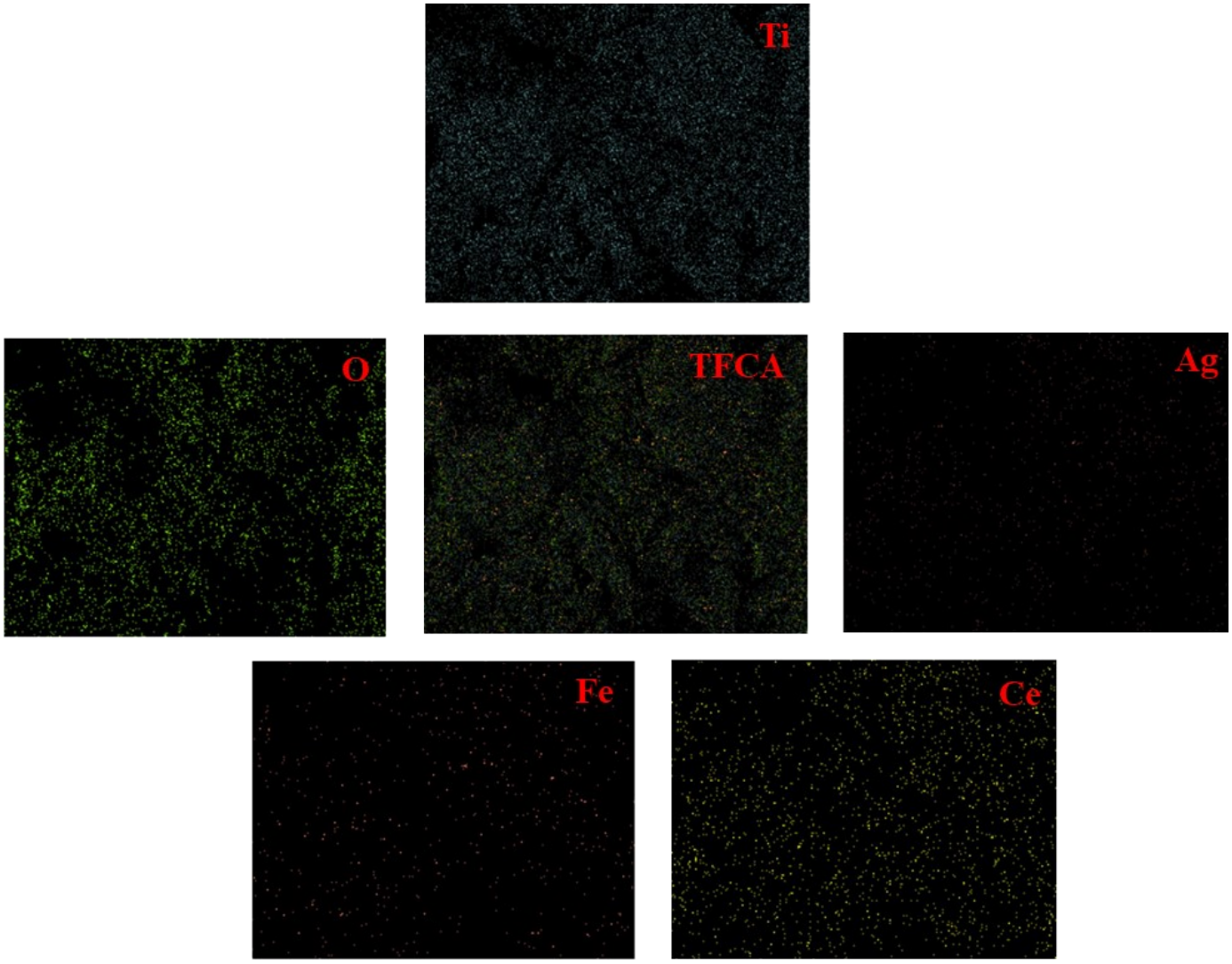

Fig. S1: EDX mapping analysis of different nano-photocatalyst

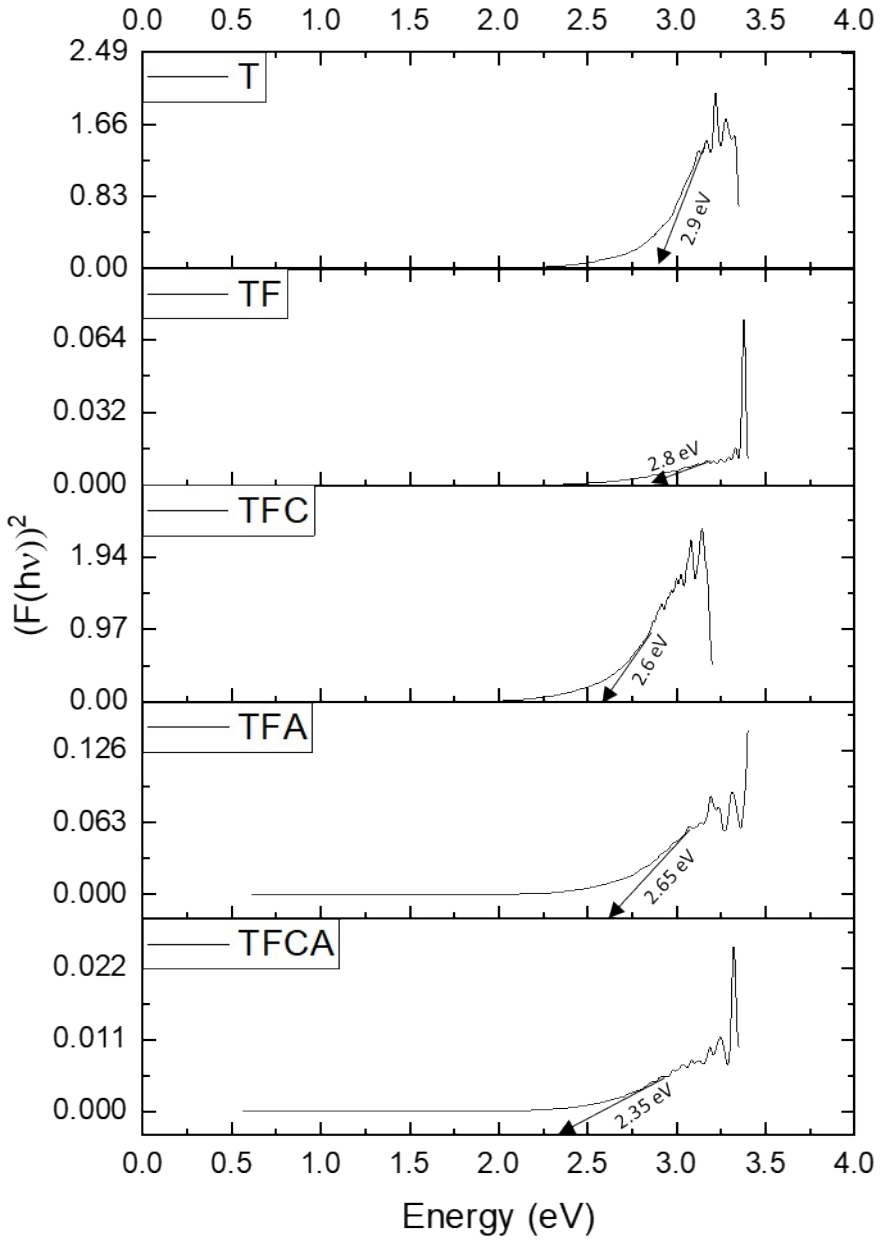

Fig. S2: Tauc plot for band gap determination

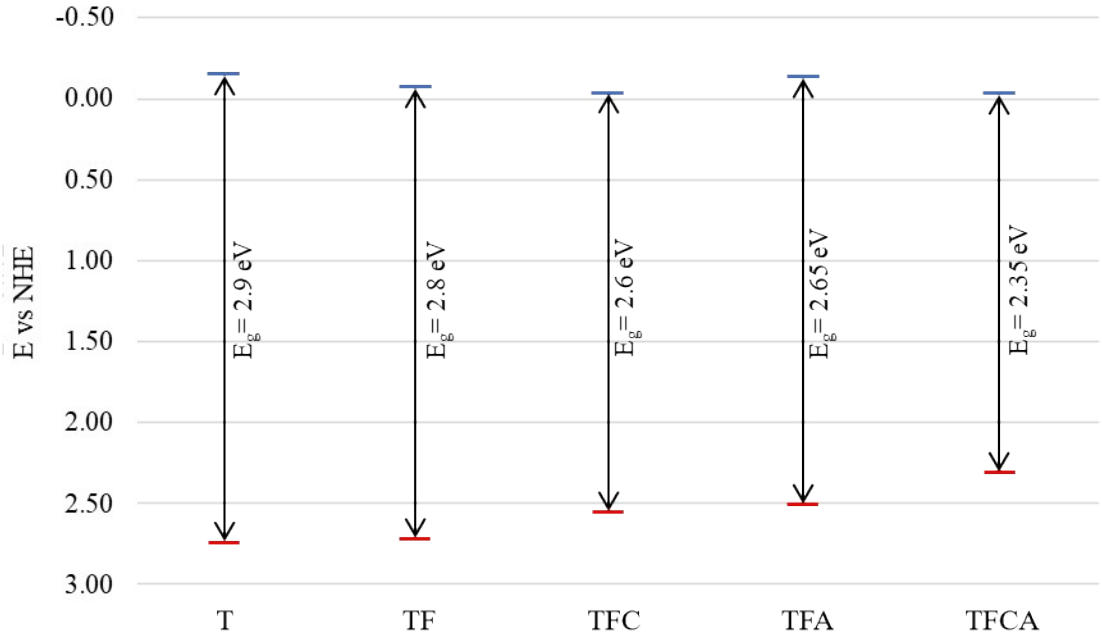

Fig. S3: Photocatalysts conduction and valence band edges position.

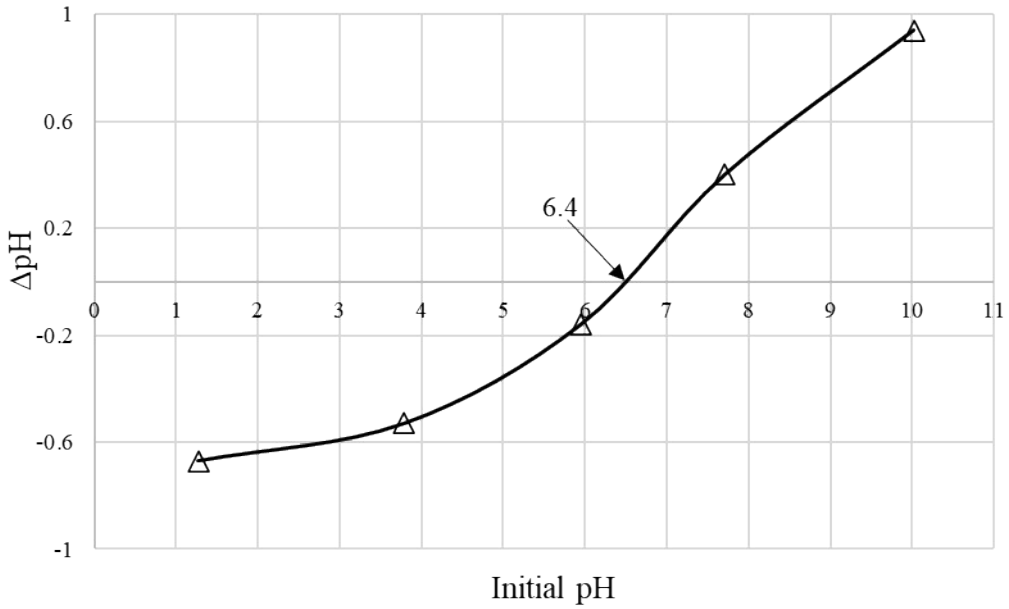

Fig. S4: Isoelectric point determination of TFC catalyst.