

Supplementary materials for
**Electrostatic Interaction Mechanism of Visible Light Absorption
Broadening in Ion-doped Graphitic Carbon Nitride**

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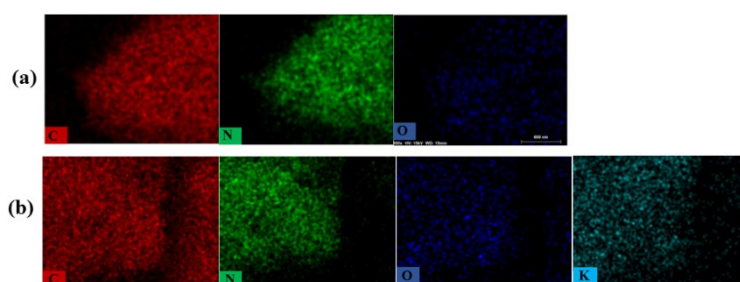


Fig. S1: Element mapping images of CN (a) and CN-K-OOH (b).

Table S1: Elemental composition according to SEM-EDS measurements.

Sample	C (at. %)	N (at. %)	O (at. %)	K (at. %)	C/N (at.)
CN	39.26	56.98	3.75	--	0.69
CN-K	38.48	52.42	5.69	3.39	0.74
CN-K-OOH	39.13	52.65	5.28	3.26	0.74

Table S2: Elemental composition from XPS measurements.

Sample	C (at. %)	N (at. %)	O (at. %)	K (at. %)	Cl (at. %)
CN	38.2	46.8	15.0	--	--
CN-K	33.8	43.2	14.1	8.3	0.5
CN-K-OOH	37.3	32.9	22.8	6.6	0.4

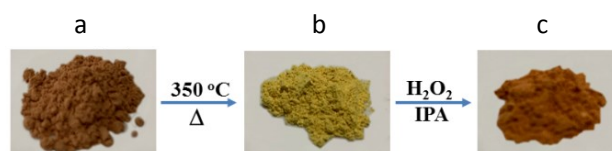


Fig. S2: Photographs of CN-K-OOH (a), the heated CN-K-OOH at 350 °C (b) and the retreated CN-K-OOH (c).



Fig. S3: Photographs of CN-K-OOH at pH=2, 4, 7, 9.

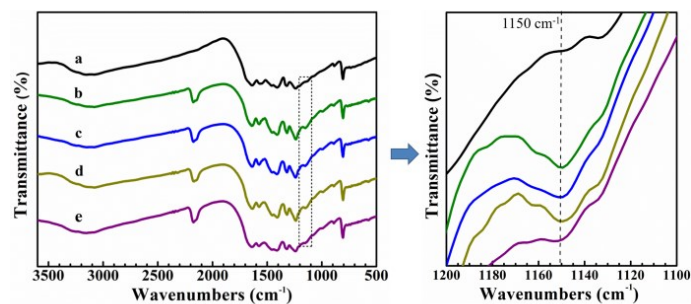


Fig. S4: FTIR spectra of CN (a), CN-K (b), CN-K-OOH (c), the heated CN-K-OOH at 350 °C (d) and the retreated CN-K-OOH (e) .

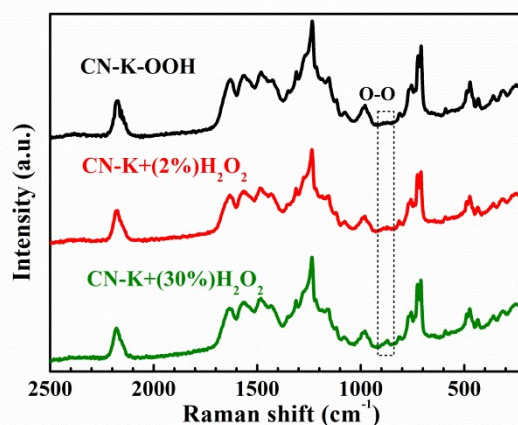


Fig. S5: Raman spectra of CN-K-OOH, CN-K+(2%) H₂O₂ and CN-K+(30%)H₂O₂.

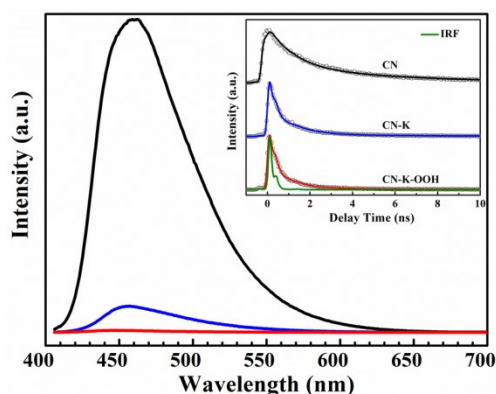


Fig. S6. Fluorescence spectra of CN, CN-K and CN-K-OOH under 375 nm light excitation. Inset: Fluorescence decays of CN, CN-K and CN-K-OOH. Excitation wavelength, 375 nm; detection wavelength, 470 nm.

Table S3: Fluorescence decay fitting parameters with three-exponential function for CN, CN-K and CN-K-OOH.

$\lambda_{ex}(nm)$	Sample	a_1	$\tau_1 (ns)$	a_2	$\tau_2 (ns)$	a_3	$\tau_3 (ns)$	$\langle\tau\rangle (ns)$
	CN	0.31	1.07	0.43	4.07	0.26	9.87	4.63
375	CN-K	0.30	0.13	0.47	1.19	0.23	6	1.98
	CN-K-OOH	0.35	0.10	0.45	0.83	0.20	4.42	1.29



Fig. S7: Photographs of CN-K(0.3 g KCl) (left) and CN-K(0.3 g KCl)-OOH (right).

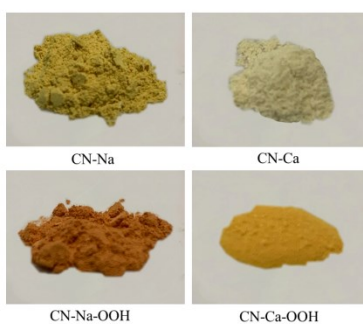


Fig. S8: Photographs of CN-Na, CN-Na-OOH, CN-Ca and CN-Ca-OOH.

Table S4: BET surface area, average pore diameter and pore volume for CN and CN-K-OOH.

Sample	S_{BET} (m^2/g)	Average pore diameter (nm)	Pore volume (cm^3/g)
CN	9.97	21.36	0.053
CN-K-OOH	5.00	14.46	0.018