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Electronic Supplementary Information

Three-Dimensional Fe- and N-Incorporated Carbon Structures as Peroxidase Mimics for Fluorescent Detection of Hydrogen Peroxide and Glucose

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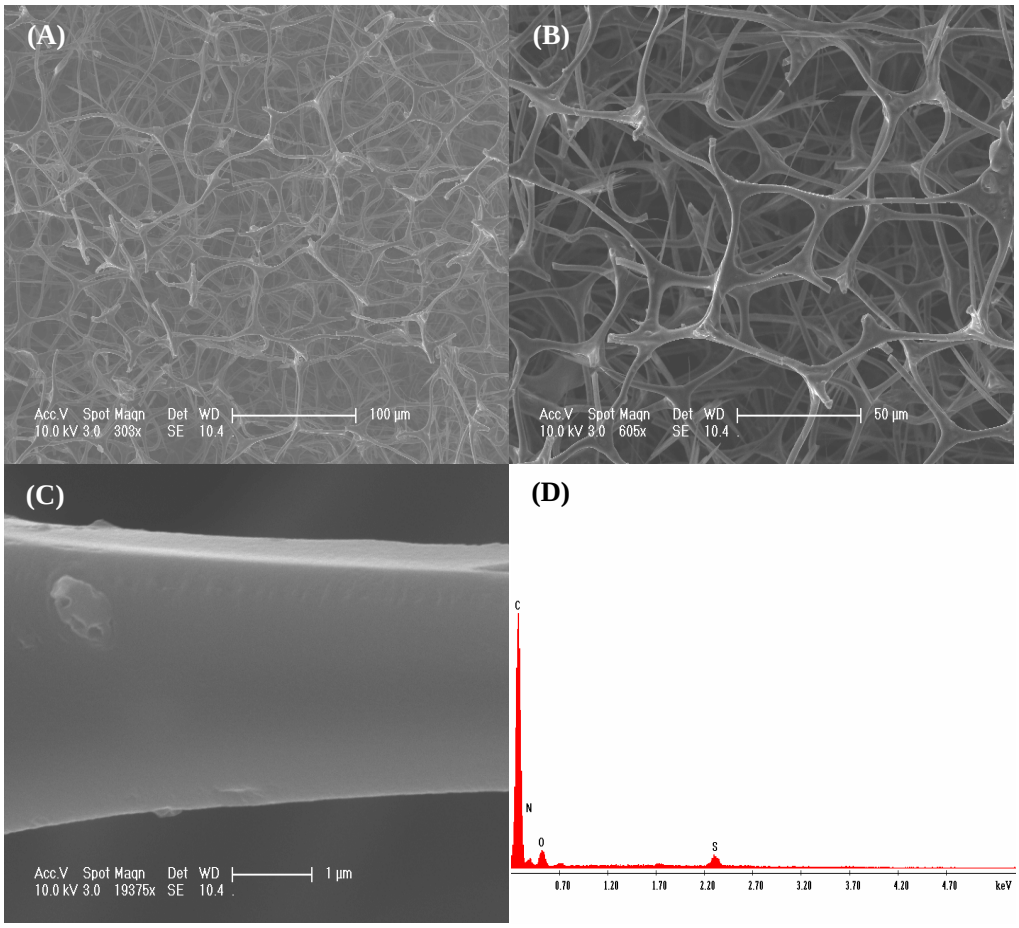

Fig. S1 (A-C) SEM images of the carbonized melamine foams (CFs) at different magnifications. (D) EDS of the CFs.

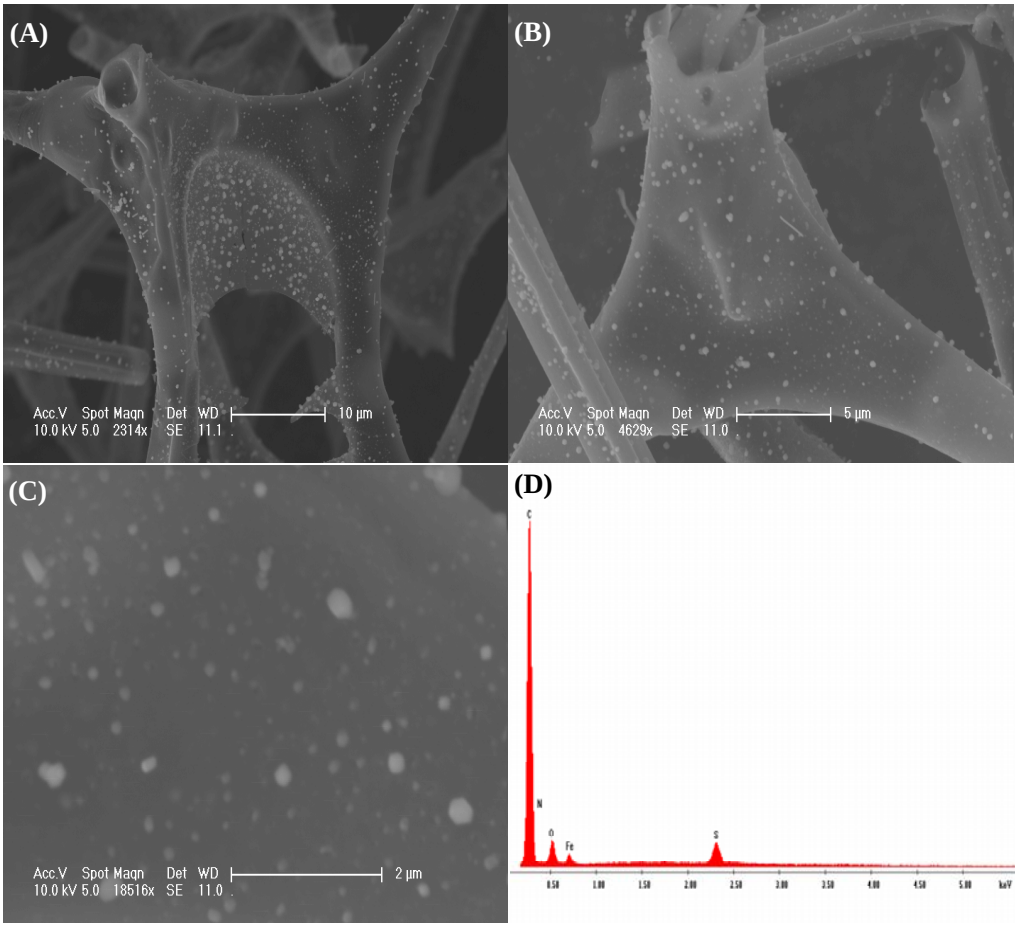

Fig. S2 (A-C) SEM images of the product from thermolysis of iron salts impregnated melamine foams (Fe-CFs) at different magnifications. (D) EDS of the Fe-CFs.

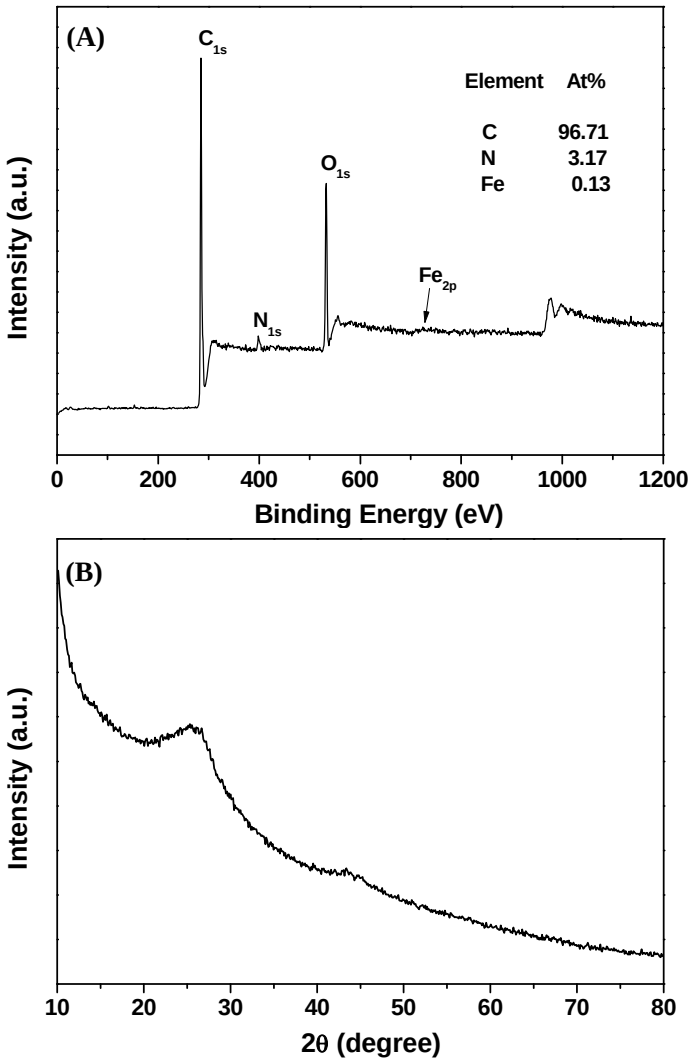

Fig. S3 XPS survey spectra (A) and XRD pattern (B) of the Fe-Phen-CFs composite.

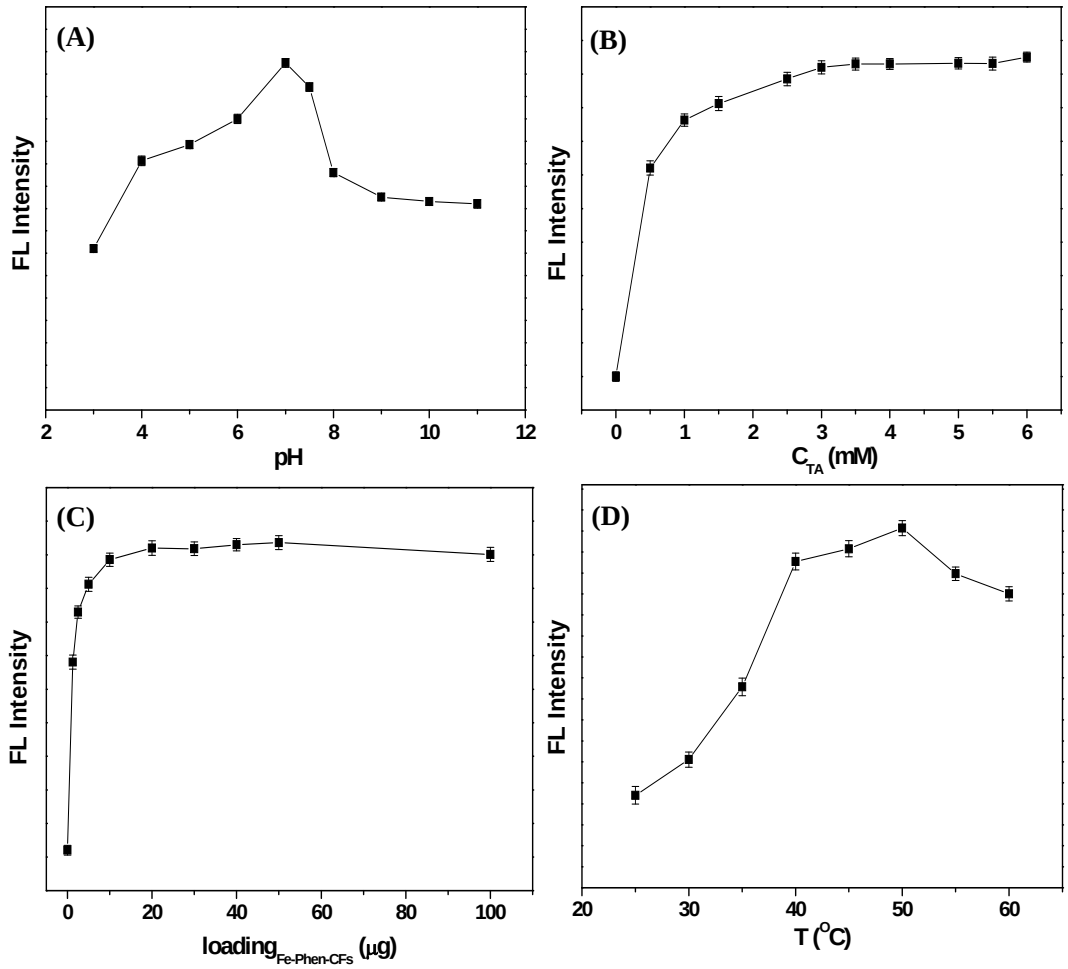

Fig. S4 Effects of solution pH (A), TA concentration (B), the dose of Fe-Phen-CFs (C) and reaction temperature (D) on the fluorescence intensity, where the concentration of H_2O_2 is 2 mM and the incubation time is 20 min.

Table S1 Comparison of the analytical performances for H_2O_2 detection by the present method and some reported fluorescent sensing systems

Material	Linear range/μM	LOD/μM	Reference
[a]Fluorescence probe NP1	—	0.17	*Anal.Chem.* 2014, 86, 9970-9976
[b]TPE probe	10-100	0.09	*Biosens. Bioelectron.* 2015, 64, 542-546
CuO nanoparticles	5-200	0.34	*Biosens. Bioelectron.* 2014, 61, 374-378
Tetraphenylethylene	10-110	0.18	*Tetrahedron Lett.*,2014, 55, 1471-1474
[c]P-GQDs	1-20	1	*Part. Part. Syst. Charact.* 2013, 30, 1086-1092
Fe_3O_4	0.04-8	0.008	*Talanta*, 2014,130, 259-264
Fe_3O_4@CdTe	50-1000	35	*Anal. Methods*, 2014, 6, 6352-6357
[d]PATb	0.31-2560	0.15	*Anal. Chim. Acta*,2014, 834, 51-57
Fe-Phen-CFs	0.1-100	0.068	Present work

[a]NP1: Fluorescence probe based on 1,8-naphthalimide and boric acid ester; [b]TPE: two-photon excitation; [c]P-GQDs: Graphene quantum dots prepared from pyrene; [d] PATb: phtalic acid/terbium

Table S2 Comparison of the analytical performances for glucose detection by the present material and some reported fluorescent sensing materials

Material	Linear range/μM	LOD/μM	Reference
B-GQDs[a]	100-10000	30	*Anal.Chem.* 2014, 86,4423-4430
Carbon dots	9-900	1.5	*Anal.Chem.* 2014, 86,5323-5329
GQDs	100-10000	5.0	*Chem.Commun.* 2013, 49, 9830-9832
CdTe/ZnTe/ZnS QDs	400-20000	300	*Angew. Chem., Int. Ed.* 2010,49, 6554-6558
CdSe/ZnS QDs	0-20000	100	*Chem.Commun.* 2009, 764-766
CuO nanoparticles	3-100	1	*Biosens. Bioelectron.* 2014, 61, 374-378
BSA-Au nanoclusters[b]	10-500	5	*Biosens. Bioelectron.* 2011, 26, 1965-1969
GQDs	9-300	0.1	*Anal. Chim. Acta* 2014, 810, 71-78
Fe-Phen-CFs	0.5-200	0.19	This work

[a]B-GQDs: Boron-doped graphene quantum dots; [b]BSA: Bovine serum albumin