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Supporting Information

Confinement pyrolysis boosting metal organic frameworks to N-doped hierarchical carbon for non-radical dominated advanced oxidation processes

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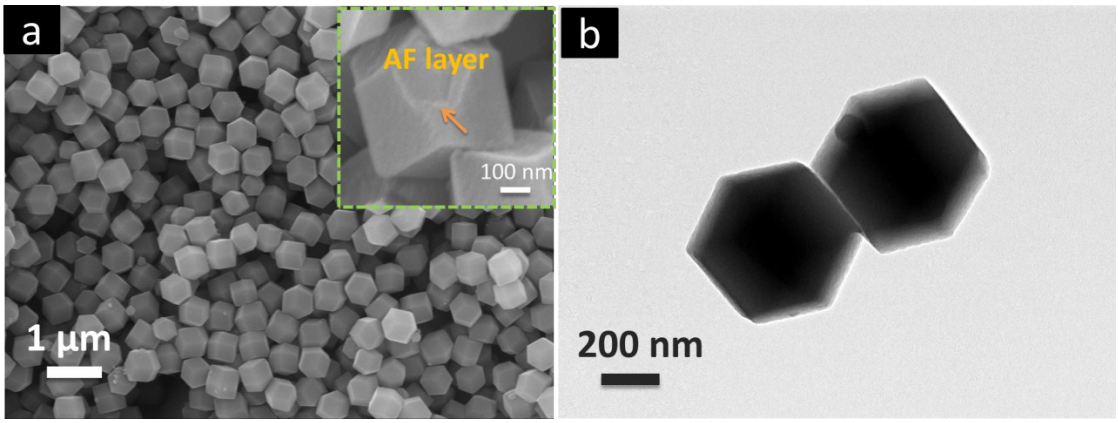

Fig. S1The SEM (a) and TEM (b) images of resultant ZIFs; inset (a) is the enlarge SEM image.

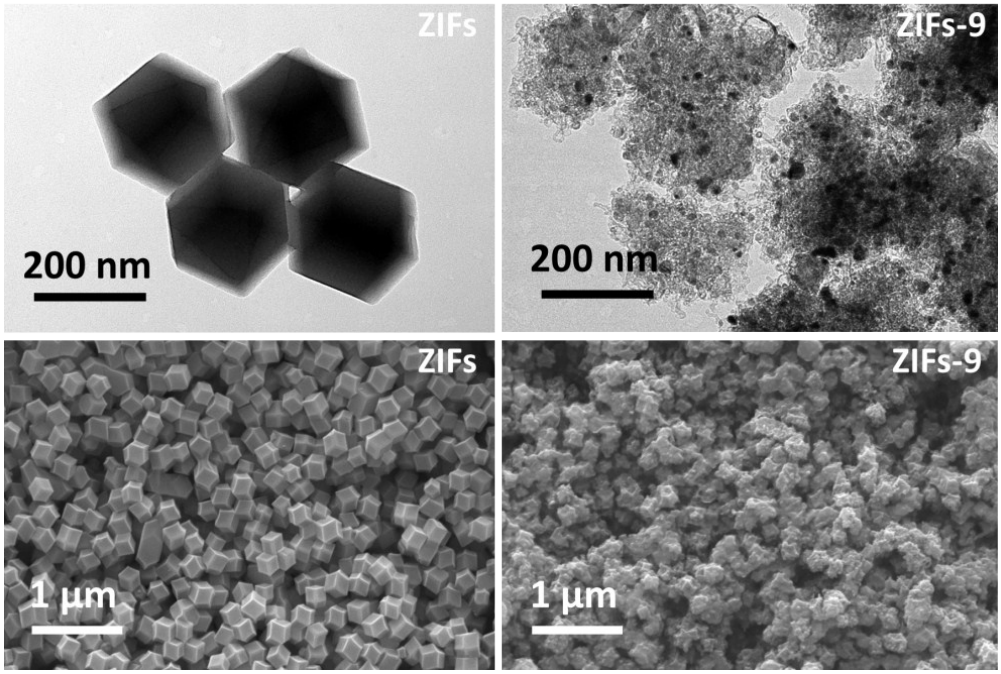

Fig. S2 The TEM and SEM images of ZIFs and homologous carbide ZIFs-9, respectively.

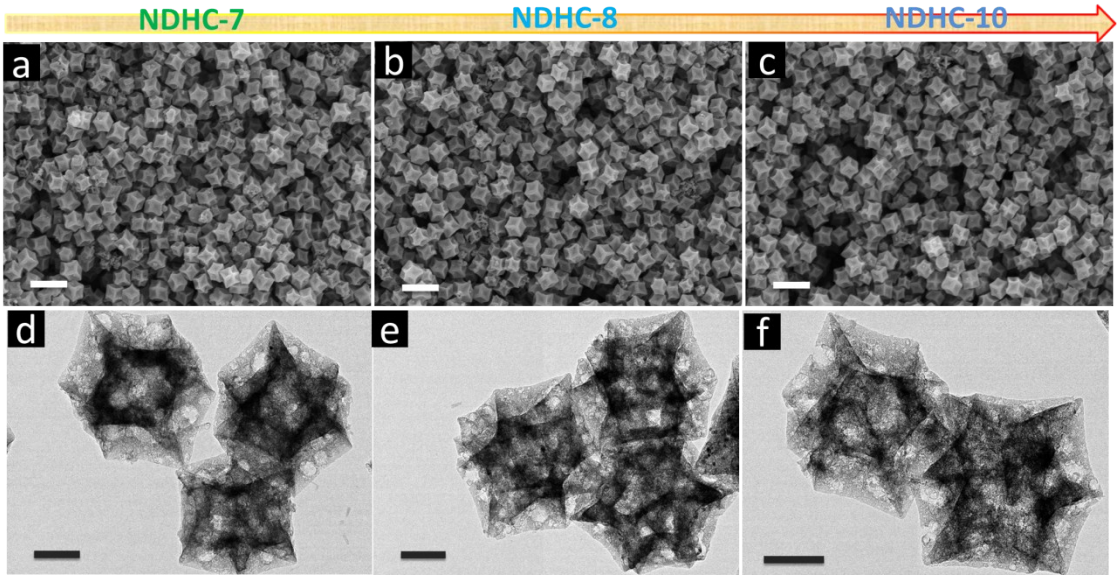

Fig. S3 The SEM and TEM images of resultant NDHC-7/8/10, respectively. The scale bar is 1.0 μm for (a-c); 200 nm for (d-f)

Table S1 The S_{BET}, V_{pore}, $V_{meso/macro}$ and the content of different nitrogen species

Sample	S_{BET} (m^2g^{-1})	V_{pore} (cm^3g^{-1})	$V_{meso/macro}$ (cm^3g^{-1})	*All nitrogen* (%)	*Pyridinic-N* (%)	*Pyrrolic-N* (%)	*Graphitic-N* (%)
NDHC-7	383.9	0.36	0.26	7.4	49.4	23.3	27.3
NDHC-8	449.5	0.39	0.29	4.1	38.1	17.5	44.4
NDHC-9	448.9	0.47	0.36	3.1	27.7	18.1	54.2
NDHC-10	331.2	0.41	0.35	1.5	15.3	21.5	63.2
ZIFs-9	452.1	0.28	0.21	3.7	29.6	21.2	49.2

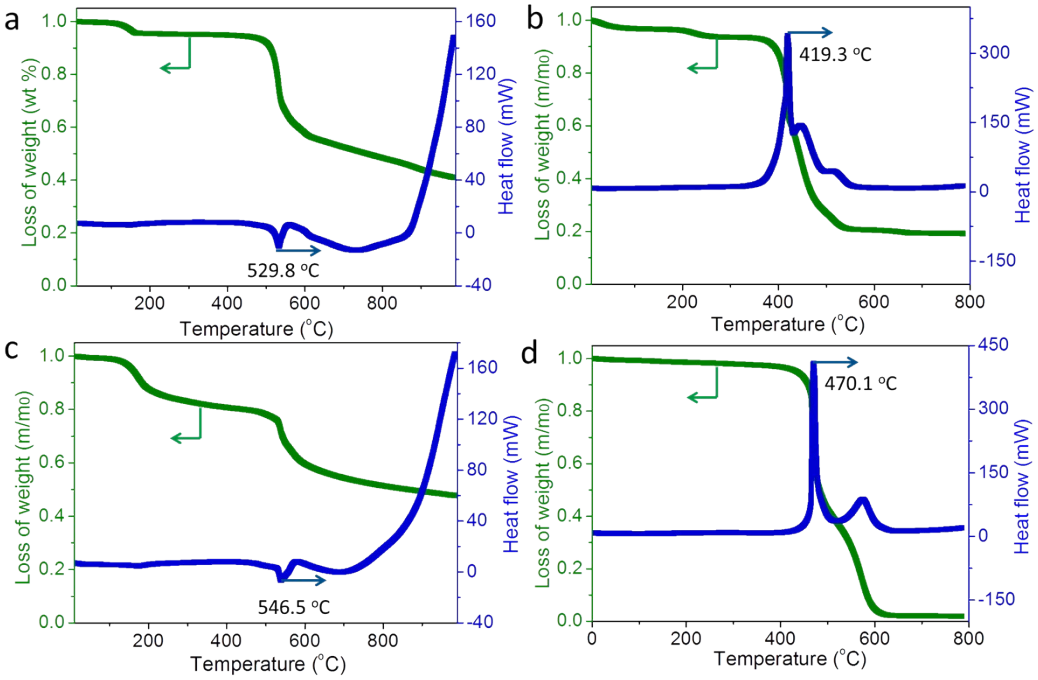

Fig. S4 TAG and heat flow curves of ZIFs in N_2 (a), ZIFs-9 in air (b), ZIFs@AF in N_2 (c), NDHC-9 in air (d).

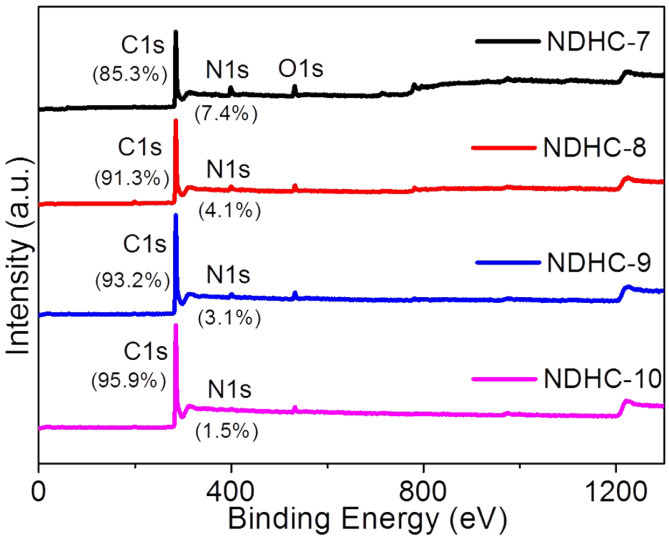

Fig. S5 XPS survey of NDHC-7, NDHC-8, NDHC-9 and NDHC-10.

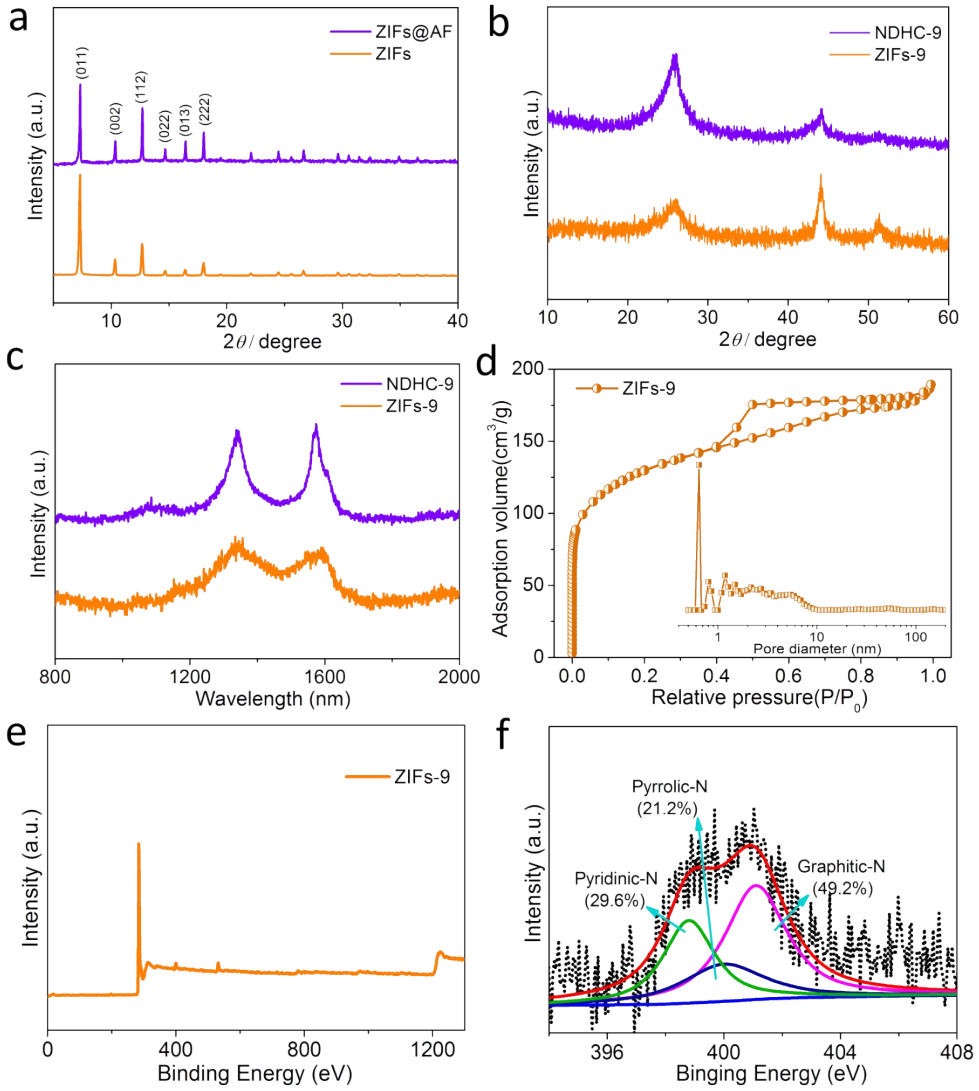

Fig. S6 (a, b) The XRD of ZIFs, ZIFs@AF, ZIFs-9 and NDHC-9, (c) the Raman spectra of ZIFs-9 and NDHC-9, (d) the N_2 adsorption-desorption isotherms and pore size distribution of ZIFs-9，(e) XPS full spectrum and (f) high-resolution N_{1s} XPS spectra of ZIFs-9.

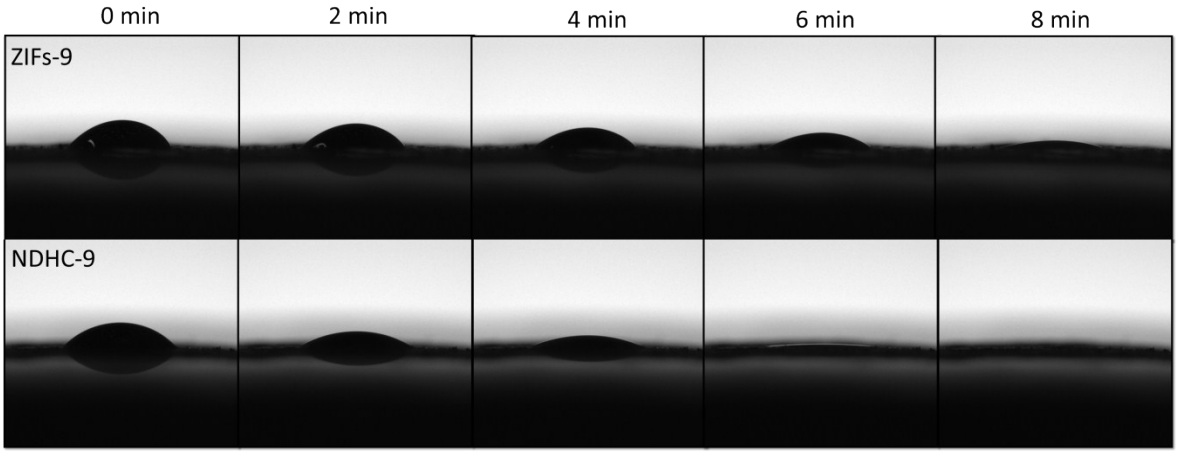

Fig. S7 Photographic images of water contact angles on the surfaces of ZIFs-9 and NDHC-9.

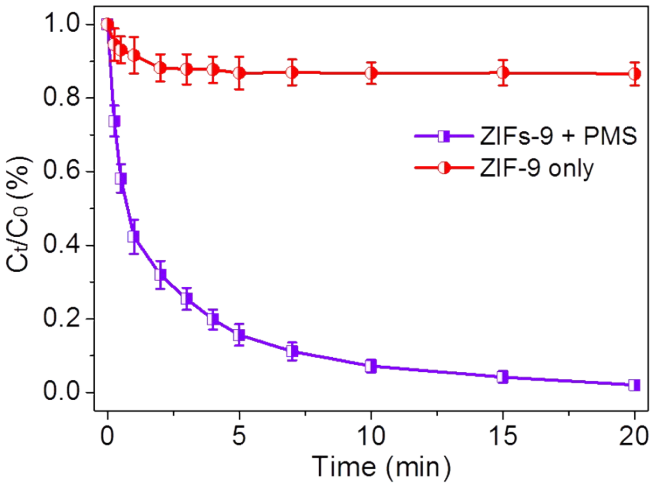

Fig. S8 (a) the degradation efficiency of ZIFs-9; (b) the static adsorption of ZIFs-9.

Table S2 The comparative of oxone dosage, catalyst dosage and catalytic efficiency.

Catalyst	Reaction Conditions			Time used for >97% removal (min)	Ref.
	BPA (ppm)	Oxone dosage (g/L)	Catalyst dosage(g/L)		
$CuFe_2O_4$-Fe_2O_3	5	0.36	0.2	5	**1**
$CuFe_2O_4$	50	0.5	0.4	60	**2**
CNS	50	0.5	0.3	100	**3**
Biochar	10	0.1	0.2	8	**4**
NCNTFs	25	0.4	0.05	30	**5**
Fe_xCo_y@C	20	0.2	0.1	25	**6**
Co_3O_4/CC	10	0.1	0.1	7	**7**
Fe_3O_7@C-650	20	0.2	0.1	30	**8**
FeCo-NC-2	20	0.2	0.1	4	**9**
NDHC-9	20	0.15	0.2	5	This work

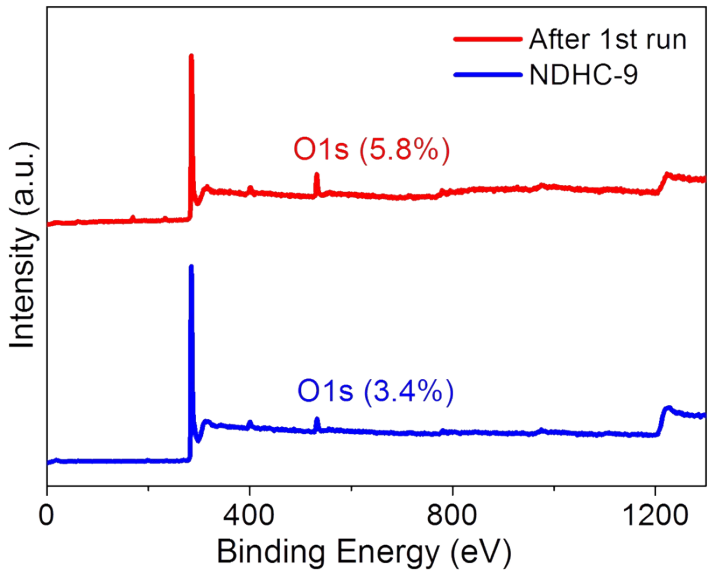

Fig. S9 XPS full spectra of the resultant and the used NDHC-9.

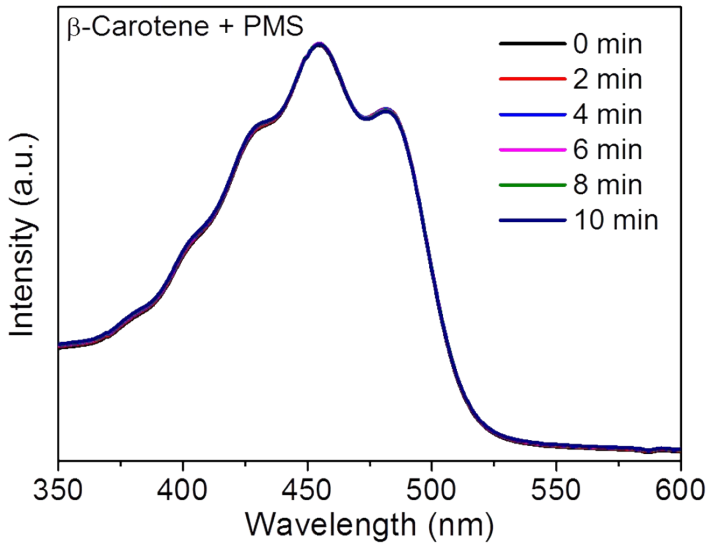

Fig. S10 The UV spectra of β-Carotene/PMS system.

References

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