Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supporting information

In situ synthesis of small Pt nanoparticles on chitin aerogel derived N doped ultra-thin carbon nanofibers for superior hydrogen evolution catalysis

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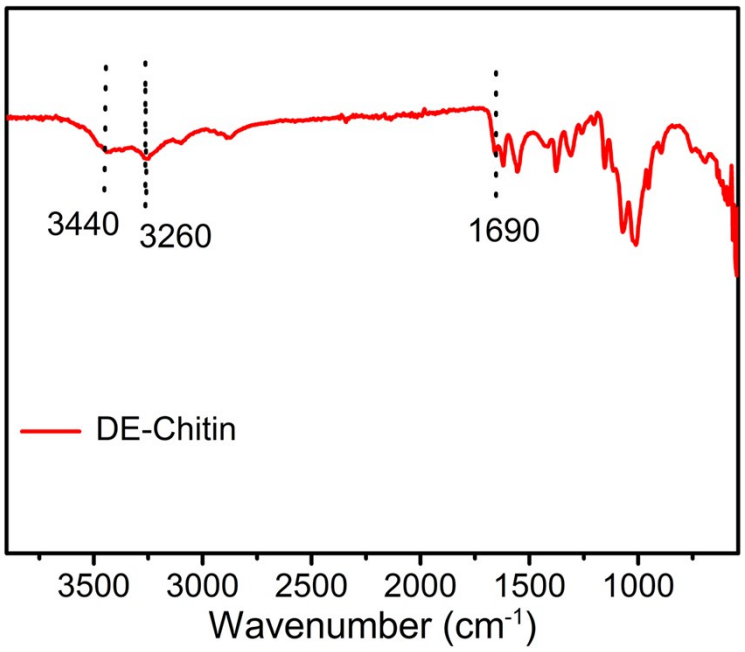

Figure S1. FT-IR spectra of the DE-chitin.

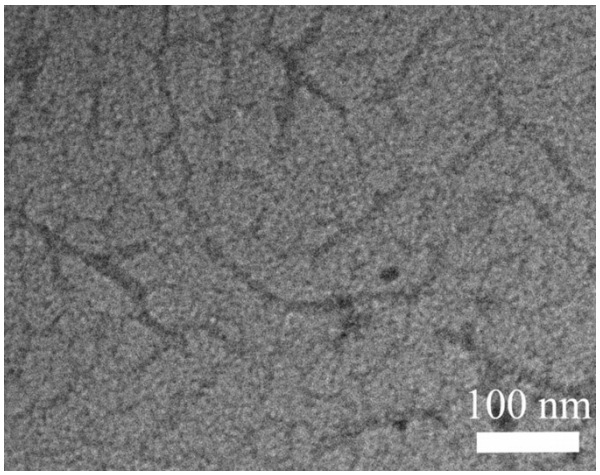

Figure S2. TEM image of chitin nanofibers.

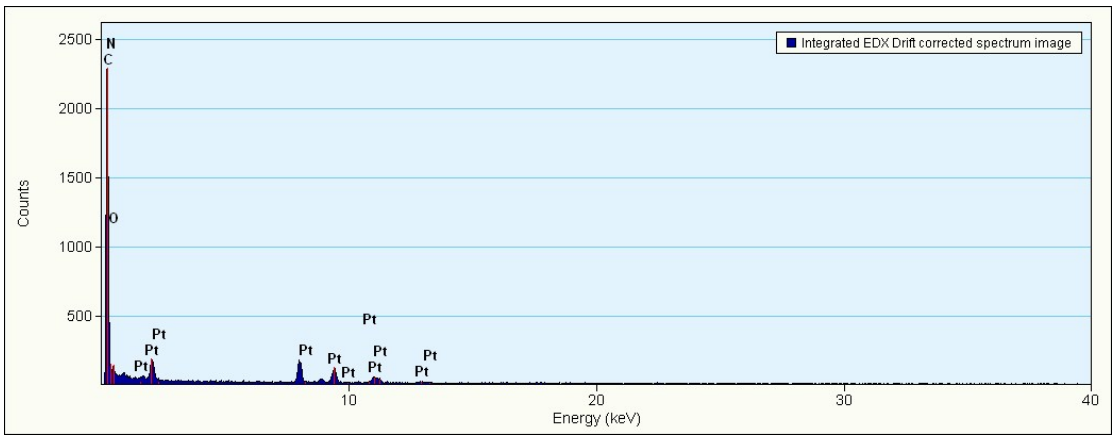

Figure S3. The EDX spectra of the NCN-Pt.

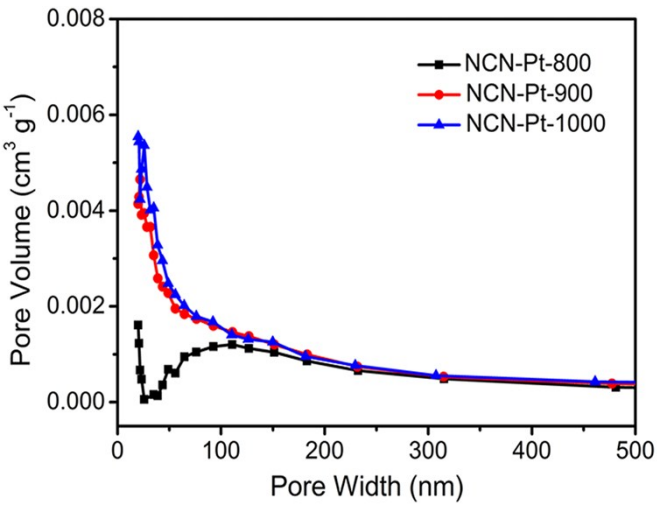

Figure S4. The corresponding BET adsorption pore size distribution of the NCN-Pt prepared at different temperatures.

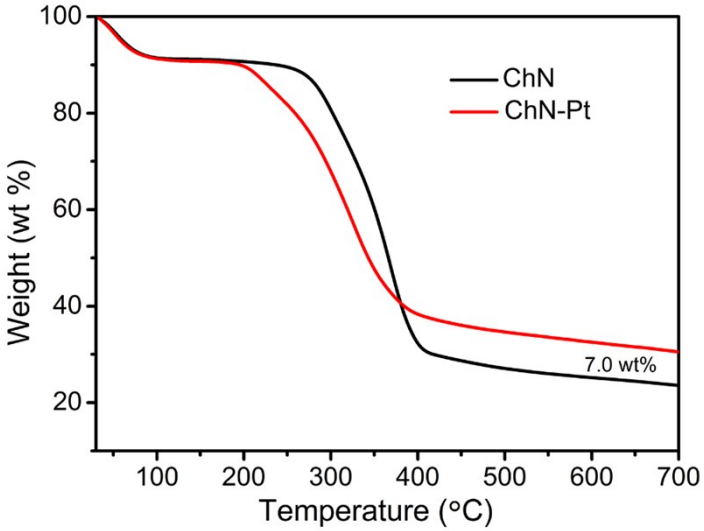

Figure S5. TGA curves of ChN and ChN-Pt.

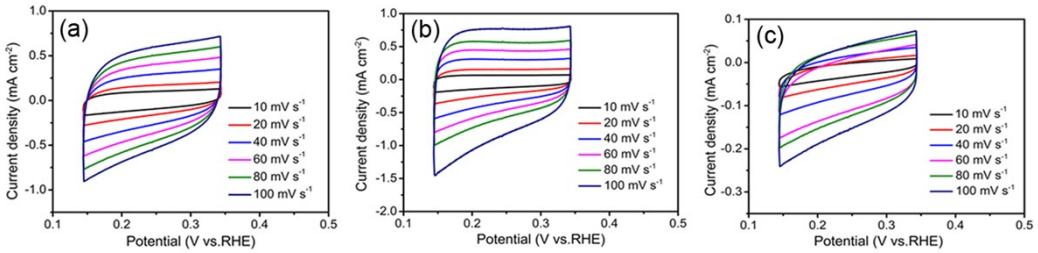

Figure S6. CV curves for NCN-Pt-800, NCN-Pt-900 and NCN-Pt-1000 with different rates from 10 to 100 mV s^{-1} in the potential range of 0.144 to 0.344 V

Table S1. HER performance of Pt-based catalysts.

Sample	Electrolytes	Pt loading (μg cm^{-2})	Overpotential (mV @ 10 mA cm^{-2})	Tafel slope (mV dec^{-1})	Reference
NCN-Pt-900	0.5 M H_2SO_4	8.3	34	39	This work
10Pt@HN-BC	0.5 M H_2SO_4	12	47	35	[1]
Pt @N-doped hollow porous carbon	0.1 M $HClO_4$	2	57	27	[2]
SWNT	0.5 M H_2SO_4	19.4	27	38	[3]
WC @ C @ Pt	0.5 M H_2SO_4	70.7	30	26	[4]
	1 M KOH		34	27	
YS-Pt-CoP	1 M KOH	11	48	54	[5]
Pt_1 /NPC	0.5 M H_2SO_4	3.8	25	28	[6]
MoS_2 @Pt-3	0.5 M H_2SO_4	17	70	36	[7]
Pt/BCF	0.5 M H_2SO_4	7	135	70	[8]
$Pt_{66}Ni_{34}$ NFs	0.5 M H_2SO_4	146	43	33	[9]
$Pt_{2.6}Co_1$ NFs	0.5 M KOH	152	40	42	[10]

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