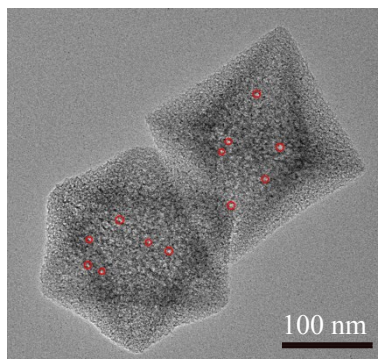


## Supporting Information



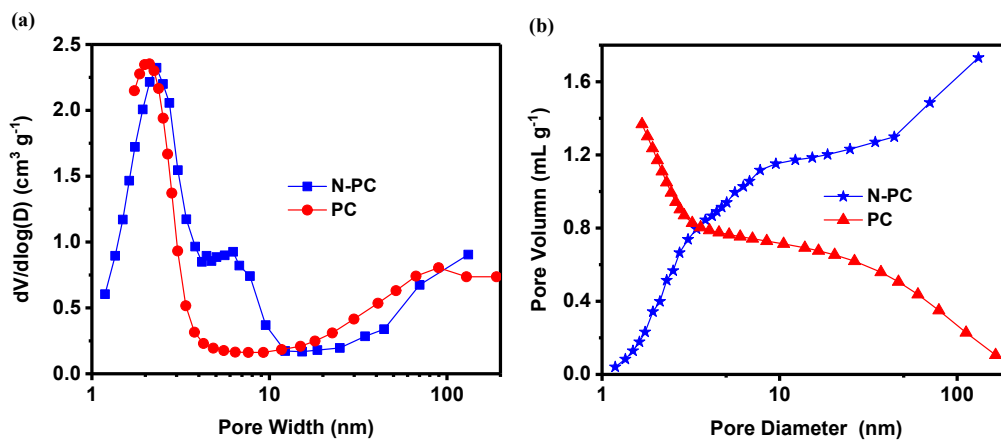
**Fig.S1** HAAD-STEM image of the N-PC sample.

**Table S1.** The atomic fractions of N-PC and PC, obtained by XPS.

Sample	C	N	O
	[at%]	[at%]	[at%]
N-PC	84.94	10.90	4.16
PC	87.37	6.69	5.94

**Table S2.** Fractions of the different N species present in PC and N-PC.

Sample	Oxidized-N	Graphitic-N	Pyrrolic-N	Pyridinic-N
	[%]	[%]	[%]	[%]
N-PC	10.32	17.44	51.72	20.52
PC	21.37	12.41	50.07	16.15



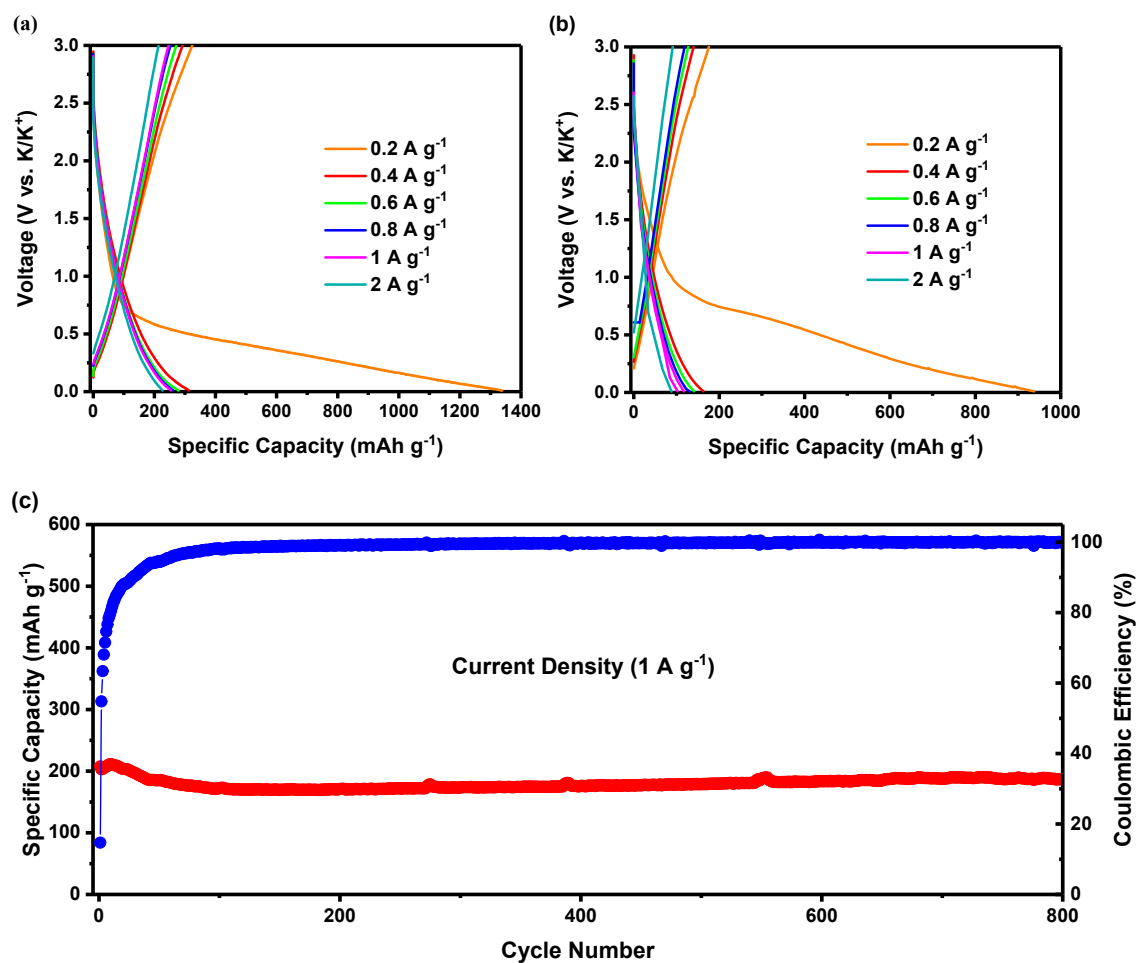
**Fig.S2** (a) Pore-size distributions of PC and N-PC; (b) pore volumes of PC and N-PC.

**Table S3.** Surface areas of UIO-66-NH<sub>2</sub> and N@UIO-66-NH<sub>2</sub>.

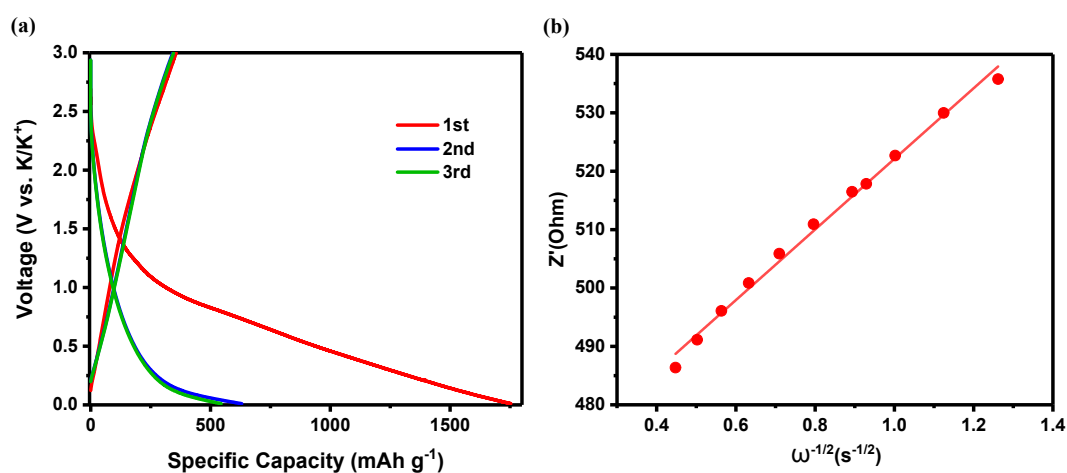
Sample	$S_{\text{BET}}/\text{m}^2 \text{g}^{-1}$
UIO-66-NH <sub>2</sub>	1109
N@ UIO-66-NH <sub>2</sub>	627

**Table S4.** Surface areas, mesopore volumes, and meso-porosity of prepared samples.

Sample	$S_{\text{BET}}/\text{m}^2 \text{g}^{-1}$	$V_{\text{mes}}/\text{cm}^3 \text{g}^{-1}$	Mesoporosity/%
PC	1804	0.799	58
N-PC	1697	1.143	66



**Fig.S3** The galvanostatic charge/discharge profiles of (a) N-PC and (b) PC at different rates; (c) cycling performance of N-PC at a current density of 1 A g<sup>-1</sup>.



**Fig.S4** (a) The first three charge-discharge profiles of N-PC at 0.1 A g<sup>-1</sup>; (b) the linear relation

between  $\omega^{-1/2}$  and  $Z'$  at low frequencies.

**Table S5** The simulated results from EIS data of PC and N-PC.

Sample	$R_s(\Omega)$	$R_{ct}(\Omega)$	$D_{K^+}$ (cm <sup>2</sup> s <sup>-1</sup> )
N-PC	4.19	232.19	$3.47 \times 10^{-11}$
PC	4.21	500.85	$2.48 \times 10^{-11}$