Supporting Information

Boosting the energy storage densities of supercapacitors by incorporating N-doped graphene quantum dots into cubic porous carbon

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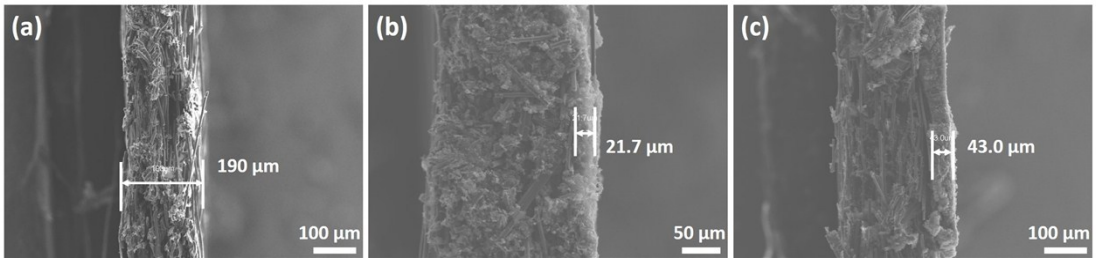

Fig S1. Cross-section SEM image of (a) carbon paper, (b) and (c) N-GQD/cMOF-5 electrodes with mass loading of 1.72 and 8.12 mg cm^{-2}, respectively.

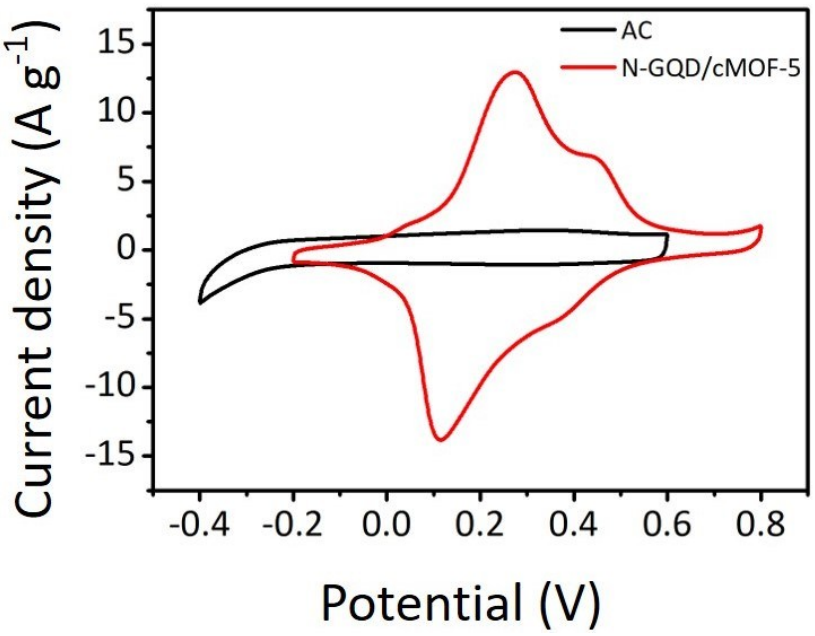

Fig S2. CV curves of the AC and N-GQD/cMOF-5 electrodes at 10 mV s^{-1} in H_2SO_4 electrolyte.

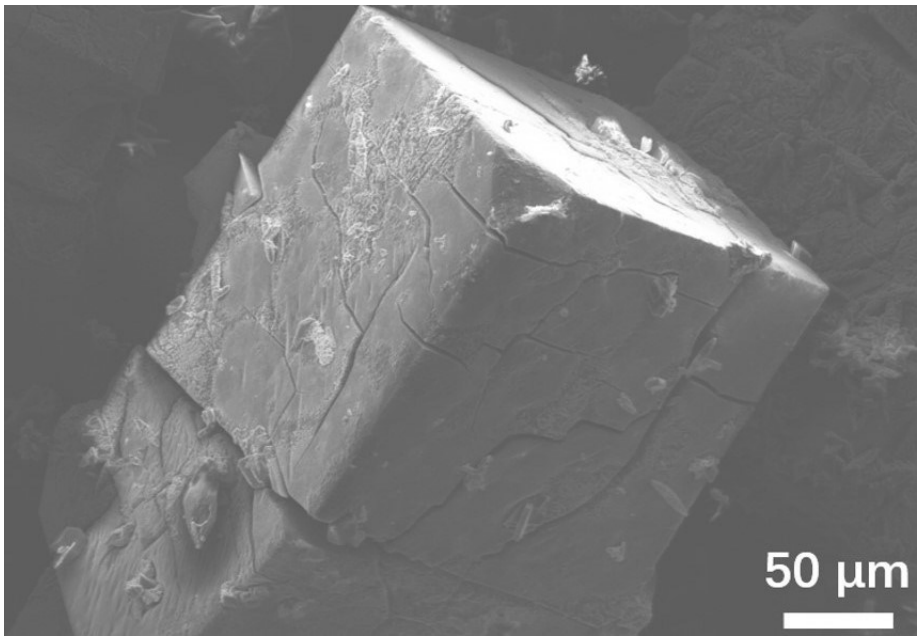

Fig S3. SEM image of MOF-5.

Table S1 XPS elemental analysis of N-GQDs and N-GQD/cMOF-5.

Sample	C(at%)	N(at%)	O(at%)
N-GQDs	69.7	23.2	7.1
N-GQD/cMOF-5	82.0	11.7	6.3

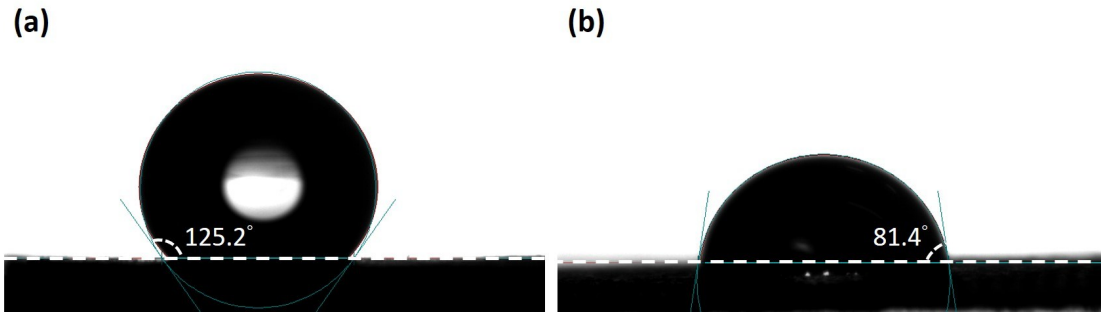

Fig S4. The contact angles of a drop of water on the cMOF-5 (a) and the N-GQD@ cMOF-5 electrodes (b).

Table S2 Summary of electrochemical performances of porous carbon materials.

Materials	Current density (A g^{-1})	Specific capacitance (F g^{-1})	Energy density (Wh kg^{-1})	Power density (W kg^{-1})	Cycling stability	Electrolyte	Ref.
N-GQD/cMOF-5	0.5	294.1	10.2	125	12000 (84.6%)	1 M H_2SO_4	This work
MPC-A	0.25	274	9.4	70	/	6 M KOH	[22]
Interconnected mesoporous carbon sheets	0.05	242	8.41	26	10000 (94.2%)	6 M KOH	[38]
3D IHPNCs	1	389	8.7	195	10000 (90%)	1 M Na_2SO_4	[39]
N-doped porous carbon sheets	1	290	6.12	250	10000 (81.9%)	1 M H_2SO_4	[40]
N-doped graphdiyne	0.2	250	8.66	19300	3000 (95.6%)	7 M KOH	[41]
N-doped three-dimensional graphitic foams	1	242	8.4	10000	100000 (77%)	6 M KOH	[42]
MOF-derived porous carbon/CNT	1	157.9	9.1	3500	10000 (95%)	6 M KOH	[43]

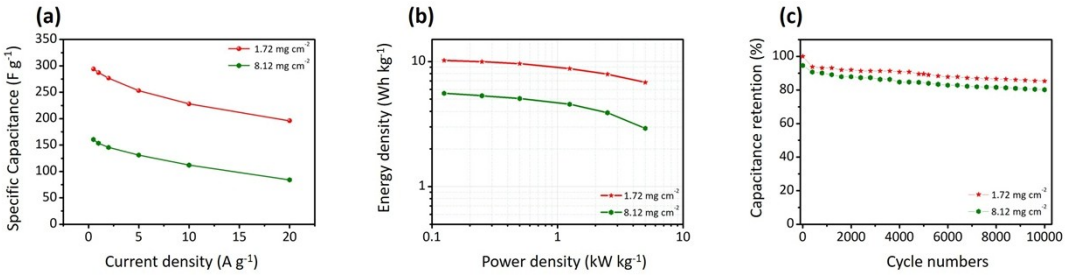

Fig S5. (a) Specific capacitance with low (1.72 mg cm^{-2}) and high (8.12 mg cm^{-2}) mass loadings at different current densities. (b) Ragone plots of devices with different mass loadings from 0.5 to 20 A g^{-1}. (c) Cycling performance of devices with different mass loadings measured at 5 A g^{-1}.