Supporting Information

Enriched Carbon Dots/Graphene Microfibers towards High-Performance Micro-Supercapacitors

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1. Supplementary Figures

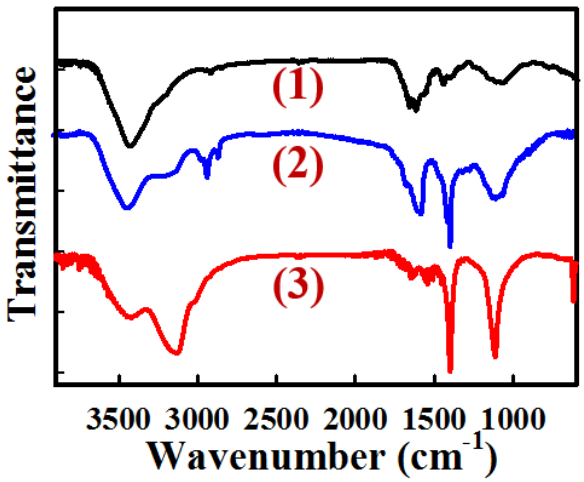

Figure S1 FTIR spectra of (1) pure graphene, (2) pure CDs and (3) CDs/graphene fibers.

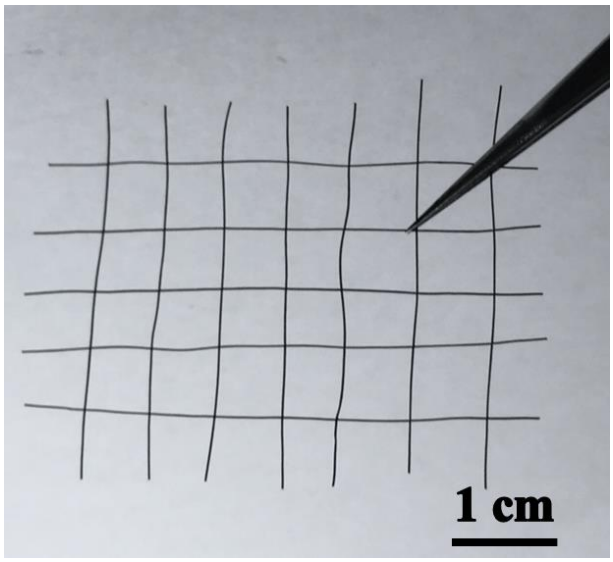

Figure S2 Photographs demonstrating woven property of CDs/graphene fibers.

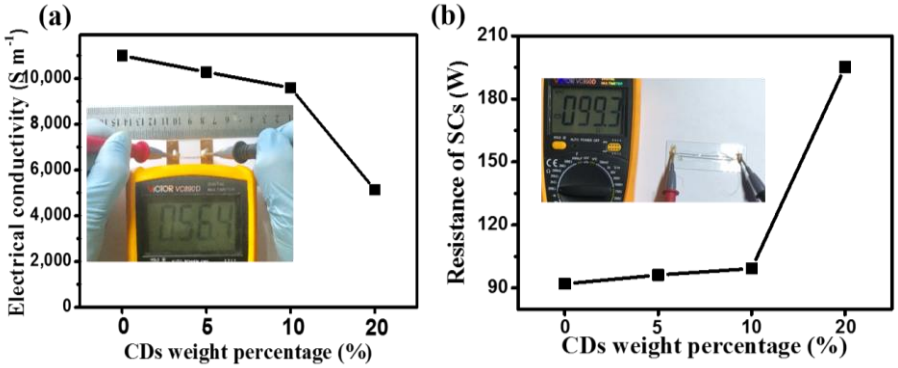

Figure S3 Dependence of electrical conductivity and resistance on CDs weight percentage.

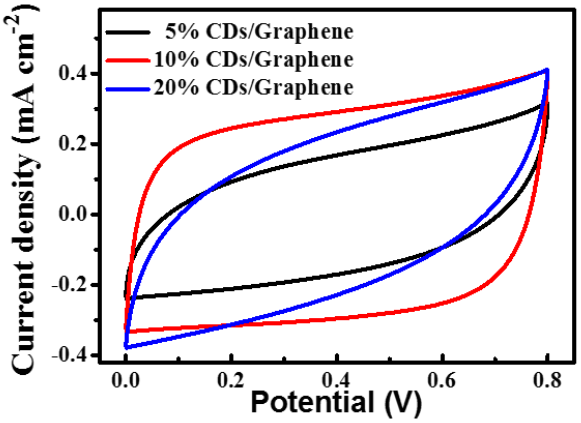

Figure S4 CV curves of CDs/graphene fiber-based micro-SCs with CDs contents of 5%, 10% and 20 wt% in H_3PO_4/PVA electrolyte.

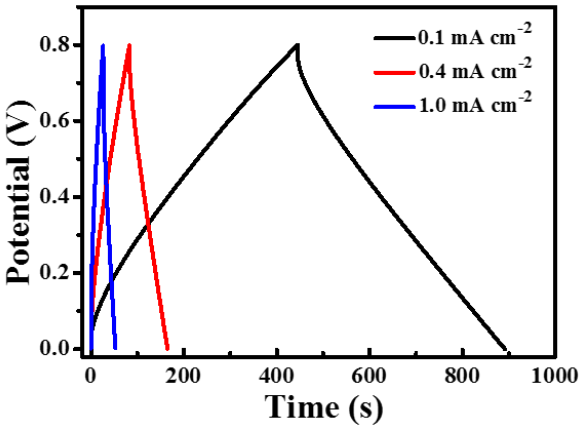

Figure S5 Galvanostatic charge–discharge curves of pure graphene fiber-based micro-SCs at various current densities in H_3PO_4/PVA electrolyte.

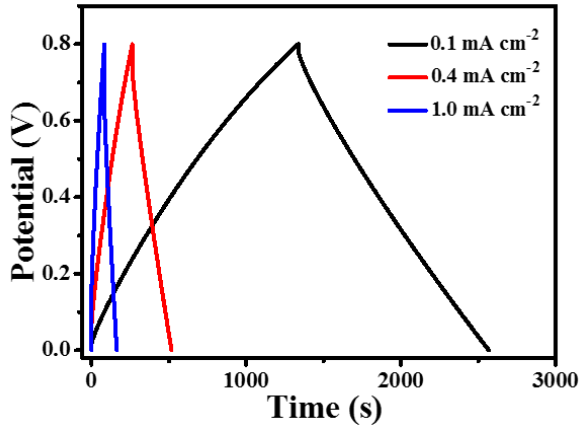

Figure S6 Galvanostatic charge–discharge curves of CDs/graphene (10 wt% CDs) fiber-based micro-SCs at various current densities in H_3PO_4/PVA electrolyte.

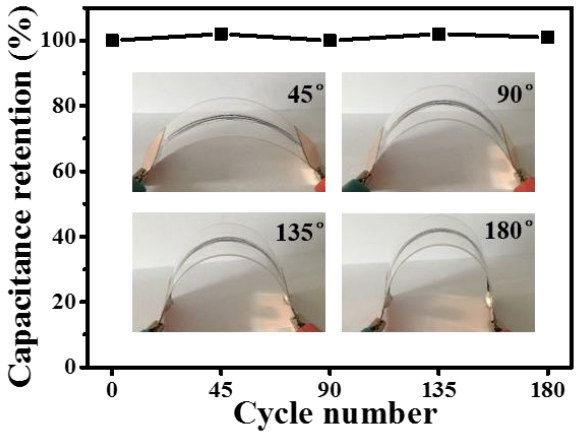

Figure S7 The CDs/graphene fiber-based micro-SCs bended at different angles at current density of 0.1 mA cm^{-2}, insets are the photos under different bending angles.

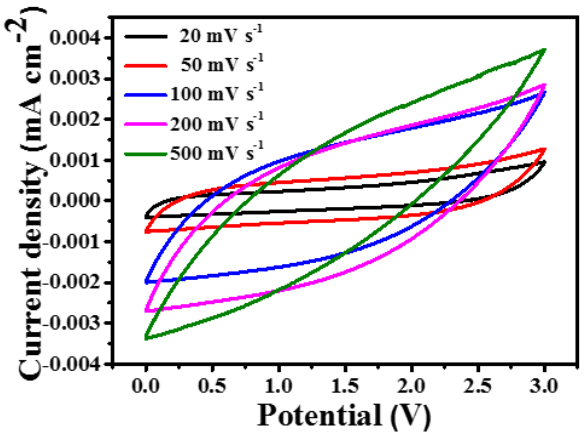

Figure S8 CV curves of pure graphene fiber-based micro-SCs under various scan rates from 20 to 500 mVs^{-1} in $EMIBF_4$/PVDF-HFP electrolyte.

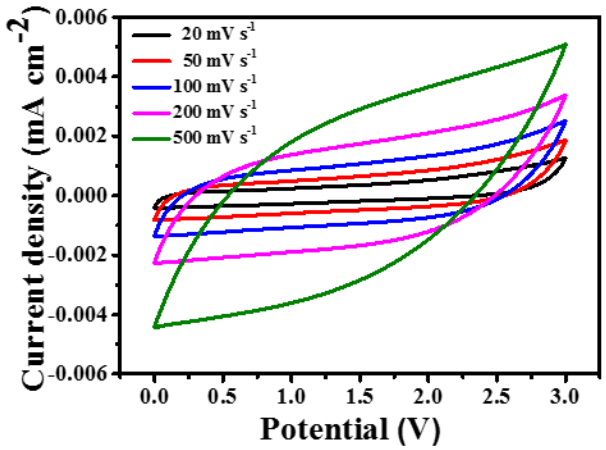

Figure S9 CV curves of CDs/graphene (10 wt% CDs) fiber-based micro-SCs investigated under various scan rates from 20 to 500 mVs^{-1} in $EMIBF_4$/PVDF-HFP electrolyte.

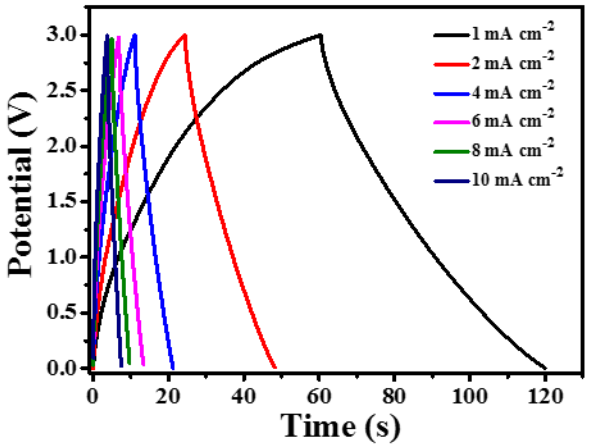

Figure S10 Galvanostatic charge–discharge curves of pure graphene fiber-based micro-SCs at current densities from 1 to 10 mA cm^{-2} in $EMIBF_4$/PVDF-HFP electrolyte.

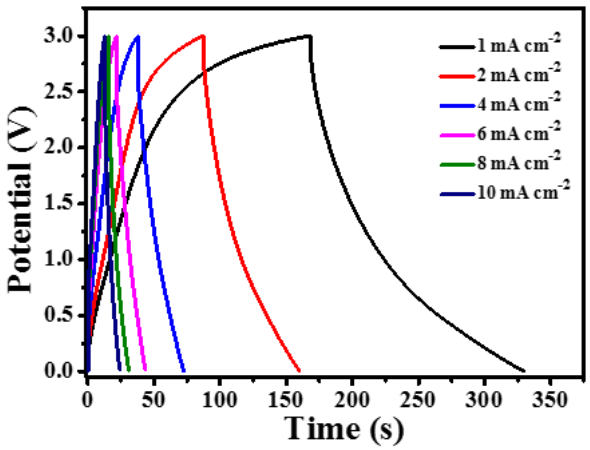

Figure S11 Galvanostatic charge–discharge curves of CDs/graphene (10 wt% CDs) fiber-based micro-SCs at current densities from 1 to 10 mA cm^{-2} in $EMIBF_4$/PVDF-HFP electrolyte.

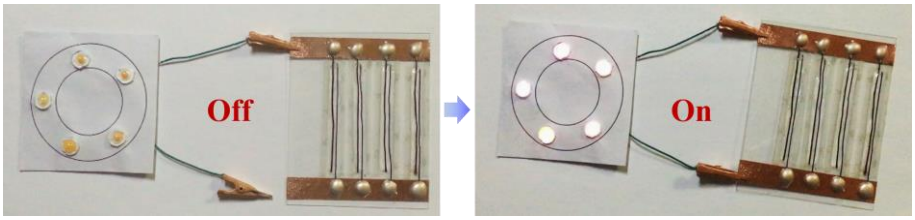

Figure S12 CDs/graphene (10 wt% CDs) fiber-based micro-SCs were connected in parallel to power LEDs.

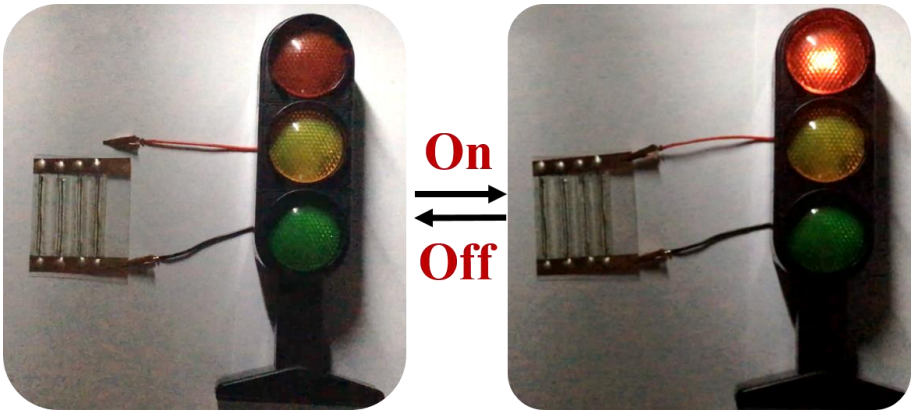

Figure S13 CDs/graphene (10 wt% CDs) fiber-based micro-SCs were connected in parallel to power traffic light.

2. **Supplementary Tables**

Table S1. Distribution of Pore Volume for pure graphene and CDs/graphene fibers.

	SSA ($m^2\ g^{-1}$)	Average pore diameter (nm)	Pore volume ($cm^3\ g^{-1}$)	Pore size distribute (nm)
Pure graphene	245.6	2.8	0.17	2.4~92.3
CDs/graphene	435.1	2.5	0.26	1.2~95.3

Table S2. EIS molding data. Parameter values from curve-fitting of the impedance results shown in Figure 4e by using the equivalent circuit described in inset of Figure 4e.

	R_0/Ω	C_1/mF s^{n_1-1}	n_1	R_1/Ω	Z_w/Ω	C_2/mF	n_2
Pure graphene	52.92	0.22	0.71	25.5	80.2	12.3	0.82
CDs/graphene	55.62	0.31	0.74	9.1	18.6	33.8	0.88

Table S3. Detailed data for the calculation of effective utilization factor (x) of surface area of CDs/graphene fibers.

D/nm	d/nm	n	x
1.21	0.75	1	0.519
1.64	0.75	3	0.805
1.85	0.75	4	0.869
2.10	0.75	5	0.885
2.38	0.75	6	0.879
2.71	0.75	8	0.975
3.09	0.75	9	0.919
3.53	0.75	11	0.945
4.03	0.75	13	0.947
4.61	0.75	16	0.990
5.29	0.75	19	1.000
6.06	0.75	22	0.990
7.05	0.75	26	0.986
8.15	0.75	30	0.968
9.23	0.75	35	0.986
10.58	0.75	41	0.996
…	…	…	…
95.3	0.75	396	0.998

Table S4. Detailed data for the calculation of effective utilization factor (x) of surface area of pure graphene fibers.

D/nm	d/nm	n	x
2.42	0.75	6	0.858
3.28	0.75	10	0.944
3.71	0.75	12	0.968
4.19	0.75	14	0.972
4.75	0.75	16	0.955
5.41	0.75	19	0.974
…	…	…	…
92.3	0.75	383	0.999