Supplementary Information

Electrodeposition of Ultrathin NiBDC Lamellar Arrays as a Novel Binder-free Electrode for Flexible All-Solid-State Supercapacitors

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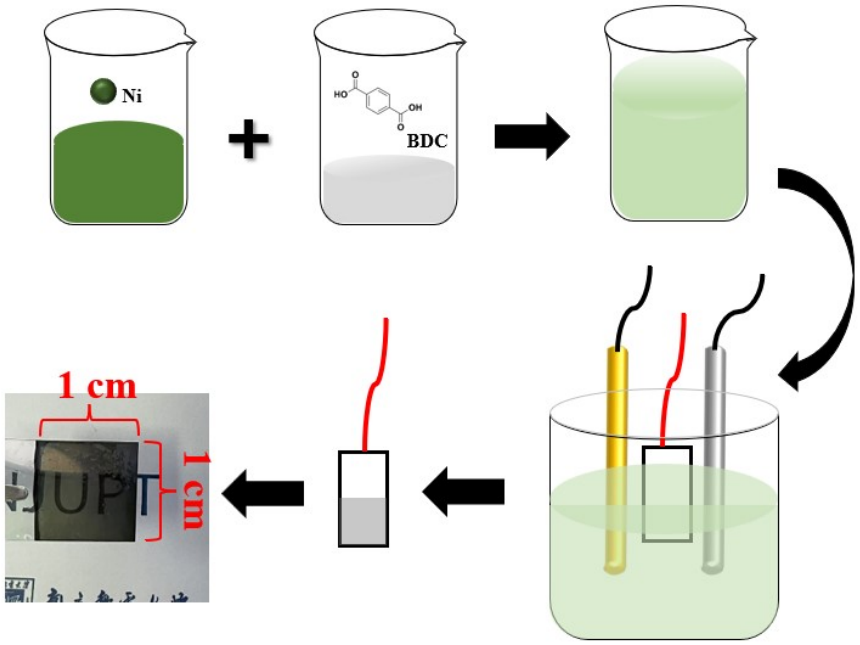

Scheme S1. Schematic illustration of the synthetic process of NiBDC/ITO/PET.

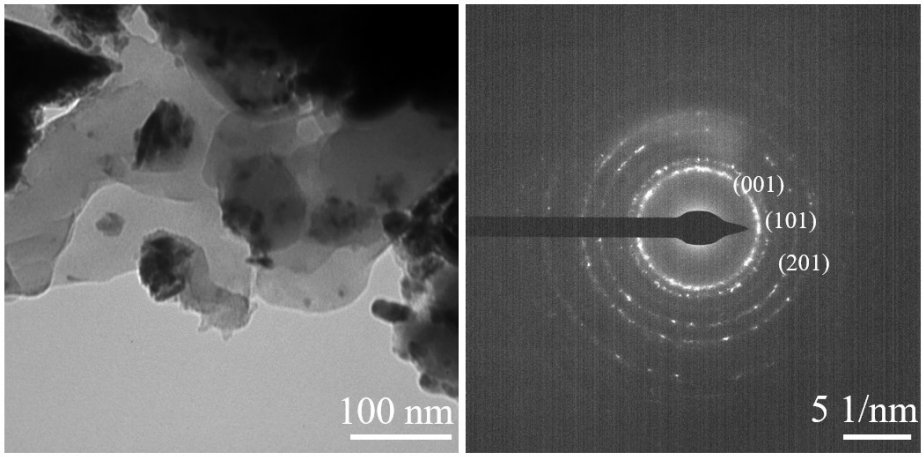

Fig. S1. TEM images of NiBDC/ITO/PET-30 and the corresponding SAED pattern of NiBDC/ITO/PET-30.

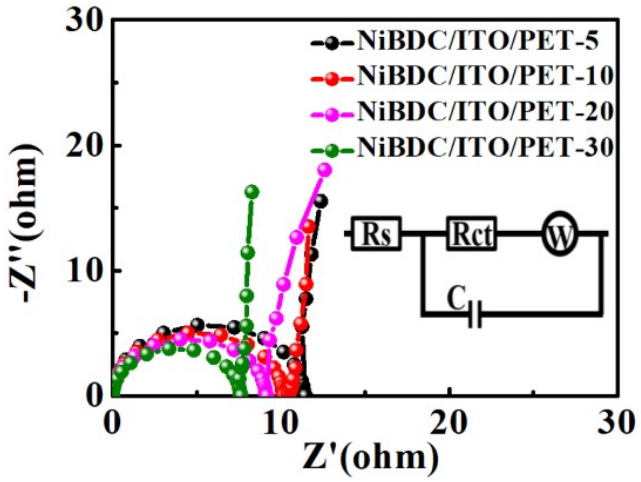

Fig. S2. Fitted Nyquist plots of NiBDC/ITO/PET-5, NiBDC/ITO/PET-10, NiBDC/ITO/PET-20, and NiBDC/ITO/PET-30.

Table S1: R_s and R_{ct} values of NiBDC/ITO/PET-5, NiBDC/ITO/PET-10, NiBDC/ITO/PET-20 and NiBDC/ITO/PET-30.

	NiBDC/ITO/PET-5	NiBDC/ITO/PET-10	NiBDC/ITO/PET-20	NiBDC/ITO/PET-30
R_s	11.45	10.13	9.76	7.58
R_{ct}	10.80	8.97	9.34	8.94

Table S2: The areal capacitance of the NiBDC/ITO/PET-30 at different scan rates.

Scan rate (mV s^{-1})	10	20	30	40	50	80	100	150
$Capacitance_{cv}$ (mF cm^{-2})	74.1	55.8	43.7	32.5	28.4	25.3	14.4	12.6

Table S3: The areal capacitance of the NiBDC/ITO/PET-30 at different current densities.

Current density ($\mu A\ cm^{-2}$)	50	100	150	200	300	500
$Capacitance_{cp}$ ($mF\ cm^{-2}$)	72.2	28.9	9.8	8.9	8.7	4.3

Table S4: The areal capacitance of the NiBDC/ITO/PET-30//NiBDC/ITO/PET-30 symmetric supercapacitor at different scan rates.

Scan rate ($mV\ s^{-1}$)	10	20	30	40	50	100	150
$Capacitance_{cv}$ ($mF\ cm^{-2}$)	39.5	36.8	34.1	25.3	23.8	22.5	20.8

Table S5: The specific capacitance of the NiBDC/ITO/PET-30//NiBDC/ITO/PET-30 symmetric supercapacitor at different current densities.

Current density ($\mu A\ cm^{-2}$)	100	150	200	250	300	500
$Capacitance_{cp}$ ($mF\ cm^{-2}$)	40.8	35.4	33.5	27.1	24.6	22.2

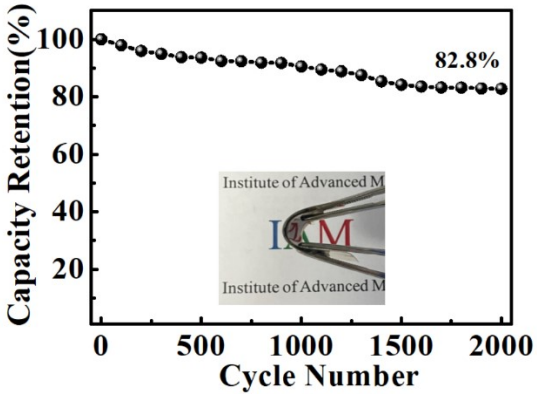

Fig. S3. The long-term cycling performance of the device was evaluated under a bending angle of 180° at a current density of 0.5 mA cm^{-2} for 2000 cycles.

Table S6: A comparison table of specific capacitance from the literatures.

Supercapacitor	Specific Capacitance (mF cm^{-2})	Current Density (mA cm^{-2})	Ref.
Cu-HHTP Film	0.939	0.007	58
LSG/Ni-CAT MOF	15.2	0.2	59
Cu-CAT NWA/PPy	252.1	1.25	60
g-$C_{34}N_6$-COF	15.2	2 mV s^{-1}	61
$Ni_3(HITP)_2$	15.69	0.1	62
TiN film	31.2	2	63
$Ni(OH)_2$/MWCNT/ACG	115	1	64
$NiMnO_3$-rGO@Cotton-Cu	13.5	6	65
This Work	40.8	0.1	