Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary Information

Hierarchical Ni-Co layered double hydroxide nanosheets entrapped on conductive textile fibers: a cost-effective and flexible electrode for high-performance pseudocapacitors

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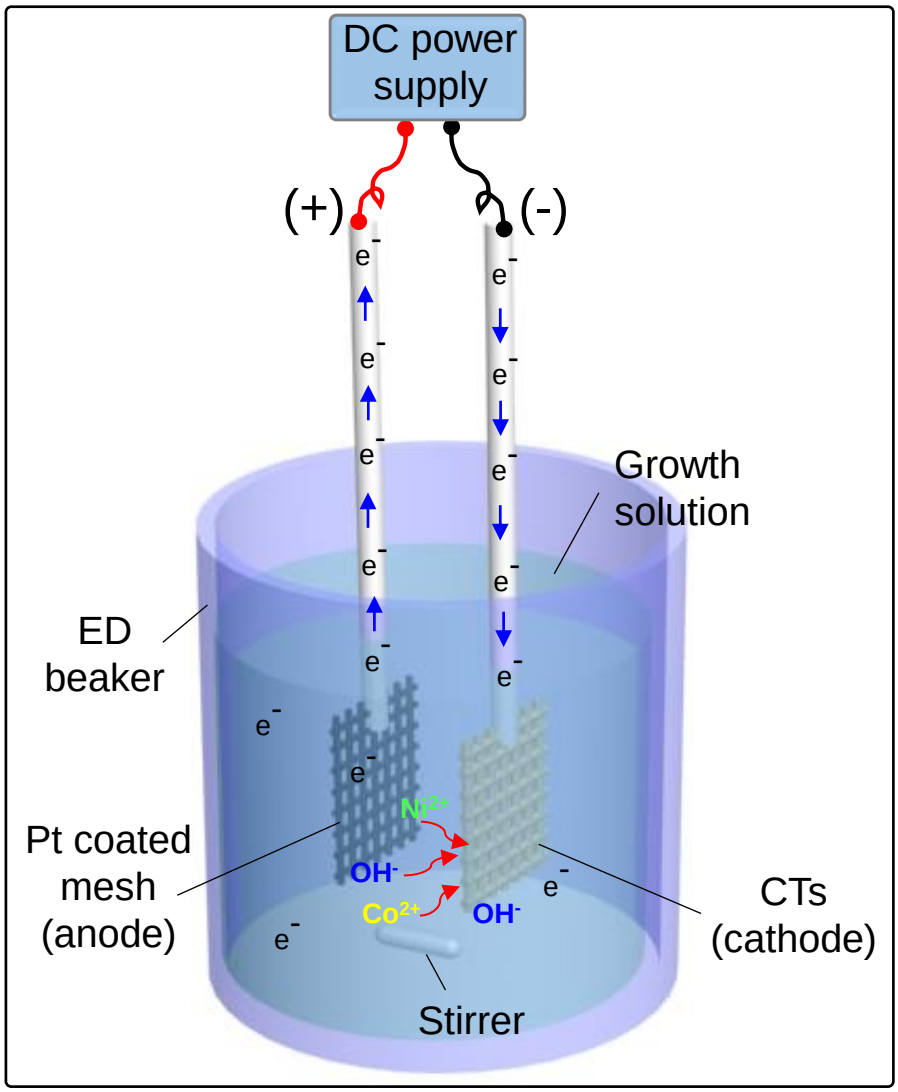

Fig. S1 Schematic diagram for the one-step fabrication of hierarchical Ni-Co LDH NSs/CTs using a facile two-electrode system based ED process.

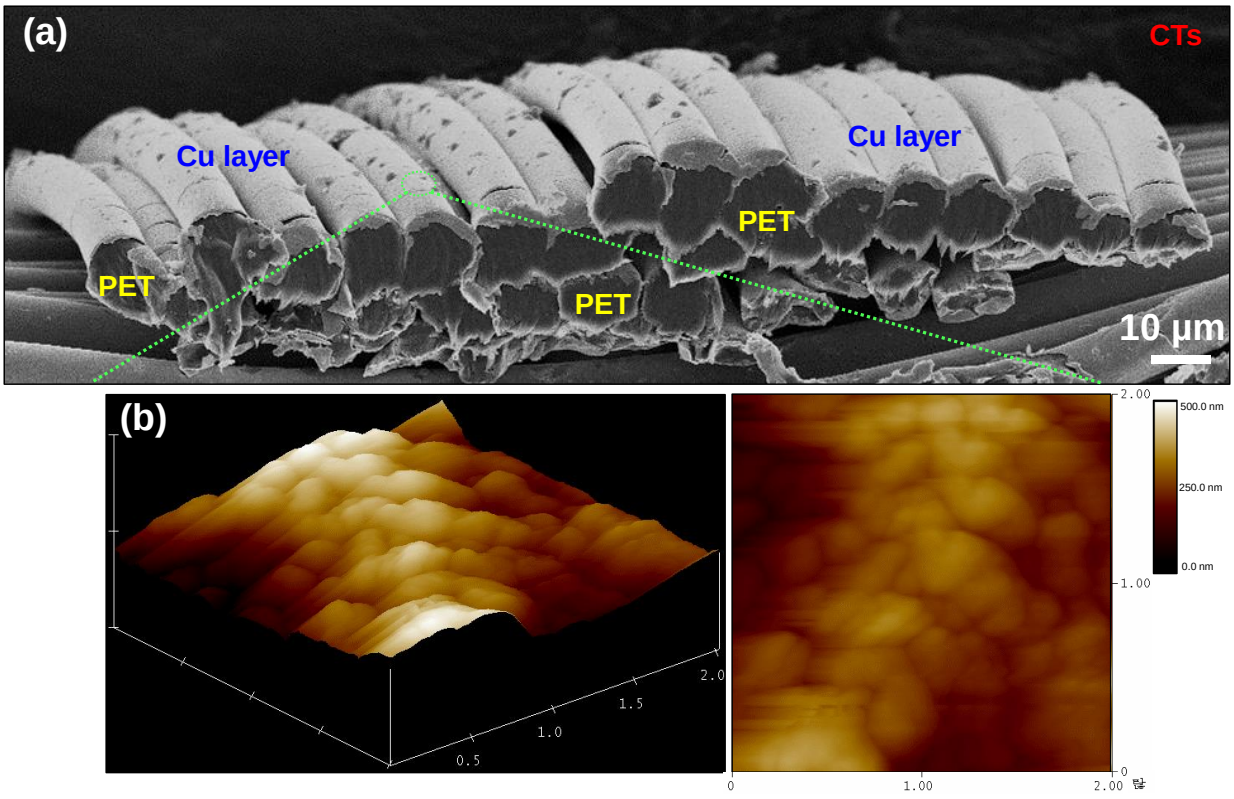

Fig. S2 (a) FE-SEM image of the bare CTs with the metallic (i.e., Cu) layer on PET fibers and (b) AFM images of the CTs, showing the nanoroughned surface, which is favorable for good adhesion of nanostructures.

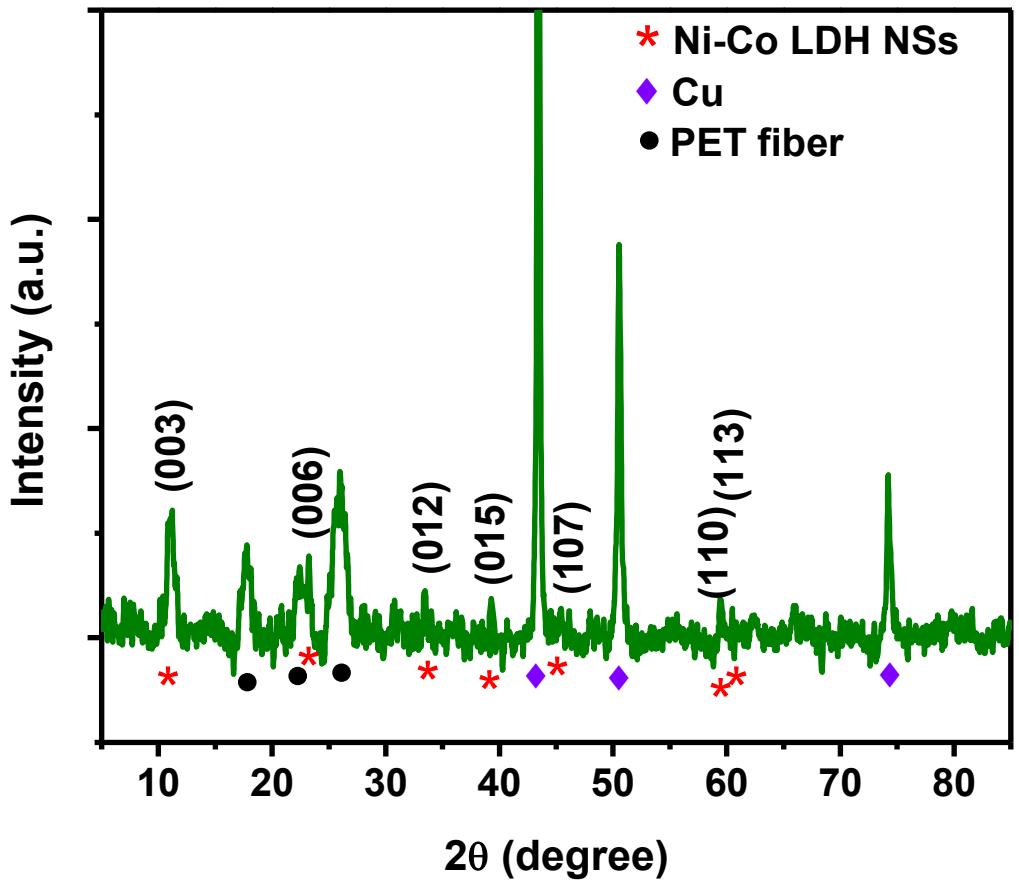

Fig. S3 XRD pattern of Ni-Co LDH NSs/CTs

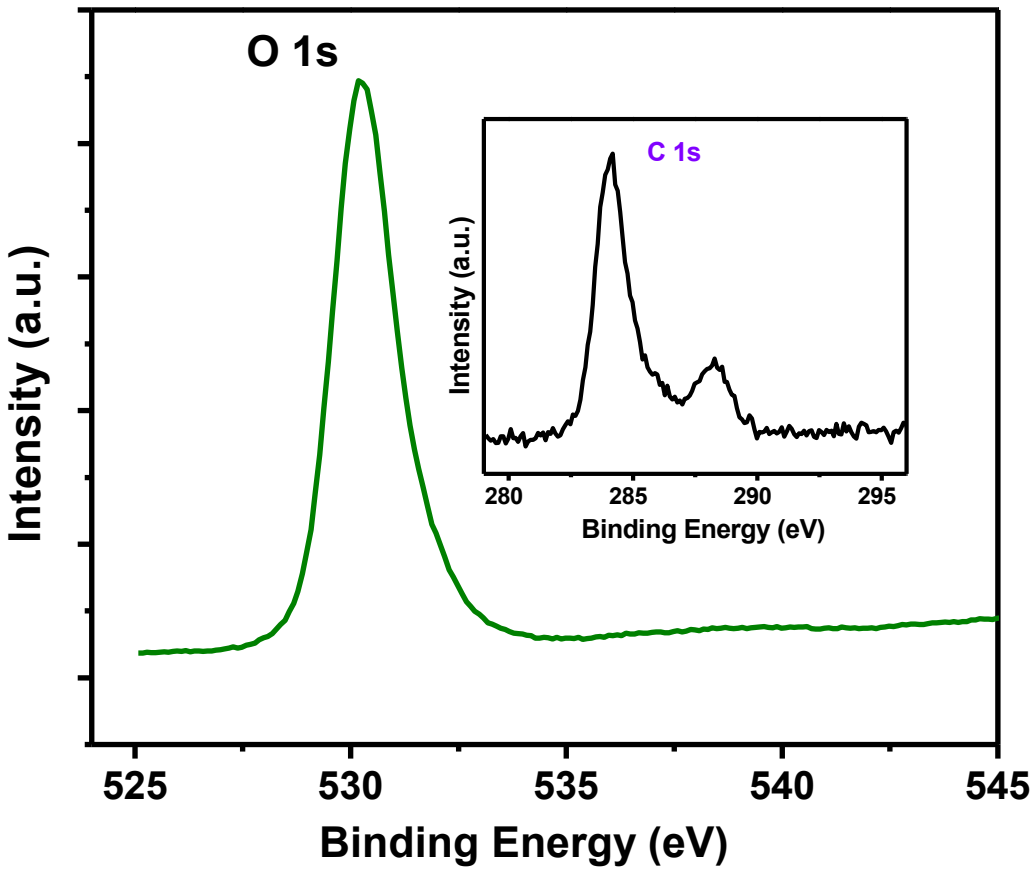

Fig. S4 O 1s and C 1s XPS spectra of the Ni-Co LDH NSs/CTs.

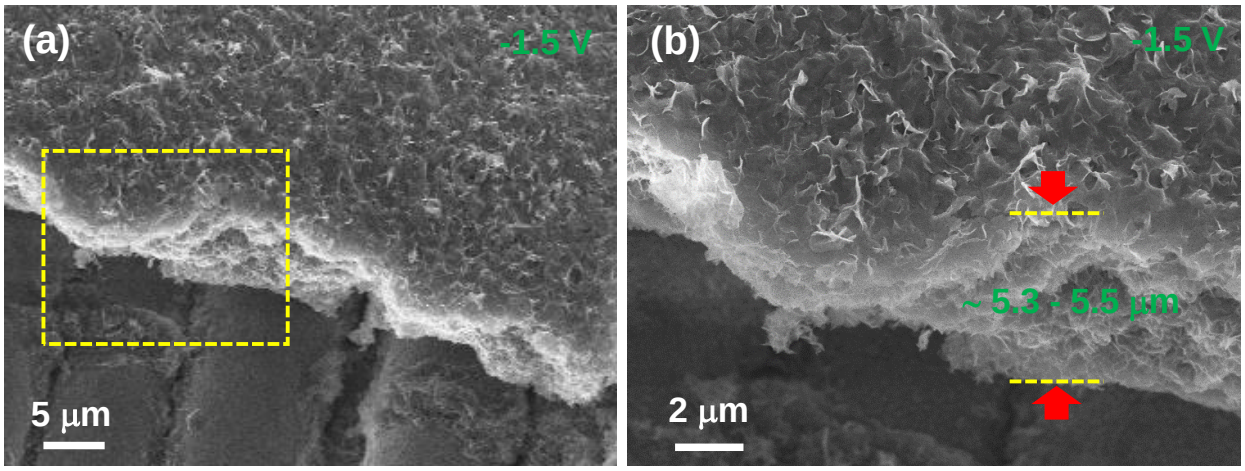

Fig. S5 (a) and (b) Cross-sectional FE-SEM images of the Ni-Co LDH NSs synthesized on CTs at an external cathodic voltage of -1.5 V for 15 min.

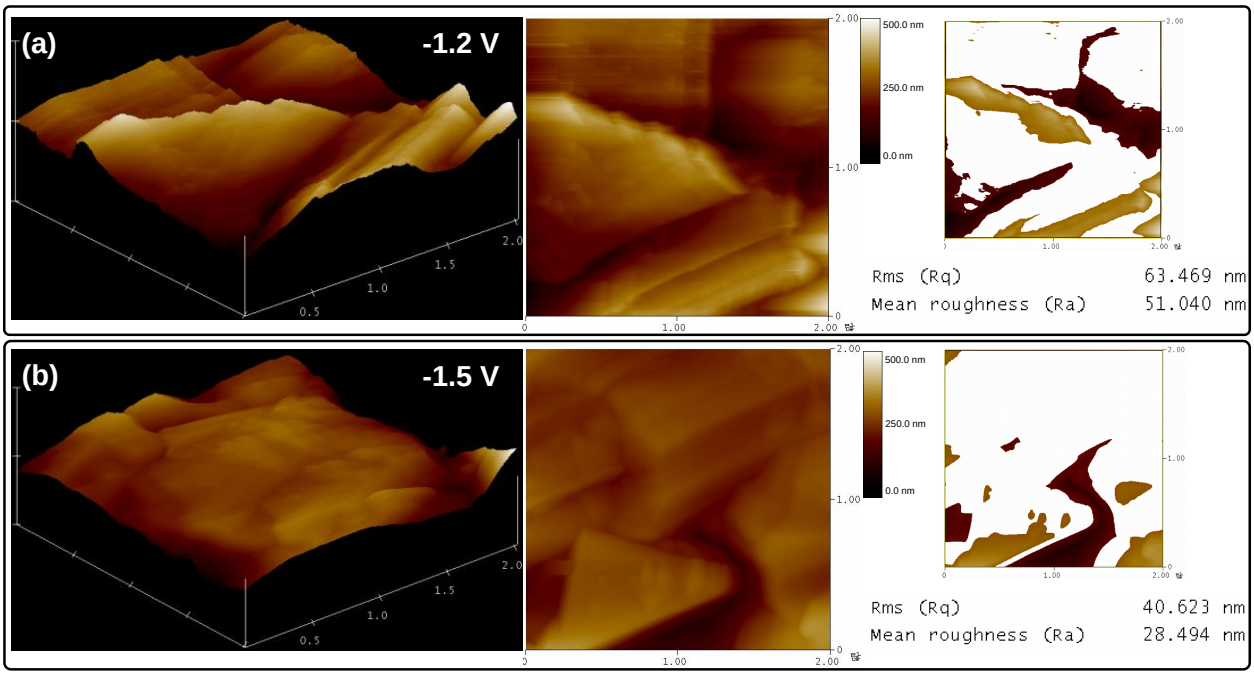

Fig. S6 AFM images of the Ni-Co LDH NSs/CTs under the external cathodic voltages of (a) -1.2 V and (b) -1.5 V, indicating their surface roughness values.

Table S1. Comparison of specific capacitances between the reported bimetallic LDH/oxides pseudocapacitive materials prepared by various growth methods and the present work.

Electrode materials & substrate	Method (reference electrode)	Specific capacitance (F/g)	Electrolyte	Testing condition	Ref.
$Ni_{0.32}$-$Co_{0.68}$ LDH nanonetwork (Ni foam)	Electrodeposition (Ag/AgCl)	1000	1 M NaOH	5 mV//s	[1]
Ni-Co hydroxide on $NiCo_2O_4$ microspheres (Ni foam)	Hydrothermal and Electrodeposition (SCE)	1132	2 M KOH	2 mA/cm^2	[2]
Co-Al LDH (Pt electrode)	Electrodeposition (SCE)	500	0.1 M KOH	10 mV//s	[3]
$Ni_{0.59}$-$Co_{0.41}$ LDH (powder)	Co-precipitation	1809	6 M KOH	1 A/g	[4]
$NiCo_2O_4$ NSs@HMRAs (Ti plate)	Electrodeposition	678	1 M KOH	6 A/g	[5]
$NiCo_2O_4$ NSs (carbon fiber paper)	Solvothermal	1422	2 M KOH	1 A/g	[6]
$Ni_{0.8}Co_{0.2}(OH)_2$ (powder)	Microwave-assisted synthesis	1170	1 M KOH	4 A/g	[7]
$NiCo_2O_4$ NWs (Carbon textiles)	Hydrothermal	1283	6 M KOH	1 A/g	[8]
$Ni_{0.6}$-$Co_{0.4}$ LDH (CNT paper)	Chemical bath deposition	1843	6 M KOH	0.5 A/g	[9]
Ni-Co LDH nanoflakes on ZnO NWs (carbon cloth)	Hydrothermal	1927	6 M KOH	2 A/g	[10]
$NiCo_2O_4$ NWs (Ni foam)	Hydrothermal	2524	3 M KOH	3 A/g	[11]
Ni-Al LDH (Ni foam)	Hydrothermal	795	1 M KOH	0.5 A/g	[12]
Ni-Co LDH NSs (CTs)	Electrodeposition (two-electrode system)	2105	1 M KOH	2 A/g	This work

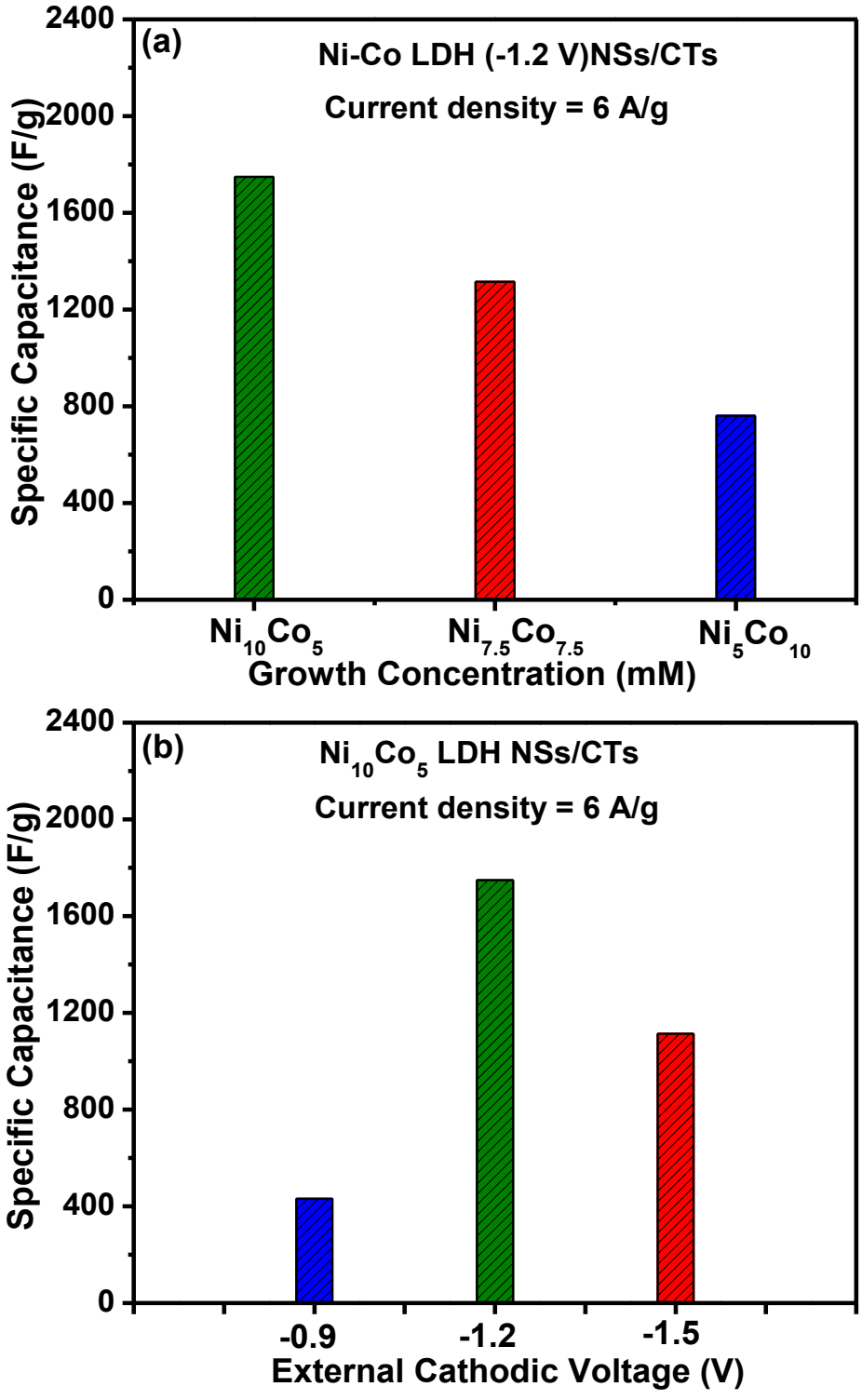

Fig. S7 (a) and (b) Calculated specific capacitance values of the Ni-Co LDH NSs/CTs for different growth concentrations and external cathodic voltages.

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