Supporting Information

Facile fabrication of NiCo-LDH on activated rice husk carbon for high-performance all-solid-state asymmetric supercapacitors

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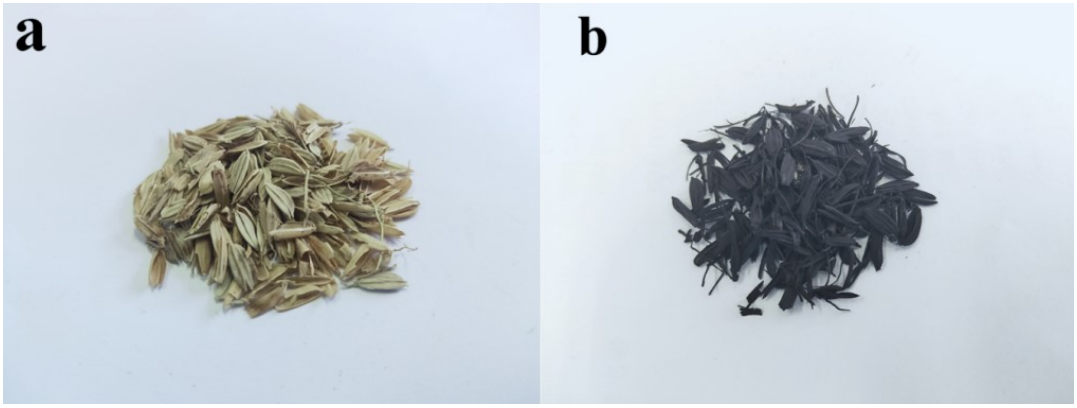

Fig. S1. Photographs of RHC electrode material: (a) before carbonization; (b) after carbonization.

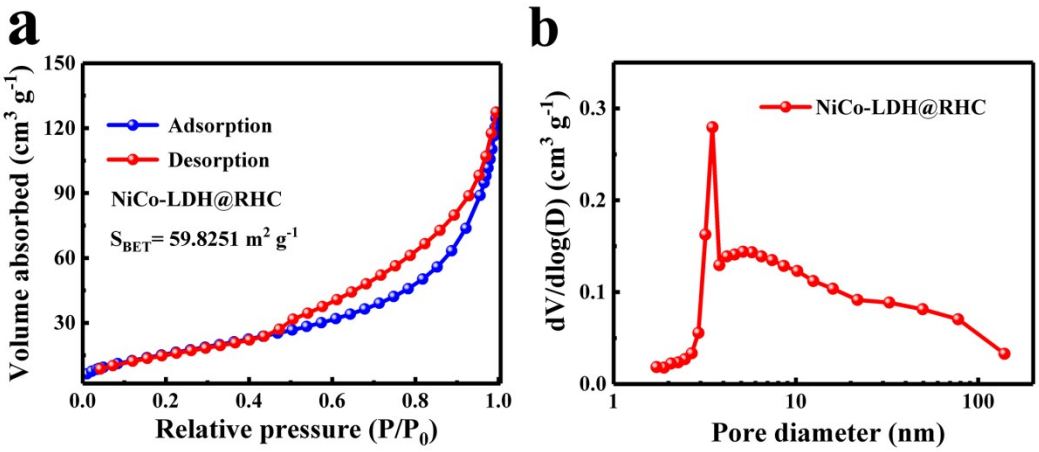

Fig. S2. (a) Nitrogen adsorption and desorption isotherms of NiCo-LDH@RHC; (b) the corresponding pore size distribution plots.

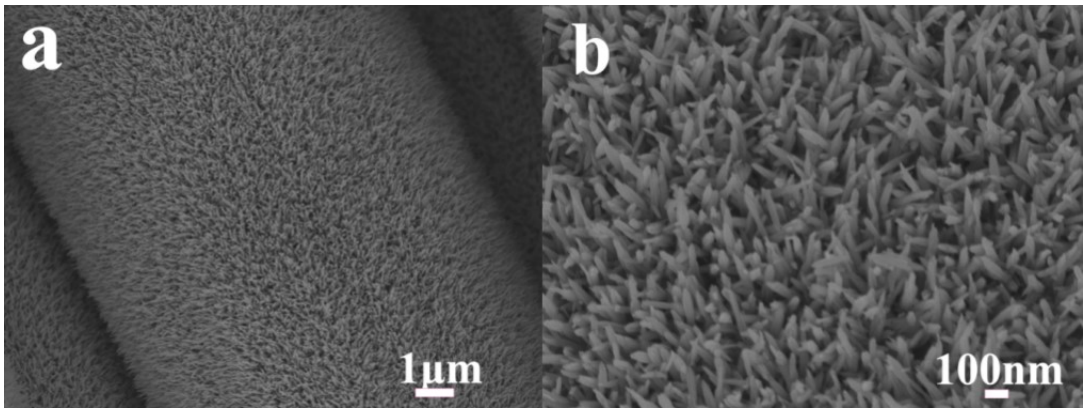

Fig. S3. SEM images of the Fe_2O_3/CC anode material at different magnifications.

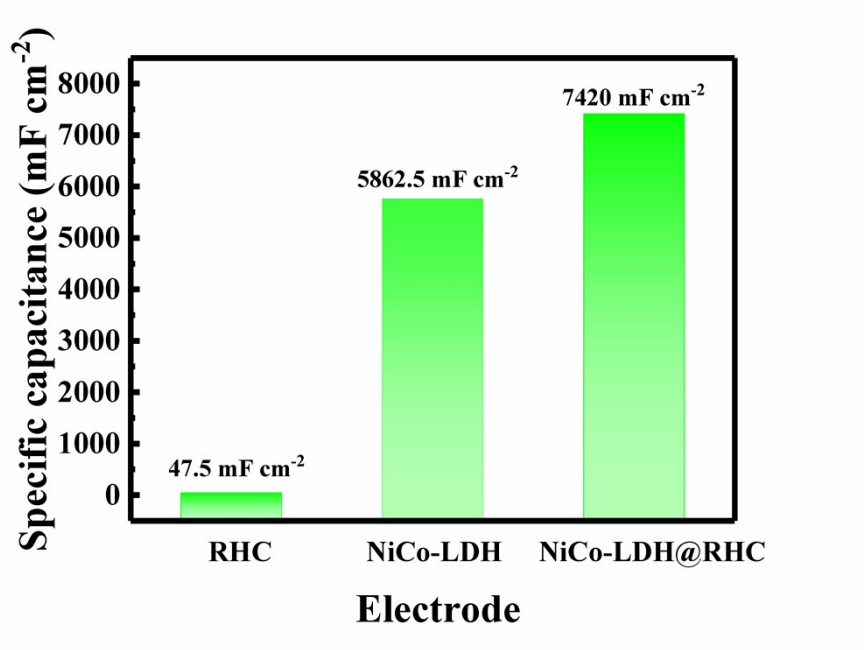

Fig. S4. Specific capacitance of RHC,NiCo-LDH and NiCo-LDH@RHC on NF at 5 mA cm^{-2}.

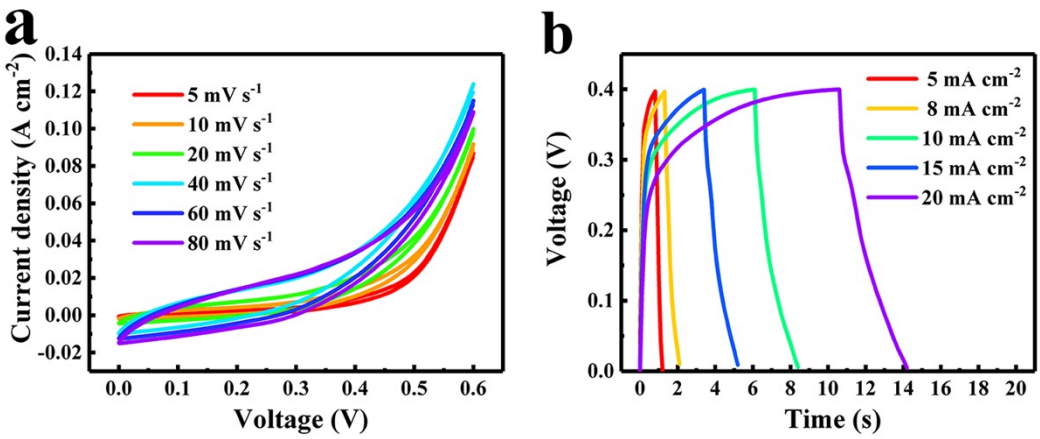

Fig. S5. (a) CV and (b) GCD curves of RHC.

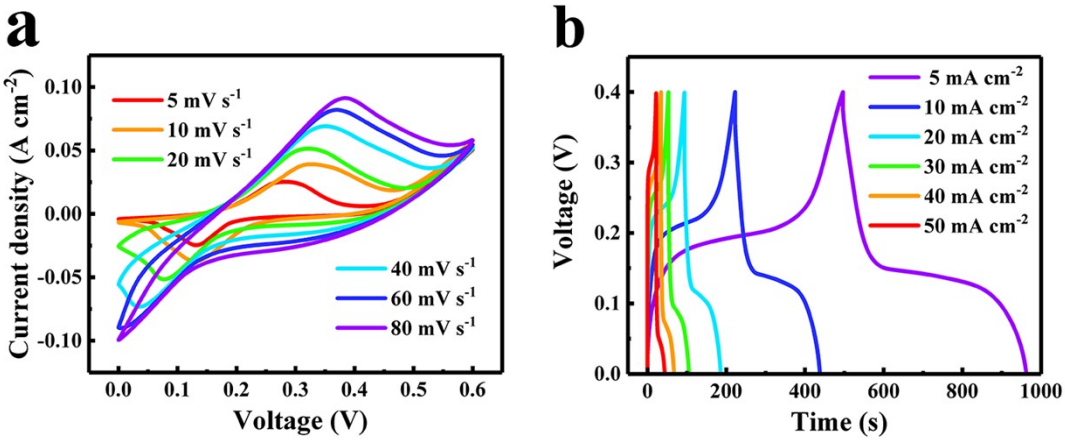

Fig. S6. (a) CV and (b) GCD curves of NiCo-LDH.

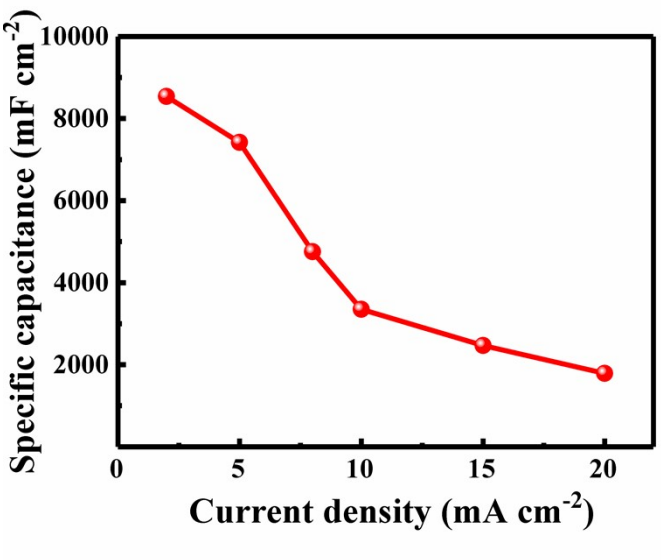

Fig. S7. Specific capacitance of NiCo-LDH@RHC on NF at different current densities.

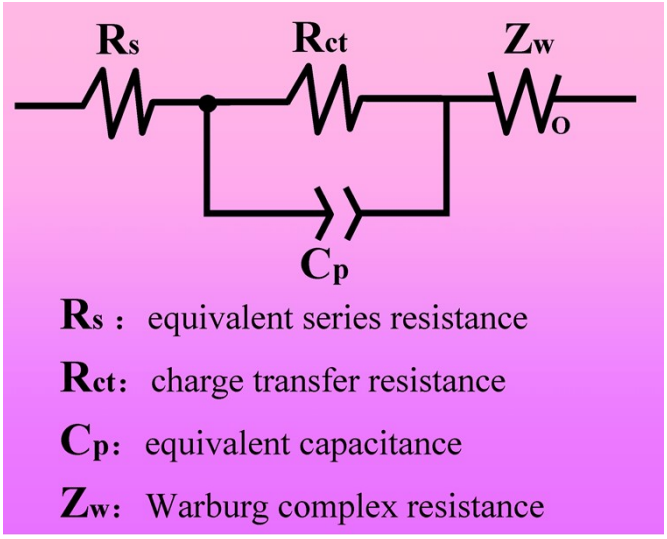

Fig. S8. Equivalent circuit diagram for fitting the EIS curve.

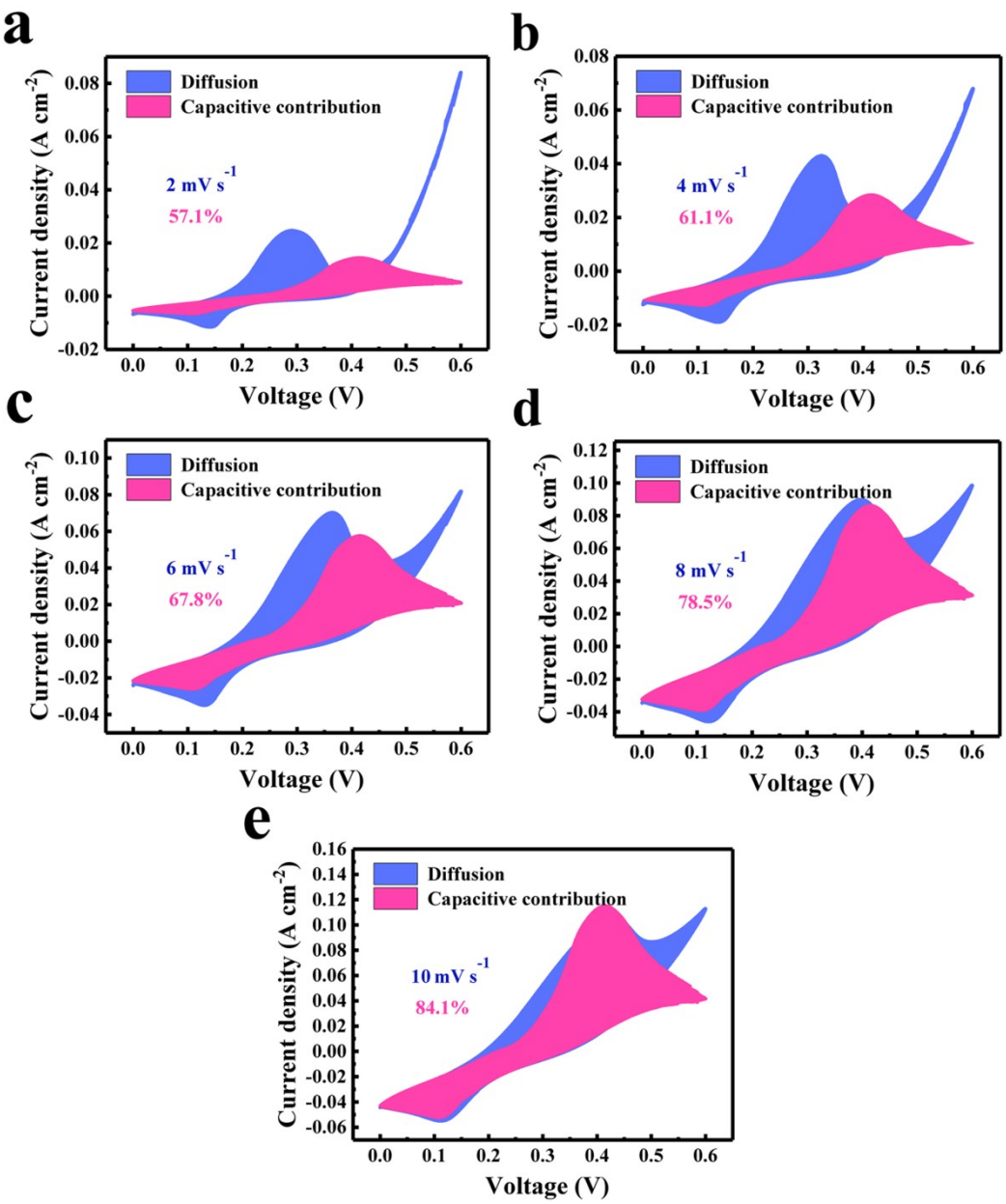

Fig. S9. The capacitive contribution of NiCo-LDH@RHC at different scan speeds: (a) 2 mVs^{-1}; (b) 4 mV s^{-1}; (c) 6 mV s^{-1}; (d) 8 mV s^{-1}; (e) 10 mV s^{-1}.

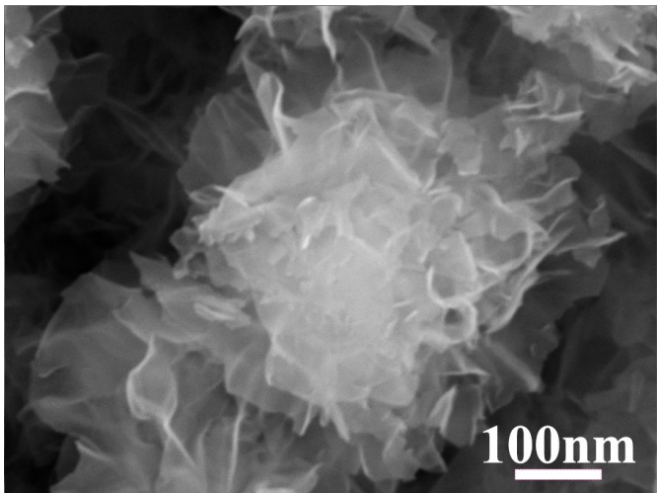

Fig. S10. SEM image of NiCo-LDH@RHC on NF after 5000 cycles.

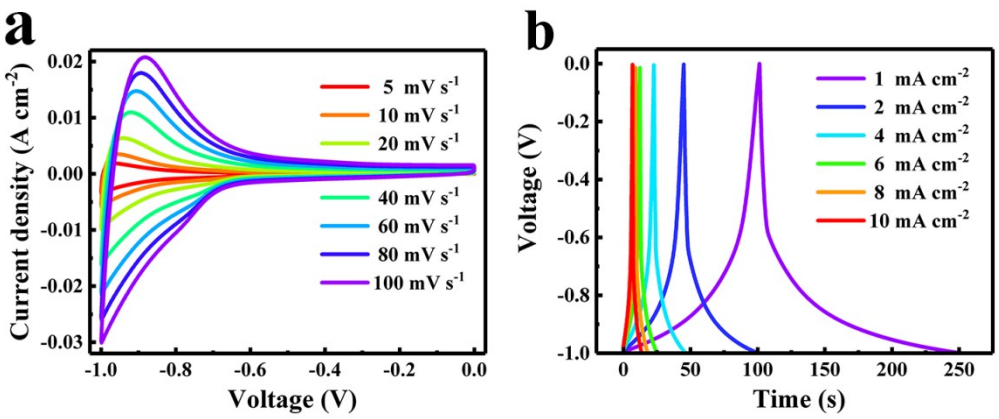

Fig. S11. Fe_2O_3 anode: (a) CV curves at varying scan rates in the potential window of –1.0 - 0.0 V; (b) GCD curves at varying current densities in the potential window of –1.0 - 0.0 V.

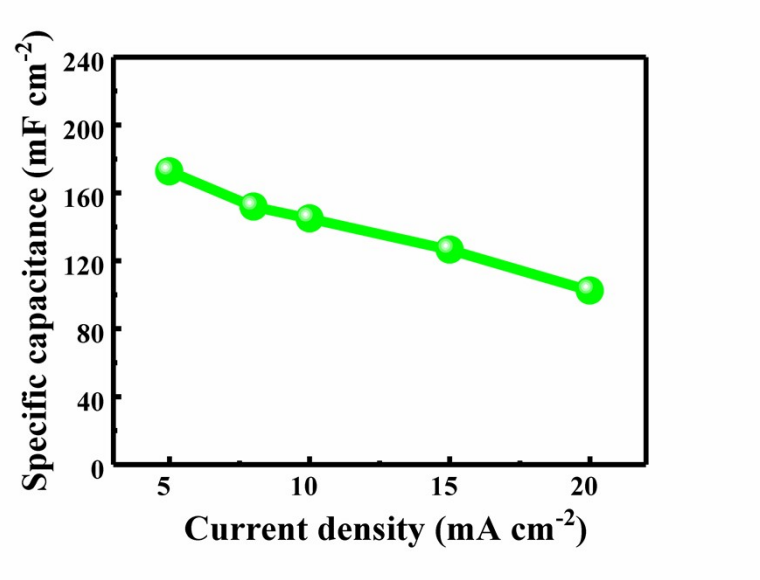

Fig. S12. The rate capability of the all-solid-state ASC

Table S1.Comparisonof the Cs for the electrodes with the similar active materials toour work.

Electrode	Electrolyte	Currentdensity ($mAcm^{-2}$)	Capacitance ($mF\ cm^{-2}$)	Ref.
$NiCo_2O_4$@$Ni(OH)_2$/NF	1M KOH	1	3500	[S1]
Ni_3S_2@$Ni(OH)_2$/NF	6M KOH	1	3550	[S2]
$NiCo_2O_4$@MnO_2/CC	2M KOH	2	3810	[S3]
$NiCo_2O_4$@$MnMoO_4$/NF	3M KOH	2	4240.5	[S4]
$Ni(OH)_2$@$CoMoO_4$/NF	2M NaOH	8	5230	[S5]
$NiCo_2O_4$@NiCo-LDH/ACC	6M KOH	2	6090	[S6]
NiCo-LDH@RHC/NF	3M KOH	2	8542.5	This work

Table S2. Performance comparison of our ASC with other ASCs with the similar active materials.

Materials	Energy density ($\mu Wh\ cm^{-2}$)	Power density ($mW\ cm^{-2}$)	Ref.
$NiCo_2O_4$NG/CF//C	9.46	0.608	[S7]
NiO/$Ni(OH)_2$/PEDOT//C	11	0.33	[S8]
MnO_2/CNT//MnO_2/CNT	18	0.72	[S9]
NiCo-LDH@RHC/ NF//Fe_2O_3	61.44	3.99	This work

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