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Supplementary Information

Growth of NiMn LDH Nanosheet Arrays on KCu_7S_4 Microwires for Hybrid Supercapacitors with Enhanced Electrochemical Performance

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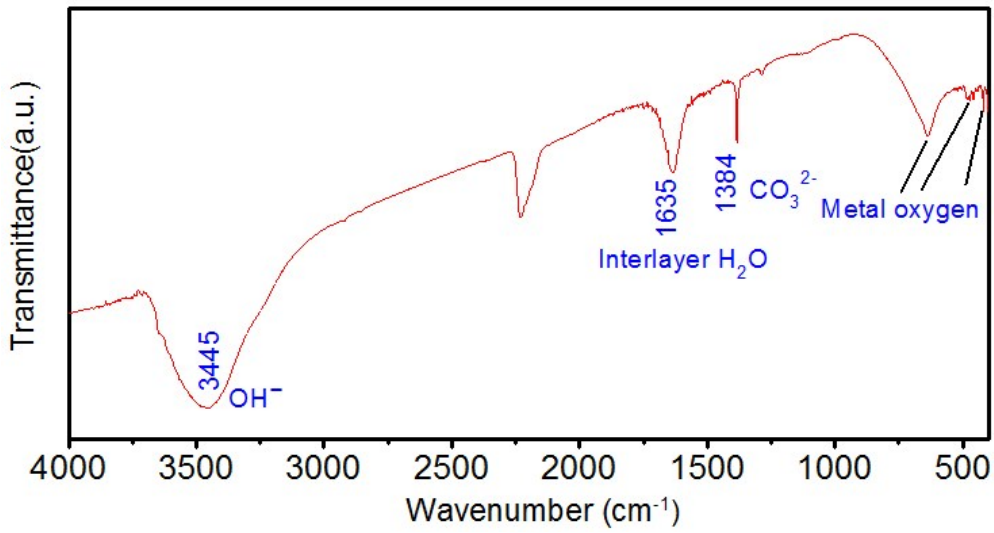


Fig. S1 FT-IR spectra of KCu_7S_4@NiMn LDH sample.

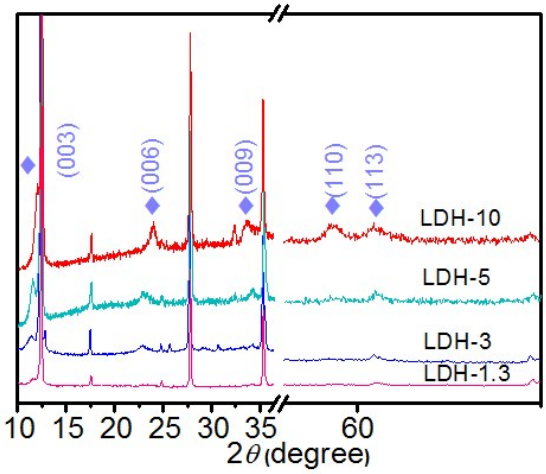


Fig. S2 Enlarged XRD patterns of KCu_7S_4@NiMn LDH composites obtained at various concentrations (Ni^{2+} and Mn^{2+}), which shows the changes for main crystal faces of NiMn LDH in the range 10-36.5° and 36.5- 65°.

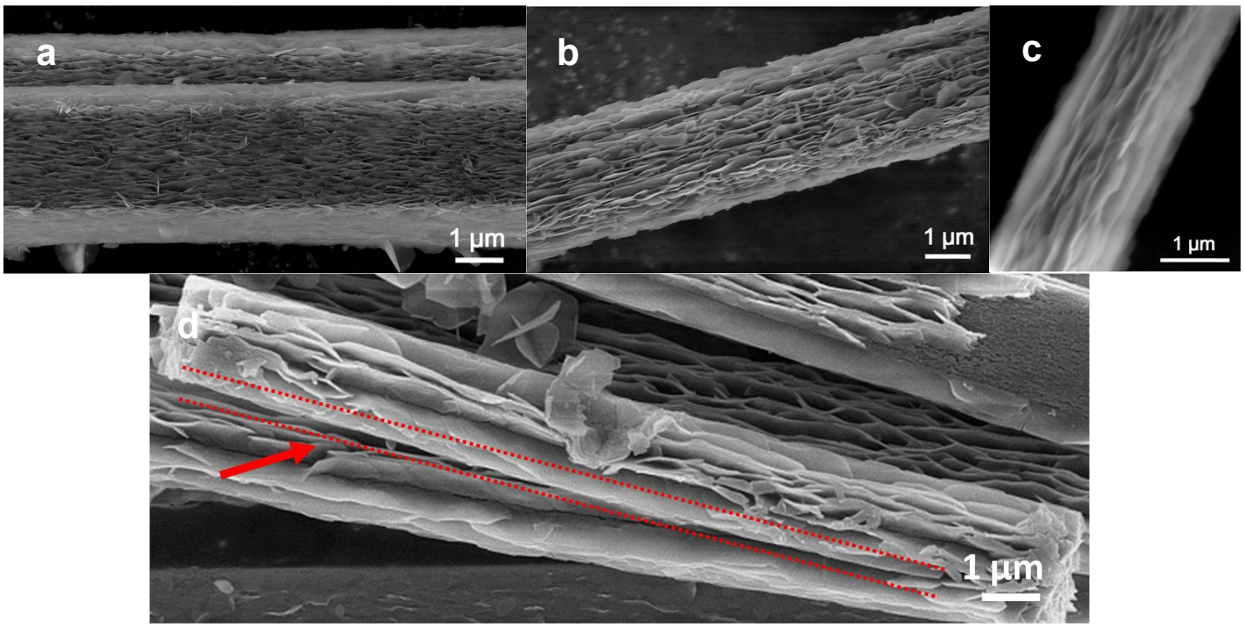


Fig. S3 SEM images of KCu_7S_4@NiMn LDH obtained at 1.3 mM, showing quasi-paralleled NiMn LDH nanosheet arrays. The Fig. S2d shows the ultralong quasi-paralleled NiMn LDH nanosheets are shown in the region with red dotted line.

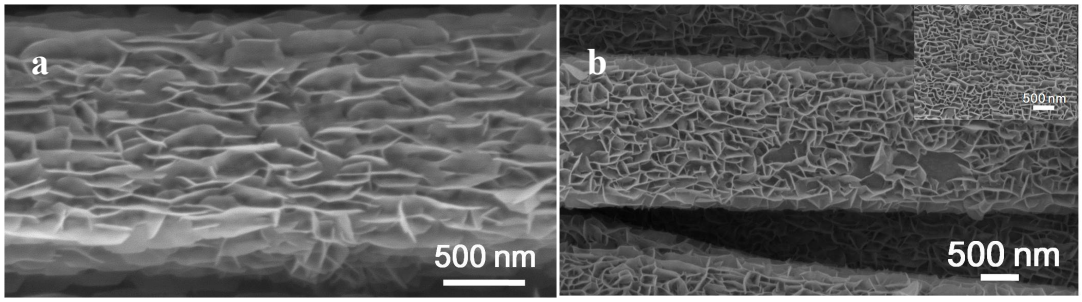


Fig. S4 SEM images of KCu_7S_4@NiMn LDH obtained at middle concentration (1.8 mM and 3 mM). The inset in Fig.S3b shows the enlarged area on KCu_7S_4@NiMn LDH.

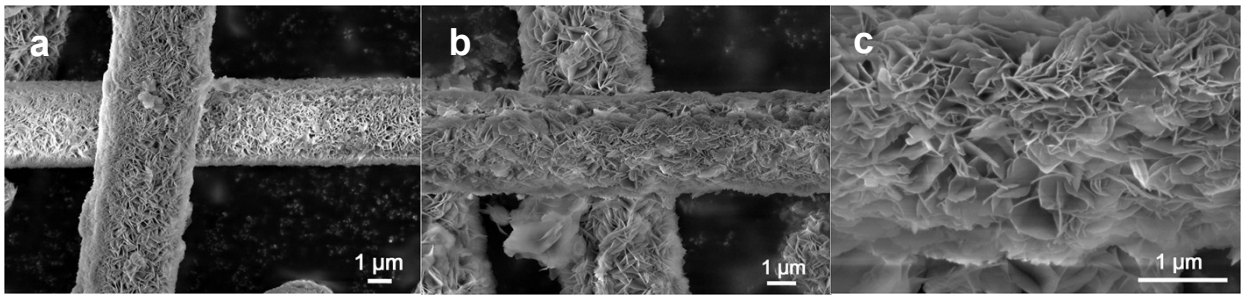
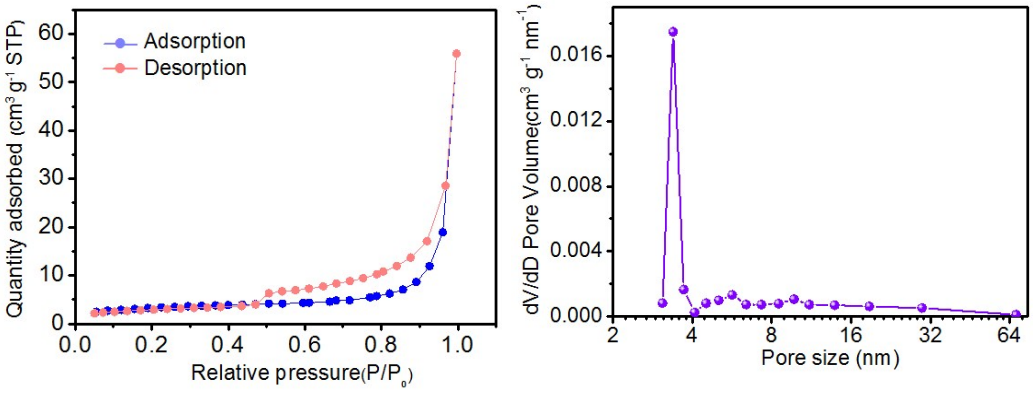


Fig. S5 SEM images of KCu_7S_4@NiMn LDH obtained at high concentration (5 mM and 10 mM), showing interlaced NiMn LDH nanosheet arrays.



	KCu_7S_4@NiMn LDH (LDH-1.8)
BET surface area (m^2 g^{-1})	11.4 m^2 g^{-1}
Total pore volume (cm^3g^{-1})	0.086585 cm^3 g^{-1}
Cumulative Pore Volume (cm^3g^{-1})	Mesoporous ratio: 94%

Fig. S6 (a) N_2 adsorption-desorption isotherms and (b) pore size distribution of KCu_7S_4@NiMn LDH (LDH-1.8).The table is shown corresponding BET surface area and total pore volume.

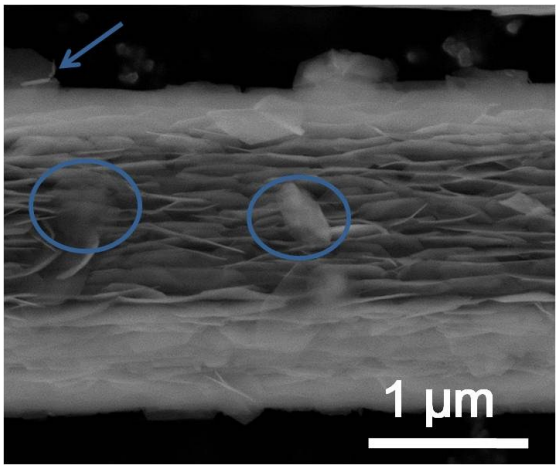


Fig. S7 Freestanding and hexagonal NiMn LDH nanosheets are shown in blue circles and arrow.

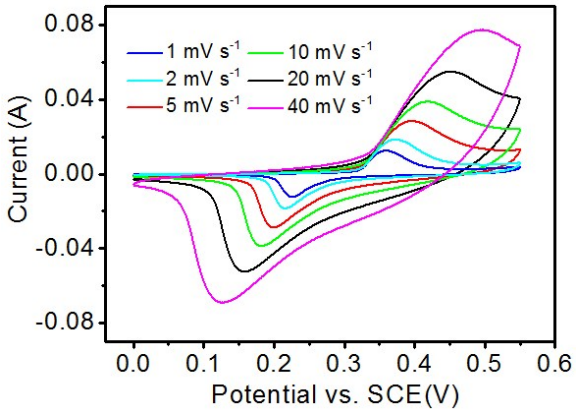


Fig. S8 Cyclic voltammograms of KCu_7S_4@NiMn LDH (LDH-3) electrode.

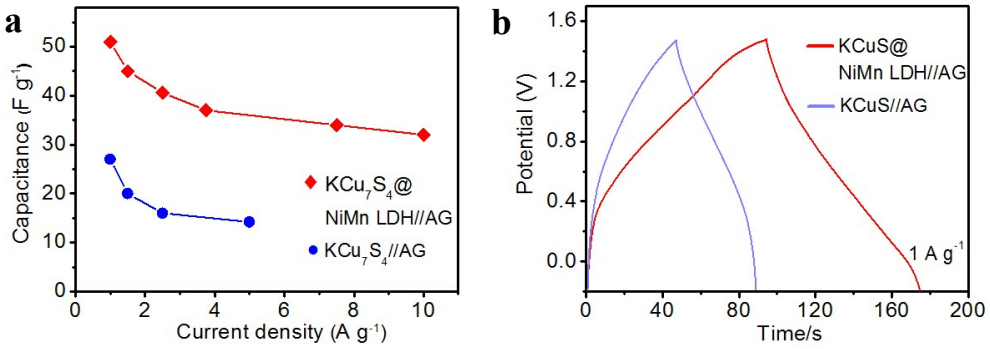


Fig. S9 Comparative performance of KCu_7S_4//Activated graphene and KCu_7S_4@NiMn LDH//Activated graphene asymmetric supercapacitors: (a) Cyclic voltammograms at 40 mV s^{-1}; (b) Galvanostatic charge-discharge curves at 1 A g^{-1}.