Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supporting Information

Achieving high-capacity aqueous supercapacitors via anion-doped construction of dual redox centers in $Ni_xCo_{1-x}SeO_3$

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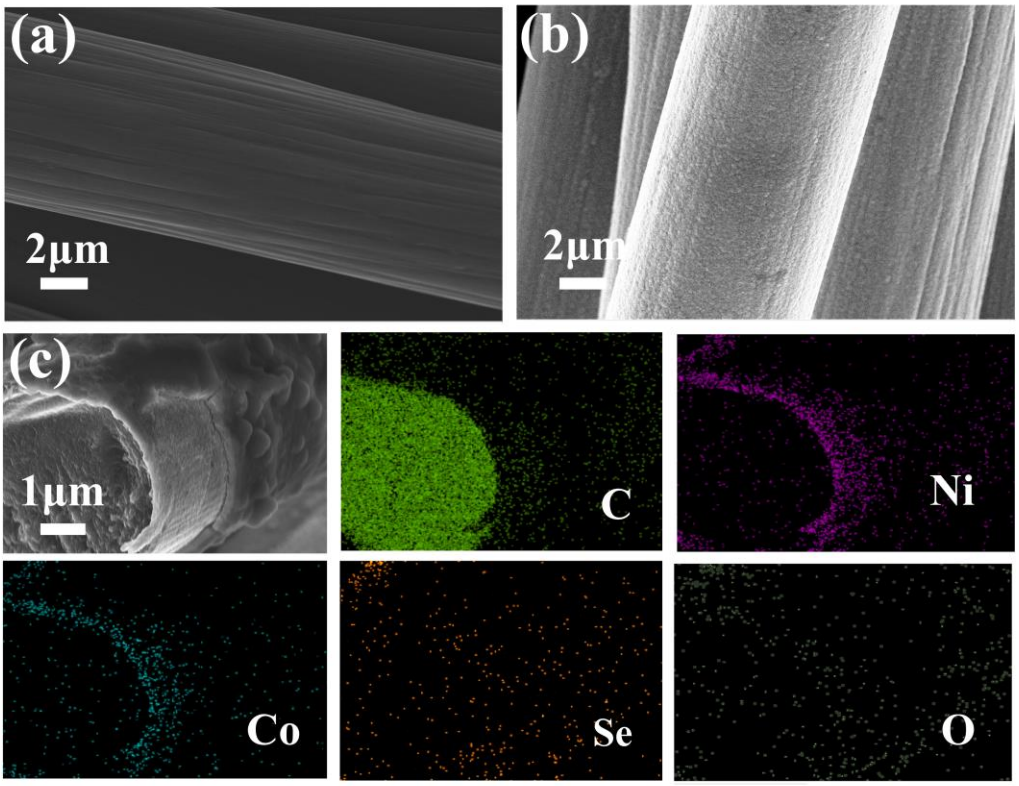

Fig. S1 SEM of (a) CC (b)NiCC. (c)The cross-section image and element distribution pictures of the NCSeO-NCl-NiCC composite.

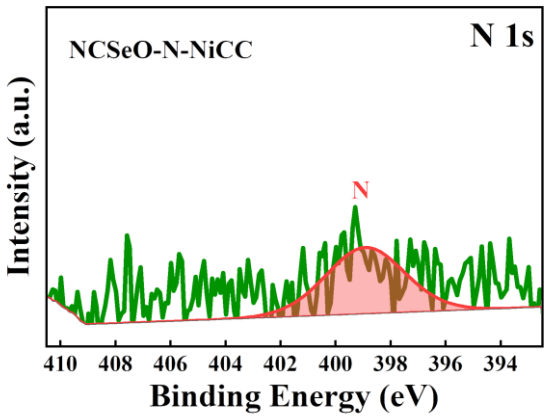

Fig. S2 N1s High-resolution XPS spectra of NCSeO-N-NiCC samples.

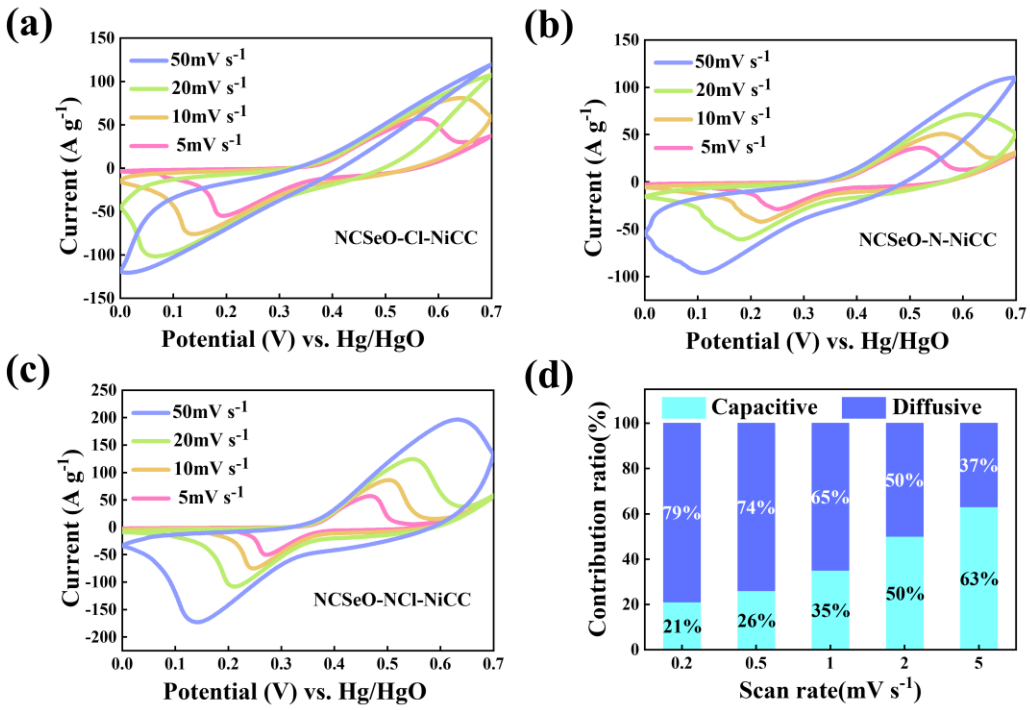

Fig. S3 CV curves of (a) NCSeO-Cl-NiCC (b) NCSeO-N-NiCC (c)NCSeO-NCl-NiCC at different scan rates from 5 to 50 mV s^{-1} .(d) voltage drops under high current densities of different electrodes. (e) The percentage of capacitive/diffusion-controlled contribution to the charge storage of NCSeO-Cl-NiCC electrode at different scan rates.

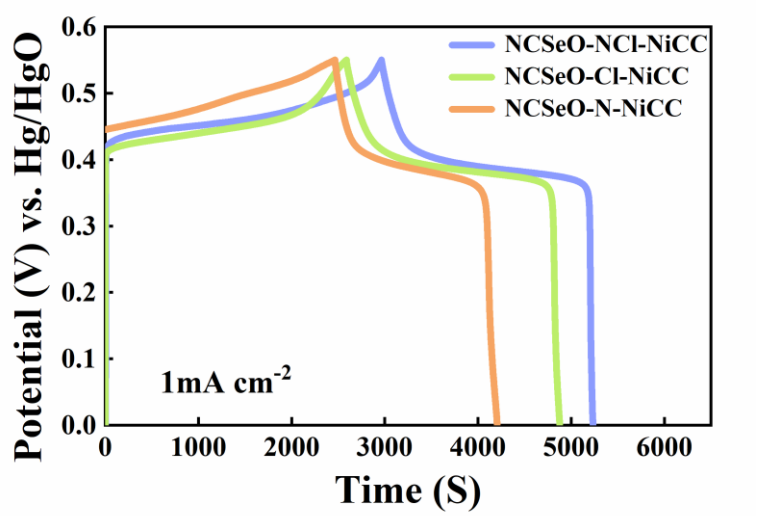

Fig. S4 GCD curve of NCSeO-NCl-NiCC, NCSeO-Cl-NiCC and NCSeO-N-NiCC electrode at 1 mA cm^{-2} current density.

Table S1. Comparision of electrochemical performance of NCSeO-NCl-NiCC electrodes with NiCo-Oxides and NiCo-Selenides reported in the literature.

Material	Electrochemical performance	Ref
$NiCo_2O_4$	70.7 mAh g^{-1}, 1.5 A g^{-1} (--)	1
NiO/Co_3O_4/rGO	108 mAh g^{-1}, 2 A g^{-1} (5000, 92%)	2
N-NiCoO-2	131.6 mAh g^{-1}, 1 A g^{-1} (5000, 93.3%)	3
NiCo-LDH	272.5 mAh g^{-1}, 1 A g^{-1} (3000, 73.3%)	4
NiCo-LDH-PMB/CC	298.6 mAh g^{-1}, 1 A g^{-1} (--)	5
NiCoSe/G-10	117 mAh g^{-1}, 1 A g^{-1} (5000, 84.2%)	6
$NiSe/CoSe/Ni_3Se_2$	185.1 mAh g^{-1}, 0.5 A g^{-1} (5000, 85.2%)	7
$NiSe_2$@CNT	136.2 mAh g^{-1}, 1 A g^{-1} (9000 82%)	8
NCSeO-NCl-NiCC	**417 mAh g^{-1}, 1 A g^{-1} (7000, 98.4%)**	**This work**

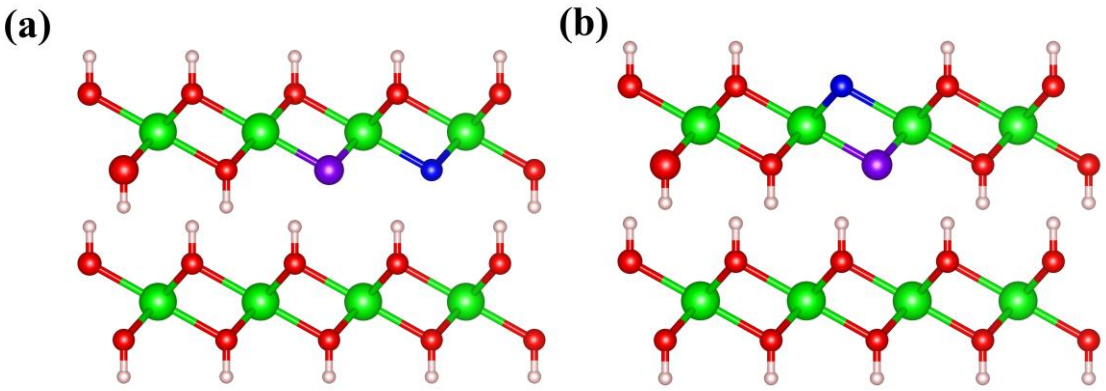

Fig. S5 The crystal structure of (a) NCSeO-NCl-NiCC-1, (b) NCSeO-NCl-NiCC-2. (The grey, red, pink, blue and purple balls are Ni, O, H, N and Cl atoms, respectively.)

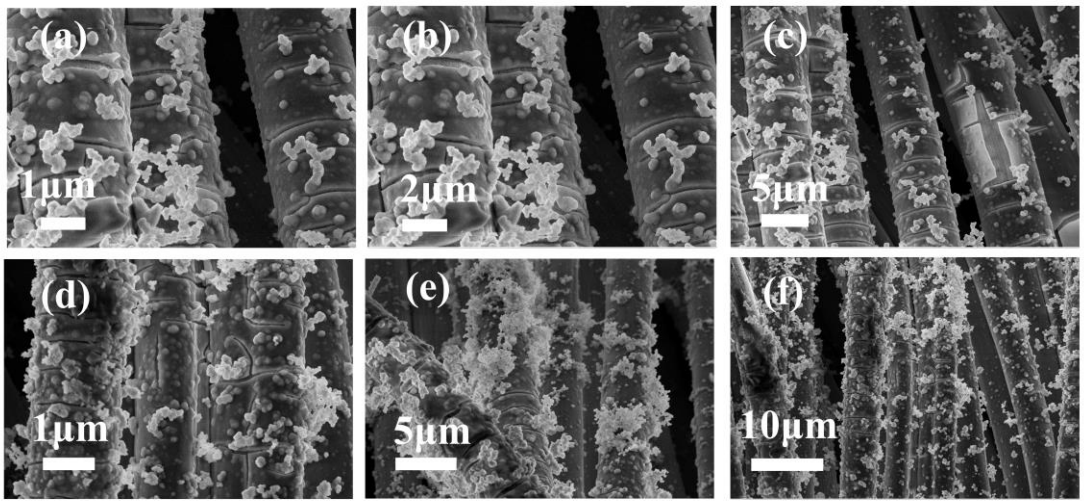

Fig. S6 After 300 cycles SEM images of (a) NCSeO-Cl-NiCC.(b) NCSeO-NCl-NiCC.

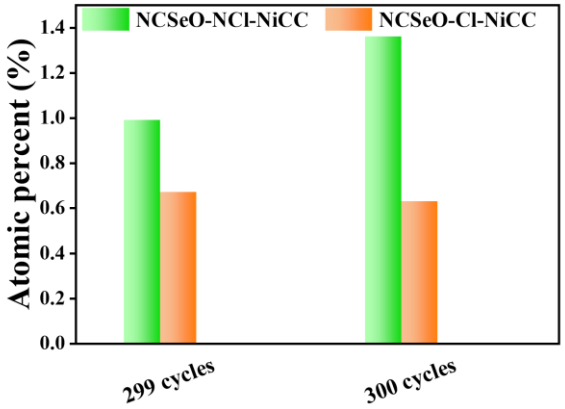

Fig. S7 Cl atomic percents in NCSeO-NCl-NiCC in different state.

Reference

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