Electronic Supplementary Information

Designing chain-like nickel pyro-vanadate porous spheres as an advanced electrode material for supercapacitors

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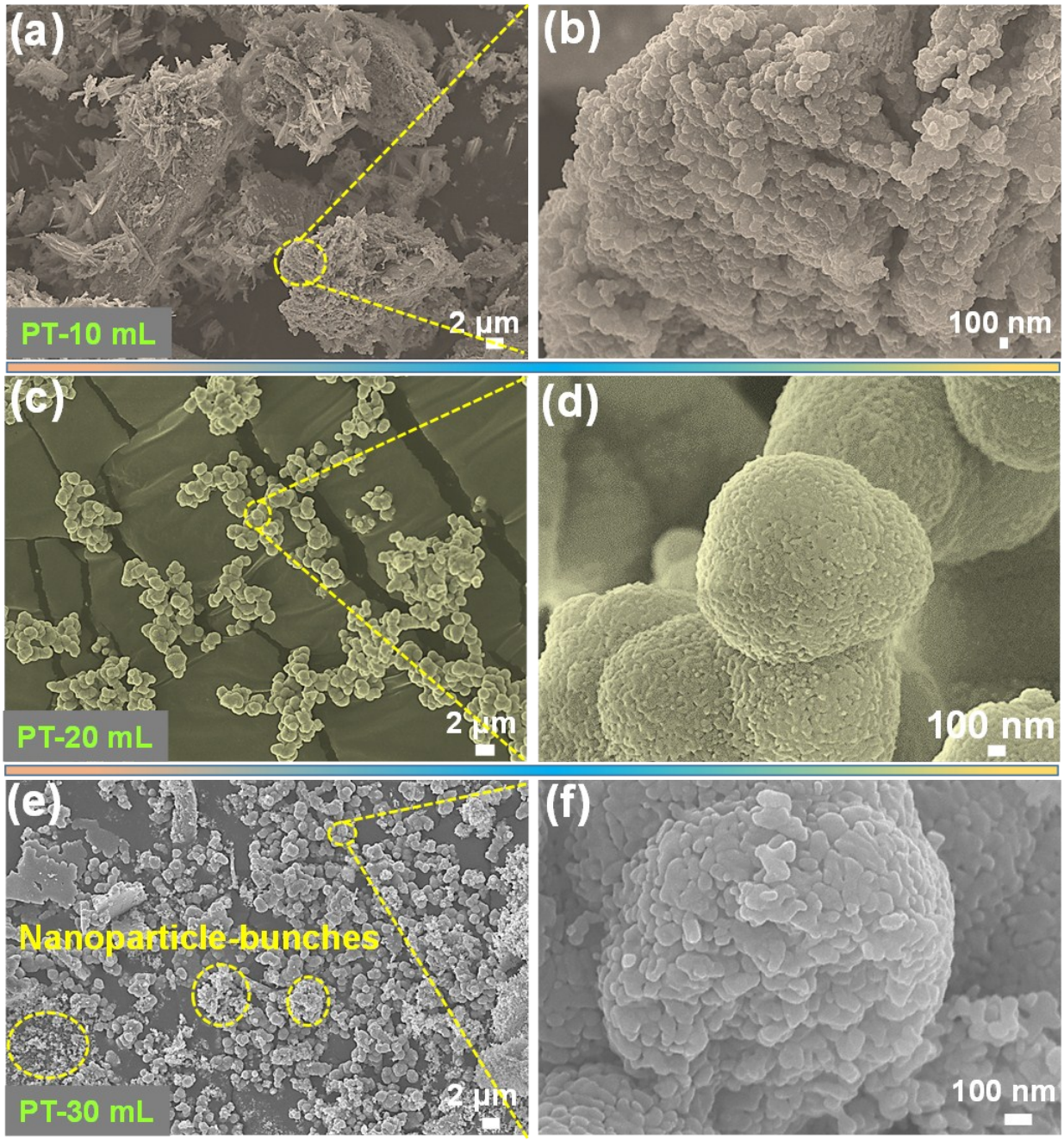

Fig. S1. FE-SEM images of NV particles prepared with (a-b) 10 mL, (c-d) 20 mL (optimal condition), and (e-f) 30 mL of PT in growth solution.

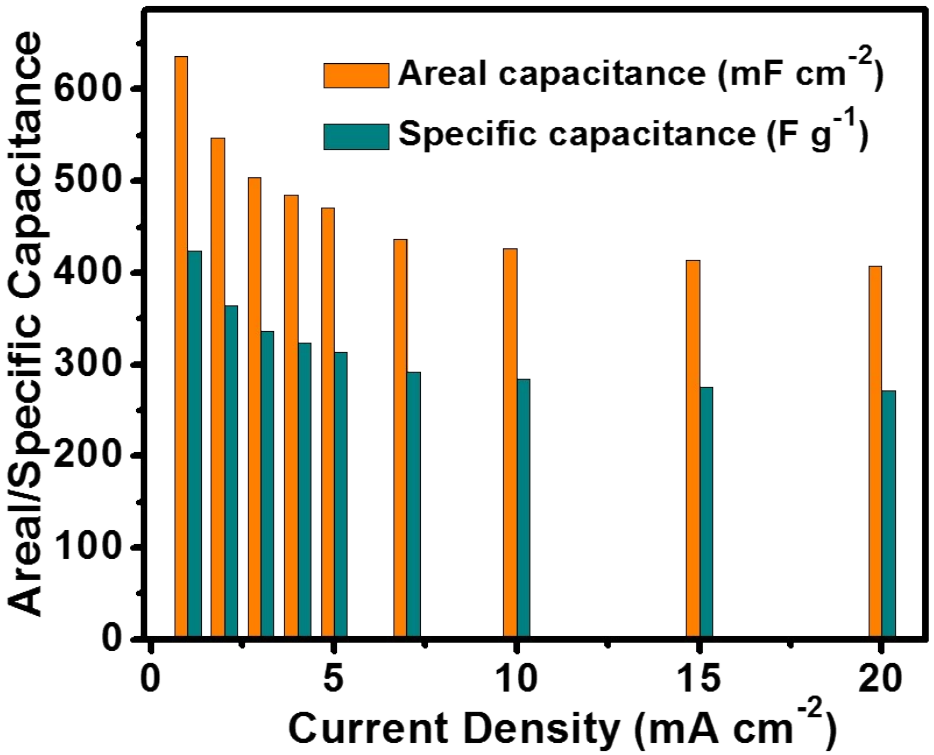

Fig. S2. Areal and specific capacitance values of the NV MCs material plotted against different current densities.

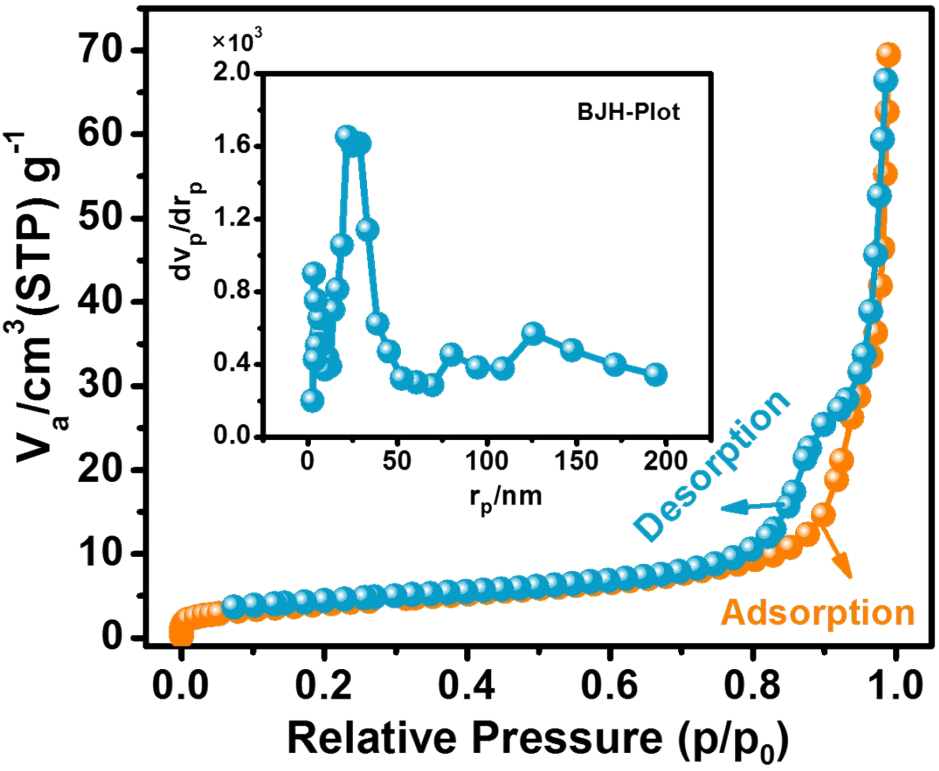

Fig. S3. Nitrogen adsorption and desorption isotherms of NV MCs. Inset shows the pore size distribution plot of NV MCs.

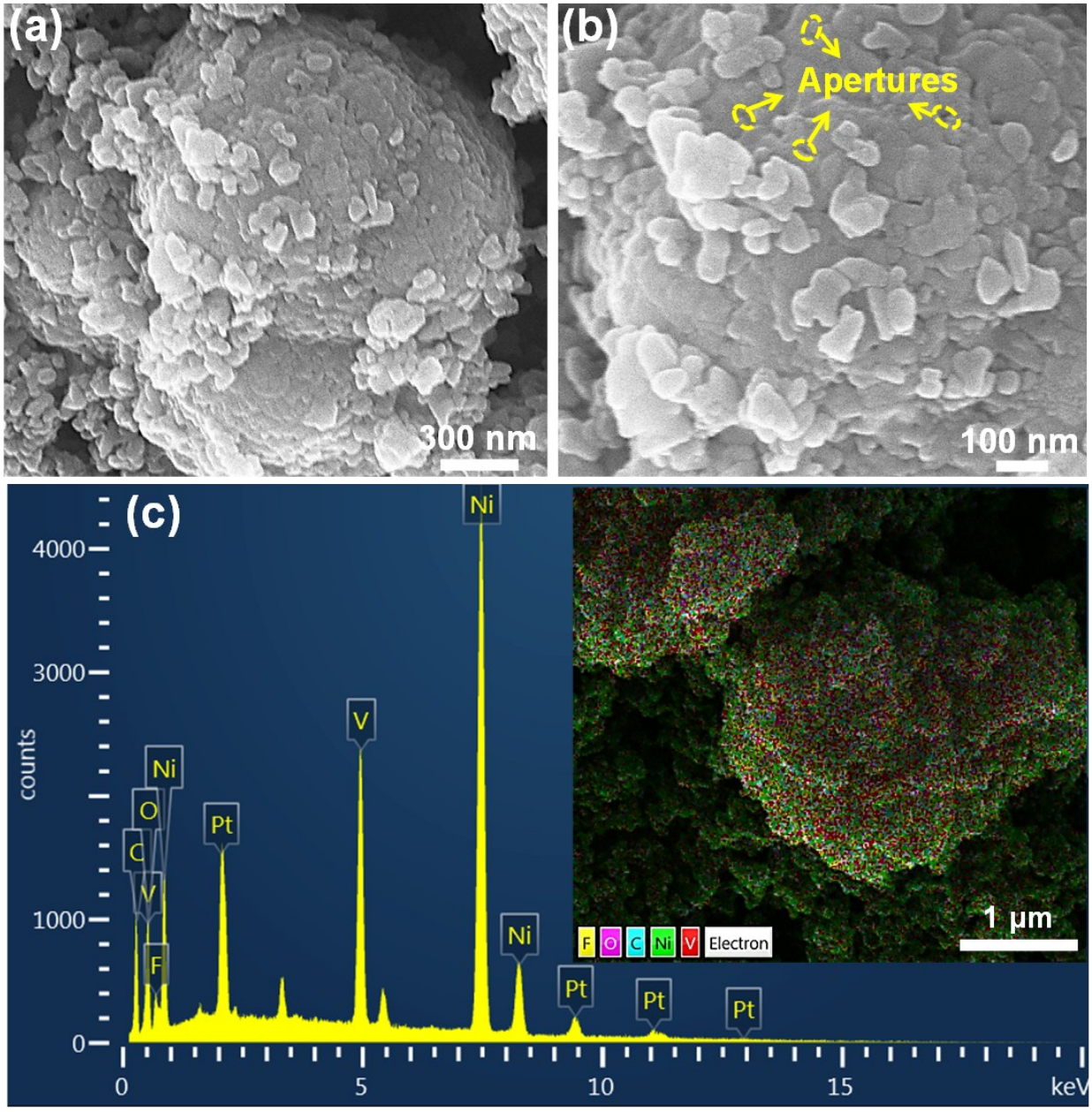

Fig. S4. (a-b) FE SEM images and (c) EDX spectrum of the NV particles measured after 2000 charge-discharge cycles. Inset in (c) demonstrates the uniform distribution of Ni, V, and O elements on entire NV particles.

Table S1. Comparative areal capacity/specific capacitance performances of the previously reported metal vanadates/bimetallic metal oxide-based materials with our NV MCs electrode material in three-electrode configuration.

Active material	Current collector	Electrolyte	Test condition	Electrochemical performance	Ref.
V_2O_5 nanosheets	Carbon paper	1 M KCl	1 A g^{-1}	70.55 μAh cm^{-2}	S1
Vanadium pentoxide/carbon nanofiber	Ni foil	6 M KOH	1 mA cm^{-2}	150 F g^{-1}	S2
ZnV_2O_4 hierarchical nanospheres	Ni foam	2 M KOH	2 A g^{-1}	324 F g^{-1}	S3
$V_{0.04}Ni_{0.96}O$	Ti substrate	1 M KOH	4 A g^{-1}	44.3 μAh cm^{-2}	S4
Graphene-$NiMoO_4 \cdot nH_2O$	Glassy carbon	6 M KOH	1.5 mA cm^{-2}	13.75 μAh cm^{-2}	S5
$Zn_3V_2O_8$ nanoplatelets	Ni foam	6 M KOH	2 A g^{-1}	207 F g^{-1}	S6
$CoMoO_4$/C	Ni foil	3 M KOH	1 mA cm^{-2}	54.16 μAh cm^{-2}	S7
$CuCo_2O_4$ nanostructures	Ni foam	3 M KOH	2 A g^{-1}	280 F g^{-1}	S8
$CoMoO_4$ nanorods	Ni foam	2 M KOH	1.2 mA cm^{-2}	70 μAh cm^{-2}	S9
$Cu_3Mo_2O_9$ nanoflakes	Ni foam	1 M KOH	1 mA cm^{-2}	29.6 μAh cm^{-2}	S10
$Ni_2V_2O_7$ microsphere-chains	**Ni foam**	**1 M KOH**	**1 mA cm^{-2}** **3 mA cm^{-2}** **(2 A g^{-1})**	**77.1 μAh cm^{-2} (423.7 F g^{-1})** **59 μAh cm^{-2} (336.3 F g^{-1})**	**This work**

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