

Supplementary File

# Preparation of Porous Composite Phase Na Super Ionic Conductor Adsorbent by In Situ Process for Ultrafast and Efficient Strontium Adsorption from Wastewater

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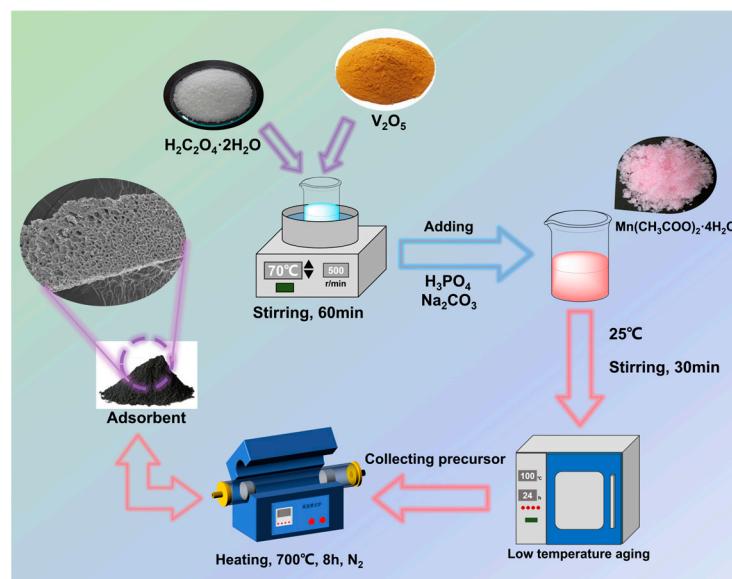
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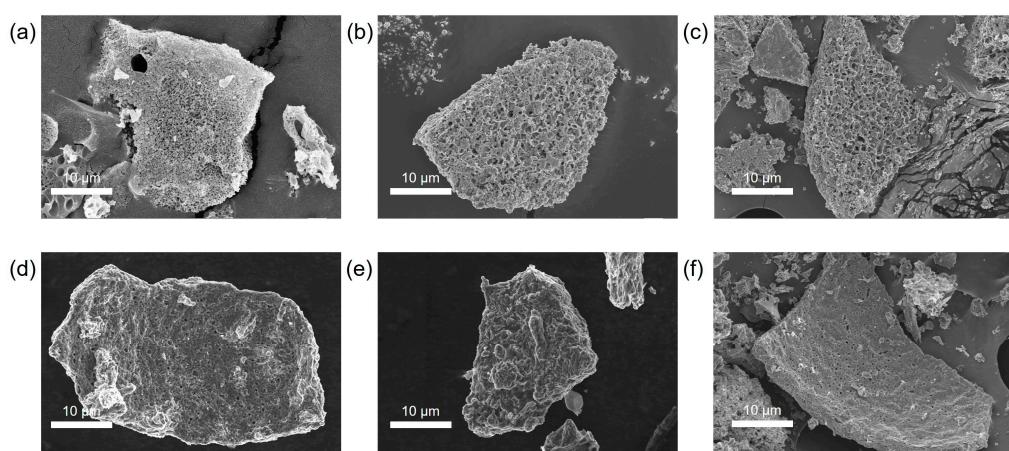
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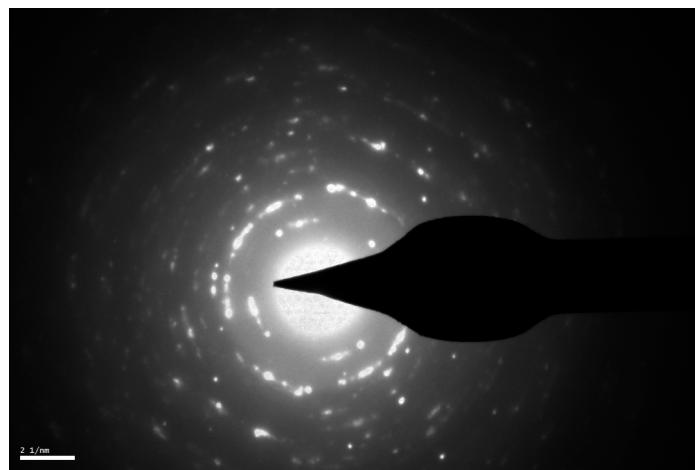
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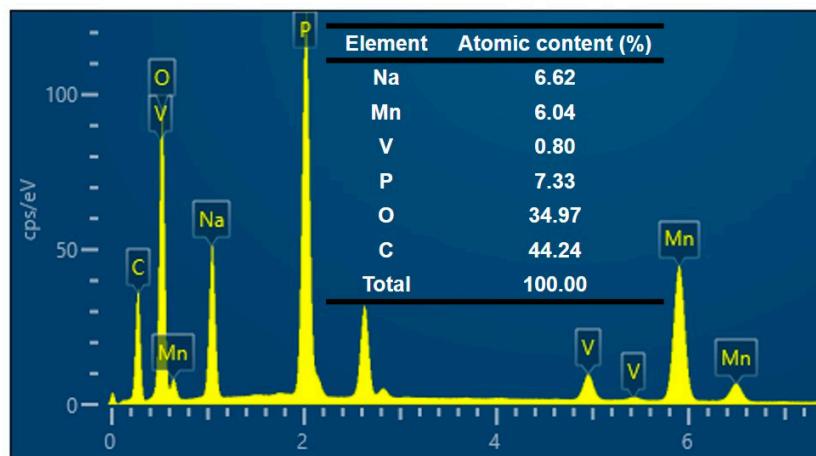
**Figure S1.** Preparation process of different molar ratios NVP@NMP.



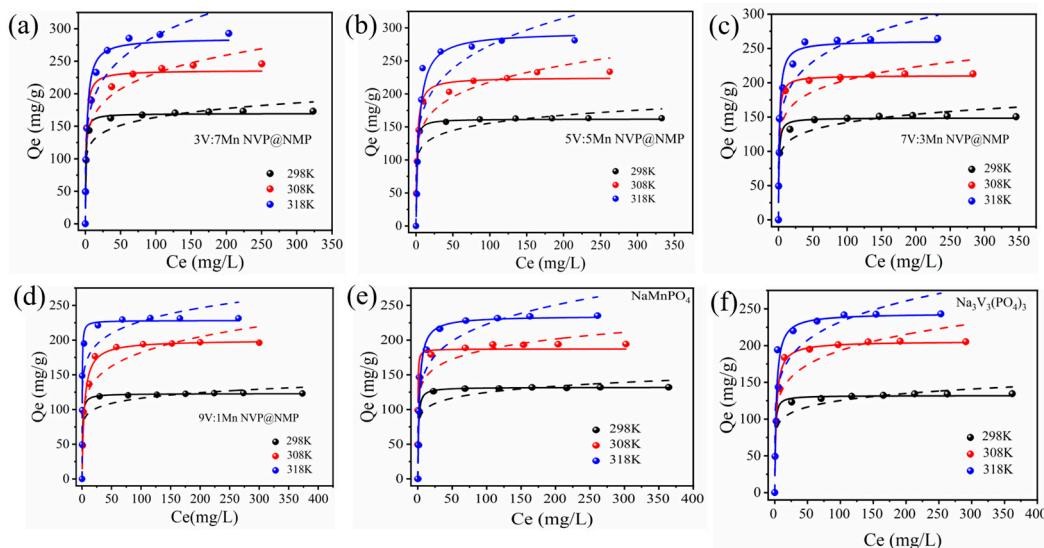
**Figure S2.** SEM image of the NVP/NMP. a) NMP, b) 7Mn: 3V NVP/NMP, c) 5Mn: 5V NVP/NMP, d) 3Mn: 7V NVP/NMP, e) 1Mn: 9V NVP/NMP, f) NVP.



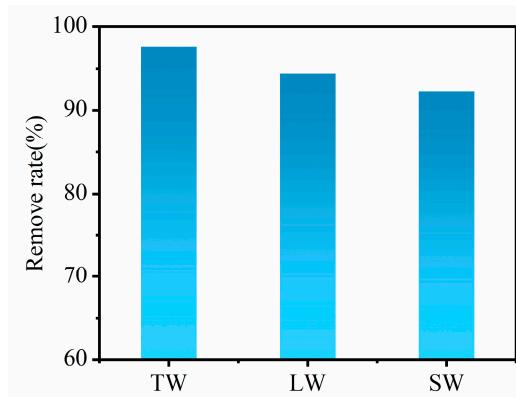
**Figure S3.** Selected area electron diffraction pattern of 1V: 9Mn NVP@NMP.



**Figure S4.** The SEM-EDS spectrum of 1V: 9Mn NVP@NMP.



**Figure S5.** a-f) Isothermal adsorption curve fitting for strontium adsorption by different molar ratios of adsorbents (solid lines is Langmuir model, dashed lines is Freundlich model).



**Figure S6.** Efficiency of adsorbents on the removal of  $\text{Sr}^{2+}$  from solutions under different water.

**Table S1.** Parameters calculated from the Langmuir and Freundlich models.

Adsorbent	Langmuir Model			Freundlich Model			
	T (K)	$Q_{\max}$ (mg/g)	b (L/mg)	$R^2$	$K_f$	n	$R^2$
1V: 9Mn	298	198.88	0.09	0.99	66.15	0.04	0.91
	308	283.16	0.07	0.98	77.71	0.04	0.89
	318	361.36	0.11	0.92	112.95	0.04	0.79
3V: 7Mn	298	169.50	1.45	0.93	99.50	0.02	0.92
	308	236.00	0.80	0.97	115.30	0.03	0.91
	318	285.40	0.46	0.94	125.20	0.04	0.90
5V: 5Mn	298	162.00	1.36	0.92	97.40	0.02	0.89
	308	224.80	0.64	0.97	110.20	0.03	0.91
	318	294.00	0.23	0.96	117.20	0.04	0.84
7V: 3 Mn	298	148.70	1.28	0.96	85.80	0.02	0.92
	308	210.50	1.08	0.95	116.86	0.02	0.90
	318	261.00	0.66	0.96	125.64	0.03	0.89
9V: 1Mn	298	210.50	1.08	0.95	116.86	0.02	0.90
	308	261.00	0.66	0.96	125.64	0.03	0.89
	318	210.50	1.08	0.95	116.86	0.02	0.90
NVP	298	132.01	1.32	0.98	78.87	0.02	0.94
	308	205.82	0.43	0.98	99.76	0.02	0.90
	318	243.94	0.42	0.93	114.42	0.03	0.88
NMP	298	132.04	1.19	0.99	80.51	0.02	0.91
	308	187.30	4.76	0.94	113.68	0.02	0.88
	318	234.82	0.44	0.95	108.66	0.03	0.87