Electronic Supplementary Material (ESI) for RSC Advances.

Improving the capacity of zinc-ion batteries through composite defect engineering

Table 1 ICP analysis results of K, Mn and Ni atomic ratios of different MnO_2

element	atomic%		
	0.4KNMO	KNMO	d-KNMO
K	9.8	9.1	7.2
Mn	87.4	83.9	84.4
Ni	2.8	7.0	8.4

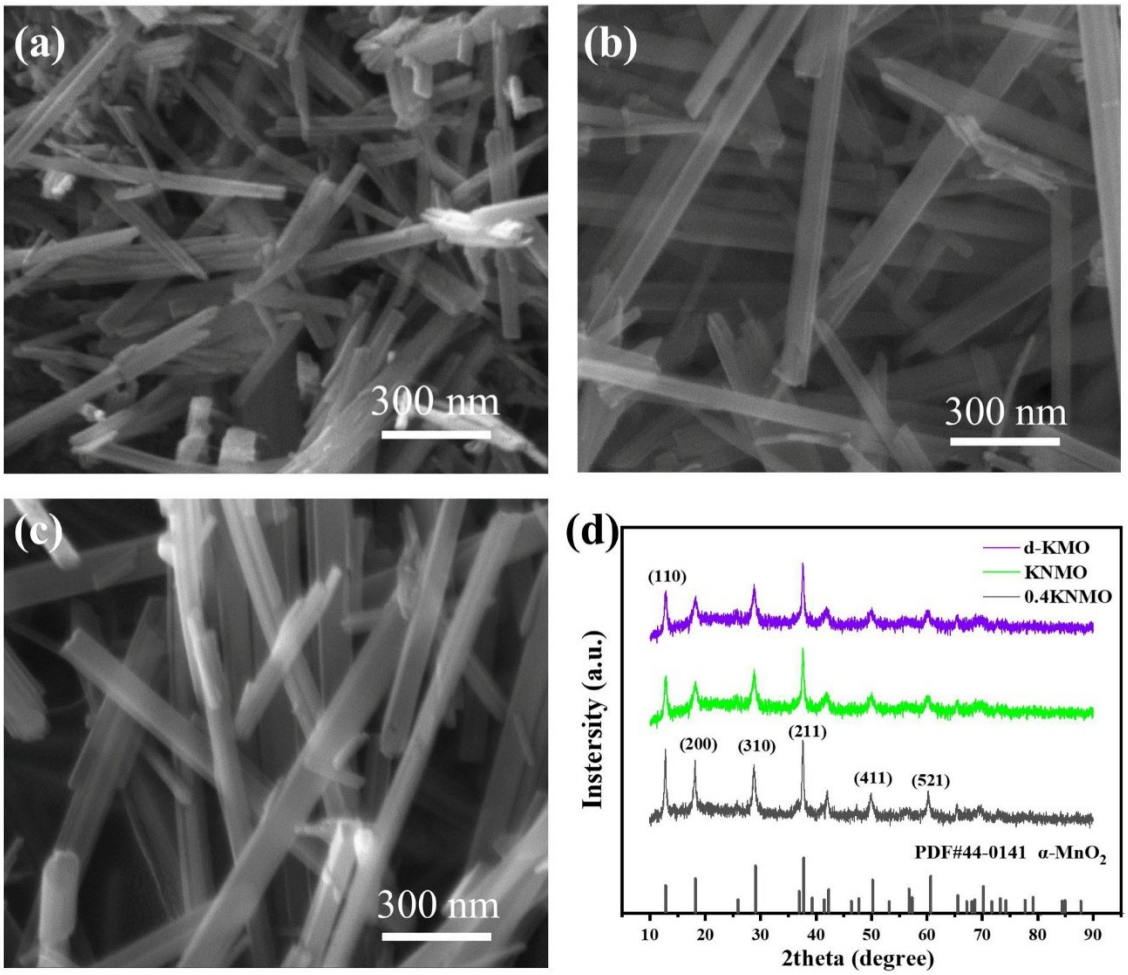

Figure S1 SEM and XRD patterns of 0.4KNMO, KNMO and d-KMO

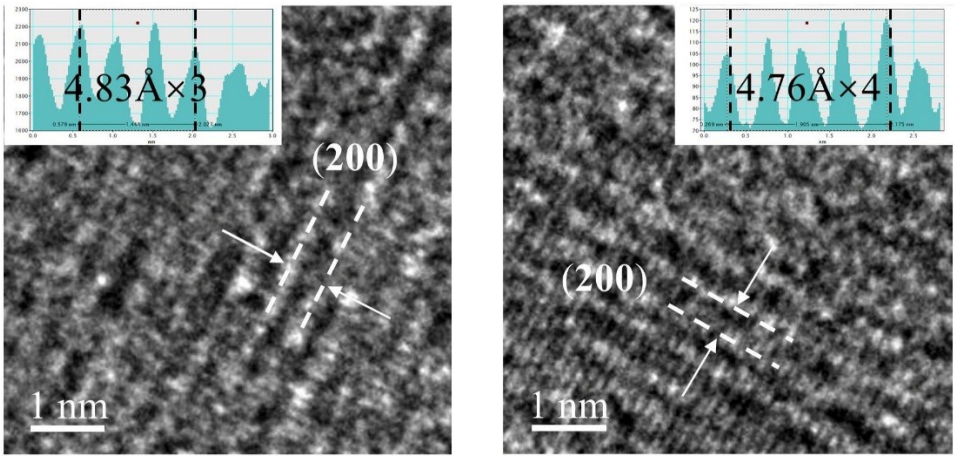

Figure S2 HRTEM image showing (200) crystal plane of d-KNMO

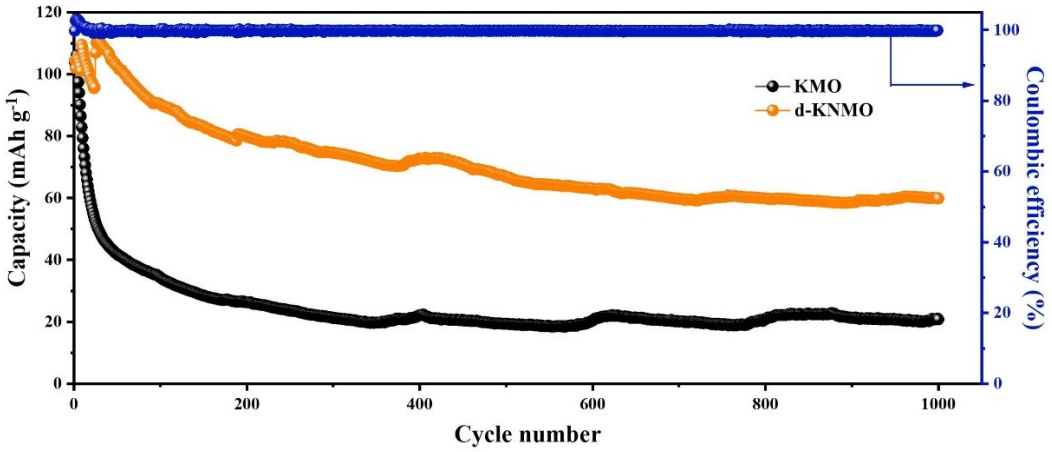

Figure S3 Long-term cycling performances and corresponding Coulombic efficiencies of KMO and d-KNMO at current densities of 2A g^{-1}

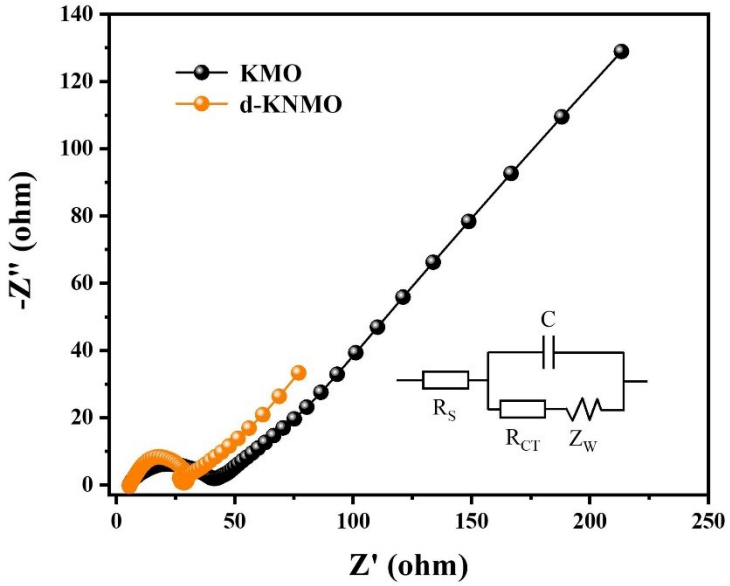

Figure S4 Electrochemical impedance spectroscopy (EIS) of batteries based on KMO and d-KNMO electrodes, respectively.

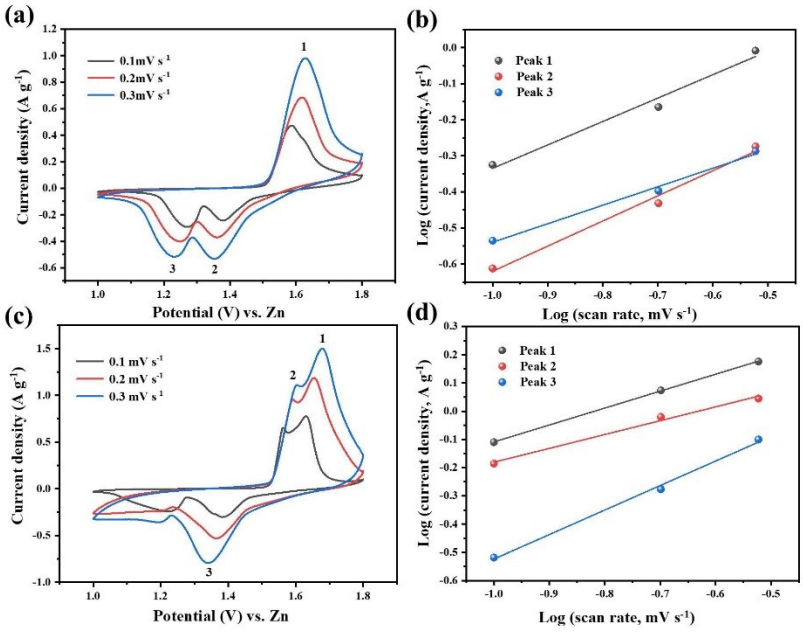

Figure S5 Charge storage mechanism in cyclic voltammetry curves (a and c) CV curves of KMO and d-KNMO at different scan rates (b and d) the corresponding plots of log (peak current) vs. log (scan rate) at each peak and their fitting straight lines

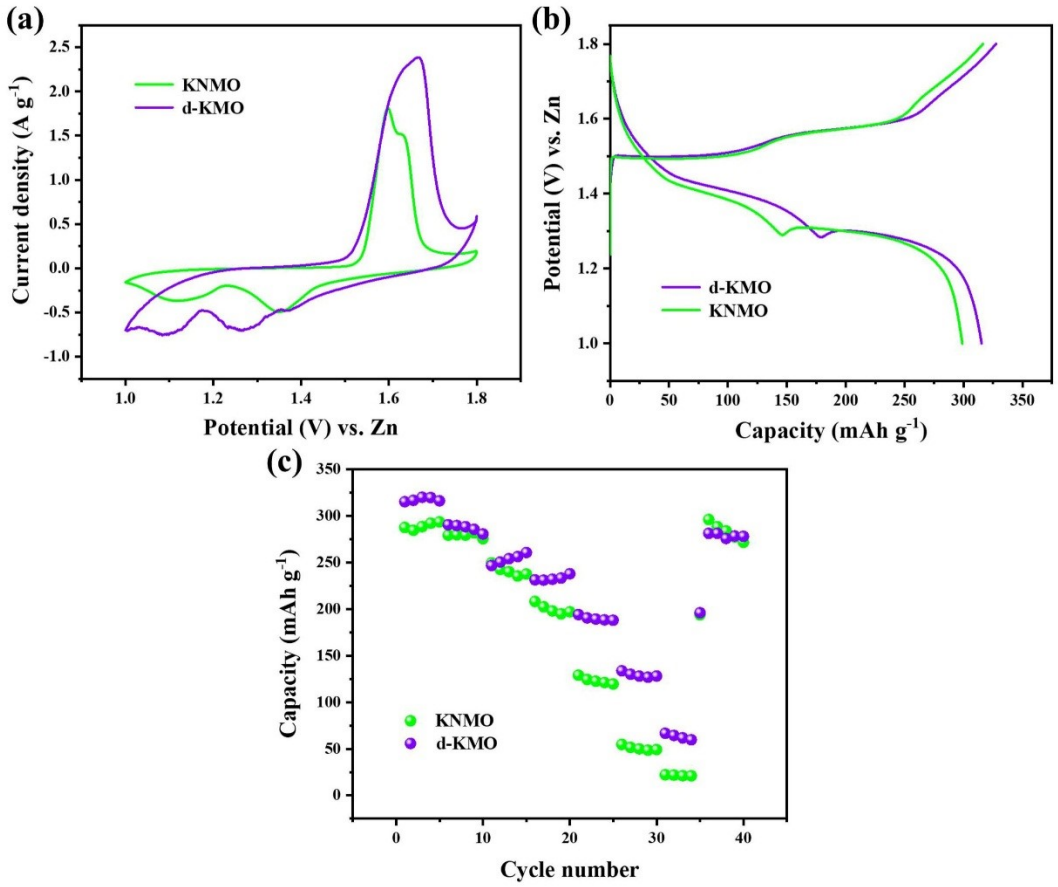

Figure S6 The electrochemical performance of KNMO and d-KMO (a) Cyclic voltammetry curves at a scan rate of 0.5 mV s^{-1} (b) Galvanostatic charge/discharge curves at a current density of 0.1 A g^{-1} (c) Rate performances

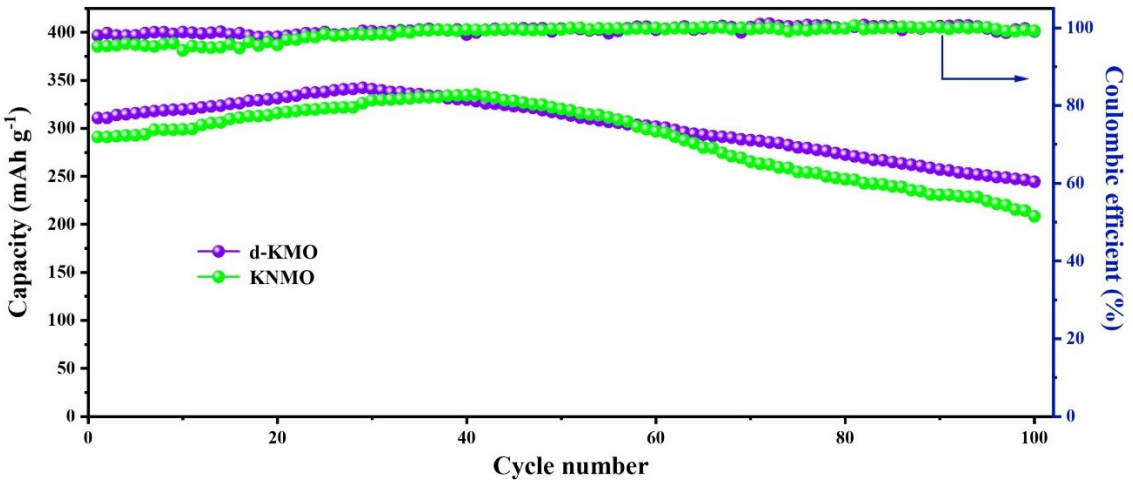

Figure S7 Cycling performances and corresponding Coulombic efficiencies of KNMO and d-KMO at current densities of 0.1A g^{-1}