Supplementary Information for

A novel self-assembled derived 1D $MnO_2@Co_3O_4$ composite as high-performence Li-ion storage anode materials

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CONTENTS

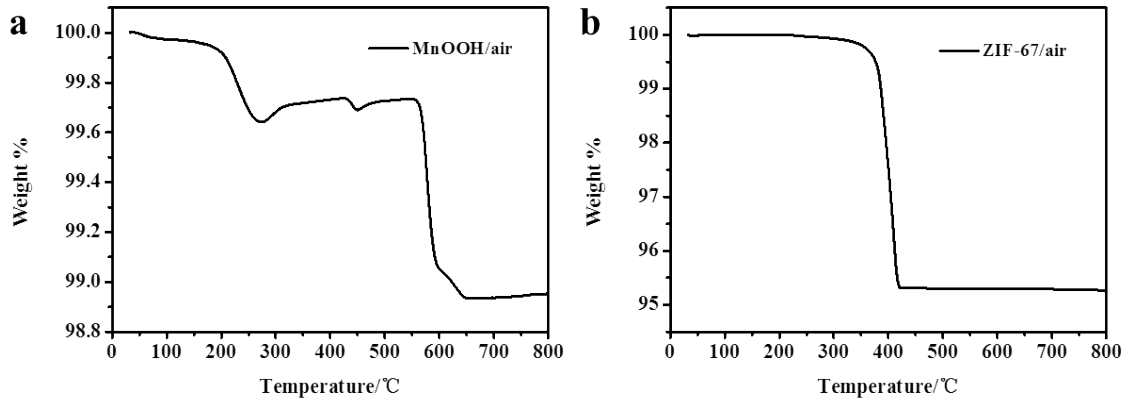

Fig. S1. TGA curves of (a) MnOOH, (b) ZIF-67.

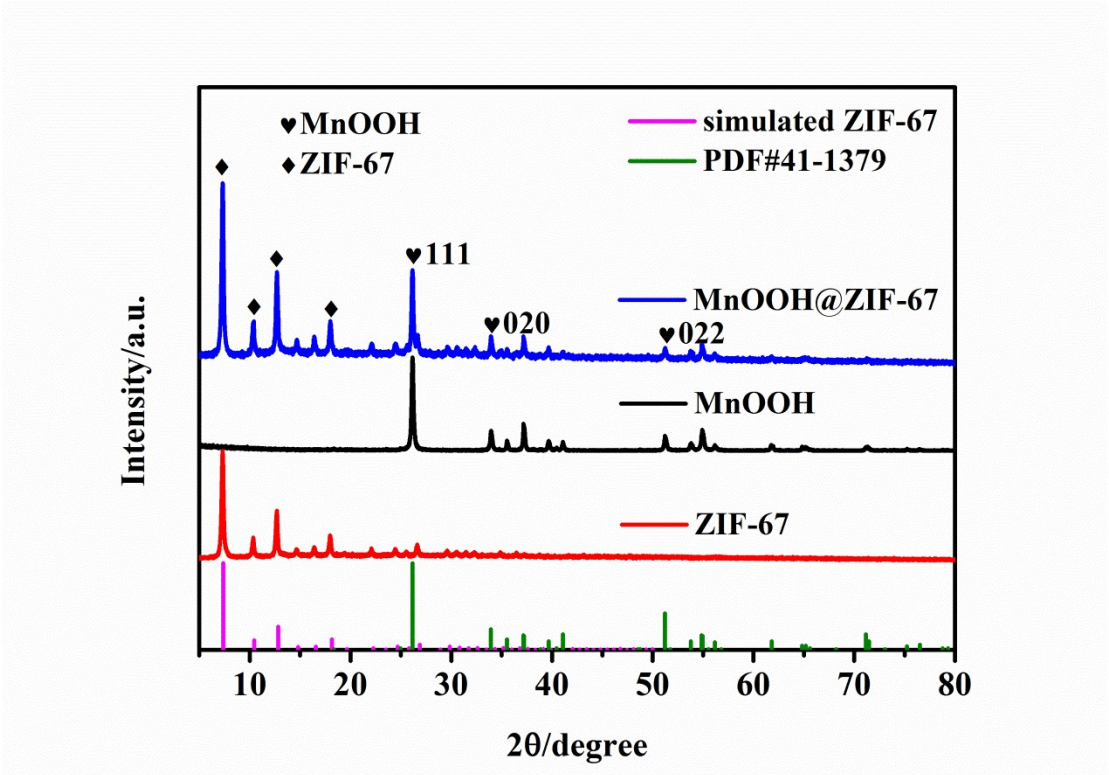

Fig. S2. XRD patterns of ZIF-67, MnOOH and MnOOH@ZIF-67.

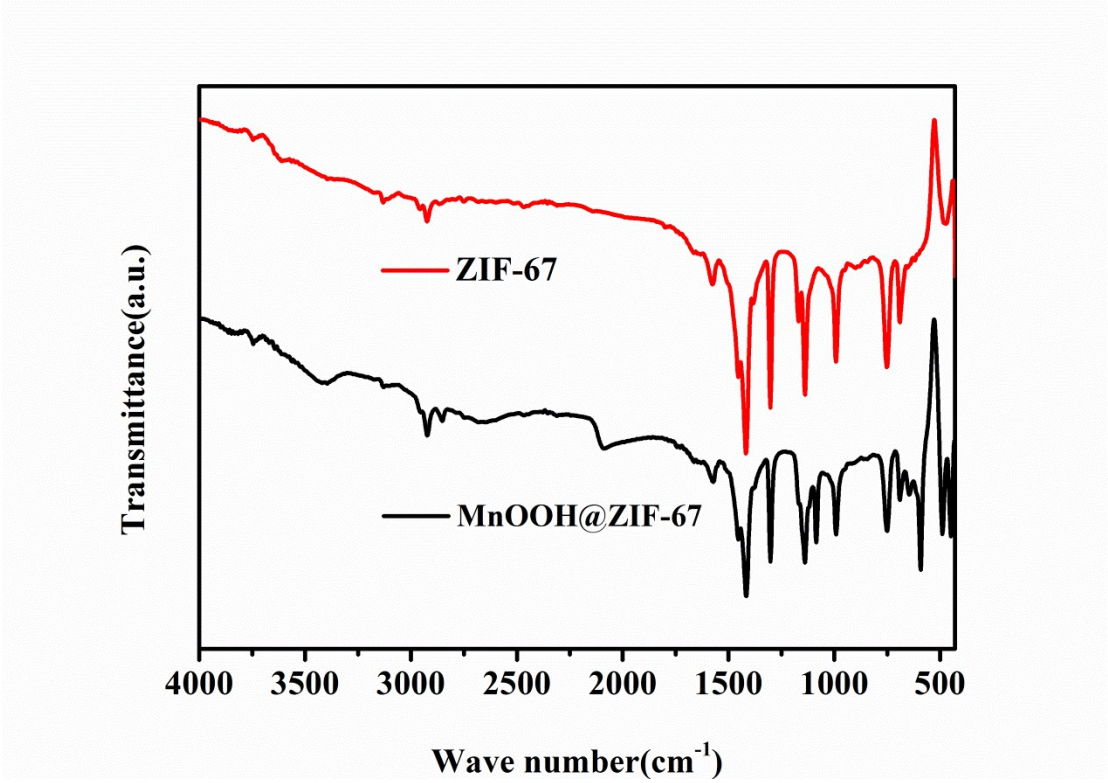

Fig. S3. FT-IR spectrum of MnOOH@ZIF-67 and ZIF-67.

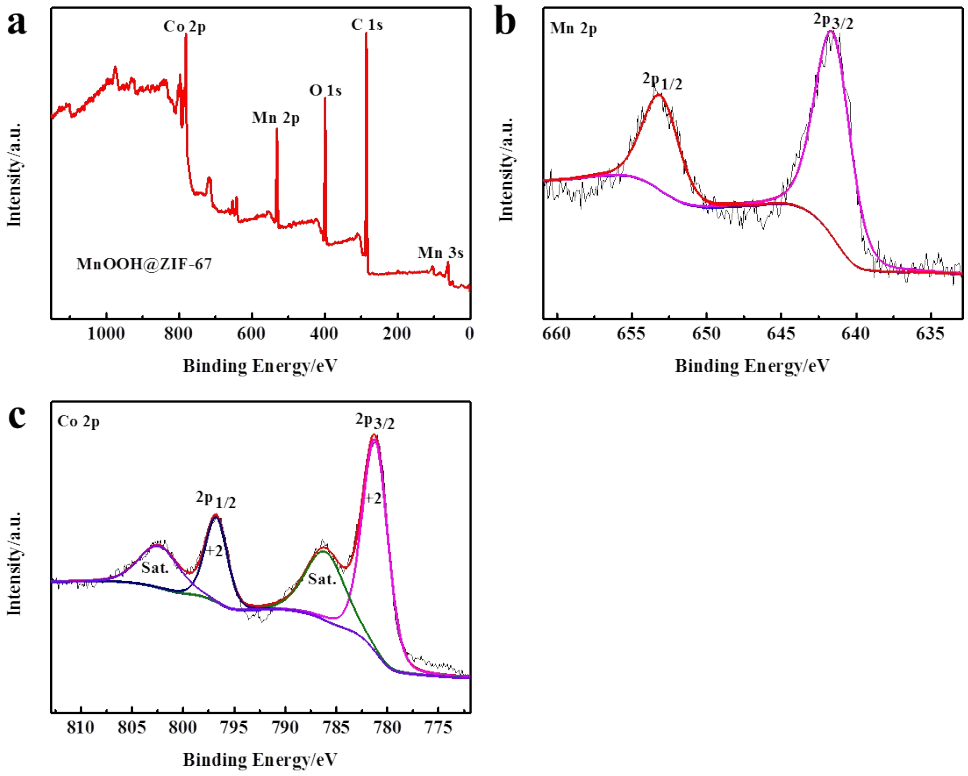

Fig. S4. XPS spectrum of MnOOH@ZIF-67. (a) survey spectrum of MnOOH@ZIF-67, (b) Mn 2p, (c) Co2p.

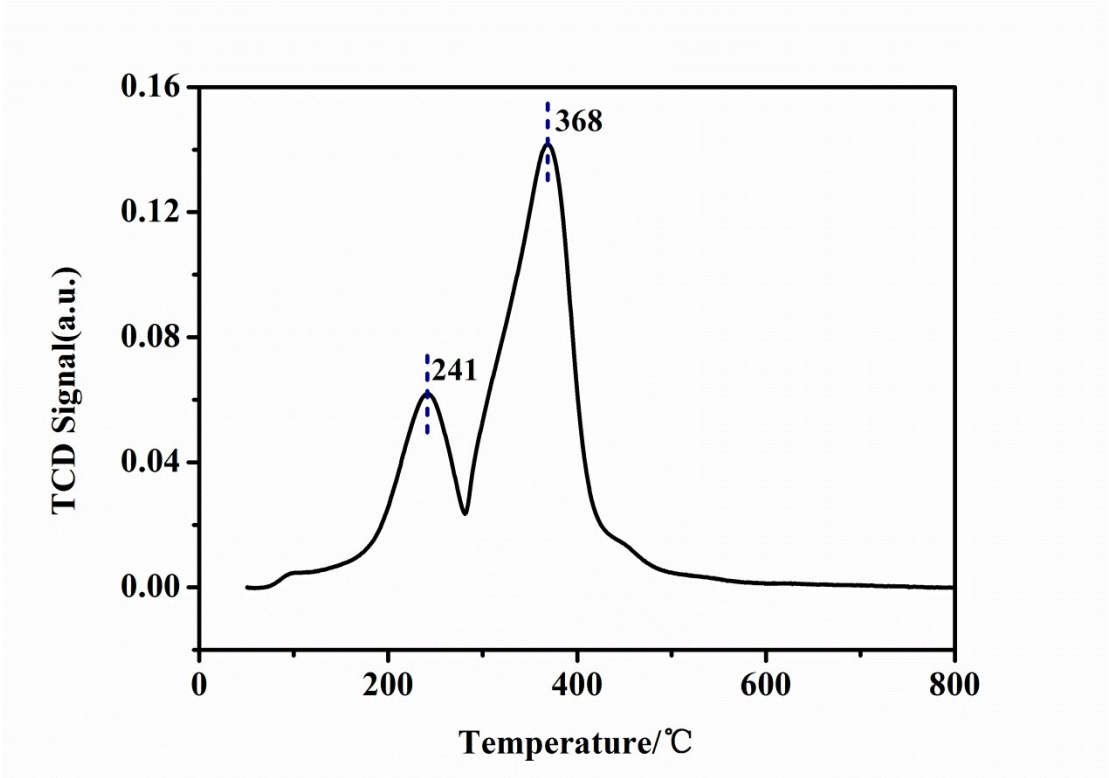

Fig. S5. H2-TPR profiles of MnO_2@Co_3O_4.

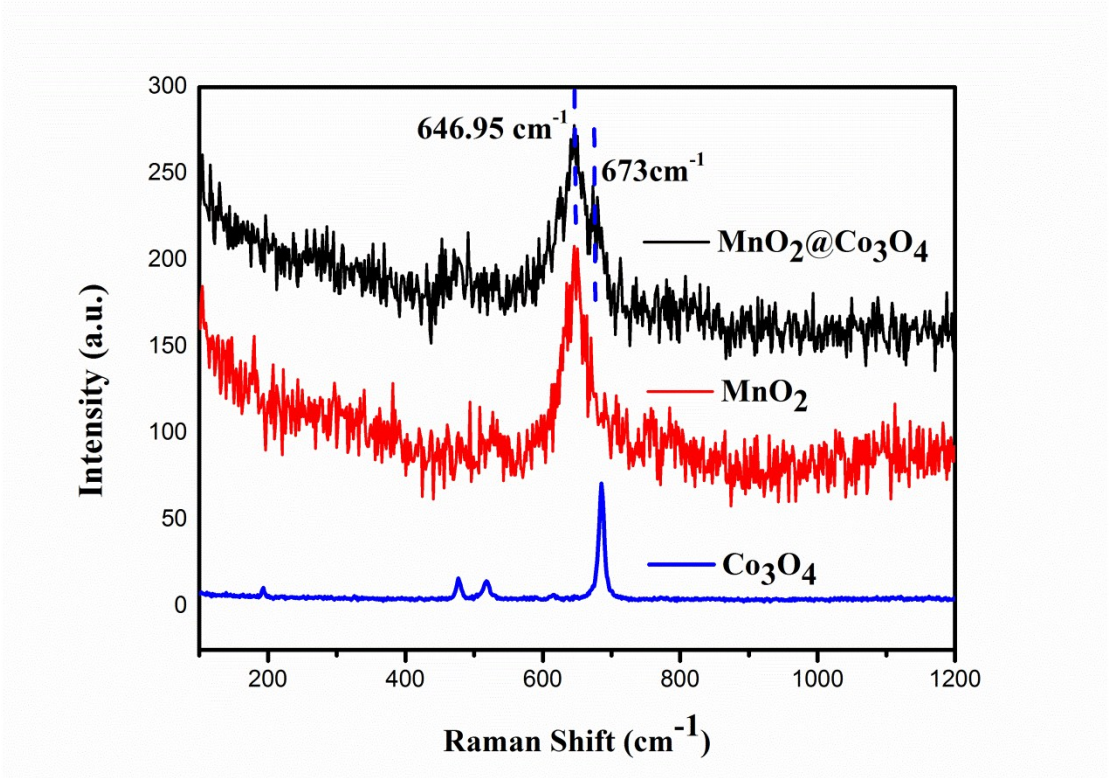

Fig. S6. Raman spectrum of MnO_2@Co_3O_4, MnO_2 and Co_3O_4.

Table S1. Electrochemical impedance parameters of the MnO_2@Co_3O_4

Rs(Ω)	Rct(Ω)	Zw(Ω)
1.816	94.99	4.867E-3

Table S2.Comparison of electrochemical properties of various cobalt-manganese oxides

Material	**Current density(mAg^{-1})**	**2nd cycle discharge capacity($mAhg^{-1}$)**	**Discharge capacity($mAhg^{-1}$)/Number of cycles**	**Refence**
mesoporous β-MnO_2	250	1400	350(100cycles)	5
Co-Co_3O_4@CNTs	500	≈700	913.3(100cycles)	23
3D Co_3O_4@MnO_2	120	≈1350	924(100cycles)	40
MnO_2-Co_3O_4-RGO	500	≈590	577.4(500cycles)	41
MnO_2/Co_3O_4	2000	≈600	581.8(1100cycles)	42
(Co,Mn)$(Co,Mn)_2O_4$/Co_3O_4 / MnO	1000	969.2	2175.8(1000cycles)	43
1D MnO_2@Co_3O_4	2000	1016.2	647.4(400cycles)	This work