Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information for

Facile synthesis of $Co_3V_2O_8$ interconnected hollow microsphere anode with superior high-rate capability for Li-ion battery

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Supplementary Figures

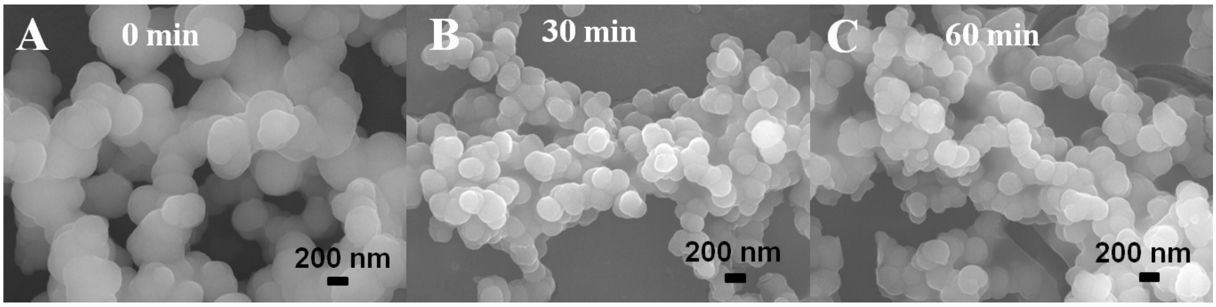

Fig. S1 Typical SEM images of the precursor particles obtained in solutions at step A. (A) 0 min; (B) 30 min; (C) 60 min.

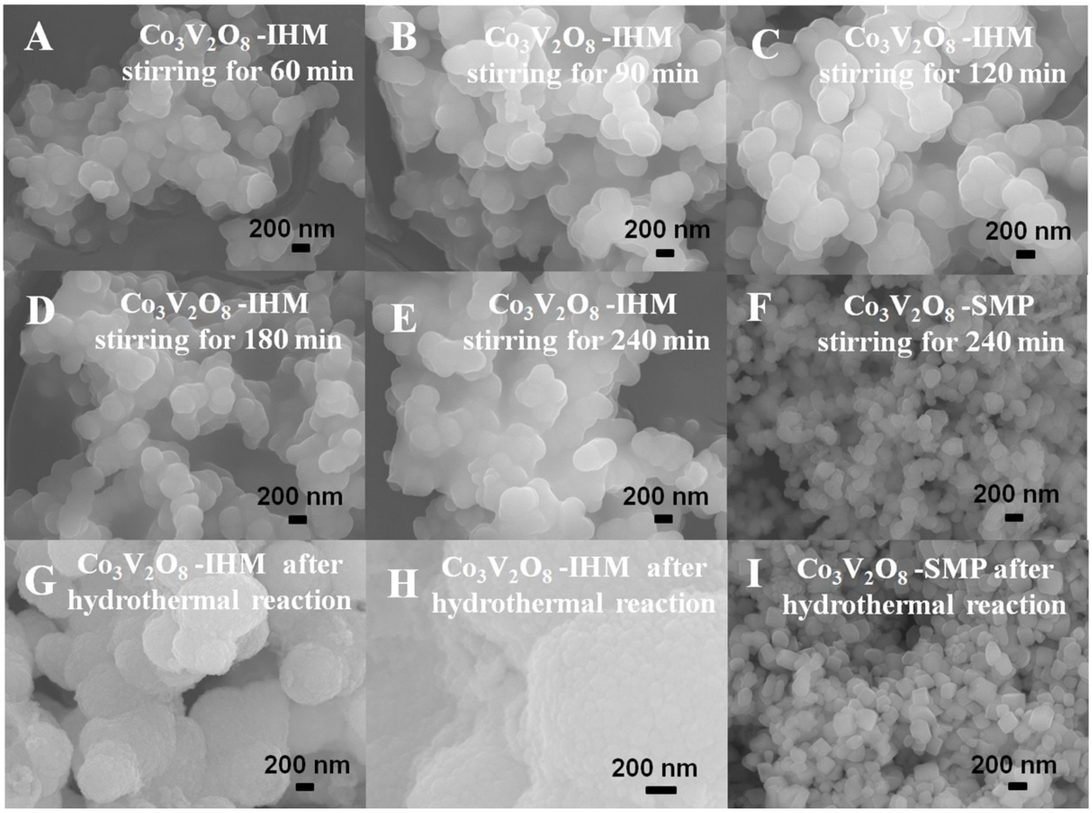

Fig. S2 Typical SEM images of the precursor particles obtained in solutions at step B (A-F). $Co_3V_2O_8$-IHM precursor particles: (A) 60 min; (B) 90 min; (C) 120 min; (D) 180 min; (E) 240 min. $Co_3V_2O_8$-SMP precursor particles: (F) 240 min. Typical SEM images of the $Co_3V_2O_8$-IHM (G, H) and $Co_3V_2O_8$-SMP (I) precursor particles obtained in solutions after step C.

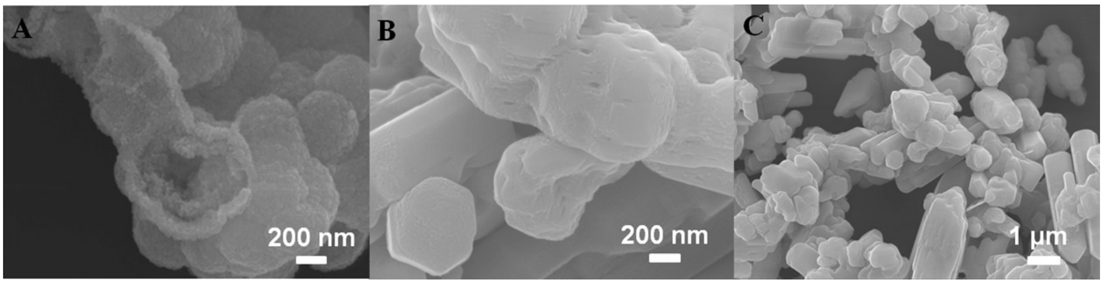

Fig. S3 Typical SEM images of $Co_3V_2O_8$-IHM (A) and $Co_3V_2O_8$-SMP (B, C).

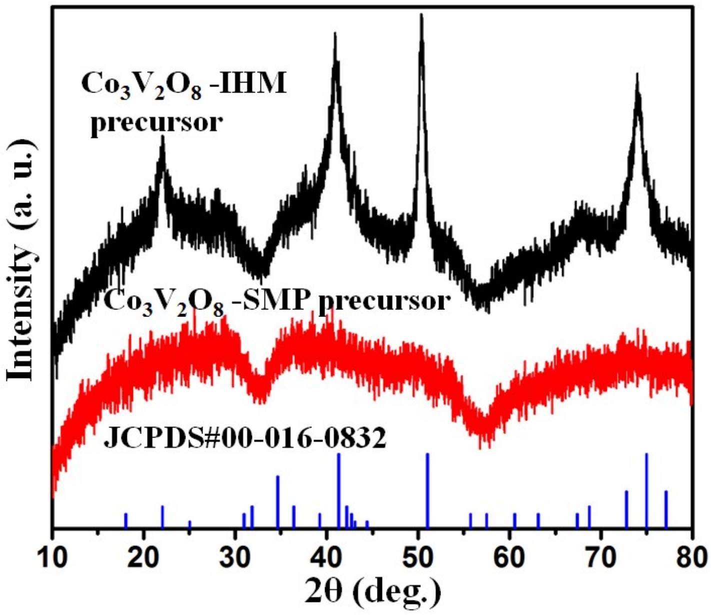

Fig. S4 XRD patterns of as-prepared precursor particles after hydrothermal reaction (step C).

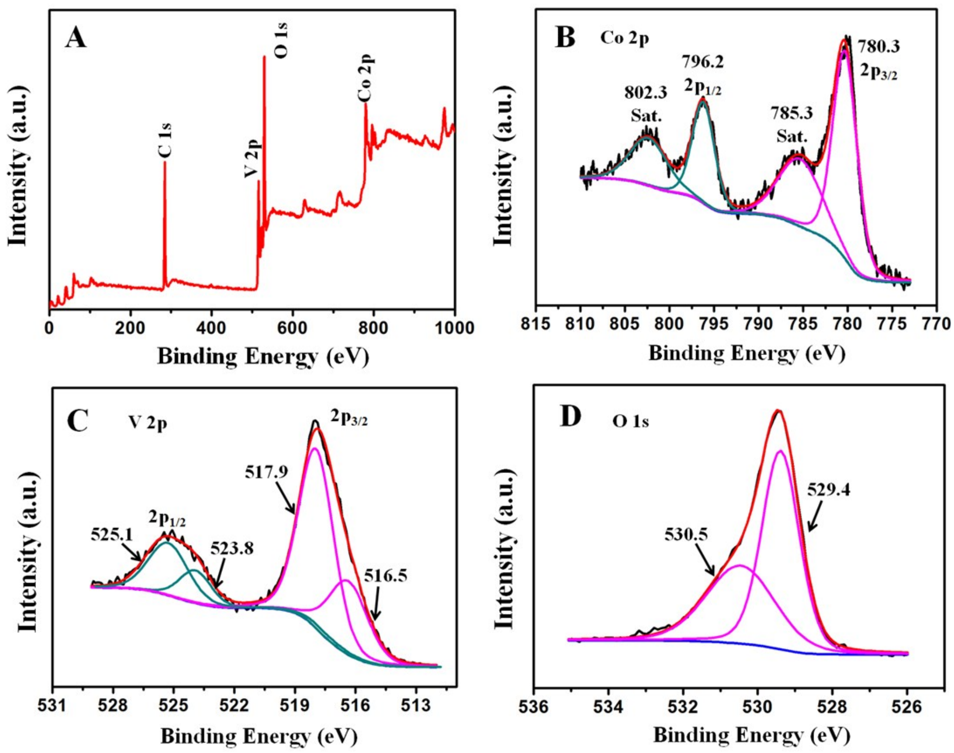

Fig. S5 XPS spectra of the $Co_3V_2O_8$-IHM.

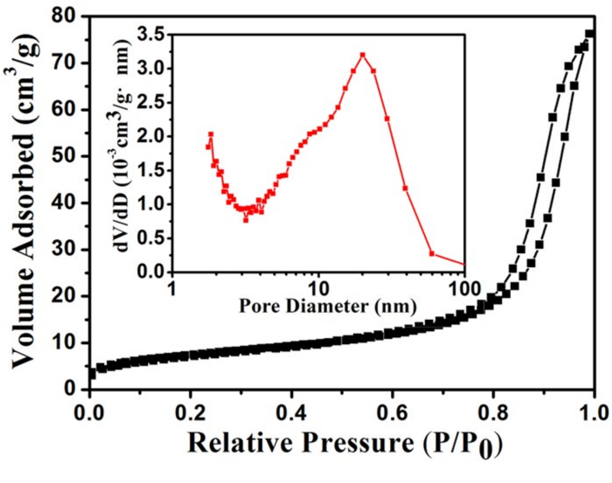

Fig. S6 The N_2 adsorption-desorption isotherms of $Co_3V_2O_8$-IHM. The insets show the corresponding BJH pore size distribution curves.

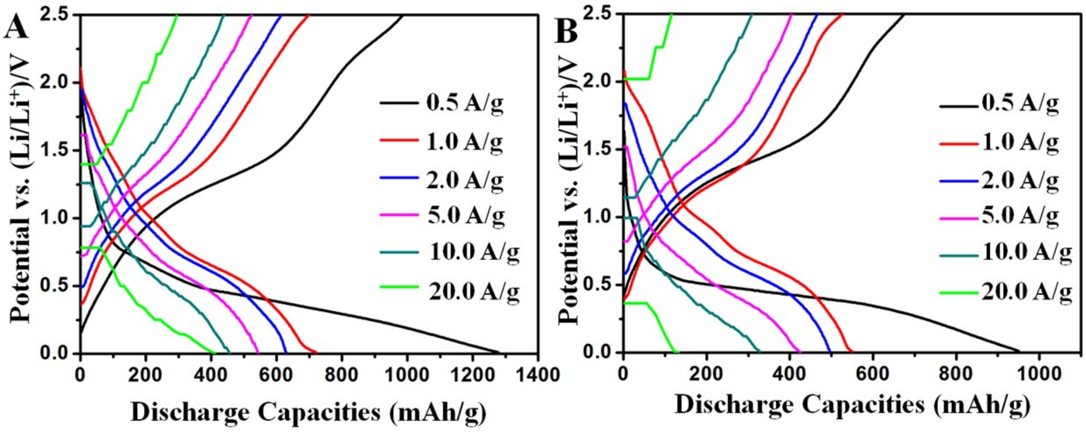

Fig. S7 The corresponding first cycle voltage capacity profiles of $Co_3V_2O_8$-IHM (A) and $Co_3V_2O_8$-SMP (B) at different current densities during rate performance test.

Table S1 The data of EIS test of $Co_3V_2O_8$-IHM after different cycles.

Cycle Numbers	Before Cycle	5^{th}	10^{th}	20^{th}	50^{th}
R_e (Ω)	4.1	5.9	4.9	8.5	9.5
R_f (Ω)	–	0.1	0.45	1.2	1.4
R_{ct} (Ω)	30.1	8.1	9.2	8.4	8.6