Supporting Information

Synergistic effect on electrochemical performance of $LiFePO_4$ Cathodes *via* carbon coating and Ni^{2+} Doping: A Combined Experimental and Theoretical Approach

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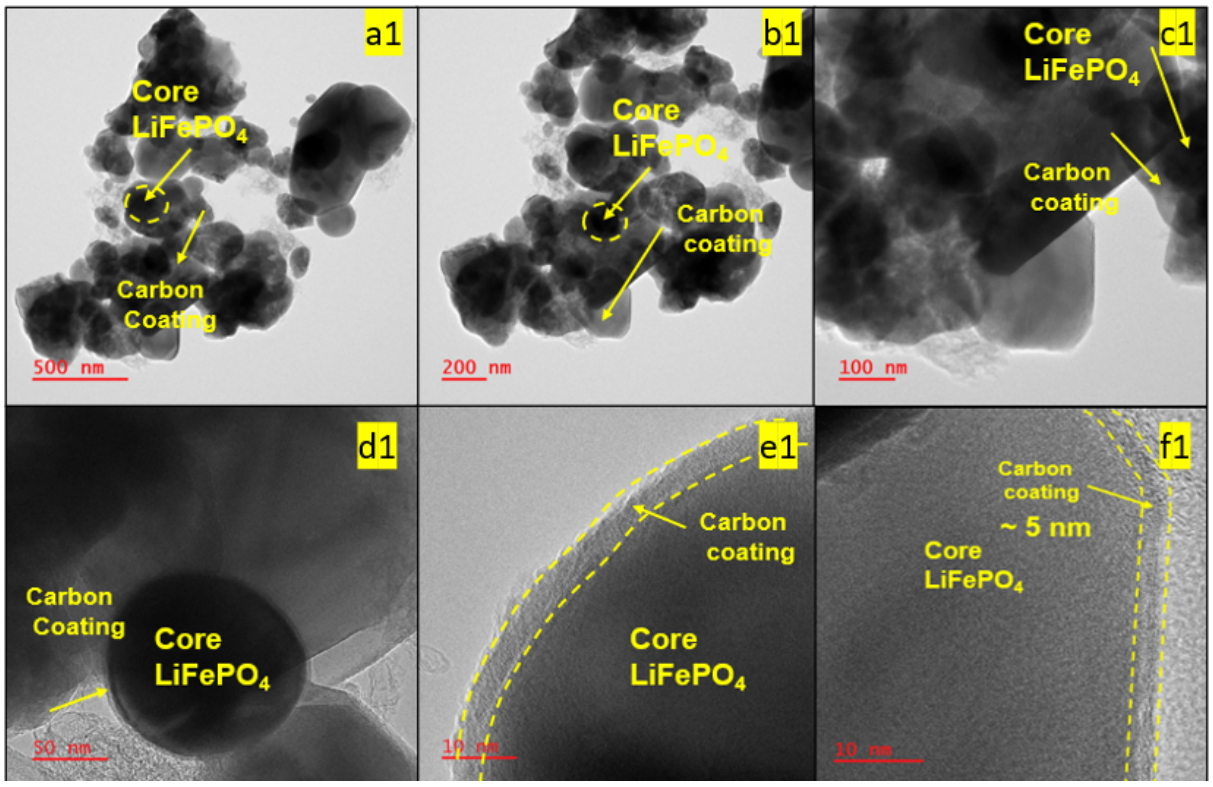

Fig.S1: HR-TEM images of Ni-LFP/C with optimum carbon content.

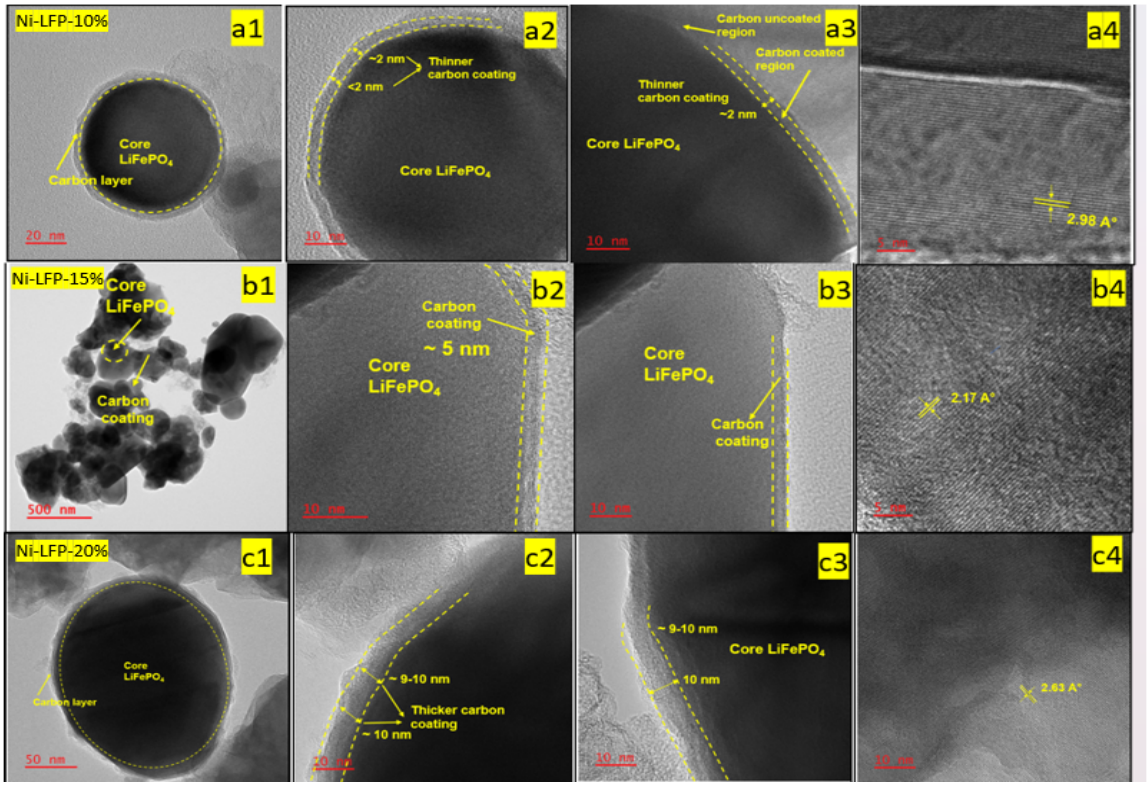

Fig.S2: HR-TEM images of Ni-LFP/C with different concentration of carbon precursor (a1-a4) Ni-LFP with 10 wt% carbon precursor, (b1-b4) Ni-LFP with 15wt% carbon precursor, (c1-c4) Ni-LFP with 20 wt% carbon precursor

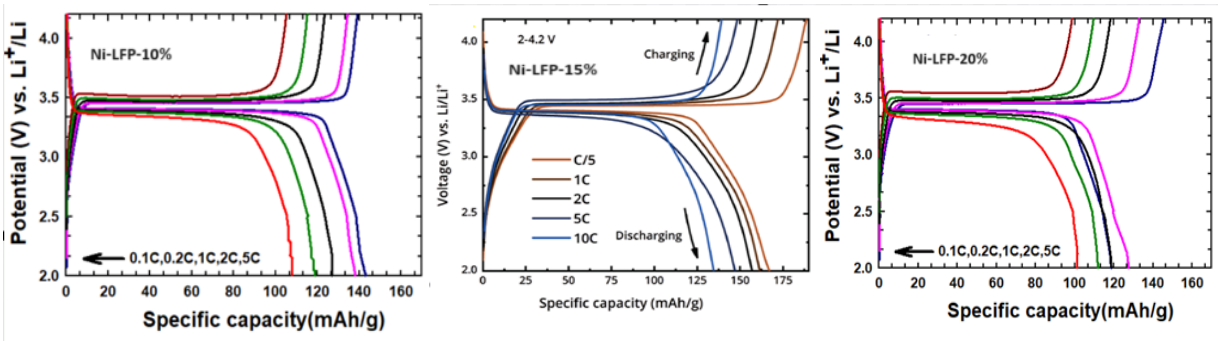

Fig S3. Charge-discharge profiles of Ni-LFP/C with different concentration of carbon precursor measured at different C-rate.

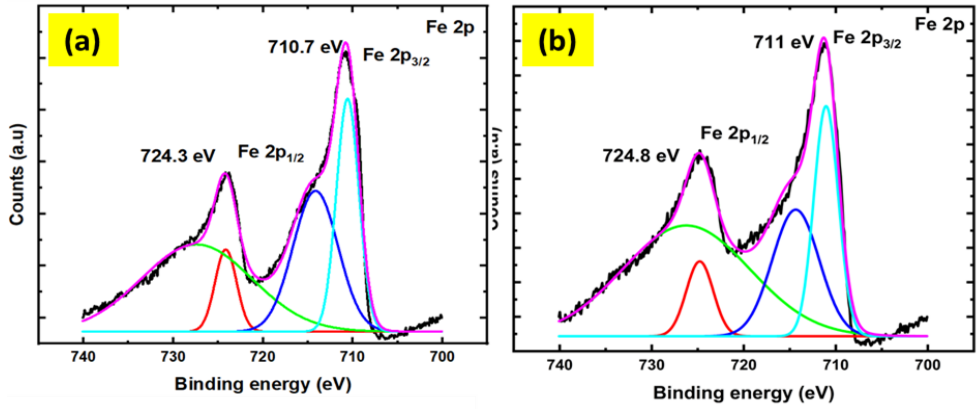

Fig S4. Deconvoluted XPS core-level Fe *2p* spectra of $LiFePO_4$/C, (a) and Ni-doped $LiFePO_4$/C (b)

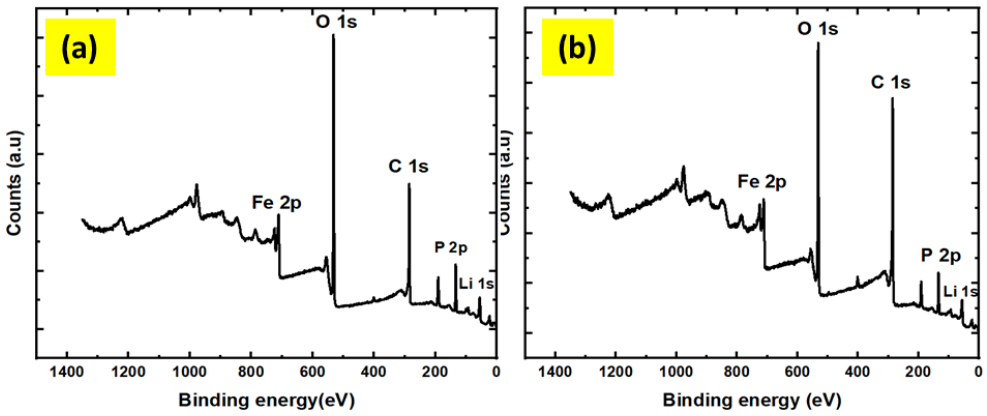

Fig S5. XPS Survey spectrum of $LiFePO_4$/C (a) and Ni-doped $LiFePO_4$/C (b)

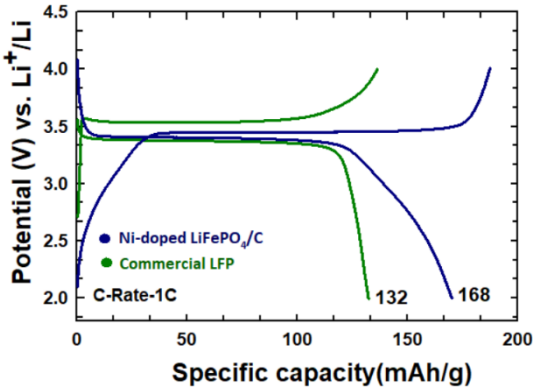

Fig S6: Benchmarking studies of Ni^{2+} doped LFP/C (Charge-Discharge) measured at 1C

Dopant	Capacity @ C-rate	Reference
Ti^{4+}	156 mAh/g @ 1C	[1]
Na^{+}	140 mAh/g @1C	[2]
F^{-}	159.3 mAh/g @ 1C	[3]
Mg^{2+}	142 mAh/g @ 1C	[4]
Ni^{2+}	141 mAh/g @ 1C	[5]
Ni^{2+}	166 mAh/g @ 1C	This work

Table S1: Comparison of electrochemical performance of doped $LiFePO_4$ cathode material with state of art literature

References

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