APPLIE[illegible]

Research Article

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Pre-Lithiation of Li($Ni_{1-x-y}Mn_xCo_y$)O_2 Materials Enabling Enhancement of Performance for Li-Ion Battery

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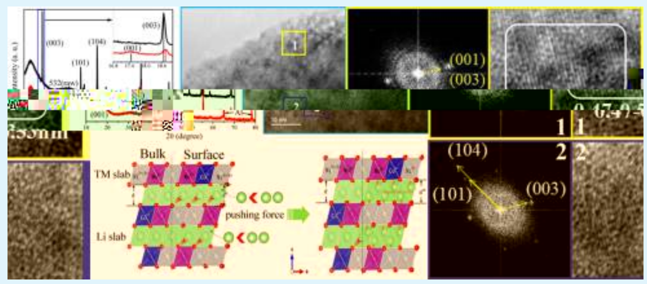
[†] [illegible] 51[illegible] 055, [illegible]
[‡] [illegible] 20[illegible]3, [illegible]
[illegible] 6043[illegible]

Supporting Information

ABSTRACT: [illegible] ($_x$ $_y$ $_z$)O_2 (xyz) [illegible] 532- [illegible] $^{3+}$ [illegible] $^{2+}$ [illegible] 320 [illegible]



KEYWORDS: pre-lithiation, Li($Ni_xMn_yCo_z$)O_2 (NMCxyz), ab initio calculations, double-layered Li structure, cycling stability and capacity

INTRODUCTION

[illegible] (($_x$ $_y$ $_{1-x-y}$)O_2, [illegible] O_2 [illegible] O_4 [illegible] (~[illegible]0 [illegible]), [illegible] (~[illegible]0 [illegible]) [illegible][1,2] [illegible] ( )- [illegible][3] [illegible] ( ) [illegible][4] [illegible][5]

[illegible]

[illegible] ( ) [illegible][6] [illegible][7] [illegible] 532 [illegible] ( )- [illegible]

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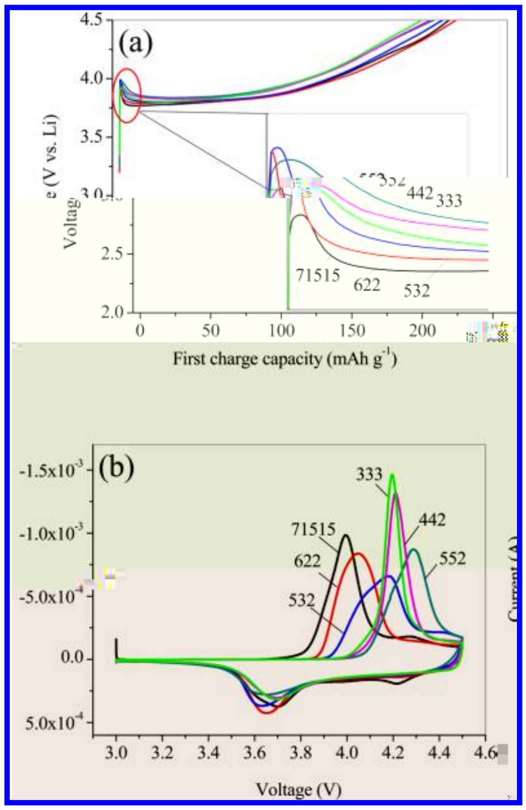
EXPERIMENTAL SECTION

RESULTS AND DISCUSSION

1. C C
D IC -AE

11	0. 4	0.	0.11	0.10
7 1515	0. 5	0.6	0.16	0.15
622	1.04	0.6	0.21	0.23
532	1.02	0.5	0.2	0.2
552	1.04	0.43	0.42	0.7
442	1.06	0.4	0.3	0.2
333	1.0	0.33	0.35	0.32



F 1. (a) ( )

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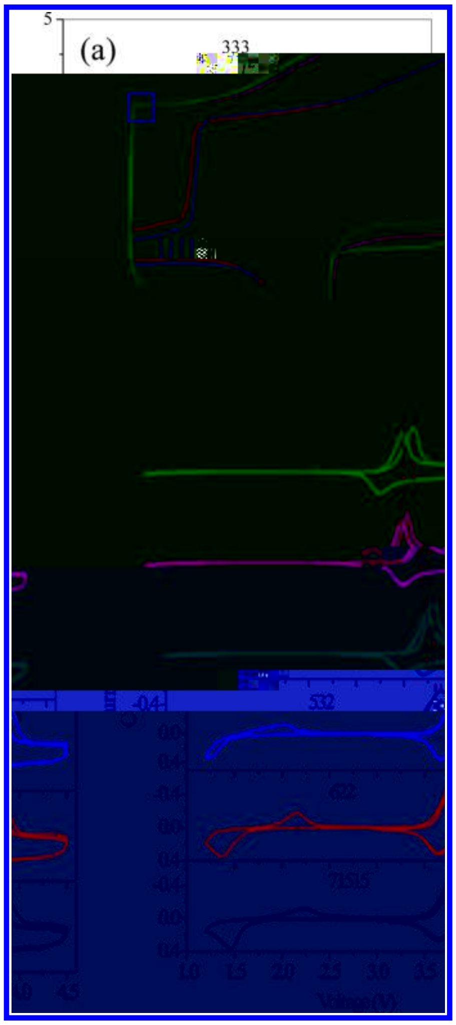

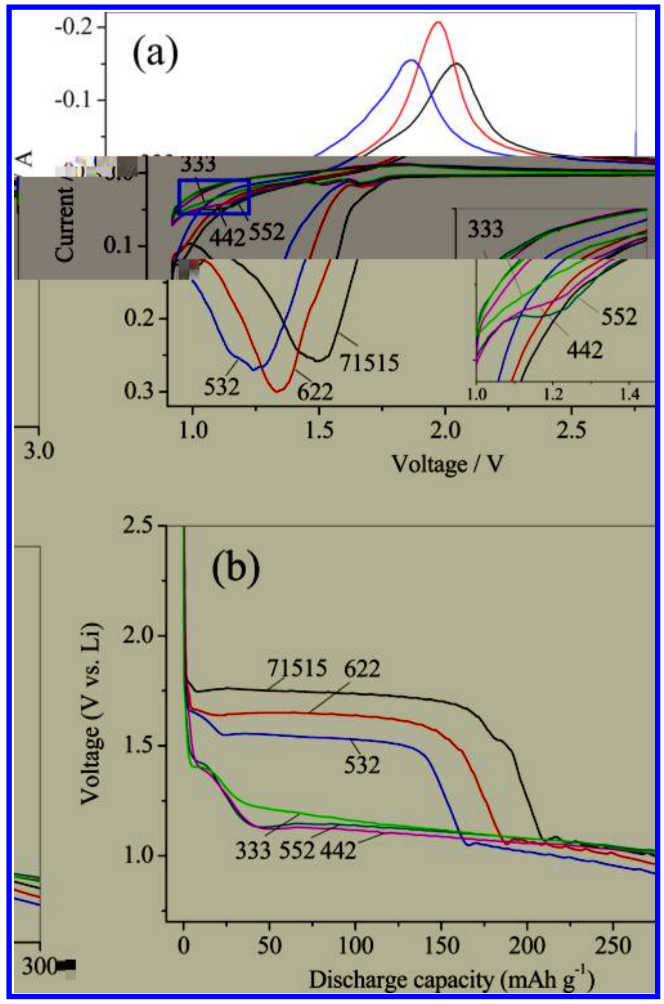

Figure 2. (a)

Figure 3.

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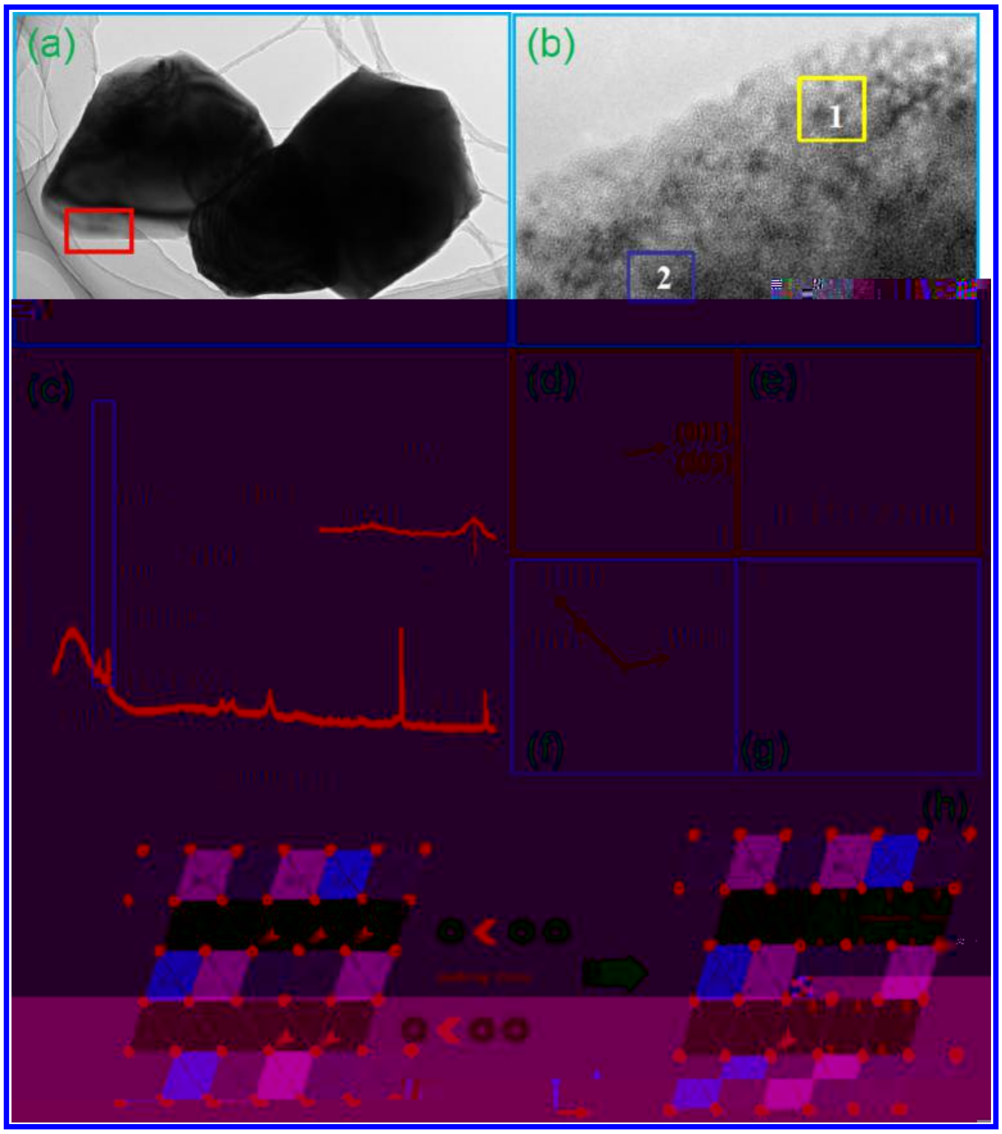
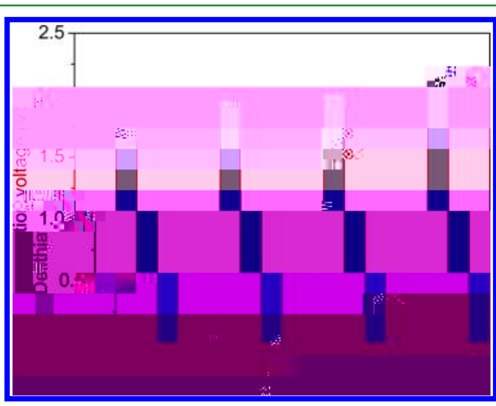


F[illegible] 5. [illegible] 532 [illegible] (a) [illegible] (a), [illegible] 1 [illegible] 2 [illegible]



F[illegible] 6. [illegible]

[illegible] 21,22 [illegible] 5 [illegible]

[illegible] 3+ [illegible] 2+ [illegible] 7 [illegible] 440 [illegible] (001) [illegible] 400 [illegible] (001) [illegible] 100 [illegible] 160 [illegible] 23 [illegible] 320 [illegible]

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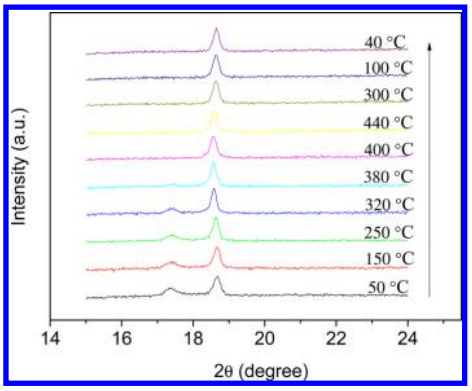
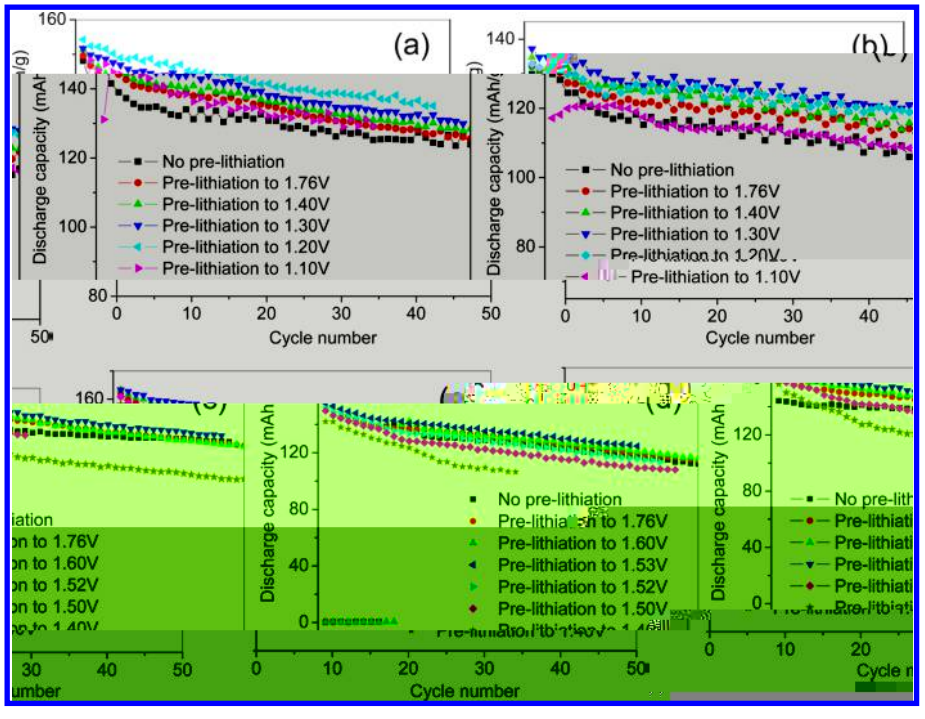


F 7. a 532 a - a 440 .

CONCLUSIONS



F 8. a 442 a 532 a / a a (a) 442–2 , ( ) 442–5 , ( ) 532–2 , a ( ) 532–5 .

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a ( ) a fi a a 1.0 320

ASSOCIATED CONTENT

Supporting Information

O 10.1021/a a .6 03 30.

7 1515, 622, 552, 442, 111 532, 442

AUTHOR INFORMATION

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Author Contributions

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Notes

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a fi a a (. 51301004), (. 2013 0), 20141016105432 50), 20140 03102215536, 20150 2 0 312 6 20130331145131323).

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