

# Improved Cycling Performance and High Rate Capacity of $\text{LiNi}_{0.8}\text{Co}_{0.1}\text{Mn}_{0.1}\text{O}_2$ Cathode Achieved by $\text{Al}(\text{PO}_3)_3$ Modification via Dry Coating Ball Milling

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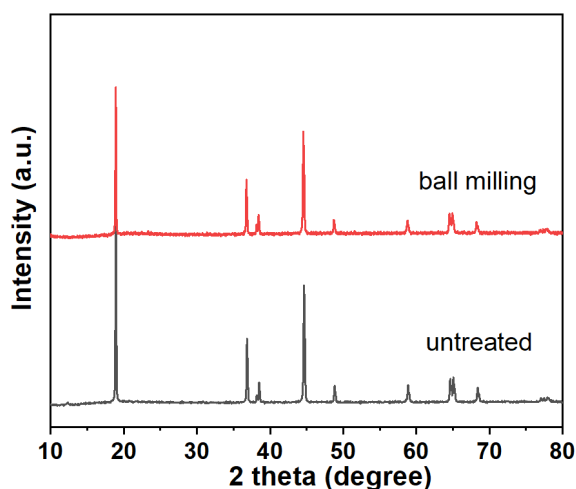


Figure S1. The XRD pattern of NCM811 before milling and after milling.

| Element                           | Freedom | Value     | Error     | Error %  | Element                           | Freedom | Value     | Error     | Error %  |
|-----------------------------------|---------|-----------|-----------|----------|-----------------------------------|---------|-----------|-----------|----------|
| Rs1                               | Free(+) | 93.08     | 0.038406  | 0.041261 | Rs1                               | Free(+) | 243.5     | 0.073772  | 0.030297 |
| CPE1-T                            | Free(+) | 1.7242E-5 | 3.2874E-7 | 1.9066   | CPE1-T                            | Free(+) | 5.3578E-6 | 3.3108E-7 | 6.1794   |
| CPE1-P                            | Free(+) | 0.79377   | 0.0094744 | 1.1936   | CPE1-P                            | Free(+) | 0.91762   | 0.021617  | 2.3558   |
| Rp1                               | Free(+) | 166.9     | 17.227    | 10.322   | Rp1                               | Free(+) | 197.9     | 36.063    | 18.223   |
| CPE2-T                            | Free(+) | 8.1007E-5 | 3.8533E-6 | 4.7567   | CPE2-T                            | Free(+) | 2.1868E-5 | 3.4857E-6 | 15.94    |
| CPE2-P                            | Free(+) | 0.73577   | 0.017701  | 2.4058   | CPE2-P                            | Free(+) | 0.71965   | 0.0072033 | 1.0009   |
| Rp2                               | Free(+) | 265.6     | 19.672    | 7.4066   | Rp2                               | Free(+) | 517.9     | 34.246    | 6.6125   |
| W1-R                              | Free(+) | 1170      | 42.953    | 3.6712   | W1-R                              | Free(+) | 1343      | 174.69    | 13.007   |
| W1-T                              | Free(+) | 11.45     | 0.72583   | 6.3391   | W1-T                              | Free(+) | 14.82     | 3.0102    | 20.312   |
| W1-P                              | Free(+) | 0.63056   | 0.0065013 | 1.031    | W1-P                              | Free(+) | 0.61622   | 0.010245  | 1.6626   |
| Chi-Squared: 0.0001362            |         |           |           |          | Chi-Squared: 0.00034804           |         |           |           |          |
| Weighted Sum of Squares: 0.031598 |         |           |           |          | Weighted Sum of Squares: 0.080746 |         |           |           |          |
| (a)                               |         |           |           |          | (b)                               |         |           |           |          |

Figure S2. (a) The fitting details of EIS plot for NCM811; (b) The fitting details of EIS plot for NCM811@ALP.