# Supporting Information

## Synergistic Zn/Al Co-Doping and Sodium Enrichment Enable Reversible Phase Transitions in High-Performance Layered Sodium Cathodes

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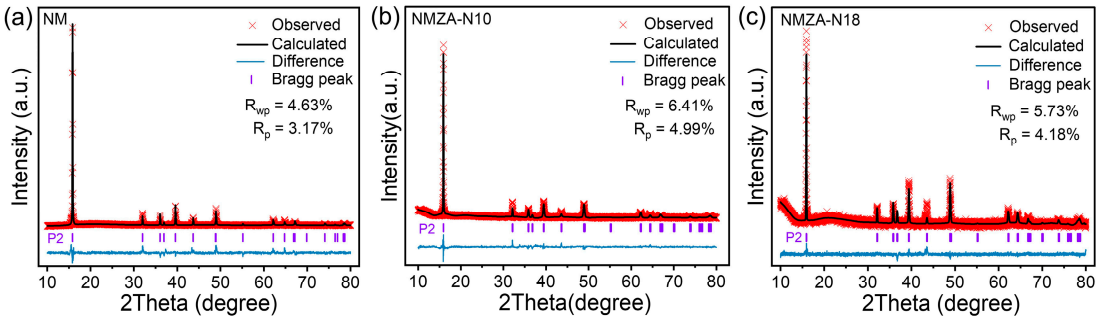



**Figure S1.** Rietveld refinement profiles of the XRD patterns for (a) NM, (b) NMZA-N10, and (c) NMZA-N18.

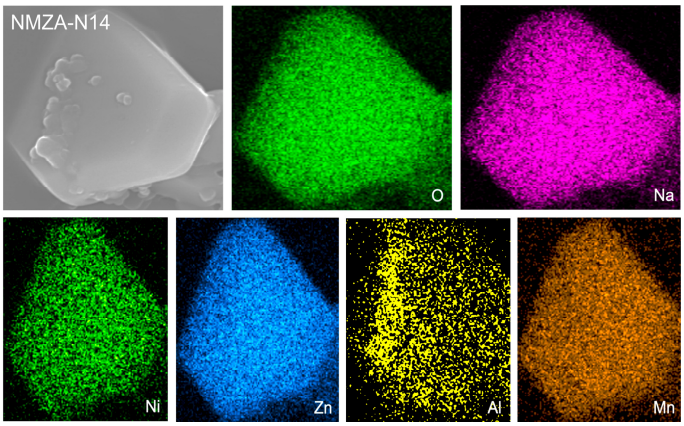



**Figure S2.** EDS elemental mapping of NMZA-N14.

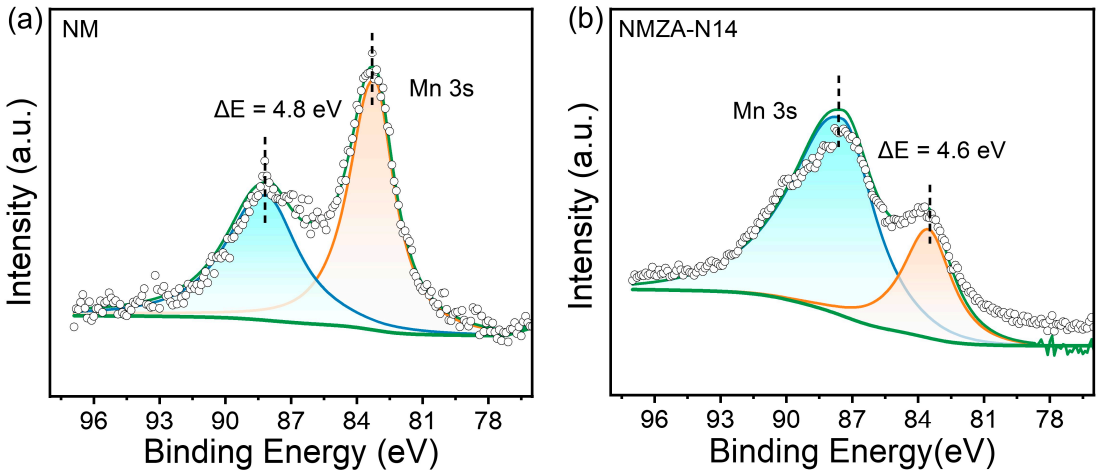



**Figure S3.** The Mn 3s sperctrum of (a) NM and (b) NMZA-N14.

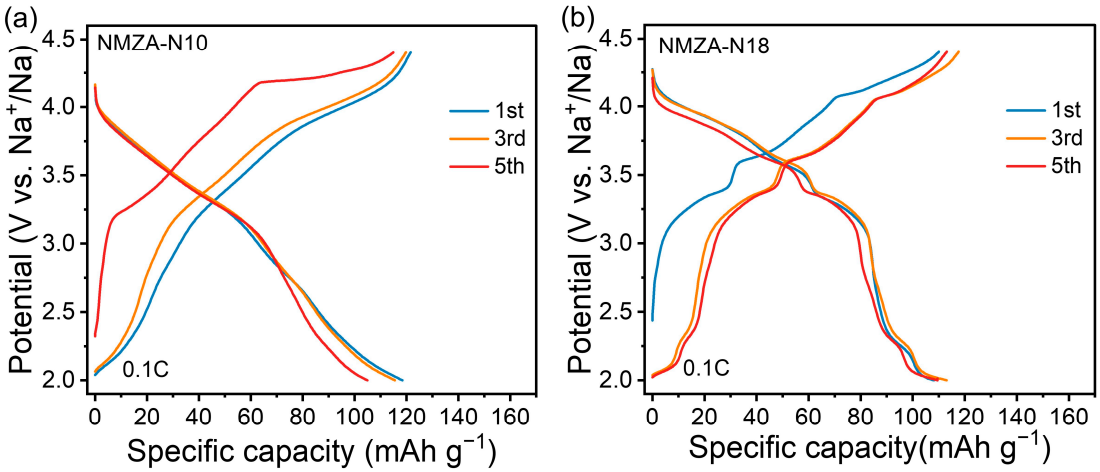



**Figure S4.** Charge-discharge curves of (a) NMZA-N10 and (b) NMZA-N18.

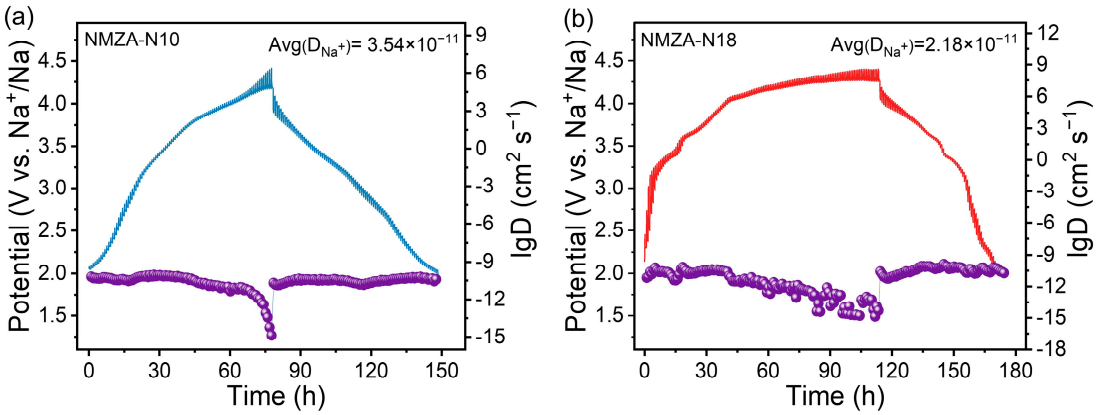



**Figure S5.** GITT charge–discharge profiles and diffusion-coefficient calculations for (a) NMZA-N10 and (b) NMZA-N18.

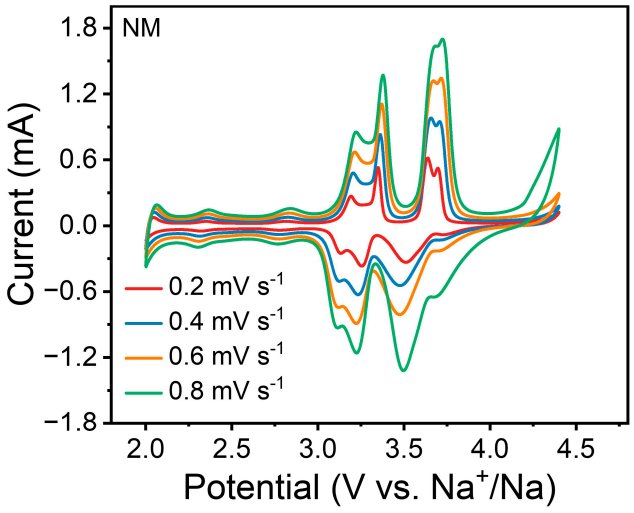



**Figure S6.** CV curves of NM at different scan rates.

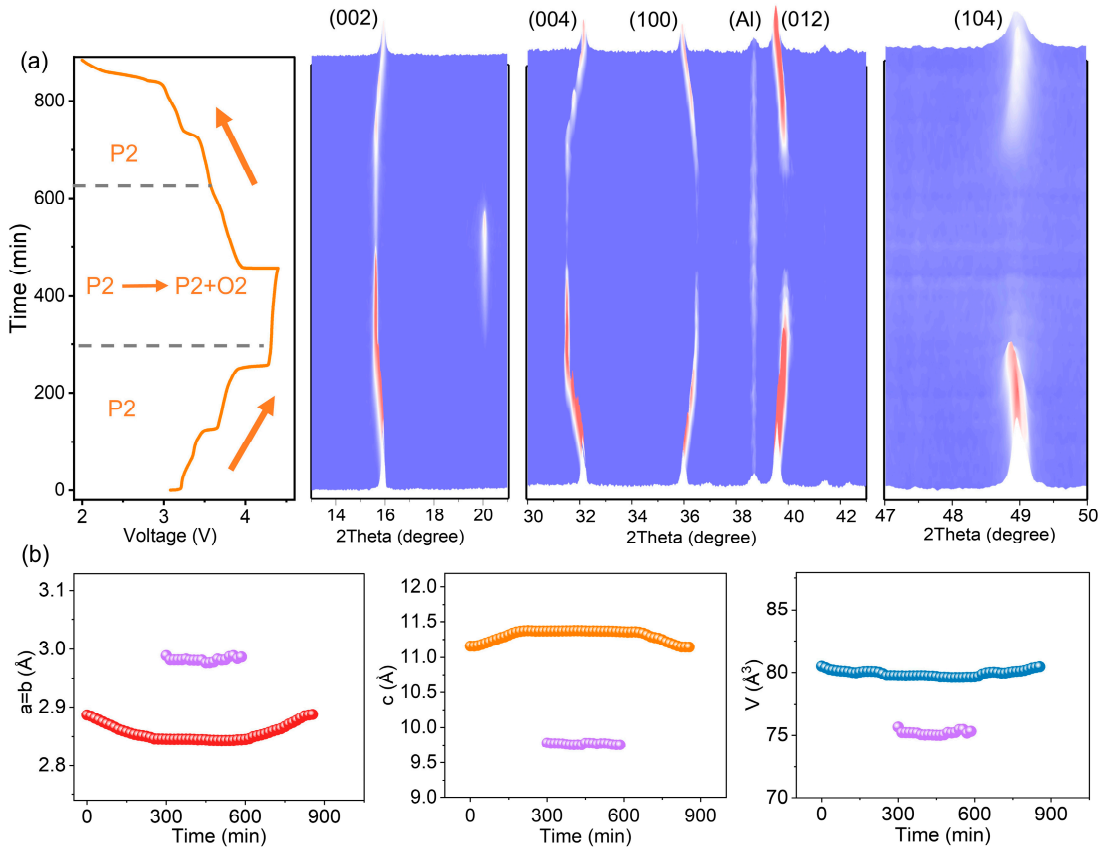



**Figure S7.** In situ XRD patterns and refined lattice parameters of NM.

**Table S1** Lattice parameters and R-factors of NM, NMZA-N10, NMZA-N14, and NMZA-N18 obtained from the Rietveld refinement.

| Sample | a (Å) | b (Å) | c (Å) | V (Å$^3$) | $R_{wp}$ | $R_p$ |
|---|---|---|---|---|---|---|
| NM | 2.875 | 2.875 | 11.184 | 80.07 | 4.63% | 3.17% |
| NMZA-N10 | 2.892 | 2.892 | 11.146 | 80.71 | 6.41% | 4.99% |
| NMZA-N14 | 2.892 | 2.892 | 11.135 | 80.65 | 4.74% | 3.53% |
| NMZA-N18 | 2.895 | 2.895 | 11.143 | 80.88 | 5.73% | 4.18% |

**Table S2.** EIS fitting parameters for NM, NMZA-N10, NMZA-N14, and NMZA-N18.

| Sample | $R_s$ (Ω cm$^{-2}$) | $R_{ct}$ (Ω cm$^{-2}$) | Fitting error (%) | σ (Ω s$^{-1/2}$) |
|---|---|---|---|---|
| NM | 28.4 | 351 | 2.91 | 14.7 |
| NMZA-N10 | 27.1 | 221 | 2.73 | 8.1 |
| NMZA-N14 | 21.6 | 117 | 4.46 | 6.7 |
| NMZA-N18 | 21.3 | 232 | 4.16 | 13.1 |