

Electronic Supplementary Information

**Transformation of layered perovskite to defect perovskite *via* cooperative Li-insertion
and O/N substitution**

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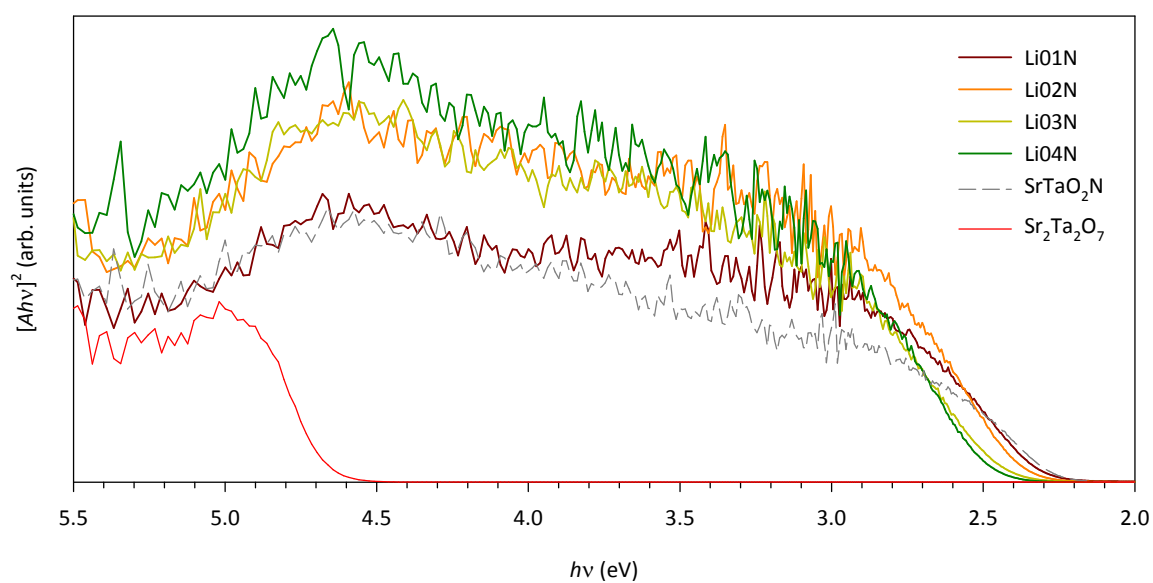


Fig. S1. Plot of $(Ah\nu)^2$ vs. $h\nu$, from which the direct band gaps were estimated as follows: Li01N, 2.31 eV; Li02N, 2.37 eV; Li03N, 2.44 eV; Li04N, 2.49 eV; SrTaO₂N, 2.26 eV; Sr₂Ta₂O₇, 4.67 eV.

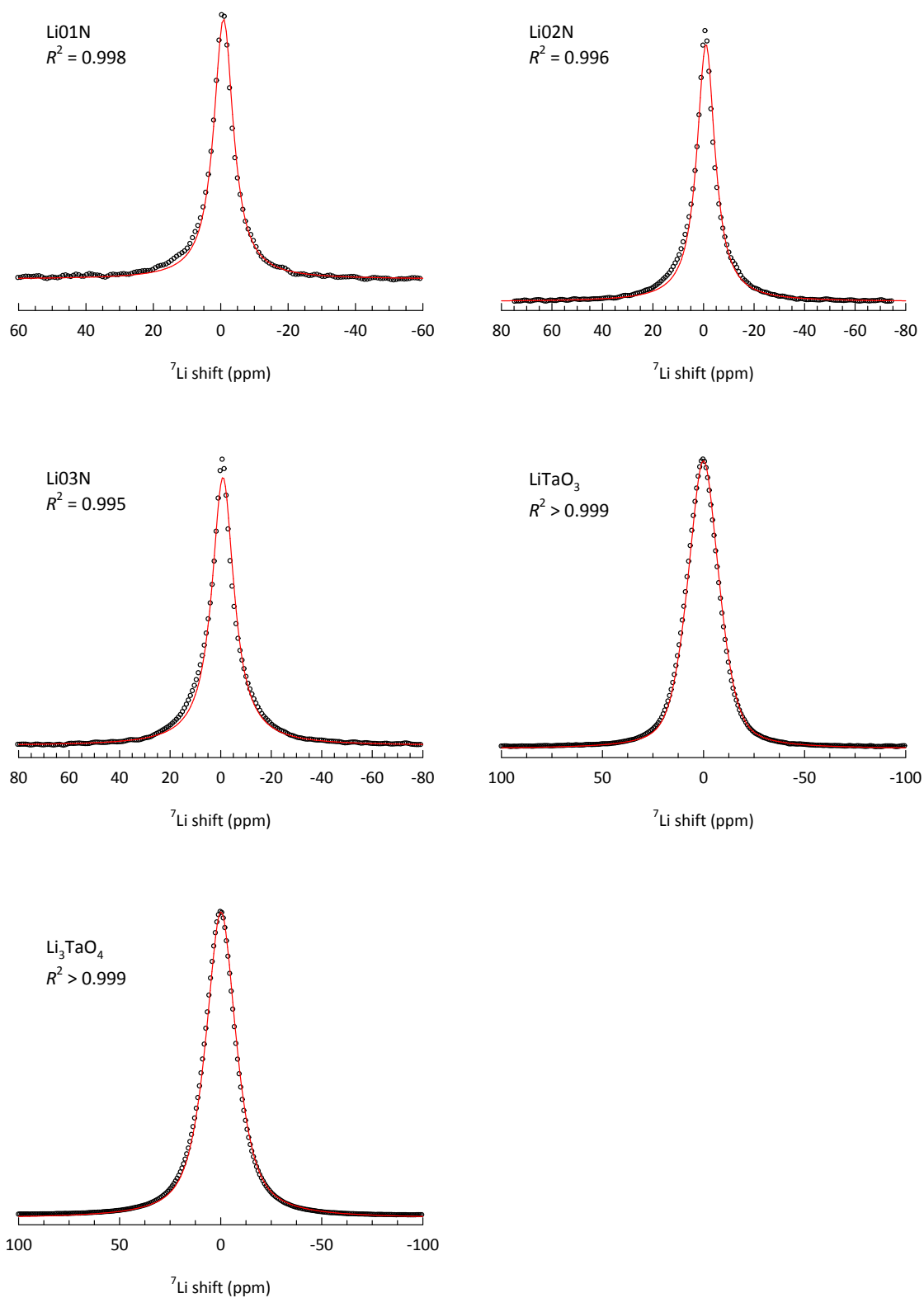


Fig. S2. Pseudo-Voigt peak fitting of ${}^7\text{Li}$ MAS NMR spectra for Li01N, Li02N, Li03N, LiTaO₃, and Li₃TaO₄. (circles: experimental, lines: fit)