Supporting Information: Isotropic High Field NMR Spectra of Li-Ion Battery Materials with Anisotropy > 1 MHz

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Figure S1. SIMPSON† simulations of the 7Li isotropic sum projections, obtained from summation of the spinning sidebands after shearing of the 2D pjMATPASS spectra, varying the nuclear quadrupole coupling constant. Simulations were performed using $v_1 = 30$ kHz, the zcw376 crystal file, 32 gamma angles, a proton frequency of 830 MHz, and shift anisotropy and asymmetry of 400 kHz and 0.3, respectively. A rf field amplitude of $v_1 = 1$ MHz was employed to minimize the contribution of resonance effects to residual ssbs.
Figure S2. (a) $^7$Li isotropic sum projection obtained from summation of the spinning sidebands after shearing of the (b) experimental 2D projection-MATPASS spectrum of LiMnPO$_4$. (c) Comparison of the isotropic projections of MATPASS spectra acquired by varying the flip angle of all pulses in the pulse sequence simultaneously within the range of $40^\circ$-$90^\circ$. (d) Plot of the normalized isotropic peak intensity with respect to the flip angle of the rf pulses employed. (e) Plot of the intensity of first-order residual spinning sidebands relative to the isotropic peaks as a function of the flip angle of the rf pulses employed. The pjmATPASS spectra were acquired with $v_i = 33.3$ kHz and NP1 = 32; other experimental details are given in the caption to Figure 1 of the main text.

REFERENCES