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Broadband Adiabatic Inversion Cross Polarization (BRAIN-CP) for beta-NMR

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Cross-polarization techniques provide a rich playground which allows NMR practitioners a large variety of tools to extract detailed spin-hamiltonian parameters of inhomogeneous systems. Beta-detected NMR is almost an ideal arena, i.e. one spin-polarized ^8Li residing in a local structure, for which to apply such multi-resonant pulse sequences.

As such, an adaptation of NMR's BRAIN-CP RF pulse sequence is described which can in principle extract the dipolar and/or quadrupolar spin parameters of the ^8Li near neighbours. The polarization transfer is achieved in a specifically tuned "double" rotating frame during an adiabatic inversion of the ^8Li spin, and is detected as loss or fine structure in the monitored ^8Li z-polarization.

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