Simple Two-pulse Time-reversal Sequence for Quadrupole-coupled Spin System

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We demonstrate both theoretically and experimentally that the two-pulse sequence $(2n+1)\cdot 90^{\circ}_{\phi}$-$90^{\circ}_{\mathrm{X}}$-Acq($t$) without delay between the pulses yields the reverse of the time evolution of spin systems with quadrupole interactions. This process results in refocusing of the spin magnetization into a magic echo at $t_{\mathrm{e}} = t_1/2$ after the second pulse, where t_1 is the length of the first pulse.
33.25.+k; 76.20.+q; 76.60.-k; 76.60.Lz

Key words: Spin-echoes; Quadrupolar Interactions; Finite Width rf Pulses.