

Abstract Submitted  
for the MAR07 Meeting of  
The American Physical Society

**Generating Spin Echoes with Pi-Pulses: More is Different** DALE LI, ANATOLY DEMENTYEV, YANQUN DONG, RONA RAMOS, SEAN BARRATT, Yale University Department of Physics — NMR spin echo measurements in several solids linked through the form of the homonuclear dipolar coupling are shown to defy conventional expectations of the delta-function pulse approximation. Multiple pi-pulse echo trains may either freeze-out or accelerate the decay of the signal, depending upon pi-pulse phase. Average Hamiltonian theory, combined with exact quantum calculations, reveal an intrinsic cause for these coherent phenomena: the dipolar coupling has a many-body effect during any real, finite pulse.

Dale Li  
Yale University Department of Physics

Date submitted: 20 Nov 2006

Electronic form version 1.4