

Abstract Submitted
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Effects of Multi-pulse Dynamical Decoupling Schemes on Dephasing in a GaAs Spin Qubit¹ JAMES MEDFORD, CHRISTIAN BARTHEL, CHARLES MARCUS, Harvard University, MICAH HANSON, ARTHUR GOS-SARD, Materials Department, University of California, Santa Barbara — Coherence time (T_2) of a singlet-triplet qubit in a GaAs double quantum dot is studied as a function of the number of π -pulses in a Carr-Purcell-Meiborn-Gill (CPMG) dynamical decoupling sequence. In this system, the dominant forms of dephasing are expected to be hyperfine coupling to the nuclei and electrical noise. For n_π ranging from 2 to 32, we find a power law dependence of T_2 with the number of pulses, $T_2 \propto n_\pi^\beta$, where n_π is the number of pulses and $\beta \sim 0.7$ is a fit parameter.

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