

Abstract Submitted
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Pulsed-gate measurements of the singlet-triplet relaxation time in a two-electron double quantum dot¹ J. R. PETTA, A. C. JOHNSON, A. YACOBY², C. M. MARCUS, Harvard University, M. P. HANSON, A. C. GOS-SARD, University of California, Santa Barbara — We use a pulsed-gate technique to measure the singlet-triplet relaxation time in a two-electron double quantum dot when the singlet and triplet states are nearly degenerate. Transitions from the (1,1) to (0,2) charge state involve spin selection rules. Measurements of this transition probability as a function of pulse time and perpendicular magnetic field are used to determine the (1,1) singlet-triplet relaxation time and the (0,2) singlet-triplet splitting. We find a singlet-triplet relaxation time $\geq 70 \mu s$ for our double dot. Experiments aimed at measuring the spin T_2 time will be described.

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