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Novel Coherent Spin Oscillations in a Triple Quantum Dot Circuit ANDREW SACHRAJDA, GHISLAIN GRANGER, LOUIS GAUDREAU, ALICIA KAM, SERGEI STUDENIKIN, PIOTR ZAWADZKI, GEOFF AERS, National Research Council of Canada, MICHEL PIORO-LADRIERE, Sherbrooke University, ZBIG WASILEWSKI, National Research Council of Canada — We have demonstrated Landau-Zener-Stuckelberg oscillations in a triple quantum dot circuit related to pairs of triple quantum dot states. Different initialization schemes and pulse shapes involving all three dots will be discussed. However, the complexity of a triple quantum dot system suggests that in general coherent behaviour can be expected from interplays between various combinations of states. Here we demonstrate both experimentally and theoretically in a triple quantum circuit containing three spins, a coherent interplay between two coexisting qubits as a function of pulse amplitude and rise time. To further clarify the behaviour within the system we also observe and study coherent oscillations after a fourth spin has been added to the system in one of the relevant dots.

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