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Two-Qubit Quantum Computing using Pulsed ESR of N@C₆₀
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N@C₆₀ is a fullerene molecule containing an atom of nitrogen. The low-temperature
decoherence time, T_2 , can be increased to 215 μ s, which is attractive for quantum
information processing applications. The electronic and nuclear spins of the nitrogen
atom are good quantum numbers in a strong magnetic field, coupled by the hyper-
fine interaction. Pulsed ENDOR (electron nuclear double resonance) can be used to
initialize, manipulate and measure this two-qubit system. We used dynamic nuclear
polarization (DNP) to prepare an initial state in which the nuclear and electronic
spins were aligned with the applied field.

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