Readout and Control Technology for Spin Qubits

JAMES COLLESS, DAVID REILLY, The University of Sydney — Scale-up of spin qubits will require the development of new technological approaches that enable readout and control in multi-qubit device architectures. We report results demonstrating a fast readout method based on quantum capacitance that is well suited to detecting spin states in qubit geometries beyond two quantum dots. Control protocols and device architectures for the selective rotation of single spins using on-chip transmission lines and ac-magnetic field gradients will be presented.

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