

## **A crossbar network for silicon spin qubits**

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The spin states of single electrons in gate-defined quantum dots satisfy crucial requirements for a quantum computer. These include extremely long coherence times, high-fidelity quantum operation, and the ability to shuttle electrons as a mechanism for on-chip flying qubits. In order to increase the number of qubits to the thousands or millions of qubits needed for practical quantum information I will present an efficient architecture based on crossbar control, where only a limited set of control lines is needed. The qubit grid is designed to enable flexible qubit arrangement, while it crucially provides a mechanism for creating long-range entanglement, thereby opening a path towards non-planar quantum error correction protocols.