

Reducing Losses in Superconducting Qubits

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Superconducting qubits continue to be developed widely for quantum computing applications. These qubit circuits can be fabricated on wafer substrates with many similar tools and processes as classical computer chips, but the circuit elements need to be made from superconducting materials and their performance is extremely sensitive to the surrounding environment. Careful choices are needed during the fabrication of these devices to reduce microwave-frequency loss channels. Of particular importance are substrate and superconducting material selection, and minimizing any surface oxides or carbon residuals. In this talk, I will discuss our progress towards understanding and controlling these loss channels to improve superconducting qubit performance.

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