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**Applications of superconducting circuits to quantum computing**

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Superconducting circuits containing Josephson junctions are strong contenders for the implementation of a quantum computer. At its 15 year mark, the field has seen tremendous progress with an increase of coherence by six orders of magnitude and it is now taking off from the few- to the multi-qubit level. I will present highlights of research on the level of single devices, in particular the strong increase of coherence that counter-intuitively comes with a growth in device size, as well as readout. I will cover challenges related to multi-qubit systems focusing on precise multi-qubit control and calibration, and present an outlook on future architectures dictated by the requirements of fault tolerance.