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Microwave oscillators based on dc SQUIDs[1] P. BHUPATHI, M. P. DEFEO, C. SONG, B. L. T. PLOURDE, Syracuse University — We have fabricated lumped-element microwave oscillators consisting of a dc SQUID with submicron Al-AlO_x-Al junctions shunted with a capacitor formed from superconducting layers. These circuits resonate in the range of several GHz. Adjusting the current through on-chip bias lines changes the Josephson inductance of the SQUID junctions, thus varying the resonance frequency. We discuss the prospects for time-domain monitoring of the ring-down oscillations following a bias current pulse in these circuits. The discrimination of ring-down signals for different flux bias forms the basis for employing these devices in a possible new readout scheme for superconducting flux qubits.

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