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**Novel microwave readout for phase qubits** SHWETANK KUMAR, MATTHIAS STEFFEN, MARY-BETH ROTHWELL, JAMES ROZEN, GEORGE KEEFE, MARK KETCHEN, IBM Research — We present a novel microwave based readout for a phase qubit which circumvents loss mechanisms that have been shown to impact qubit coherence times. Additionally, this new technique facilitates multiplexing of qubits thereby reducing the number of cryogenic wires required for operating the qubits. The basic operation of the circuit will be discussed and compared with experimental data.

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