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Two Coupled Inductively-Isolated Josephson Junction Qubits¹ TAUNO PALOMAKI, SUDEEP DUTTA, HANHEE PAIK, RUPERT LEWIS, ROBERTO RAMOS, HUIZHONG XU, BOB ANDERSON, CHRIS LOBB, FRED WELLSTOOD, University of Maryland — We report experimental measurements on coherent quantum oscillations and entangled macroscopic quantum states in two capacitively-coupled inductively-isolated Nb/Al₂O₃/Nb Josephson qubits at 25mK. The interaction between the two qubits is controlled by tuning the energy level spacings of the junctions using the bias current and applied flux. We discuss transitions to various states of the coupled device, show Rabi oscillations, and analyze the spectroscopy of the system when the junctions are in and out of resonance with each other.

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