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Multiple photon effects in coupled anharmonic oscillators for circuit QED architectures JAY GAMBETTA, IBM T.J. Watson Research Center, Yorktown Heights, New York 10598, USA, IBM QUANTUM COMPUTING TEAM TEAM — In recent years many superconducting qubits have emerged that are essentially weak anharmonic oscillators. When these systems are coupled, due to the weak anharmonicity the major source of error in this system is leakage. In this talk I will present a method for reducing leakage when implementing a two qubit gate. I will also show that due to this weak anharmonicity new multi-photon transitions emerge that can be used for implementing new types of two qubit gates.

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