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Noise Spectroscopy of Simulated Coupled Transmons in the Noisy Intermdiate Quantum Scale JONATHON MILLER[1], University of Houston, Clear Lake — Thermal noise from electrical circuit components and noise due to fluctuations in energy levels of Transmon circuits have the cumulative effect of decreasing the coherence time of these systems. As coupled Transmon systems scale to the noisy intermediate quantum scale, noise accumulation is not well characterized in its effects on coherence time and quantum logic gate fidelity. The answer this work aims to provide is the limitations on the coherence time imposed by the noise as the system scales from a few to many (50-100) qubits. The noise analysis is being carried out by a computational simulation of a linear Transmon chain forced into a confinement and surrounded by a bath of thermal photons characteristic of the circuit component radiation.

[1]Noise analysis of coupled Transmons by simulation of a confined linear Transmon chain in a thermal bath characteristic of the circuit component radiation.

Jonathon Miller
University of Houston, Clear Lake

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