

# Tomography and control of superconducting circuits

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Multi-level superconducting circuits are a remarkable platform for quantum control and tomography. I will present several new control tools, including chirped microwave drive and the associated quantum-classical transition in the response of the circuit. Open loop optimization (by genetic algorithm) of the quantum response will be presented. Finally a mapping, based on group-theoretical considerations, will demonstrate control of the 4-level system. We experimentally benchmark our control tools by direct Wigner tomography.