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## M3Or4B-03 [Invited]: Superconducting Cavities for Modular Quantum Information Processing

*Wednesday 24 July 2019 17:15 (30 minutes)*

Quantum information processing in the microwave domain will require large numbers of high quality, well-controlled qubits. Construction of such a system as a monolithic block presents a host of design, engineering and characterization challenges. An appealing approach is to build complexity with many smaller, independently testable modules, connected together in a network. A promising way to further simplify the modules of the network is to use superconducting microwave cavity resonators as qubits, which allow for redundant encoding of information in a single mode. This talk will discuss how quantum information can be encoded in superconducting cavities in robust ways, with errors which can be rapidly checked for and corrected. Also included will be a demonstration of a primitive network of cavity-based modules, and design and manufacture of superconducting cavities of a reduced form factor, which can be used in multi-layer integrated quantum circuits.

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