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Continuous-Variable Quantum Information Processing

Recent remarkable theoretical and experimental progress in our ability to measure and manipulate the quantum states of individual microwave photons is leading to novel applications for continuous-variable quantum information processing. These include: accelerating axion dark matter searches, using boson sampling to simulate the optical spectra of small molecules, and quantum error correction using bosonic codes that have successfully extended the lifetime of quantum information. This talk will present an elementary introduction to the basic concepts underlying continuous-variable quantum information processing within circuit QED.