

# Practice of a quantum error detection technique using a tunable superconducting qubit system

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## Abstract

The techniques of Quantum Error Correction (QEC) are essential of fault-tolerant quantum computing and so enable to overcome the limitations of Noisy Intermediate-Scale Quantum computing. In this talk, we firstly discuss about the basic QEC technique based on the stabilizer formalism and its operation principle in tunable superconducting qubit system. Finally, we discuss about our syndrome detection experiments with deterministic entangled states, Bell states, implemented by using Net-Zero pulse gate and parking pulse techniques on the qubit system arranged on a rectangular lattice structure.