Quantum computation in a circuit realization of cavity QED.

Abstract
One of the promising ideas for the construction of circuits for quantum computation was introduced in a series of papers by Rob Schoelkopf's group. They proposed, and tested experimentally, an architecture based on transmission line resonators (TLR) and Cooper pair boxes (CPB). This is, as I will explain, a circuit implementation of cavity QED, where the TLR plays the role of the cavity and the CPB is an artificial atom. My plan is to talk about the physics involved in this implementation, outlining its relation to actual cavity QED. I will also discuss how the state of the qubit is measured, how entanglement of multiple qubits could be achieved and mention a few other interesting features of this approach.