

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Three and Four Coupled Josephson Junction Phase Qubits¹ ZECHARIAH THRAILKILL, JOSEPH LAMBERT, SAM KENNERLY, ROBERTO RAMOS, Drexel University — The Josephson junction phase qubit has been shown to be a viable candidate for quantum computation. The two coupled phase qubit system has been extensively studied theoretically and experimentally. We have analyzed the quantum behavior of systems with more, three and four capacitively-coupled phase qubits, with different possible configurations. We have used anharmonic oscillators to model the systems. We will discuss some of the properties of these simple networks. The focus is on natural state evolution using a time independent, or adiabatically changing Hamiltonian. Analyzing how to transfer quantum information from one qubit to another and performing operations to change the overall state of these systems will give a better understanding of how to utilize the different qubit configurations. We will report on the progress of spectroscopic measurements for the three phase qubit systems.

¹We would like to acknowledge the Wellstood Group at the University of Maryland for helpful discussions.

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Date submitted: 15 Dec 2008

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