Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

GHZ protocols for superconducting qubits[1] ANDREI GALIAUTDINOV, University of Georgia, JOHN MARTINIS, U. C. Santa Barbara — Superconducting circuits with Josephson junctions gained considerable attention as promising candidates for scalable solid state quantum computing architectures. While macroscopic quantum behavior of such circuits has already been demonstrated (e.g., Rabi oscillations, high fidelity state preparation and measurement, various logic gate operations, etc.), further progress in developing a workable quantum computer will depend crucially on architecture's ability to implement various multiqubit entangled states. Here we show how Greenberger-Horne-Zeilinger states can be generated in tripartite systems with capacitive and inductive couplings. Generalization to architectures containing arbitrary numbers of qubits is also discussed.

[1]Supported by DTO W911NF-04-1-0204, NSF CMS-0404031, NSF CCF-0507227

Andrei Galiautdinov
University of Georgia

Date submitted: 07 Dec 2008 Electronic form version 1.4