Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Simple proof of equivalence between adiabatic quantum computation and the circuit model[1] ARI MIZEL, Pennsylvania State University, DANIEL LIDAR, University of Southern California, MORGAN MITCHELL, Institut de Ciències Fotòniques — We prove the equivalence between adiabatic quantum computation and quantum computation in the standard circuit model. An explicit adiabatic computation procedure is given that generates a ground state from which the answer can be extracted. The amount of time needed is evaluated by computing the gap. We show that the procedure is computationally efficient.

[1]We gratefully acknowledge support from the David and Lucile Packard Foundation, Research Innovation Grant No. R10815, and NSF Grant No. PHY99-07949 (to A.M.), NSF Grant No. CCF-0523675, and ARO-QA Grant No. W911NF-05-1-0440 (to D.A.L).

Ari Mizel
Pennsylvania State University

Date submitted: 03 Dec 2006 Electronic form version 1.4