Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Fermionic Resources for Quantum Teleportation ADAM D'SOUZA, DAVID FEDER, IQIS, University of Calgary — The measurement-based quantum computing (MBQC) model requires the creation of a massively entangled "resource state," on which computation proceeds via single-qubit measurements. Although 2D resource states are believed necessary for universal MBQC, 1D states can serve as resources for certain tasks as well, such as quantum teleportation. One possible route to a resource state is to cool a gapped, two-body system whose ground state encodes the resource. I will discuss our recent work in this area, in which we investigate candidate fermionic systems using the Density Matrix Renormalization Group method and the Matrix Product States description of highly entangled 1D states.

Adam D'Souza
IQIS, University of Calgary

Date submitted: 14 Dec 2009 Electronic form version 1.4