

# Testing Adiabatic Quantum Computers Using Simple Quantum Simulation

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Validation of Adiabatic Quantum computers is a significant problem. One of the advantages of the Adiabatic model is that it does not require the rapid pulsed controls necessary in the gate model of quantum computation. However, eschewing this level of control also makes state and process tomography impossible in purely adiabatic hardware, and hence the quantum nature (if any) of such devices has to be established by indirect evidence. In this talk I will describe how to use Adiabatic quantum computers based on the transverse-field Ising model to simulate elementary one-dimensional quantum systems, and discuss the quantum properties of the machines that can be exhibited by such simulations. I will also discuss how to detect the presence of one type of beyond-transverse-Ising coupling, namely the XX couplings of interest for non-stoquastic Adiabatic machines.