

Abstract Submitted
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Solving Linear Differential Equations on a Quantum Computer

SCOTT JOHNSTUN, JEAN-FRANCOIS VAN HUELE, Brigham Young University — Problems that reduce to solving linear differential equations are ubiquitous in physics, and quantum computation can be utilized in solving these problems. We present an algorithm and corresponding quantum circuit that allows us to compute the solution to a simple first order system of differential equations, treating the homogeneous and inhomogeneous cases separately. We also present an implementation of our circuits on simulated and real quantum computers and the results obtained.

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