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Time-ordered Decompositions of Exponential Operators Generated by Time-dependent Hamiltonians

Barry SANDERS

Institute for Quantum Information Science University of Calgary 2500 University Dr. NW, SB 303 Calgary, Alberta T2N 1N4 CANADA

bsanders@qis.ucalgary.ca

Abstract

For a given error tolerance, we find an efficient decomposition of a matrix exponential, generated by a time-dependent Hamiltonian, into a timeordered sequence of matrix exponentials generated by pre-determined Hamiltonians.