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"Slow" and "Fast" Gate Limits In Resilient Quantum Computation[1] EDUARDO NOVAIS, Duke University, EDUARDO R. MUCCIOLO, University of Central Florida, HAROLD U. BARANGER, baranger@phy.duke.edu — In the study of resilient quantum computation, there are two common approaches to proving the threshold theorem: one either uses a stochastic error model or uses the operator norm to bound the effects of the noise. In many cases, the underlying microscopic Hamiltonian is hidden due to the rapidly growing complexity of the problem. In particular, the microscopic interacting Hamiltonian in the interaction picture depends on the quantum code and its implementation. Nevertheless, there are two possible ways to keep the discussion code independent. The first situation is to imagine very fast gates acting on the system. The second is to derive an upper bound on the effects of correlations by deriving an effective model. In this talk we discuss these two limits, focusing on how to derive the effective model for "slow gates".

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