

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Perfect Zeno effect through imperfect measurements at a finite frequency¹ DAVID LAYDEN, University of Waterloo (Department of Applied Mathematics), Institute for Quantum Computing, EDUARDO MARTIN-MARTINEZ, ACHIM KEMPF, University of Waterloo (Department of Applied Mathematics), Institute for Quantum Computing, Perimeter Institute for Theoretical Physics — The quantum Zeno effect (QZE) is usually thought to require infinitely frequent and perfect (i.e., projective) measurements to freeze the dynamics of quantum states. We show that perfect freezing of quantum states can also be achieved by more realistic non-projective measurements performed at a finite frequency. Furthermore, we show that, in the case of qubits, in contrast to the usual QZE, the state freezing via imperfect measurements can be adjusted to preserve arbitrary states in the Bloch sphere.

¹arXiv:1410.3826

David Layden
University of Waterloo (Department of Applied Mathematics),
Institute for Quantum Computing

Date submitted: 27 Oct 2014

Electronic form version 1.4