

Abstract Submitted
for the 4CF15 Meeting of
The American Physical Society

Controlling Squeezing by Varying the Mass Parameter of an Oscillator TY BEUS, MANUEL BERRONDO, Brigham Young University — The Caldirola-Kanai Hamiltonian (CKH) leads to the dynamics of a damped oscillator in classical mechanics. CKH has been reinterpreted and studied in quantum mechanics as a harmonic oscillator with an exponentially increasing mass parameter. This system causes the oscillator state to squeeze. We explore the effects of more realistic finite and temporary mass fluctuations on the squeezing of oscillators. We find that by strategically adding Gaussian pulses to the mass value we can increase the squeezing arbitrarily. Gaussian pulses can also decrease the squeezing back to coherent states. This result points to controlled localization of position and momentum degrees of freedom of quantum systems.

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Date submitted: 11 Sep 2015

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