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Cat states, Decoherence, and Rotational Smearing in Optomechanical systems TY BEUS, Brigham Young University — Optomechanical systems consist of a laser cavity coupled with a moving microscopic mirror. Such a system creates cat states which approximate qubits. Another feature of this system is decoherence effects. Decoherence is essentially a loss of information when coupled with another system, in this case, loss of rotational information, shown in a phase diagram. Here, we explore the development of these cat states, as well as the effects of decoherence which lead to a rotational smearing effect.

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