Generation of Superpositions of Two-Mode Coherent States for the Motion of Two Trapped Ions

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Abstract: We propose a method for the generation of superpositions of two-mode coherent states for the center-of-mass and relative vibrational modes of two trapped ions. In the scheme the ions are driven by a single travelling-wave laser field tuned to the carrier. Then a measurement of the internal states collapses the vibrational modes to the entangled coherent state.

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