

A Simple Method to Generate Several Motional States in Two-Trapped Ions System

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Abstract: We propose a method to create several motional states simultaneously in two-trapped ions. It relies on two standing wave lasers illuminating homogeneously both ions. By tuning the frequencies of the two standing waves to excite resonantly different sidebands of center-of-mass or breathing mode, several motional states, such as one- or two-mode squeezed states and their superpositions, and the beam-splitter output states, are generated.

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Key words: two-mode squeezed state, standing wave, sideband excitation

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