

## Quantum Nondemolition Measurement of the Collective Motional Energy of Two Trapped Ions

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Abstract: We propose a quantum nondemolition measurement of the collective motional energy of two trapped ions for the first time. It is based on the excitation of the two ions by two lasers with appropriate frequencies and amplitudes. The scheme also provides a new possibility of preparing vibrational Fock states and laser cooling.

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Key words: quantum nondemolition measurement, collective motional energy, trapped ions

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