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Entanglement of the Common Eigenvector of Two Particles' Center-of-Mass Coordinate and Mass-Weighted Relative Momentum

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Abstract: We reveal that the common eigenvector of two particles' center-of-mass coordinate and mass-weighted relative momentum is an entangled state. Its Schmidt decomposition exhibits that the entanglement involves squeezing which depends on the ratio of two particles' masses. The corresponding entangling operators are derived.

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Key words: center-of mass coordinate, mass-weighted relative momentum, entangled state

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