

## Four-Particle Entangled State Representation and Its Squeezing Transformation

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Abstract: The four-particle EPR entangled state  $|p, \chi_2, \chi_3, \chi_4\rangle$  is constructed. The corresponding quantum mechanical operator with respect to the classical transformation  $p \rightarrow e^{\lambda_1} p$ ,  $\chi_2 \rightarrow e^{\lambda_2} \chi_2$ ,  $\chi_3 \rightarrow e^{\lambda_3} \chi_3$ , and  $\chi_4 \rightarrow e^{\lambda_4} \chi_4$  in the state  $|p, \chi_2, \chi_3, \chi_4\rangle$  is investigated, and the four-mode realization of the SU(1,1) Lie algebra as well as the corresponding squeezing operators are presented.

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Key words: four-mode entangled state representation, squeezing transformation, four-mode squeezing operator

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