

Analytical Results of Eigenstates and Eigenenergies for a Classical Model of Many Bosonic Modes Mixing

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(Received: 2004-2-19; Revised:)

Abstract: The analytical expressions of eigenstates and eigenenergies are demonstrated using a parameter λ without the assumption of Bethe ansatz for two kinds of N-mode mixing models. The parameter is shown to be determined by the roots of a simple polynomial and is solvable analytically or numerically. In addition, the exact analytical expressions of eigenstates and eigenenergies are illustrated without any unknown parameter.

PACS: 03.65.Ge, 42.50.Hz, 42.65.-k, 42.50.-p

Key words: eigenenergy, eigenstate, multi-mode mixing

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