

Matrix Lie Algebras and Integrable Couplings

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Abstract: Three kinds of higher-dimensional Lie algebras are given which can be used to directly construct integrable couplings of the soliton integrable systems. The relations between the Lie algebras are discussed. Finally, the integrable couplings and the Hamiltonian structure of Giachetti-Johnson hierarchy and a new integrable system are obtained, respectively.

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