r-Matrix Structure for a Restricted Flow with Bargmann Constraint

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Abstract: This paper deals with the integrability of a finite-dimensional Hamiltonian system linked with the generalized coupled KdV hierarchy. For this purpose the associated Lax representation is presented after an elementary calculation. It is shown that the Lax representation enjoys a dynamical r-matrix formula instead of a classical one in the Poisson bracket on R^{2N}. Consequently the resulting system is proved to be completely integrable in view of its r-matrix structure.

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