

The matrix Lax representation of the generalized Riemann equations and its conservation Laws

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It is shown that the generalized Riemann equation is equivalent with the multicomponent generalization of the Hunter - Saxton equation. New matrix and scalar Lax representation is presented for this generalization. New class of the conserved densities, which depends explicitly on the time are obtained directly from the Lax operator. The algorithm, which allows us to generate a big class of the non-polynomial conservation laws of the generalized Riemann equation is presented. Due to this new series of conservation laws of the Hunter-Saxton equation is obtained.

Comments: The change the title, added references, corrected typos. To appear in Phys.Lett A

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