Riemann-Hilbert Problems and new Soliton Equations

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We start with a Riemann-Hilbert Problems (RHP) with canonical normalization whose sewing functions depends on two or more auxiliary variables. Using Zakharov-Shabat theorem we are able to construct a family of ordinary differential operators for which the solution of the RHP is a common fundamental analytic solution [1, 2, 3]. This family of operators obviously commute. Thus we are able to construct new classes of integrable nonlinear evolution equations.

References

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