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Riemann-Hilbert Problems with canonical normalization and families of commuting operators

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(Submitted on 13 Apr 2012)

We start with a Riemann-Hilbert Problems (RHP) with canonical normalization whose sewing functions depends on several additional 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. This family of operators obviously commute. Thus we are able to construct new classes of integrable nonlinear evolution equations.

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