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An integrable generalization of the sine-Gordon equation on the half-line

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(Submitted on 4 Nov 2009)

We analyze a generalization of the sine-Gordon equation in laboratory coordinates on the half-line. Using the Fokas transform method for the analysis of initial-boundary value problems for integrable PDEs, we show that the solution $u(x,t)$ can be constructed from the initial and boundary values via the solution of a 2×2-matrix Riemann-Hilbert problem.

Comments: 18 pages, 5 figures
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