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Long-time asymptotics of solutions for the coupled dispersive AB system with initial value problems. (English) Zbl 1462.35229

Summary: In this paper, we study the basic Riemann-Hilbert (RH) problem of the coupled dispersive AB system with the Schwartz class of initial value problems starting from the Lax pair. We use the Deift-Zhou nonlinear steepest-descent method to analyze the obtained RH problem such that the long-time asymptotics of the solutions of this coupled AB system is found as $t \to \infty$.

MSC:
35Q15 Riemann-Hilbert problems in context of PDEs
35B40 Asymptotic behavior of solutions to PDEs
41A60 Asymptotic approximations, asymptotic expansions (steepest descent, etc.)

Keywords: coupled dispersive AB system; initial-value condition; Riemann-Hilbert problem; nonlinear steepest descent method; long-time asymptotics

Full Text: DOI

References:


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