Nonlinear Sciences > Exactly Solvable and Integrable Systems

Integrable discretizations for the short wave model of the Camassa-Holm equation

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The link between the short wave model of the Camassa-Holm equation (SCHE) and bilinear equations of the two-dimensional Toda lattice (2DTL) is clarified. The parametric form of N-cuspon solution of the SCHE in Casorati determinant is then given. Based on the above finding, integrable semi-discrete and full-discrete analogues of the SCHE are constructed. The determinant solutions of both semi-discrete and fully discrete analogues of the SCHE are also presented.

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