

Casorati determinant solutions to the non-autonomous cross-ratio equation

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Abstract:

We explain how to use known solutions to bilinear equations to solve integrable non-linear partial difference equations. We begin with non-autonomous Casorati determinant, N-soliton solutions to the discrete two-dimensional Toda lattice equation, which is a well-known, bilinear, integrable equation. These solutions are adapted to construct explicit solutions to the discrete Scharzian KP equation and the non-autonomous cross-ratio equation.