

Solutions of Adler's (Lattice Krichever-Novikov) equation

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In 1997 Adler gave the Bäcklund transformation (BT) of the Krichever-Novikov equation, together with a formula for the superposition of solutions related by the BT. The superposition formula (Adler's equation) has subsequently attained the status of a master equation among integrable quadrilateral lattice equations. The BT for Adler's equation is inherent in the equation itself by virtue of its cubic consistency.

However, the construction of soliton solutions by application of the BT to a (perhaps elementary) seed solution is hampered because (as for the Krichever-Novikov equation) a seed solution is un-obvious.

We will discuss new solutions of Adler's equation and the Krichever-Novikov equation which are suitable as seed solutions for the construction of solitons.