

## Algebro-geometric solutions of the Ablowitz-Ladik hierarchy

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Algebro-geometric solutions of soliton equations are a class of solutions which can be constructed explicitly using tools from algebraic geometry. We present a derivation of all algebro-geometric finite-band solutions of the Ablowitz-Ladik equation, which is a complexified version of the discrete nonlinear Schroedinger equation.

In addition, we survey a recursive construction of the associated Ablowitz-Ladik hierarchy, a completely integrable sequence of systems of nonlinear evolution equations on the lattice  $\mathbb{Z}$ . This is done by means of a zero-curvature and Lax approach.

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- [2] F. GESZTESY, H. HOLDEN, J. MICHOR, G. TESCHL: Algebro-geometric finite-band solutions of the Ablowitz–Ladik hierarchy. *Int. Math. Res. Notices* (2007), 1–55, rnm082.
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