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Symmetries and reductions of integrable discrete equations on quad-graphs

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Abstract

The symmetry groups of certain integrable discrete equations and symmetry reductions to maps are investigated. It is shown that, on the one hand, the invariants of the Lie-point symmetry groups facilitate in recasting the discrete equations as Yang–Baxter maps. On the other hand, the invariant solutions of the equations under Lie-point symmetries combined with the generalized ones are associated with the discrete Painlevé equations.