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Discrete and Quantum Dubrovin equations

Given the renewed recent interest in quantum integrable equations of motion and quantum curves I review some work dating from around 2005 (in collaboration with Chris Field) on quantum discrete-time systems (quantum mappings) that preserve operator invariants, which are quantum analogues of elliptic and higher genus curves. The discrete dynamics for the corresponding separation variables obey the discrete and quantum analogues of the (Kovalevski-)Dubrovin equations that play a central role in finite-gap integration of integrable equations. The construction is based on (non-ultalocal) `extended Yang-Baxter structures' which incorporate the temporal parts in the quantum r-matrix relations.