



Mathematical Physics

From Quantum A_N (Calogero) to H_4 (Rational) Model

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A brief and incomplete review of known integrable and (quasi)-exactly-solvable quantum models with rational (meromorphic in Cartesian coordinates) potentials is given. All of them are characterized by (i) a discrete symmetry of the Hamiltonian, (ii) a number of polynomial eigenfunctions, (iii) a factorization property for eigenfunctions, and admit (iv) the separation of the radial coordinate and, hence, the existence of the 2nd order integral, (v) an algebraic form in invariants of a discrete symmetry group (in space of orbits).

Comments: dedicated to Willard Miller; 20 pages
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