



Nonlinear Sciences > Exactly Solvable and Integrable Systems

"Quantization" of higher hamiltonian analogues of the Painleve I and Painleve II equations with two degrees of freedom

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We construct a solution of an analog of the Schrödinger equation for the Hamiltonian $H_I(z, t, q_1, q_2, p_1, p_2)$ corresponding to the second equation P_1^2 in the Painleve I hierarchy. This solution is produced by an explicit change of variables from a solution of the linear equations whose compatibility condition is the ordinary differential equation P_1^2 with respect to z . This solution also satisfies an analog of the Schrödinger equation corresponding to the Hamiltonian $H_{II}(z, t, q_1, q_2, p_1, p_2)$ of Hamiltonian system with respect to t which is compatible with P_1^2 . A similar situation occurs for the P_2^2 equation in the Painleve II hierarchy.

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