

HYPERELLIPTIC SIGMA FUNCTIONS AND THE SEQUENCE OF THE NOVIKOV'S G -EQUATIONS

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In 1974, S. P. Novikov discovered an algebro-geometrical method for constructing periodic and quasi-periodic solutions of the KdV equation. He introduced the g -stationary equations of the KdV-hierarchy (namely the Novikov's g -equations) which correspond to integrable polynomial dynamical systems in \mathbb{C}^{3g} with $2g$ polynomial integrals.

The talk is devoted to differential equations and dynamical systems, which are integrable in hyperelliptic sigma functions.

We will introduce systems of $2g$ -dimensional heat equations in a nonholonomic frame which define this functions. The operators of such system generate a polynomial Lie algebra with only three generators for $g > 1$. We will construct an infinite-dimensional polynomial dynamical system that is universal for all polynomial dynamical systems corresponding to the sequence of Novikov's g -equations.

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