On real Hamiltonian forms of affine Toda field theories

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We will present real Hamiltonian forms of 2-dimensional Toda field theories related to exceptional simple Lie algebras [1], and the spectral theory of the associated Lax operators. Real Hamiltonian forms [2] are a special type of "reductions" of Hamiltonian systems, similar to real forms of semi-simple Lie algebras. Examples of real Hamiltonian forms of affine Toda field theories related to exceptional complex untwisted affine Kac-Moody algebras will be presented.

Along with the associated Lax representations, we will also discuss the relevant Riemann-Hilbert problems and derive the minimal sets of scattering data that determine uniquely the scattering matrices and the potentials of the Lax operators.

This is a joint work [3] with Vladimir Gerdjikov and Alexander Stefanov.

References

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