

Reciprocal transformations and flat metrics on Hurwitz spaces

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We consider hydrodynamic systems which possess a local Hamiltonian structure of Dubrovin-Novikov type. To such a system there are also associated an infinite number of nonlocal Hamiltonian structures of Mokhov-Ferapontov type. We give necessary and sufficient conditions so that, after a nonlinear transformation of the independent variables, the reciprocal system still possesses a local Hamiltonian structure of Dubrovin-Novikov type. We show that, under our hypotheses, bi-hamiltonicity is preserved by the reciprocal transformation. Finally we apply such results to reciprocal systems of genus g Whitham-KdV modulation equations. Some of the results presented on the talk may be found in [1].

References

- [1] Abenda, S. and Grava, T. Reciprocal transformations and flat metrics on Hurwitz spaces *arXiv:0704.1779 [nlin.SI]* , 2007.