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*Nijenhuis geometry and infinite dimensional  
integrable systems*

The Nijenhuis geometry project was started several years ago by A.V.Bolsinov, V.S.Matveev and the author several years ago. Among many results, obtained in this projects, the two prior unrelated topic, the theory of geodesically equivalent metrics in differential geometry and theory of compatible Poisson brackets of hydrodynamic type, were connected. The key role in this connection is played by Nijenhuis pencils, the spaces of compatible Nijenhuis operators. Geometric approach allows to write the corresponding equations and conservation laws in invariant terms. It is important, that no algebraic conditions — such as diagonalizability — is not assumed. The latter paves the way to the study of singularities of such systems

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**“DIFFERENTIAL GEOMETRY AND APPLICATIONS”**

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