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Stability analysis, singularities and topology of integrable systems [Abstract]

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Stability analysis, singularities and topology of integrable systems

In the theory of integrable systems, there are two popular topics:

1) Topology of integrable systems, which studies stability of equilibria and periodic trajectories, bifurcations of Liouville tori, singularities and their invariants, topological obstructions to the integrability and so on.

2) Theory of compatible Poisson brackets, which studies one of the most interesting mechanisms for integrability based on the existence of a bi-Hamiltonian representation.

The aim of the talk is to to construct a bridge between these two areas and to explain how singularities of bi-Hamiltonian systems are related to algebraic properties of compatible Poisson brackets. This bridge provides new stability analysis methods for a wide class of integrable systems.