Queen's Algebraic Geometry — Seminar —

Infinite-dimensional Lie algebras and magnetic hydrodynamics with asymmetric stress tensor

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Abstract

In this talk we will review the Arnold's approach to the generalized Euler equation. This method allows us to interpret many well-known PDEs as the geodesic equations on Lie groups. Certain abelian extensions of the Lie algebras of vector fields were recently shown to play an important role in the theory of the toroidal Lie algebras. We will link these Lie algebras with the equations of magnetic hydrodynamics with a stress tensor. Using Lie theory methods, we will derive several conservation laws for these PDEs.

Monday, October 18, 2004
2:30pm – 3:30pm
422 Jeffery Hall