Lorenzoni-Raimondo

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Title*: Integrable systems, Frobenius manifolds, and infinite dimensional Lie algebras*.
Periodo: febbraio marzo.

Abstract: The aim of the course is to introduce two well known constructions of integrable systems, to study their geometric and algebraic aspects, and eventually to show how the two constructions are related. In the first part of the course, following Dubrovin, we will consider integrable systems of quasilinear evolutionary PDEs arising in the theory of semisimple Frobenius manifolds. In particular, we will study the case of Frobenius manifolds defined on the space of orbits of Coxeter groups. In the second part we will describe a procedure, due to Drinfeld and Sokolov, to obtain integrable systems of PDEs starting from a class of infinite dimensional Lie algebras, known as affine Kac-Moody algebras. We will then show that given an affine Kac-Moody algebra, the dispersionless limit of the Drinfeld-Sokolov integrable PDEs coincides with the quasilinear equations obtained in the first part. The case of sl(n) will be considered in detail.