

Ciclo de jóvenes investigadores en el IMAC



Conferencia a cargo de
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Darboux Theory of Integrability: Introduction and Advances

ABSTRACT: In 1878 Darboux introduced a type of first integrals which are complex powers of algebraic invariants (also called Darboux polynomials) of polynomial differential systems. The Darboux First Integrals were generalized later after the introduction of the exponential factors. The Darboux Theory of Integrability deals with the number of algebraic invariants and exponential factors in order to assure that a Darboux first integral exists. Concerning these kind of differential systems additional objects are studied; beside the Darboux polynomials and the exponential factors, related to the so-called cofactors, we may study the existence of inverse integrating factors and remarkable values and curves.

In this talk we shall introduce all these concepts and provide some motivation. Afterwards we shall explain some important results achieved in the last years concerning Darboux Theory of Integrability and the so-called Poincaré problem, which deals with the existence and maximum degree of Darboux polynomials.

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ESTCE. Universitat Jaume I de Castelló

