UNIVERSITÀ DI PARMA
DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE
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SEMINARIO

CICLO SEMINARI di GEOMETRIA

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Giovedì 20 ottobre 2022, ore 16:30

Sala Riunioni, Plesso di Matematica/Informatica

Elliptic Darboux-Integrable Systems and their Extensions

Tutti gli interessati sono invitati a partecipare

Organizzatori: Lorenzo Nicolodi

Abstract: *In a 2009 paper, Anderson, Fels and Vassiliou showed that, for a class of Darboux-integrable (DI) hyperbolic systems, a canonical integrable extension exists and is constructed using the action of the Vessiot group, and which splits as the product of two simpler differential systems. Moreover, each solution of the DI system arises as a `superposition' of a pair of solutions to the simpler systems. In this preliminary report on joint work with Mark Fels, we outline a construction of a canonical integrable extension for elliptic DI systems. By contrast, in the elliptic case the extension is a holomorphic Lie equation involving the complexified Vessiot group. In several examples the extension is contact-equivalent to a prolongation of the Cauchy-Riemann equations, leading to solution formulas in terms of holomorphic functions.*