

Meromorphic $SL(2, \mathbb{C})$ -actions and projective structures on Riemann surfaces

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In a fundamental paper A. Guillot linked classical (quadratic) Halphen systems to actions of $PSL(2, \mathbb{C})$. In particular, he was able to clarify the dynamics and the geometry associated with this Halphen systems. In this talk we will consider meromorphic actions of $PSL(2, \mathbb{C})$ and show that they are connected with certain rational vector fields that can be viewed as an extension of Halphen equations. If time permits we will also sketch some (potential) applications of this construction. This is joint work with A. Elshafei and J.C. Rebelo.