

Meromorphic $\mathrm{PSL}(2, \mathbb{C})$ -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 $\mathrm{PSL}(2, \mathbb{C})$. In particular, he was able to clarify the dynamics and the geometry associated with these Halphen systems. In this talk we will consider meromorphic actions of $\mathrm{PSL}(2, \mathbb{C})$ and show that they are connected with certain rational vector fields that can be viewed as an extension of Halphen vector fields. I will also comment on some (potential) applications of this construction. This is joint work with A. Elshafei and J.C. Rebelo.