

## Real-time dynamics of vector fields and affine structures on Riemann surfaces

*Monday, July 10, 2023 9:00 AM (1 hour)*

In this talk, we will typically consider a homogeneous polynomial vector field  $X$  of degree  $\geq 2$  on  $\mathbb{C}^2$ . In particular, the time-one map induced by  $X$  defines a germ of parabolic diffeomorphism  $h$  of  $(\mathbb{C}^2, 0)$ . The vector field  $X$  also induces a singular affine structure on the Riemann sphere which, in turn, leads to a “geodesic flow”, or “billiard dynamics”, encoding much of the dynamics of  $h$ . We will try to make these connections accurate, in particular explaining how the monodromy of the mentioned affine structure can be read off the projective holonomy of the foliation associated with  $X$ . If time permits, we might say a word about higher dimensional versions of this construction.

**Presenter:** REBELO, Julio