Graduate

Dynamics and Lie Theory Seminar

Hyperbolic Translations in K

Ricardo Sandoval
MAT-UnB

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Abstract. Given a connected real semi-simple Lie group G it is possible to "decompose" its elements g, in elliptic e, hyperbolic h and unipotent u components, $g = ehu$. These components commute and permit the study of actions of the group G in a manifold by studying the action of each of these components. In this talk, we study the hyperbolic action h^t, $t \in \mathbb{R}$ in the homogeneous manifold G/AN, where A and N come from a fixed Iwasawa decomposition, $G = KAN$. Informally we can think of this homogeneous manifold as the compact subgroup K. We first show the fixed points of this action. All points in K converges to one of these fixed points, and all orbits in K can be neatly described. We show concrete examples in Sl(2) and Sl(3).

References

[1] M. Patrão; T. Ferraiol; L. Seco. (2010). Jordan decomposition and dynamics on flag manifolds. *Discrete and Continuous Dynamical Systems*, v. 26, p. 923-947.