

THE RICCI FLOW IN HOMOGENEOUS MANIFOLDS: A BRIDGE BETWEEN GEOMETRY AND
DYNAMICAL SYSTEMS

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In this talk, we present recent results on the Ricci flow on homogeneous manifolds, obtained through techniques from the qualitative theory of dynamical systems. In particular, we address the problem of the existence of left-invariant metrics on flag manifolds. The space of invariant metrics can be parametrized by a low-dimensional manifold, so that finding certain special metrics becomes equivalent to locating the singular points of an associated system of differential equations. The local dynamics of this system around the singularities also play a key role in understanding the separatrices and the evolution of the manifold under the flow.