Róbert Szőke

Title: Geodesics, Lie groups and complex structures

Abstract: The notion of adapted complex structure of a Riemannian metric arose as a result of studying certain global solutions of the complex, homogeneous Monge-Ampére equation on Stein manifolds. They live on a subdomain D, some open neighborhood of the zero section, in the tangent bundle of a Riemannian manifold and are characterized by the property that the leaves of the Riemann foliation are holomorphic curves. The case D=TM imposes strong constraints on the metric and the existing examples have a lot of symmetries. The question whether a maximal D (and in what sense) exists for general metrics is still not well understood. In the talk we address this problem when M is a Lie group equipped with a left invariant (pseudo-)-Riemannian metric (or even Koszul connection). This is joint work with Balázs Forman.