Resumé:
Suppose X is a connected complex manifold with the property that for every $x_1, x_2 \in X$ there exists a holomorphic automorphism g of X such that $gx_1 = x_2$. In this case X is called homogeneous. Further, if all such g can be chosen from a Lie group G, then X can be written in a Klein form $X = G/H$, where H is a closed subgroup of G. (We allow both real and complex Lie groups.)
In this talk we will present a survey about such homogeneous complex manifolds G/H. In particular, we would like to point out how complex analytic assumptions can determine the structure of the manifold. Examples and results will concentrate on two properties: the existence of non-constant holomorphic functions (e.g., a classical result of Matsushima-Morimoto characterizing holomorphically separable complex Lie groups and generalizations of this to homogeneous manifolds) and a method for detecting complex lines (i.e., holomorphic images of C) by using a reduction with respect to the Kobayashi pseudodistance on the complex manifold G/H.