EQUIVARIANT OKA PRINCIPLES

The equivariant Oka principle of Heinzner and Kutzschebauch implies the following. Let K be a compact Lie group acting holomorphically on a Stein manifold X. Let E be a topological K-vector bundle over X. Then E admits a structure of holomorphic K-vector bundle over X. Moreover, two holomorphic K-vector bundles over X are K-equivariantly biholomorphic if and only if they are K-equivariantly homeomorphic.

There are also Oka principles for mappings from Stein manifolds X into complex manifolds Y, starting with the work of Grauert and others in the case that Y is a complex homogeneous space. One consequence is that any continuous map $X \to Y$ can be deformed continuously to a holomorphic map. In the last 60 years, work of M. Gromov, F. Forstnerič and others has shown that there are various Oka principles for more general Y, called Oka manifolds. We report on equivariant versions of these results in joint work with F. Kutzschebauch and F. Lárusson.