

## Abstract

A generalized Nash Blow-up  $M'$  with respect to coherent subsheaves of locally free sheaves is defined for complex spaces. It is shown that  $M'$  is locally isomorphic to a monoidal transformation and hence is analytic. Examples of  $M'$  are given. Applications are given to Serre's extension problem and reductive group actions. A  $\mathbb{C}^*$ -action on Grassmannians is defined, fixed point sets and Bialynicki-Birula decomposition are described. This action is generalized to Grassmann bundles. The Grassmann graph construction is defined for the analytic case and it is shown that for a compact Kaehler manifold the cycle at infinity is an analytic cycle. A calculation involving the localized classes of graph construction is given. Nash residue for singular holomorphic foliations is defined and it is shown that the residue of Baum-Bott and the Nash residue differ by a term that comes from the Grassmann graph construction of the singular foliation. As an application conclusions are drawn about the rationality conjecture of Baum-Bott. Pontryagin classes in the cohomology of the splitting manifold are given which obstruct an imbedding of a bundle into the tangent bundle.