

## Equivalence of neighborhoods of embedded compact complex manifolds and higher codimension foliations

Laurent Stolovitch

*CNRS-Université Côte d'Azur*

stolo@unice.fr

Xianghong Gong

*Univeristy of Wisconsin-Madison*

gong@math.wisc.edu

We consider an embedded  $n$ -dimensional compact complex manifold in  $n + d$  dimensional complex manifolds. We are interested in the holomorphic classification of neighborhoods as part of Grauert's formal principle program. We will give conditions ensuring that a neighborhood of  $C_n$  in  $M_{n+d}$  is bi-holomorphic to a neighborhood of the zero section of its normal bundle. This extends Arnold's result about neighborhoods of a complex torus in a surface. We also prove the existence of a holomorphic foliation in  $M_{n+d}$  having  $C_n$  as a compact leaf, extending Ueda's theory to the high codimension case. Both problems appear as a kind linearization problem involving *small divisors condition* arising from solutions to their cohomological equations.