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

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Abstract. We consider an embedded n-dimensional compact complex manifold C in $n+d$ dimensional complex manifolds M that are regarded as neighborhoods of C. We are interested in the holomorphic classification of the neighborhoods of C. We will give conditions ensuring that a neighborhood of C in M is biholomorphic to a neighborhood of the zero section of its normal bundle. This extends Arnold's result about neighborhoods of a complex torus in surfaces. We also prove the existence of a holomorphic foliation in M having C 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. This is joint work with Laurent Stolovitch.