The Local Rigidity Problem for Holomorphic Mappings of Real Submanifolds

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For two germs of real submanifolds $M \subset \mathbb{C}^N$ and $M' \subset \mathbb{C}^{N'}$ consider the set $\mathcal{H}$ of germs of holomorphic mappings which locally map M into M'. The group G of local automorphisms of M and M' induces an action on $\mathcal{H}$. A map $H \in \mathcal{H}$ is called locally rigid if all maps close to H in $\mathcal{H}$ belong to the G-orbit of H. Assume that $H \in \mathcal{H}$ belongs to the class of finitely nondegenerate maps. In this case we provide sufficient conditions for local rigidity of H in terms of the space of infinitesimal deformations associated to H, which consists of holomorphic vectors whose real part is tangent to M' along the image of H.