

Singular genuine rigidity of submanifolds .

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Abstract

We begin this talk with a quick survey on certain aspects of isometric rigidity of Euclidean submanifolds. This will be used to motivate the concept of genuine deformation and describe the geometric structure of the submanifolds that admit deformations of this kind. That an isometric deformation is genuine means that the submanifold is not included into a submanifold of larger dimension such that the deformation of the former is given by a deformation of the latter.

The key result says that an Euclidean submanifold together with a genuine deformation in low (but not necessarily equal) codimensions must be mutually ruled, and gives a sharp estimate for the dimension of the rulings. This has several strong local consequences.

Then, we will introduce mild singularities mainly to obtain new global rigidity results and unify the known ones. Unexpectedly, the singular theory becomes much simpler and natural than the regular one, even though all technical codimension assumptions, needed in the regular case, are removed.