

Symmetry and totally geodesic submanifolds

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Totally geodesic submanifolds are special submanifolds of a Riemannian manifold characterized by the property that every geodesic within them is also a geodesic of the ambient space where they sit in. They play a central role in Riemannian geometry and their existence is usually related to the existence of symmetries of the ambient space. Because of this, their study is particularly rich in highly symmetric settings, such as those arising from Lie groups and homogeneous spaces. In this talk, I will give a broad overview of results concerning totally geodesic submanifolds in Riemannian manifolds in the presence of symmetry.