Mastrogiacomo Transversal and Basic Cohomology on a Foliated Manifold

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Abstract

Let M be a Riemannian foliated manifold and ∇ a connection on the transversal bundle. We define a cohomology group of M, called the Mastrogiacomo transversal cohomology group of M with respect to ∇, using the fields of transversal homogeneous 2-jets on M. This group is invariant under foliated diffeomorphisms of M. Some characterizations of the Mastrogiacomo basic cohomology group with respect to ∇ are obtained assuming that M is a Reinhart space with ∇ induced by the Vaisman connection, or a fibered manifold with ∇ induced by the Berwald connection.