

1106-53-602

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Existence and Non-existence of Half-Geodesics on S^2 .

In this talk we will discuss $1/k$ -geodesics, those closed geodesics that minimize on any subinterval of length $l(\gamma)/k$. Christina Sormani has shown that the $1/k$ -geodesics persist under the Gromov-Hausdorff convergence of Riemannian manifolds. We use her result to construct manifolds diffeomorphic to S^2 that admit exactly n half-geodesics ($1/2$ -geodesics) for each nonnegative integer n . Additionally, we construct a sequence of manifolds, each of which is diffeomorphic to S^2 and admits no half-geodesics, yet which converge in the Gromov-Hausdorff sense to a limit space admitting infinitely many half-geodesics. (Received September 03, 2014)