Foliations on closed three-dimensional Riemannian manifolds with a bounded mean curvature of leaves

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Recall that a foliation $\mathcal{F}$ of codimension one on a smooth 3-manifold M is called *taut* if its leaves are minimal submanifolds of M for some Riemannian metric on M. In [1] it was proved that if $\mathcal{F}$ is taut, then a number of cohomological classes $H^2(M)$ realized as Euler classes $e(\mathcal{F})$ of the tangent distribution to $\mathcal{F}$ is finite.

We present the following result.

Theorem 1. *Let M be a smooth closed three-dimensional orientable irreducible Riemannian manifold. Then, for any fixed constant $H_0 > 0$, there are only finitely many cohomological classes of the group $H^2(M)$ that can be realized by the Euler class of a two-dimensional transversely oriented foliation whose leaves have a modulus of mean curvature bounded above by the constant H_0.*

References

[1] Y. Eliashberg, W. Thurston. *Confoliations*, volume 46 of *University Lecture Series 13*. Providence. Amer. Math. Soc., 1988.