



International

Scientific

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Algebraic and Geometric Methods of Analysis

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LIST OF TOPICS

- Algebraic methods in geometry
- Differential geometry in the large
- Geometry and topology of differentiable manifolds
- General and algebraic topology
- Dynamical systems and their applications
- Geometric and topological methods in natural sciences

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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 tangent distribution to \mathcal{F} is finite.

We present the following result.

Theorem 1. *Let V_0, i_0, K_0, H_0 be fixed positive constants, and M be a closed oriented irreducible three-dimensional Riemannian manifold with the following properties:*

- (1) *the volume $\text{Vol}(M) \leq V_0$;*
- (2) *the sectional curvature K of Riemannian manifold M satisfies the inequality $|K| \leq K_0$;*
- (3) *$\min\{\text{inj}(M), \frac{\pi}{2\sqrt{K_0}}\} \geq i_0$, where $\text{inj}(M)$ is the injectivity radius of M .*

Then only a finite number $C(V_0, i_0, K_0, H_0)$ of cohomological classes in $H^2(M)$ are realized as Euler class $e(\mathcal{F})$ of the tangent distribution to a transversally oriented codimension one foliation \mathcal{F} on M whose leaves have a mean curvature H satisfying the inequality $|H| < H_0$.

REFERENCES

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

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