

# The topology of codimension one foliations with leaves of nonnegative Ricci curvature

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In this talk we shall discuss the topology of closed riemannian manifolds that admit codimension one foliations with leaves of nonnegative Ricci curvature. The following theorem is a foliated analogue of the famous Cheeger-Gromoll results about the structure of manifolds of nonnegative Ricci curvature [1].

**Theorem 1.** *Let  $\mathcal{F}$  be a  $C^\infty$  - smooth codimension one transversally oriented foliation on closed oriented riemannian manifold  $M^n$  with leaves of nonnegative Ricci curvature in the induced metric. Then*

- *the fundamental group of leaves of the foliation  $\mathcal{F}$  is finitely generated and virtually abelian.*
- *the fundamental group  $\pi_1(M^n)$  is virtually polycyclic;*
- *the foliation  $\mathcal{F}$  is flat (i.e. the leaves of  $\mathcal{F}$  are flat in the induced metric) iff  $M^n$  is  $K(\pi, 1)$ -manifold.*

**Remark 2.** The first statement of the theorem is a positive answer to the Milnor conjecture for the leaves of codimension one foliations with induced metric of nonnegative Ricci curvature [2]. Recall that the Milnor conjecture claims that the fundamental group of a complete riemannian manifold of nonnegative Ricci curvature is finitely generated.

## REFERENCES

- [1] J. Cheeger and D. Gromoll, The splitting theorem for manifolds of nonnegative Ricci curvature. *J. Differential Geom.*, 6 : 119–128, 1971.
- [2] D. Bolotov, Foliations of Codimension one and the Milnor Conjecture . *Journal of Mathematical Physics, Analysis, Geometry*, 14(2) : 119–131, 2018.