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MR800011 (88d:57022)
Hurder, Steven (1-MSRI)
Foliation dynamics and leaf invariants.
Comment. Math. Helv. 60 (1985), no. 2, 319-335.
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Let $\mathcal{F}$ be a foliation of codimension $n$ on a smooth manifold $M$ without boundary. Assume $\mathcal{F}$ is transversally $C^{2}$. The purpose of this paper is to examine the relation between the linear holonomy of the leaves of $\mathcal{F}$ and the growth rates of the leaves.
Above all, the following results are obtained. Theorem 1: Let $\mathcal{F}$ and $M$ be as above. Given a leaf $L$ of $\mathcal{F}$, suppose its linear holonomy group $\Gamma_{L} \subset \mathrm{GL}(n, \mathbf{R})$ is not amenable. Then $\mathcal{F}$ has a leaf $L^{\prime}$ which contains $L$ in its closure, and for all Riemannian metrics on $M, L^{\prime}$ has exponential growth. Theorem 2: Let $\mathcal{G}$ be a pseudogroup of local diffeomorphisms of $\mathbf{R}^{n}$, all of whose elements are defined at and fix the origin $0 \in \mathbf{R}^{n}$, and are $C^{2}$ in a neighborhood of 0 . Let $\Gamma$ denote the linear group of Jacobians at 0 of the elements of $\mathcal{G}$. If $\Gamma$ is not amenable, then the action of $\mathcal{G}$ on $\mathbf{R}^{n}$ has an orbit with exponential growth and which contains 0 in its closure.

Reviewed by Masahisa Adachi
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