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Section:

7. Lie Groups and Lie Algebras

1991 MS Classification: 57R30 , 58F11
Rebelo, Julio C., Assistant Professor in Pontifical Catholic University of Rio de Janeiro (PUC-RIO)
Associating vector fields to certain subgroups of $\mathrm{Diff}^w(S^1)$: applications to ergodicity and rigidity
We consider the insolvable subgroups of the group of real analytic diffeomorphisms of the circle which admit a finite generating set whose elements belong to an appropriate and fixed neighborhood of the identity. If G is such a group, we prove that there are nowhere zero local analytic vector fields which are a sort of "limit" of some local diffeomorphisms in G. Finally we apply these vector fields to prove, in particular, that either the group G is ergodic or it has a finite orbit. These vector fields also enable us to show that the dynamics of G is topologically rigid. Generalizations of these vector fields and other applications of them may be discussed as well.
Reference: REBELO, J. C. Ergodicity and rigidity for certain subgroups of $\mathrm{Diff}^w(S^1)$, submitted for publication in the *Annales Scientifiques de l'École Normale Supérieure*.