# A note on Anosov flows

ALBERTO VERJOVSKY.

Let M be a compact, connected, $C^\infty$-manifold with empty boundary. A $C^r$-vector field ($r \geqq 1$) X with associated flow $f_t$ is called an Anosov flow (see [2]) if for some riemannian norm $\| \ \|$ the following conditions hold

1) $X(x) \neq 0$ for all $x \in M$
2) There exists an invariant and continuous splitting

$$TM = E^s \oplus E^u \oplus E^1$$

with $\dim E^s$, $\dim E^u \neq 0$ and $E^2 = \text{span } X$

3) there exist constants $c, c', \lambda > 0$ such that for every positive t

i) $\| Df_t(v) \| \geqq ce^{\lambda t} \| v \|$, $\| Df_{-t}(v) \| \leqq c' e^{-\lambda t} \| v \|$ for all $v \in E^u$
ii) $\| Df_t(v) \| \leqq c' e^{-\lambda t} \| v \|$, $\| Df_{-t}(v) \| \geqq ce^{\lambda t} \| v \|$ for all $v \in E^s$.

An Anosov flow is called codimension one if either $\dim E^u$ or $\dim E^s$ is equal to one. For a vector field Y let $\Omega(Y)$ denote its non-wandering set. We announce the following

*Theorem.* If M is a compact, connected $C^\infty$-manifold without boundary of dimension greater than four and $f_t : M \to M$ an Anosov flow of codimension one, them $\Omega(X) = M$.

The proof of this theorem follows arguments similar to the ones used by S.E. Newhouse [1] for the case of diffeomorphisms.

**Bibliography:**

*S. Newhouse.* [1]. A note on Anosov Diffeomorphisms. To appear. [2]. *S. Smale,* Differentiable dynamical systems, Bull. Amer. Math. Soc. 73 (1967).