Let $M^n$ be a $C^\infty$-compact, connected, $n$-manifold without boundary. Let $X^r(M)$ be the set of $C^r$-vector fields on $M$, $1 \leq r \leq \infty$. $X \in X^r(M)$ is $C^r$ structurally stable if there exists a neighbourhood $U_X$ of $X$ in $X^r(M)$ such that given $Y \in U_X$ there exists a homeomorphism $h: M \to M$ taking oriented trajectories of $X$ to oriented trajectories of $Y$. Let $\Sigma^r(M) \subset X^r(M)$ be the set of $C^r$-structurally stable vector fields on $M$. In this paper we announce the proof that $\Sigma^r(M)$ is always dense in $X^r(M)$ with respect to the $C^0$-topology. This result is the same theorem that Smale and Shub proved for diffeomorphisms in [2] and [1].

The main tools for our proof are the theorems of Smale [2], Shub [1] and Zeeman [3]. Details of the proof will appear elsewhere. The author wishes to thank his supervisor Professor E. C. Zeeman for many helpful conversations, suggestions and encouragement.

**Main theorem.**

**Theorem 1.** Let $1 \leq r \leq \infty$. Let $X \in X^r(M)$. Then $X$ is $C^r$-isotopic to a $Y \in \Sigma^r(M)$ by an isotopy which is arbitrarily small in the $C^0$ topology.

**Corollary 2.** Let $1 \leq r \leq \infty$. Then $\Sigma^r(M)$ is dense in $X^r(M)$ with respect to the $C^0$ topology.

For the next theorem, suppose $M$ admits a nonsingular vector field and let $NS^r(M)$ be the set of nonsingular $C^r$-vector fields on $M$.

**Theorem 3.** Any $X \in NS^r(M)$ is $C^r$-isotopic (through nonsingular vector fields) to a $Y \in \Sigma^r(M) \cap NS^r(M)$ by an isotopy which is arbitrarily small in the $C^0$-topology.

**REFERENCES**


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