

ERGODICITY AND PARTIAL HYPERBOLICITY ON 3D MANIFOLDS

RAÚL URES,

SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

A diffeomorphism is *partially hyperbolic* if the tangent bundle of the ambient manifold splits into three invariant sub-bundles, $TM = E^s \oplus E^c \oplus E^u$, in such a way that df contracts the vectors of E^s and expands the vectors of E^u while the vectors of E^c have an intermediate behavior.

A diffeomorphism f is *ergodic*, for an invariant measure m , if time average equals space average for every continuous function. That is,

$$\lim_{n \rightarrow \infty} \frac{1}{n} \sum_{i=0}^{n-1} \phi(f^i(x)) = \int \phi dm$$

for m -a.e $x \in M$ and for every continuous function $\phi : M \rightarrow \mathbb{R}$.

We will present the state of the art for the problem of the ergodicity for partially hyperbolic volume-preserving diffeomorphisms on three dimensional manifolds.