Two Parameters Sectional Hyperbolic Set

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Resumo/Abstract:
We consider a 2-parameter family of flows $X^t_{\theta_1,\theta_2}$ defined on a 3 dimensional region. We analyse the maximal invariant set $\Lambda_{\theta_1,\theta_2}$ of $X^t_{\theta_1,\theta_2}$. We prove that for every (θ_1, θ_2), $\Lambda_{\theta_1,\theta_2}$ is a sectional attracting set. For a certain choice of the parameters, $\Lambda_{\theta_1,\theta_2}$ is a hyperbolic attractor. For an open set of parameters, $\Lambda_{\theta_1,\theta_2}$ is a disjoint union of a geometric Lorenz attractor and a hyperbolic horseshoe. We also prove that for every parameter (θ_1, θ_2), $\Lambda_{\theta_1,\theta_2}$ admits a contractive invariant foliation.

References

[1] JOHN GUCKENHEIMER; ROBERT F. WILLIAMS , *Structural Stability of Lorenz Attractors*, Publications mathématiques de L'I.H.É.S