SEMINÁRIO
SISTEMAS DINÂMICOS

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The Rovella attractor is asymptotically sectional-hyperbolic

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Abstract:

The Rovella attractor is a compact invariant set for a vector field X_0 constructed in a similar way as the geometric Lorenz attractor, but replacing the central expansive condition at the singularity by a central contracting condition plus two additional geometric hypothesis: the unstable manifold of the singularity is contained in the stable manifold of hyperbolic periodic orbits and the one dimensional reduction for the first return Poincaré map has negative Schwarzian derivative. Rovella showed that although this attractor is non robust, it is almost 2-persistent in the C^3 topology. In this paper we will prove that for a generic two-parameter family of vector fields that contains X_0, asymptotically sectional-hyperbolicity is an almost 2-persistent property. In particular we will prove that the Rovella attractor is asymptotically sectional-hyperbolic.

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