Abstract

Lorenz attractors form an example of robust compact strange attractors for flows in \( \mathbb{R}^3 \). Here we investigate the existence of robust unbounded attractors. We construct a \( C^2 \) vector field with an unbounded strange attractor with no singularities. The construction is based on the geometric Lorenz attractor in a unit ball with singularities on the sphere. Robustness of such attractors with respect to \( C^2 \) perturbations is proved. By mapping the open unit ball to \( \mathbb{R}^3 \) we get a class of vector fields with unbounded strange attractors. This class is not open with respect to the uniform \( C^2 \) topology.