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.