A new blender construction based on covering relations and cones

Maciej Capiński

Abstract

Blenders are invariant hyperbolic sets, which have stable manifolds that behave as if they were of higher dimension than they actually are. For instance, a 2-blender would have one dimensional stable bundles, and yet the stable manifold has properties of a plane. We present a new blender construction, which is based on correct topological alignment of sets combined with propagation of cones. The assumptions of our theorem are simple, purely geometric, and applicable in arbitrary dimension. We apply the method to a Henon-like family of diffeomorphisms, obtaining a proof of the existence of blenders for a given parameter range.