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Morse Decompositions and Hopf Duality of Isolated Invariant Sets

We study some shape properties of an attractor-repeller decomposition of an isolated invariant set of a flow. We show how some classical results, for example the Churchill sequence and the exact sequence of an attractor-repeller decomposition, can be derived from this approach. We also use our results to establish the Morse equations of a Morse decomposition in terms of the truncated unstable manifolds of the Morse sets and to study some forms of Hopf duality of isolated invariant sets.