Attractors as information structures

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Abstract

We will present main results on the topological and geometrical description of global attractors for infinite-dimensional dynamical systems. In particular, the continuity of attractors, their gradient structure and their Morse-Smale characterization. We will also show some results on their robustness under autonomous and non-autonomous perturbation. These approach leads to the analysis of attractors as information structures, which are being applied to Ecology and Neuroscience phenomena in order to describe structural stability in mutualistic system and conscious states for subjects with severe brain damage.