SEMIATTRACTORS OF MULTIFUNCTIONS ON PRODUCT SPACES AND GENERALIZED ITERATED FUNCTION SYSTEMS

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We introduce the notion of semiattractor for lower semicontinuous multifunctions defined on a finite product of an arbitrary metric space. Then we obtain semiattractors (semifractals) for a large class of generalized iterated function systems (GIFSs). The theory of semiattractors was developed by A. Lasota and J. Myjak in the context of a single multifunction associated with an iterated function system (IFS), as well as supports of invariant measures for some transition Markov operators induced by IFSs with probability. Our results are the counterpart of these. We prove some fundamental properties of semiattractors, give the explicit construction, some simple criteria of existence and also the theorem on approximation of the semiattractor of a countable GIFS by semiattractors of its finite subsystems. We use the apparatus of topological (Kuratowski's) limits.

References

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