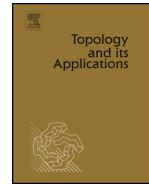




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Sensitivity in hyperspatial and product systems via Furstenberg families



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ABSTRACT

In this paper, we study the notions of $\mathcal{F}$ -sensitivity, multi- $\mathcal{F}$ -sensitivity and $(\mathcal{F}_1, \mathcal{F}_2)$ -sensitivity in dynamical systems defined on Hausdorff uniform spaces. It is shown that how these notions carry over to hyperspatial and product dynamical systems, and vice versa. We also obtain some sufficient conditions for a dynamical system to be $\mathcal{F}$ -sensitive. Some examples showing the necessity of the conditions taken in our results are also presented.

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1. Introduction

Chaos is one of the principal aspects which we come across while studying dynamical systems. Topological transitivity and sensitivity are key ingredients among all the various definitions of chaos [4,9]. Sensitivity [1] characterizes the unpredictability of a chaotic phenomenon and hence it becomes crucial to study. While studying sensitivity it is essential to measure its strength, for this Moothathu [13] initiated a preliminary study of stronger forms of sensitivity and gave three stronger notions, namely cofinite sensitivity, multi-sensitivity and syndetic sensitivity. Thenceforth, many authors have introduced and studied other stronger forms of sensitivity for dynamical systems [8,10,21]. Miller and Money [12], and Wang [19] extended some of these notions on the semiflows. In [18], Thakur and Das studied about chaos and its related properties on products of semiflows.

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