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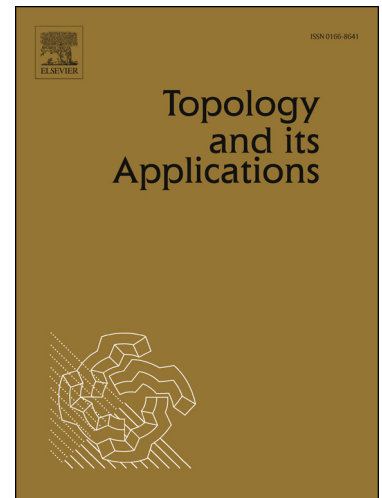
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# Topologically sensitive dynamical systems

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**Abstract.** In this paper we introduce a notion of sensitivity for topological dynamical systems and show some of its basic features and relation to dynamical properties such as transitivity and weak mixing. Finally, we will restrict our attention to the related class of weakly positively expansive dynamical systems.

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*Keywords* : Sensitivity, expansiveness

## 1. Introduction and preliminaries

Sensitive dependence on initial conditions is a metric-dependant property which gives some informations on the unpredictability of a dynamical system and it is one of the most relevant concept in chaotic dynamics (see, e.g., [3], [19]). In this paper we start the investigation of a topological version of sensitive dependence on initial conditions and we will relate this property with the notion of weak positive expansiveness introduced by Richeson and Wiseman [26].

Let  $\mathbb{N}$  and  $\mathbb{N}_0$  be the sets of positive integers and nonnegative integers, respectively. A continuous self-map  $f$  on a metric space  $(X, d)$  is said to have *sensitive dependence on initial conditions* ( $f$  is *sensitive* for short) if there is some  $\varepsilon > 0$  (called *sensitivity constant*) such that, for any  $x \in X$  and any

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