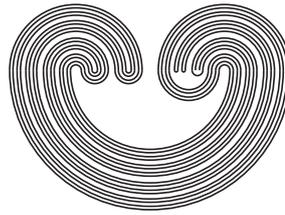


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## ENTROPY OF INDUCED DENDRITE HOMEOMORPHISMS

by

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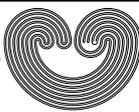
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## ENTROPY OF INDUCED DENDRITE HOMEOMORPHISMS

PALOMA HERNÁNDEZ AND HÉCTOR MÉNDEZ

**ABSTRACT.** Let  $f : D \rightarrow D$  be a dendrite homeomorphism. Let  $2^D$  denote the hyperspace of all nonempty compact subsets of  $D$  endowed with the Hausdorff metric. Let  $2^f : 2^D \rightarrow 2^D$  be the induced homeomorphism. We show in this note that the topological entropy of  $2^f$  has only two possible values: 0 or  $\infty$ . This claim generalizes a result due to M. Lampart and P. Raith.

### 1. INTRODUCTION AND SOME DEFINITIONS

A *continuum* is a nonempty compact and connected metric space.

Let  $X = (X, d)$  be a continuum. Let  $2^X$  be the collection of all nonempty compact subsets of  $X$  endowed with the Hausdorff metric  $H_d$  induced by metric  $d$ . If  $Y$  is a continuum and  $Y \subset X$  then  $Y$  is a *subcontinuum* of  $X$ .

It is said that  $X$  is

- an *arc* provided that it is homeomorphic to the unit interval  $[0, 1]$ ,
- a *simple closed curve* provided that it is homeomorphic to the circle  $S^1 = \{(x, y) \in \mathbb{R}^2 : x^2 + y^2 = 1\}$ ,
- a *dendrite* provided that it is a locally connected and contains no simple closed curves.

Let  $\mathbb{N}$  denote the set of all positive integers. A *mapping* is a continuous function. Let  $f : X \rightarrow X$  be a mapping.

Let  $2^f : 2^X \rightarrow 2^X$  be the mapping induced in  $2^X$  by  $f$ . For each  $n \in \mathbb{N}$  and for each  $A \in 2^X$ ,  $(2^f)^n(A) = f^n(A)$ .

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