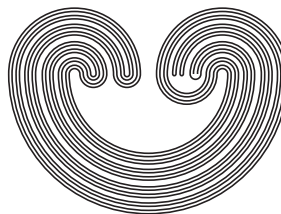


<http://topology.auburn.edu/tp/>

TOPOLOGY PROCEEDINGS



Volume 56, 2020

Pages 57–70

<http://topology.nipissingu.ca/tp/>

THE HYPERSPACE OF SEQUENCES OF A DENDRITE IS CONTRACTIBLE

by

ALEJANDRO ILLANES

Electronically published on August 1, 2019

This file contains only the first page of the paper. The full version of the paper is available to Topology Proceedings subscribers.

See <http://topology.auburn.edu/tp/subscriptioninfo.html> for information.

Topology Proceedings

Web: <http://topology.auburn.edu/tp/>

Mail: Topology Proceedings

Department of Mathematics & Statistics

Auburn University, Alabama 36849, USA

E-mail: topolog@auburn.edu

ISSN: (Online) 2331-1290, (Print) 0146-4124

COPYRIGHT © by Topology Proceedings. All rights reserved.



THE HYPERSPACE OF SEQUENCES OF A DENDRITE IS CONTRACTIBLE

ALEJANDRO ILLANES

ABSTRACT. Given a Hausdorff space X , let $S_c(X)$ be the hyperspace of nontrivial convergent sequences. It is an open problem to determine if the contractibility of X implies the contractibility of $S_c(X)$. In this paper we prove that if X is a dendrite (a locally connected continuum without simple closed curves), then $S_c(X)$ is contractible. This answers a question by Javier Camargo, David Maya, and Patricia Pellicer-Covarrubias [*Path connectedness, local path connectedness and contractibility of $S_c(X)$*]. Available at arXiv:1802.00725v1 [math.GN].]

1. INTRODUCTION

The *harmonic sequence* is the subspace $\{0, 1, \frac{1}{2}, \frac{1}{3}, \dots\}$ of the real line. Given a Hausdorff space X , the *hyperspace of nontrivial convergent sequences* $S_c(X)$ is defined as

$$S_c(X) = \{A \subset X : A \text{ is homeomorphic to the harmonic sequence}\}.$$

This hyperspace is considered with the Vietoris topology. In the case that X is a metric space, the Vietoris topology in $S_c(X)$ is induced by the Hausdorff metric H .

The hyperspace $S_c(X)$ is introduced by S. García-Ferreira and Y. F. Ortiz-Castillo in [3]. Several authors study different aspects related to these hyperspaces in [2]–[10]. A very natural problem is the following.

2010 *Mathematics Subject Classification.* Primary 54B20; Secondary 54F15, 54F55.

Key words and phrases. continuum, contractibility, dendrite, harmonic fan, hyperspace, hyperspace of nontrivial convergent sequences.

This paper was partially supported by the projects “Teoría de Continuos, Hiperespacios y Sistemas Dinámicos III” (IN106319) of PAPIIT, DGAPA, UNAM; and “Teoría de Continuos e Hiperespacios” (A1-S-15492) of CONACyT.

©2019 Topology Proceedings.

This file contains only the first page of the paper. The full version of the paper is available to Topology Proceedings subscribers. See <http://topology.auburn.edu/tp/subscriptioninfo.html> for information.