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by

Alejandro Illanes and Benjamin Vejnar

Electronically published on January 14, 2023

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	Department of Mathematics & Statistics
	Auburn University, Alabama 36849, USA
E-mail:	topolog@auburn.edu
ISSN:	(Online) 2331-1290, (Print) 0146-4124

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E-Published on January 14, 2023

## THE HYPERSPACE OF NON-BLOCKERS OF SINGLETONS, ALL THE POSSIBLE EXAMPLES

ALEJANDRO ILLANES AND BENJAMIN VEJNAR

ABSTRACT. Given a metric continuum X, a nonempty proper closed subspace B of X, does not block a point  $p \in X \setminus B$  provided that the union of all subcontinua of X containing p and contained in  $X \setminus B$  is a dense subset of X. The collection of all nonempty proper closed subspaces B of X such that B does not block any element of  $X \setminus B$  is denoted by  $NB(F_1(X))$ . In this paper we prove that for each completely metrizable and separable space Z, there exists a continuum X such that Z is homeomorphic to  $NB(F_1(X))$ . This answers a series of questions by Camargo, Capulín, Castañeda-Alvarado and Maya.

## 1. INTRODUCTION

A continuum is a nonempty non-degenerate compact connected metric space. A subcontinuum of a continuum X is a nonempty closed connected subspace of X, so one-point sets are subcontinua. For a continuum X, we consider the hyperspaces:

 $2^{X} = \{A \subset X : A \text{ is a nonempty closed subset of } X\},\$   $C(X) = \{A \in 2^{X} : A \text{ is connected}\}, \text{ and for each } n \in \mathbb{N},\$  $F_{n}(X) = \{A \in 2^{X} : A \text{ has at most } n \text{ points}\}.$ 

Orcid numbers, A. Illanes: 0000-0002-7109-4038; B. Vejnar: 0000-0002-2833-5385. ©2023 Topology Proceedings.



<sup>2020</sup> Mathematics Subject Classification. Primary 54B20; Secondary 54F15. Key words and phrases. Blocker, continuum, hyperspace, pseudo-arc.

The first author was supported in part by the projects "Teoría de Continuos, Hiperespacios y Sistemas Dinámicos III", (IN 106319) of PAPIIT, DGAPA, UNAM; and "Teoría de Continuos e Hiperespacios, dos" (AI-S-15492) of CONACYT.

The second author was supported by the grant SVV-2020-260583.

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