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

TOPOLOGY PROCEEDINGS

Volume 57, 2021

Pages 159–175

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

π–PSEUDOCOMPLETE SPACES

by

Iván Martínez Ruiz, Alejandro Ramírez Páramo and Armando Romero Morales

Electronically published on July 26, 2020

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.

http://topology.auburn.edu/tp/
http://topology.nipissingu.ca/tp/

TOPOLOGY PROCEEDINGS
Volume 57 (2021)
Pages 159-175

E-Published on July 26, 2020

π–PSEUDOCOMPLETE SPACES

IVÁN MARTÍNEZ RUIZ, ALEJANDRO RAMÍREZ PÁRAMO, AND ARMANDO ROMERO MORALES

Abstract. In this paper we introduce the class of π–pseudocomplete spaces, which contains the class of π–complete spaces. Among others, we show that assuming MA+¬CH, π–pseudocomplete CCC spaces satisfy the strong Baire property and π–pseudocomplete CCC spaces with small pseudobases are separable (Theorem 3.12 and Theorem 4.2, respectively). Finally, we prove, also assuming MA+¬CH, that if X is a T_1 quasiregular compact space with $c(X) = \omega$, $t(X) = \omega$ and $|\operatorname{cl}_X(A)| \leq 2^\omega$ for every $A \in [X]^{\leq\omega}$, then $|X| \leq HW(X)2^\omega$ (Corollary 4.17). This result provides a partial positive answer to the following question due to Arhangel'skii ([1]): Does MA+¬CH imply that every compact space with $c(X) = \omega$ and countable tightness has cardinality $\leq 2^\omega$?

1. Introduction

A topological space X has countable cellularity (or X is CCC), denoted by $c(X) \leq \omega$, if every disjoint family of open sets in X is at most countable. It is well known that Martin's Axiom (MA) with the negation of the Continuum hypothesis (¬CH) imply the Suslin hypothesis, that is, every ordered space with countable cellularity is separable.

The following question posed by Hajnal and Juhász, is natural (see [10]).

2020 *Mathematics Subject Classification.* 03E50, 54A25, 54E52, 54D65, 54F05.

Key words and phrases. Martin's Axiom, π–complete, cardinal functions, separable.

©2020 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.