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TOPOLOGY PROCEEDINGS

Volume 62, 2023

Pages 99–116

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Electronically published on February 20, 2023

Topology Proceedings

Web:	http://topology.nipissingu.ca/tp/
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E-mail:	topolog@auburn.edu
ISSN:	(Online) 2331-1290, (Print) 0146-4124

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

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E-Published on February 20, 2023

C^*-EMBEDDED DENSE SUBSETS OF z-NEIGHBORHOOD-SUBLINEAR SPACES ARE P-EMBEDDED

YASUSHI HIRATA, NOBUYUKI KEMOTO, AND HARUTO OHTA

Abstract. We define a concept of z-neighborhood-sublinear space and point out that

- every first-countable Tychonoff space and every generalized ordered space is z-neighborhood-sublinear, and
- subspaces and finite products of z-neighborhood-sublinear spaces are z-neighborhood-sublinear.

As a main theorem, we prove that every C^*-embedded dense subset of a z-neighborhood-sublinear space is P-embedded.

The first author and Yukinobu Yajima, in [C^*-embedding implies P-embedding in products of ordinals, Topology and Appl., 231 (2017), pp. 251–265], prove that for all subspaces A and B of an ordinal, if a closed subset F of $A \times B$ is C^*-embedded in $A \times B$, then F is P-embedded in $A \times B$. We can remove closedness from the assumption by applying the main theorem.

1. Introduction

Let $\mathbb{R}$ be the real line, and $\mathbb{I}$ the unit interval, i.e., $\mathbb{I} = [0, 1] \subset \mathbb{R}$. A subset E in a space X is said to be *C^*-embedded* (C-embedded, respectively) in X if every continuous function from E into $\mathbb{I}$ ($\mathbb{R}$, respectively) is continuously extended over X. A subset E in X is said to be *P-embedded* in X

2020 *Mathematics Subject Classification.* Primary 54C45, 54F05; Secondary 54B10, 54D15.

Key words and phrases. C^*-embedded, generalized ordered space, globular space, lob-space, P-embedded, product, subspace of an ordinal, z-neighborhood-sublinear space.

The first author was supported by Grant-in-Aid for Scientific Research (C) 19K03606. The second author was supported by Grant-in-Aid for Scientific Research (C) 21K03339.