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ON SELECTIVELY HIGHLY DIVERGENT SPACES

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Abstract. In this paper we introduce the class of SHD spaces, defined by a selection property, and study their fundamental topological features. We exhibit that such class is full of variety: in particular, we construct an SHD space that simultaneously contains a convergent sequence and a dense subspace where the only convergent sequences are the eventually constant ones. We prove that if X is regular and for all $x \in X$ holds $\psi(x, X) > \omega$, then X_δ is SHD. Finally, for any Hausdorff space X without isolated points, we produce an associated space sX which is extremely disconnected, zero-dimensional, Hausdorff and SHD, and which satisfies $|X| = |sX|$, $\pi w(X) = \pi w(sX)$ and $c(X) = c(sX)$.

1. Introduction

Topological properties defined via selection principles have attracted considerable attention in recent years due to their deep connections with

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