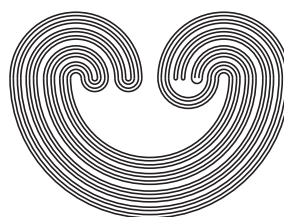


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by

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ON THE METRIZABILITY OF THE HYPERSPACE OF NONTRIVIAL CONVERGENT SEQUENCES

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ABSTRACT. The hyperspace of the nontrivial convergent sequences of a topological space Hausdorff X is denoted by $\mathcal{S}_c(X)$. This hyperspace is endowed with the Vietoris topology. In this paper, we show that the the hyperspace $\mathcal{S}_c(X)$ is metrizable if and only if the ground space X possesses the same property.

1. INTRODUCTION

Convergence of sequences is an important tool to determine topological properties in Hausdorff spaces and the study of hyperspaces can provide information about the topological behavior of the original space and vice versa. In connection with both concepts, the hyperspace consisting of all nontrivial convergent sequences, $\mathcal{S}_c(X)$, of a metric space X without isolated points was introduced in [9]. This hyperspace is endowed with the Vietoris topology. Interesting properties of this hyperspace are presented in [3, 6, 9–18] where the study was extended to Hausdorff spaces.

A condition that distinguishes $\mathcal{S}_c(X)$ of the traditional hyperspaces is that $\mathcal{S}_c(X)$ does not contain necessarily a closed copy of X . This inclusion guarantees that a space has all topological properties that are inherited

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Key words and phrases. cosmic space, G_δ -diagonal, hyperspace of nontrivial convergent sequences, metrizability, second countable, separable, σ -space, stratifiable space, perfectly normal.

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