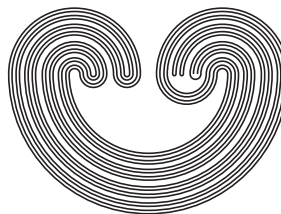


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TOPOLOGY PROCEEDINGS



Volume 58, 2021

Pages 131–182

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

ON BAIRE CATEGORY PROPERTIES OF FUNCTION SPACES $C'_k(X, Y)$

by

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Electronically published on November 12, 2020

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E-mail: topolog@auburn.edu

ISSN: (Online) 2331-1290, (Print) 0146-4124

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ON BAIRE CATEGORY PROPERTIES OF FUNCTION SPACES $C'_k(X, Y)$

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ABSTRACT. We prove that for a stratifiable scattered space X of finite scattered height, the function space $C_k(X)$ endowed with the compact-open topology is Baire if and only if X has the Moving Off Property of Gary Gruenhage and Daniel K. Ma. As a byproduct of the proof, we establish many interesting Baire category properties of the function spaces $C'_k(X, Y) = \{f \in C_k(X, Y) : f(X') \subseteq \{*_Y\}\}$, where X is a topological space, X' is the set of non-isolated points of X , and Y is a topological space with a distinguished point $*_Y$.

1. INTRODUCTION AND MAIN RESULTS

This paper was motivated by the problem of characterization of scattered topological spaces X whose function space $C_k(X)$ is Baire. Here, $C_k(X)$ is the space of real-valued continuous functions on X , endowed with the compact-open topology.

A topological space X is *Baire* if for any sequence $(U_n)_{n \in \omega}$ of open dense sets in X , the intersection $\bigcap_{n \in \omega} U_n$ is dense in X . In [19], Gary Gruenhage and Daniel K. Ma conjecture that for a Tychonoff space X , the function space $C_k(X)$ is Baire if and only if X has the Moving Off Property, which is defined as follows.

A family \mathcal{F} of subsets of a topological space X is called

- *discrete* if each point $x \in X$ has a neighborhood $O_x \subseteq X$ that meets at most one set of the family \mathcal{F} ;

2020 *Mathematics Subject Classification.* Primary 54C35; Secondary 54E52.

Key words and phrases. Baire, compact-open topology, function space, meager, moving off property.

The second author was supported by the National Science Foundation of China (No. 11471202 and 11971287).

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