"Vasile Alecsandri" University of Bacău
Faculty of Sciences
Scientific Studies and Research
Series Mathematics and Informatics
Vol. 29 (2019), No. 1, 41-58

GENERALIZED CLOSED SET AND GENERALIZED CONTINUITY IN FUZZY M-SPACE

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Abstract. This paper deals with a generalized version of fuzzy closed sets in fuzzy m-spaces [2]. Using this concept as a basic tool, we introduce a generalized version of closed and open functions in fuzzy m-spaces. Several characterizations of these functions are proved. Moreover, a generalized version of continuity in fuzzy m-space is introduced and studied. Afterwards, several applications of this type of function are given in the study of generalized versions of fuzzy regular, fuzzy normal and fuzzy compact spaces, in the setting of fuzzy m-spaces.

1. Introduction

Alimohammady and Roohi in [1] introduced the notion of fuzzy minimal structure (fuzzy m-structure, for short) as follows : A family $\mathcal{M}$ of fuzzy sets in a non-empty set X is said to be fuzzy minimal structure on X if $\alpha 1_X \in \mathcal{M}$ for every $\alpha \in [0, 1]$. Afterwards, a more general version of fuzzy minimal structure (in the sense of Chang) was introduced in [4, 7] as follows : A family $\mathcal{F}$ of fuzzy sets in a non-empty set X is a fuzzy minimal structure on X if $0_X \in \mathcal{F}$ and $1_X \in \mathcal{F}$. In this paper, we use the notion of fuzzy minimal structure in the sense of Chang.

Keywords and phrases: Fuzzy m-closed set, fuzzy generalized m-closed set, fuzzy generalized m-continuous function, fuzzy m-open q-nbd, fuzzy generalized m-regular and m-normal spaces, fuzzy generalized m-compact space.
(2010) Mathematics Subject Classification: 54A40, 54C99

Theorem 6.24. Let $h : (X, m) \to (Y, m_1)$ be an $fg(m, m_1)$-irresolute function. If a fuzzy set A is fgm-compact relative to X, then $h(A)$ is fgm_1-compact relative to Y.

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