GENERALIZED VERSION OF CLOSED SET AND CONTINUITY IN FUZZY m-SPACE

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Abstract. In this paper a new type of generalized version of fuzzy closed set and continuity are discussed in fuzzy minimal space, introduced in (Alimohammady and Roohi, 2006). Then we introduce $fg(m, m_1)\delta$-open and $fg(m, m_1)\delta$-closed functions using $fgm\delta$-closure operator which is an idempotent operator, as a basic tool. Afterwards, $fg(m, m_1)\delta$-continuity, $fg(m, m_1)\delta$-irresoluteness are introduced and characterized. Lastly we introduce $fgm\delta$-regular, $fgm\delta$-normal and $fgm\delta$-compact spaces and some applications of $fg(m, m_1)\delta$-continuous function and $fg(m, m_1)\delta$-irresolute function on $fgm\delta$-regular, $fgm\delta$-normal and $fgm\delta$-compact spaces are established.

1. Introduction. Fuzzy minimal structure (fuzzy m-structure, for short) is introduced by Alimohammady and Roohi in (2006) 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, Brescan (2010) and Nematollahi (2010) introduced a more general version of fuzzy minimal structure (in the sense of Chang) 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. In (Bhattacharyya, 2019), we have introduced three new types of generalized version of fuzzy closed sets and continuity. Here we establish the mutual relationships of these closed sets and continuity with the closed set and continuity introduce in this paper.

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