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s^*-REGULARITY IN FUZZY M-SPACES

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Abstract. This paper deals with a new type of open-like set in fuzzy minimal space [2], viz. fuzzy $m-s^*$-open set taking fuzzy m-semiopen sets [3] as a basic tool. Afterwards, we introduce an idempotent operator, viz. fuzzy $m-s^*$-closure operator. With the help of this operator we introduce and study two new types of functions, viz. fuzzy almost $(m,m_1)-s$-continuous function and fuzzy almost $(m,m_1)-s^*$-continuous function. It is shown that every fuzzy almost $(m,m_1)-s^*$-continuous function is fuzzy almost $(m,m_1)-s$-continuous function, but the reverse implication is not necessarily true in general. Furthermore, we introduce fuzzy $m-s^*$-regular spaces, in which the above mentioned reverse implication holds and, in addition, the classes of fuzzy m-open sets and fuzzy $m-s^*$-open sets coincide.

1. Introduction

In [11], L.A. Zadeh introduced fuzzy set as follows : a fuzzy set A is a mapping from a non-empty set X into the closed interval $[0,1]$, i.e., $A \in I^X$. In 1968, C.L. Chang introduced fuzzy topology [6]. In [8] Popa and Noiri introduced the notion of minimal structure in general topology, generalizing some properties of continuous functions. Afterwards, Alimohammady and Roohi introduced a more general version of fuzzy topology by introducing fuzzy minimal structure, as follows: a family $\mathcal{M}$ of fuzzy sets in a non-empty set X is said to be a fuzzy minimal structure on X if $\alpha 1_X \in \mathcal{M}$ for every $\alpha \in [0,1]$ [1].

Keywords and phrases: Fuzzy m-open set, fuzzy m-semiopen set, fuzzy $m-s^*$-open set, fuzzy almost (m,m_1)-s-continuous function, fuzzy almost (m,m_1)-s^*-continuous function, fuzzy $m-s^*$-regular space..
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$\leq$(by Theorem 4.4 (a)$\Rightarrow$(f)) $\bigcup_{i=1}^{n} m_1 - cl(f(f^{-1}(U_i))) \leq \bigcup_{i=1}^{n} m_1 - cl(U_i)$,

hence $\bigcup_{i=1}^{n} m_1 - cl(U_i) = 1_Y$, which implies that Y is a fuzzy almost m-compact space.

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