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α-PRECOMPACT SPACE IN FUZZY TOPOLOGICAL SPACE

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Abstract: In this paper we introduce and study a new type of compactness, viz., fuzzy α-precompactness by using fuzzy α-preopen set [1] as a basic tool. Here we also characterize this space by fuzzy net and prefilterbase. We have shown that fuzzy α-precompactness implies fuzzy almost compactness [4] and the converse is true only on fuzzy α-preregular space [1].

Keywords and Phrases: Fuzzy α-preopen set, fuzzy α-preregular space, fuzzy regularly α-preclosed set, fuzzy α-precompact set (space), α-preadherent point of a prefilterbase, α-precluster point of a fuzzy net.

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1. Introduction

In [4], fuzzy almost compactness is introduced. In this paper we introduce fuzzy α-precompactness which is weaker than fuzzy almost compactness. Here we use fuzzy net [8] and prefilterbase [6] to characterize fuzzy α-precompactness.

2. Preliminary

Throughout this paper, (X, τ) or simply by X we shall mean an fts. In 1965, L.A. Zadeh introduced fuzzy set [9] A which is a function from a non-empty set X into the closed interval $I = [0, 1]$, i.e., $A \in I^X$. The support [9] of a fuzzy set A, denoted by $suppA$ and is defined by $suppA = \{x \in X : A(x) \neq 0\}$. The fuzzy set with the singleton support $\{x\} \subseteq X$ and the value t $(0 < t \leq 1)$ will be denoted