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α-e-Almost Compact Crisp Subsets of a Fuzzy Topological Space

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Abstract

Fuzzy e-open set is introduced and studied in [8]. Using this concept as a basic tool, in this paper we introduce α-e-almost compactness for crisp subsets of a topological space by using the concept of α-shading initiated by Gantner et.al [12], a generalized version of fuzzy covering. α-almost compactness is introduced in [13]. Here it is shown that α-e-almost compactness implies α-almost compactness [13], but not conversely. To achieve the converse here we introduce α-e-regular space. We characterize α-e-almost compactness via ordinary net and power set filterbases.

AMS Subject Classifications: 54A40, 54D20.

Keywords: Fuzzy e-open set, α-e-almost compact set (space), α-e-regularity, α^e-adherent point of net and filterbase, α-e-interiorly finite intersection property.

1. Introduction

After introducing fuzzy cover and fuzzy compactness by Chang [10], many mathematicians have engaged themselves to introduce different types of compactness by using different types of fuzzy open-like sets. In 1978, Gantner et. al [12] introduced generalized version of fuzzy cover and named it α-shading where $0 < \alpha < 1$. Using this concept as a basic tool, they also introduced α-compactness of a crisp subset of a space X where the underlying structure on X is a fuzzy topology. Afterwards, α-almost compactness [13], α-S-closedness [3], α-s-closedness [5], α-δ_p-almost compactness [4], α-p-almost compactness [6], α-β-almost compactness [7], λ-α-almost compactness [9] are introduced and studied.