MAPPINGS AND COVERING PROPERTIES
IN L-TOPOLOGICAL SPACES

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Received 09:06:2009 : Accepted 15:10:2009

Abstract

The behavior of various types of noncompact covering properties such as paracompactness, metacompactness, subparacompactness, submetacompactness, etc., are studied under various types of fuzzy mappings such as open map, closed map, perfect map, etc. Moreover the concept of para-Lindelof space is introduced in L-topological spaces and its properties and behavior under maps are obtained.

Keywords: Paracompactness, Metacompactness, Subparacompactness, Submetacompactness, Para-Lindelofness, Perfect maps.

2000 AMS Classification: 54 D 20, 54 A 40.

1. Introduction

Zadeh [24] introduced fuzzy sets as a generalization of ordinary sets by means of membership functions. The concept of fuzzy set offers us a new framework of set theory, and in this new framework we are generalizing many of the concepts of general topology which form the content of fuzzy topology. In fact fuzzy topology, which was introduced by Chang [7], comes as a generalization of general topology.

The concept of compactness is one of the most important concepts in general topology. Locally finite families, point finite families, discrete families and locally countable families etc. are used to define several covering properties, namely, paracompactness, metacompactness, subparacompactness, submetacompactness, and para–Lindelofness, respectively. The class of paracompact spaces was introduced by J. Dieudonne in 1944 [9] as a natural generalization of compactness. Metacompact spaces were introduced by Arens and Dugundji in 1950 [1]. The concept of subparacompact spaces was introduced by McAuley [17], and further studies were conducted by Burke [6] and Creede [8]. In 1965, Worrel and Wicke [22] introduced the concept of θ- refinability and submetacompactness. The para–Lindelof space was introduced by J. Greever [11] in 1968.

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