

ON LOWEN'S COMPACTNESS IN FUZZY CLOSURE SPACES

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Abstract

In this note, we extend Lowen's notion of fuzzy compactness to fuzzy closure spaces and introduce some weak forms of compactness, namely almost compactness, near compactness, countable compactness and light compactness in fuzzy closure spaces. We obtain some equivalent characterizations of these notions and some implications.

Keywords: Fuzzy closure space, Lo-fuzzy compact, Lo-fuzzy almost compact, Lo-fuzzy nearly compact.

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1. Introduction

Fuzzy closure spaces (fcs for short) were first introduced and some of their fundamental properties studied by Mashour and Ghanim [5]. Among these, compactness was one of the important notions considered. They extended Chang's notion of compactness [2] to fuzzy closure spaces and introduced some weak forms of compactness, i.e. almost compactness and near compactness. In [3], Çoker and Eş introduced some other kinds of compactness, namely light compactness and countable compactness in fuzzy closure spaces, and they discussed some implications.

In this paper we adopt definition VII of Lowen [4], termed Lowen "fuzzy compact," and adapt this and the above-mentioned dilutions to fuzzy closure spaces. We obtain some equivalent characterizations and implications.

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