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*m*-IRRESOLUTE MULTIFUNCTIONS IN FUZZY  
*m*-SPACES

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**Abstract.** In this paper a new type of fuzzy multifunction is introduced between a topological space and a fuzzy *m*-space [1]. In Section 4, several characterizations of this newly defined multifunction are done and in the last section some applications of it are shown.

## 1. Introduction

Fuzzy irresolute multifunction is introduced and studied in [7] between a topological space and a fuzzy topological space (fts, for short) in the sense of Chang [8]. The concept of minimal structure has been introduced in the paper [14]. In this paper instead of fuzzy topological space we use fuzzy *m*-space introduced by Alimohammady and Roohi [1] as follows : A family  $\mathcal{M}$  of fuzzy sets in a non-empty set  $Y$  is said to be fuzzy minimal structure on  $Y$  if  $\alpha 1_X \in \mathcal{M}$  for every  $\alpha \in [0, 1]$ . A more general version of fuzzy minimal structure (in the sense of Chang) are introduced in [6, 17] as follows : A family  $m$  of fuzzy sets in a non-empty set  $Y$  is a fuzzy minimal structure on  $Y$  if  $0_X \in m$  and  $1_X \in m$ . Then  $(Y, m)$  is called fuzzy minimal space (fuzzy *m*-space, for short).

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**Keywords and phrases:** Fuzzy *m*-space, fuzzy upper (lower) *m*-irresolute multifunction, fuzzy *m*-semiopen set, fuzzy *m*-semicompact set, fuzzy *m*-*S*-closed set, *s*-frontier of a set.

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- [22] Pu, Pao Ming and Liu, Ying Ming, Fuzzy topology I. Neighbourhood structure of a fuzzy point and Moore-Smith convergence, *J. Math. Anal. Appl.*, **76** (1980), 571-599.
- [23] Thompson, T.;  $S$ -closed spaces, *Proc. Amer. Math. Soc.* **60** (1976), 335-338.
- [24] Zadeh, L.A., Fuzzy sets, *Inform. Control*, **8** (1965), 338-353.

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