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SEPARATION AXIOMS ON BIPOLAR FUZZY ROUGH TOPOLOGICAL SPACES

S. Anita Shanthi and M. Saranya

Department of Mathematics,
Annamalai University,
Annamalainagar - 608002, Tamil Nadu, INDIA

E-mail : shanthi.anita@yahoo.com

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Abstract: In this paper we introduce separation axioms on bipolar fuzzy rough (BFR) topological spaces using the concept of bipolar fuzzy rough points and establish some of their properties.

Keywords and Phrases: Bipolar fuzzy rough open and closed sets, bipolar fuzzy rough point, bipolar fuzzy rough subspaces, bipolar fuzzy rough closure, bipolar fuzzy rough separation axioms.

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1. Introduction

The theory of rough sets was proposed by Pawlak [8, 9]. It is an extension of set theory for the study of systems characterized by insufficient and incomplete informations. A key notion in Pawlak rough set model is equivalence relation. The equivalence classes are the building blocks for the construction of lower and upper approximations. By replacing the equivalence relation by an arbitrary binary relation, different kind of generalization in Pawlak rough set models were obtained. In [3, 4, 7], the concept of fuzzy rough sets were studied by replacing crisp binary relations with fuzzy relations on the universe. Yong Chan Kim [10] introduced the separation axioms of fuzzy topological spaces using R-fuzzy semi-open (closed) sets. Mathew and John [2] developed general topological structures on rough sets.