ON L-FUZZY TOPOLOGIES INDUCED BY L-G-FILTERS

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Abstract: This paper addresses L-fuzzy topologies induced by L-G-filters and studies the categorical relations between L-G-filter spaces and L-fuzzy topological spaces. Three functors from the category of L-G-filter spaces to the category of L-fuzzy topological spaces are obtained. Having introduced the concept of monotone L-fuzzy topologies, the study inquires into the sum, subspace, product, quotient and the lattice structure of such topologies.

Keywords and Phrases: Residuated lattice, Functor, Monotone.

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1. Introduction

In 1968, Chang [4] introduced the concept of fuzzy topological spaces. Later, Höhle [6] developed the idea of fuzzification of topological spaces. Subsequently Kubiak [16] and Šostak [19] independently developed the notion of L-fuzzy topological spaces. Later Kubiak and Šostak [17] extended this notion to LM-fuzzy topological spaces. In 2007, Yue [21] defined product, sum and quotient space of LM-fuzzy topological spaces and studied several subcategories of LM-fuzzy topological spaces.