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INTUITIONISTIC TOPOLOGICAL SPACES WITH L-GRADATIONS OF OPENNESS AND NONOPENNESS WITH RESPECT TO LT-NORM T AND LC-CONORM C ON X

Marzieh Mostafavi

Department of Mathematics,
University of Qom, Qom, IRAN

E-mail : mmostafavi14279@gmail.com

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Abstract: In this paper, we assume that $L =< L, \leq, \bigwedge, \bigvee, ' >$ is a complete distributive lattice set with at least 2 elements and $(L, +)$ is also an additive group. We introduce an LT-norm T and an LC-conorm C on the lattice set L (briefly $L(T, C)$-norm). Furthermore using this norm, we define spiral LT-norm and spiral LC-conorm of any countable sequence in L. Also we introduce $IL(T, C)$-gradations of openness on X which X is an L-fuzzy subset of a nonempty set M and we prove that the set of all $IL(T, C)$-gradations of openness on X is a semicomplete lattice. We introduce intuitionistic L-fuzzy topological space with L-gradation of openness and nonopenness with respect to the $L(T, C)$-norm (briefly $ILG(T, C)$-fuzzy topological space). As an example we define an $IL(T, C)$-fuzzy subspace of $\Lambda\mathbb{R}^m$, the exterior algebra on $\mathbb{R}^m$.

Keywords and Phrases: Spiral LT-norm, intuitionistic L-fuzzy subset, intuitionistic L-fuzzy subgroup with respect to the norm $L(T, C)$-norm, intuitionistic L-gradation of closeness and noncloseness with respect to $L(T, C)$-norm.

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1. Introduction and Preliminaries

Fuzzy topology was defined by Chang [10] as a generalization of the concept of fuzzy sets introduced by Zadeh [43]. In consequence of the development of fuzzy