Abstract No: LAT1

A STUDY ON LATTICE OF OPEN SETS.

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For any lattice L, Frink and Balachandran introduced the concept of prime/irreducible elements in a continuous lattice while dealing with a problem of Birkhoff on ideals. Later manyauthors continued the study of prime elements in a lattice in different contexts. Of these, Gierz introduced the concept in such a way that; an element a belongs to L is prime if it cannotbe written as intersection of two greater elements of it. Now extending the idea of primeelement in a lattice to any arbitrary topological space is worthful. Motivated by definition of prime element by Gierz we introduced a new collection of open sets called prime open sets. In present work we have attempted to study problems related to prime/ irreducible open sets in the lattice of open sets of any arbitrary topological space and consider the study on some generalised concepts of open and closed sets. Also we consider various aspects of continuous transformations and separation axioms. Introduced a new kind of topological spaces called prime topological spaces and analyzed its lattice structure behavior also.

Abstract No: LAT2

A SUBSPACE OF SPECTRUM OF L WITH RESPECT TO L-SLICE FOR A LOCALE L

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Given a locale L and a join semilattice J with bottom element 0_J, a new concept (σ, J)called L-slice is defined, as an action σ of the locale L on the join semilattice J. The L-slice(σ, J) of a locale L adopts some topological properties such as compactness through the actionσ.We have shown that for each $x \in (\sigma, J), \sigma_x: (\sqcap, L)(\sigma, J)$ is an L-slice homomorphism andthe

collection $M = \{\sigma_x;\ x \in (\sigma, J)\}$ is a L-subslice of $\big(\delta; L - Hom(L; J)\big)$.The map $x \to \sigma_x$is an L-slice isomorphism between the L-slices (σ, J) and (δ, M).The notion of compactnessin the L-slice $(\sigma,\ J)$ is introduced and we have shown that L-slice compactness is strongerthan topological compactness and localic compactness. We have constructed a subspace Y ofspectrum $Sp(L)$ of L using filters F_x for compact elements $x \in (\sigma,\ J)$ and the compactness ofthe subspace Y is charecterized using the existence of maximal compact element in the L-slice$(\sigma,\ J)$.

Abstract No: LAT3

FRAMES ASSOCIATED WITH SHIFT-INVARIANT SPACES ON LOCAL FIELDS OF POSITIVE CHARACTERISTIC

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A shift-invariant space is a space of functions that is invariant under all translations. A variety of such spaces have been used successfully in bothpure and applied mathematics. They play an important role in modern analy-sis because of their rich underlying theory and their applications in many areas of contemporary mathematics, such as wavelets, spline systems, Gabor systems,theory of frames, approximation theory, numerical analysis, digital signal andimage processing, nonuniform sampling problems, and so on. The general results in Euclidean spaces to characterize tight frame generators for the shift-invariant subspaces was studied by Labate [A unified characterization of reproducing systems generated by a finite family, J. Geom. Anal. 12 (2002), 469-491]. Some applications of this general result are then obtained, among which are the characterization of tight wavelet frames and tight Gabor frames. As for the corresponding counterparts for a local field K, such results are not yet reported. So in this paper, we extend these concepts to local fields of positive characteristic.We establish some necessary and sufficient conditions under which shift-invariant systems become frames in $L^2(K)$ and, we use these results to give some necessary conditions and sufficient conditions for Gabor frames and wavelet frames on local fields of positive characteristic.

Abstract No: LAT4

SOME PROBLEMS ON REVERSIBLE L-FRAMES

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In this paper we introduce the concept of reversible L- Frames as a generalization of reversible Frames and reversible L-Topological spaces. Some useful characterization theorems for reversible L- Frames are introduced.The connection between reversible L-Frames with Reversible frames and Reversible L-topological spaces are also studied. Some class of reversible L- Frames are obtained. Some maximal and minimal properties of L-Frames in reversible context are also studied.

Abstract No: LAT5

ON SINGLY GENERATED EXTENSION OF CONNECTED FRAMES

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Point-free topology is the study of topology where open-set lattices are taken as the primitive notion instead of points in the underlying space. The main object of study in Point-free topology is the complete lattice in which finite meets distributes over arbitrary joins. This latter kind of lattice is called a frame. Generating a new frame from an existing frame by adding a single element has been studied by many authors. In this paper we establish a necessary and sufficient condition for the inheritance of connectedness property by the singly generated extension of a connected frame. Using this we give some characterizations of maximal connected frames.

Abstract No: LAT6

THE RELATION GRAPHS OF FINITE LATTICES

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The relation graph of a finite lattice L is defined to be a simple graph with the elements of L as vertices and two distinct vertices are adjacent if and only if they are comparable in L. We investigate the properties of relation graphs and characterize those lattices whose relation graphs are complete. It is established that relation graphs cannot be triangle free. The association between the relation graphs of isomorphic graphs is studied. Certain parameters of the relation graph,such as radius, diameter and connectivity, are also explored. There is a class of graphs associated with lattices,known as diagraphs. (Note that diagraphs are entirely different from digraphs or directed graphs).A comparitive study of the relation graph and diagraph of a finite lattice is carried out.

Abstract No: LAT7

ON COMPLEMENTATION PROBLEM AND NUMBER OF ULTRA L-TOPOLOGIES IN THE LATTICE OF L-TOPOLOGIES

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In this paper, we study the lattice structure of the lattice F_X of all L-topologies on a given nonempty set X when membership lattice L is a bounded chain. It is proved that if X is a finite set and L is a finite chain, then the lattice F_X is complemented. Also we identify all the ultra L-topologies and their number in the lattice F_X.