



The 33 conference of Topology and its Applications

MATHEMATICAL DEPARTMENT, FACULTY OF
SCIENCE, BENHA UNIVERSITY.

▶▶▶
29 July 2021





33rd Conference of Topology and its Applications
The Conference will be held Online
29 July 2021, Benha, Egypt.



The 33rd conference of Topology and its Applications

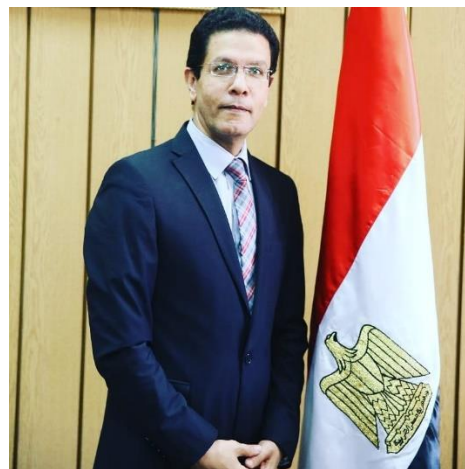
29 July 2021
9:00AM to 4:30 PM
(Cairo local time)
Online Conference

Department of Mathematics, Faculty of Science, Benha University

Under the Auspices of

Prof. Dr. Nasser Khamis Barakat El-Gizawy

President of Benha University





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9:00-10:00 Opening Conference



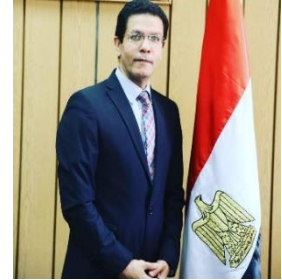
**Prof. Dr. Abd Elshafy
Abadh**
**President of Egyptian
Society of Mathematics**



**Prof. Dr. Khaled Abdelhamid
Hashem**
**Head of Department of
Mathematics**
**Faculty of Science, Benha
University**



**Prof. Dr. Loutfy Abou-
Salem**
**Dean of Faculty of
Science, Benha
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**Prof. Dr. Nasser Khamis
El-Gizawy**
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**Prof. Dr. Mohamed Hosny
Ghanim**
Department of Mathematics
**Faculty of Science, Zagazig
University**



Prof. Dr. Ali Kandil
Department of Mathematics
Faculty of Science, Helwan University



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نبذة عن علم التوبولوجي وتطبيقاته

التوبولوجي يصنف علي إنه فرع من فروع الرياضيات البحتة , دخل مجال الفكر الانساني بسبب قضايا خلافية في التحليل الرياضي حول نقاط النهاية والاتصال وقضايا ذات طبيعة هندسية ولكنها لا تتأثر بتغير الخصائص الهندسية مثل القناطر السبعة وصيغة أويلر لمتعددات السطوح , تلوين الخرائط , والسطوح ذات الوجه الواحد , هذه القضايا لفتت الأنظار إلي الحاجة لنظريه جديده لتكون بوجه عام والاشكال الهندسية بوجه خاص , فنشأت نظرية الفضاءات التوبولوجية التي تعتبر الشكل الهندسي لمجموعه من النقاط المترابطة , والفضاء التوبولوجي مجموعته من النقاط عليها بنيه , يمكن بواسطتها قياس القرب والبعد والإتصال دون الاعتماد علي المسافات , وبذلك لاتتأثر الأشكال بالتمدد او الانكماش , ولهذا يطلق علي التوبولوجي هندسة الشرائح المطاوية. وينقسم التوبولوجي الي عدة فروع منها التوبولوجي الجبري، والهندسي والتفاضلي، وحديثا اتسعت مجالات تطبيقات فروعته المختلفة في البيولوجيا وخاصة للمشاركة لعرض حلولاً لجائحة فيروس كورونا المستجد وعلم النفس وعلوم الحاسب , وأنظمة المعلومات وتحليل البيانات الي جانب اتجاهات أخرى.

في طريق العلم نسعى لتتعلم وكلما زاد سعينا زاد شعورنا بالنقص وعدم الاكتمال...

ندعو الله ان ينعم علينا بالاستفادة مما نتعلم.



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عن مجموعة التوبولوجي المصرية

أسس المجموعة المغفور له بإذن الله الأستاذ الدكتور علي سالم مشهور (1933-1997) بجامعة أسيوط في النصف الثاني من العقد السابع للقرن العشرين , وبدأت لقاءاتها بالندوة الأولى عام 1983 بمعهد الإحصاء جامعة القاهرة, وتوالت الندوات والمؤتمرات بكثير من الجامعات المصرية, واليوم انتشرت المجموعة في معظم جامعات مصر وأعضاء من الأردن وفلسطين والعراق وليبيا واليمن والسعودية , وتعدّد حلقات نقاش أسبوعيّه وتعددت اتجاهات بحوثها النظرية والتطبيقية وتفاعل أعضائها مع باحثين من كليات الهندسة والحاسبات والطب ومعهد الإحصاء.



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Invited speaker's session

10:10-10:30	Applications of Pretopology Prof. Dr. Abdelmoneam Kozae, Tanta University, Egypt
10:30-10:50	Research Direction in Topological Arab School Prof. Dr. Arafa Nasef, Kafr El Shiekh University, Egypt
10:50-11:10	Neutrosophic Knowledge Prof. Dr. Ahmed A. Salama, Port Said University, Egypt
11:10-11:30	Neutrosophic Topologies Generated by Neutrosophic Relations Soheyb Milles, Barika University, Algeria



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Oral Session I

Chairman: Prof. Dr. Abdelmoneam Kozae (Tanta University)

12:00-12:15	Soft β -rough sets and their application to determine COVID-19 Abd El Fattah El Atik, Tanta University
12:15-12:30	Some degree-based topological indices of Sierpinski graphs Ayman Ammar, Tanta University
12:30-12:45	On Alexandrov L-fuzzy nearness Enas Hassan Samy Elkordy and Ahmed A. Ramadan, Bani Suef University
12:45-1:00	Strong semilattices of topological fibrewise partial groups. Ahmed Fathy Ahmed Khalel, Al Azhar University
1:00-1:15	Covering for some types of matroidal structure via rough sets Ashgan Wahba, Tanta University
1:15-1:30	Relation ls between t-proximity and t-syntopogenous structures. Khaled A. Hashem, Benha University
1:30-1:45	Neutrosophic Dynamic Set. Hatem Elagamy



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Oral Session II

Chairman: Prof. Dr. Ahmed Abd Elkader Ramadan (Bani Suef University)

2:00-2:15	New Approach of Fuzzy Soft Sets in Real Life Problems. Roshdey Mareay, Kafr El Shiekh University
2:15-2:30	Some Games via Grill-semi-P- Open Sets. Rana Bahjat Esmaeel Mahdi, University of Baghdad College of Education of Pure Sciences- Ibn Ahithm Department of mathematics. Iraq
2:30-2:45	ON L-FUZZY PRE-PROXIMITIES AND L-FUZZY CLOSURE OPERATORS. Reham Mohamed Ahmed Mohamed, Bani Suef University
2:45-3:00	On soft topological groups and soft continuous functions Essam Hamed Hamouda salem, Bani Suef University
3:00-3:15	Topological approach for decision-making of COVID-19 infection via a nano-topology model. Mostafa Kamel El-Bably, Tanta University
3:15-3:30	P-beta-connectedness in grill topological spaces Atef Ali Hussien, Assuit University



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Join Zoom Meeting:

<https://us04web.zoom.us/j/71692682093?pwd=WkQ0d2traIVWc1VCTC9WVGVOaVkJ2UT09>

[Meeting ID: 716 9268 2093](#)

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Scientific Committee

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President of Benha University

Prof. Dr. Loutfy Abou-Salem

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Vice Dean for Graduate Studies and Research

Faculty of Science, Benha University

Prof. Dr. Khaled Hashem

Head of Mathematics Department, Faculty of Science,

Benha University

Organizing Committee

Assis. Prof. Dr. Abd El Fattah El Atik (Tanta University)

Mr. Ahmed Sweilem Rahby (Benha University)

Mr. Samy El-Sayed Affan (Benha University)

Mr. Reda Ghanem (Benha University)



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Invited speaker's session abstracts

PRETOPOLOGICAL MODELING FOR REAL LIFE APPLICATIONS

Abdelmonem Kozae

Pre topology is a generalized structure for topology via a map on the power set satisfying only the first two conditions of Koratowski closure operator. This map is a step by step computation for the concepts near and far of an element to a set without using distance.

The aim of the talk is to spot light on constructing a pre topology from real life information system, and give an account on some fields of applications of pre topology which contains , economic , biology , image processing and stochastic analysis .

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Research direction in topological Arab school MEDHAT

Arafa Nasef

The main aim is to explain the connection between general topology with some other fields in mathematics. This direction of study helps topologists to present many applications and solutions to some real-life problems.

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Neutrosophic Knowledge

Ahmed A. Salama

Neutrosophic Knowledge and many applications in Mathematics, Statistics, Computer Sciences and Information systems.





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Neutrosophic Topologies Generated by Neutrosophic Relations

Soheyb Milles

In a recent paper, Mishra and Srivastava have introduced and studied the notion of fuzzy topology generated by fuzzy relation and some basic properties were proved. In this work, we generalize this notion to the setting of neutrosophic sets. Moreover, some fundamental properties and necessary examples are given. As applications, we provide characterizations of the lattice structure composed of neutrosophic topologies generated by neutrosophic relations.

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Oral Session abstracts

1- Some degree-based topological indices of Sierpinski graphs

Ayman Ammar

Topostructural indices have an essential role in mathematical chemistry, drugs designs and medicines. In this paper, we study some of topostructural index of the generalized two-dimensional base-3 Sierpinski graph with side length b . A generalized recursive relation of rank n and $n - 1$ will be used to compute the explicit formula for the First Zagreb index, Second Zagreb index, Randi connectivity index, Sum-connectivity index, Geometric-Arithmetic index and Atom-Bond Connectivity index of the generalized two-dimensional base-3 Sierpinski graph at any step time n .

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2- On Alexandrov L-fuzzy nearness

Enas Hassan Samy Elkordy

The aim of this paper is to introduce and study the concepts of L-fuzzy nearness, L-fuzzy pre proximities and L-fuzzy topological spaces in complete residuated lattices. Moreover, we investigate the relations among the L-fuzzy nearness, L-fuzzy pre-proximities, L-fuzzy closure operators and L-fuzzy interior operators. We show that there is a Galois correspondence between the category of separated L-fuzzy topological structures and that of separated L-fuzzy nearness, L-fuzzy pre-proximity spaces.

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3- Strong semilattices of topological fiberwise partial groups

Ahmed Fathy Ahmed Khalel

In this paper, we introduce the concept of fiberwise topological partial group and discuss some of its basic properties. Also, we introduce the notion of strong semilattices of topological fiberwise group and discuss the product and the quotient in strong semilattices of topological fiberwise group.

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4- Covering for some types of matroidal structure via rough sets

Ashgan Wahba

In this paper, partition simplicial matroids, and function simplicial matroids are constructed from a simplicial complex. Furthermore, another partition matroid is given using rough sets and equivalence relations. The induced partition simplicial matroid is the direct sum of their uniform matroids is generated by an order relation through the right neighborhoods of this relation. If the direct sum of g -rank simplicial matroids on the covering block. The relationship between covering simplicial matroid is established via the upper approximation number and the matroidal structure





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of the covering-based rough set. The ranl function is used to introduce a pair of approximation operators called matriod approximation operators.

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5- Relation Is between t-proximity and t-syntopogenous structures

Khaled A. Hashem

The t-proximity relate t-syntopogenous through . . .

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6- Neutrosophic Dynamic Set

Hatem Elagamy

In this paper, we introduced the concept of the dynamic set according to modern logic, is neutrosophic logic. We study the neutrosophic dynamic set according to time. And random variable depended on dynamic set. Neutrosophic dynamic is a dynamic analysis of a sequence of data through of time. It's used in many problems in life such as a mathematical statistic, philosophy, medicine, engineering. Some examples and notes are presented.

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7- New Approach of Fuzzy Soft Sets in Real Life Problems

Roshdey Ali Mareay

In our daily life, we often face some problems in which the right decision making is highly essential. But most of these cases we become confused about the right solution. To obtain the best feasible solution of these problems, we have to consider various parameters relating to the solution.





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For this, in our paper we can use the best mathematical tool namely fuzzy soft set theory in decision making.

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8- Some Games via Grill-semi-P- Open Sets

Rana Bahjat Esmaeel Mahdi

In this paper some kind of games through open collection G -spo set are presented by using grill topological space. And via these sets Some kind of games are defined which is Game $(G-SP- T_i, X)$,when $i=\{0,1,2\}$. By using many figures and proposition, the relation between these types of games has been studied with explaining some examples.

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9- ON L-FUZZY PRE-PROXIMITIES AND L-FUZZY CLOSURE OPERATORS

Reham Mohamed Ahmed Mohamed

In this paper, we introduce the notions of L-fuzzy pre-proximities, and L-fuzzy closure operators in complete residuated lattices. Moreover, we investigate the relations among the L-fuzzy pre-proximities, L-fuzzy closure operators and L-fuzzy co-topologies. We show that there is a Galois correspondence between the category of separated L-fuzzy closure spaces and that of separated L-fuzzy pre-proximity spaces.

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10-P-beta-connectedness in grill topological spaces





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Atef Ali Hussien

A grill-P beta -connectedness is more generalization of P beta -connectedness and connectedness and amounting to grill-preconnectedness. The properties of this motif are studied and its relationship with other forms of grill-connectedness. Grill locally preindiscrete spaces are defined as the spaces in which grill-preopen sets are grill-closed. In these spaces, grill connectedness becomes amounting to grill preconnectedness and hence to grill-P beta-connectedness, and grill-semi-connectedness becomes equivalent to grill-P beta-connectedness. The motif of locally grill-P beta-connected space is introduced.

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11- Soft β -rough sets and their application to determine COVID-19

Abd El Fattah El Atik

Soft rough set theory has been presented as a basic mathematical model for decision-making for many real-life data. However, soft rough sets are based on a possible fusion of rough sets and soft sets which were proposed by Feng et al. [20]. The main contribution of the present article is to introduce a modification and a generalization for Feng's approximations, namely, soft β rough approximations, and some of their properties will be studied. A comparison between the suggested approximations and the previous one [20] will be discussed. Some examples are prepared to display the validness of these proposals. Finally, we put an actual example of the infections of coronavirus (COVID-19) based on soft β -rough sets. This application aims to know the persons most likely to be infected with COVID-19 via soft β -rough approximations and soft β -rough topologies.

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12- Covering for some types of matroidal structures via rough sets

Ashgan Wahba

Matroid models can be used to represent complex systems that are originated and suitable in real-life solutions. In this paper, partition simplicial matroids, covering simplicial matroids, and function simplicial matroids are constructed from a simplicial complex, say σ . Furthermore, another partition matroid is given on σ using rough sets and equivalence relations. The induced partition simplicial matroid is the direct sum of their uniform matroids on equivalence classes. Covering simplicial matroids is generated by an order relation on σ and using to cover σ through the right neighborhoods of this relation. It is the direct sum of some g -rank simplicial matroids on the covering block. The relationship between covering simplicial matroids and covering-based rough sets is studied. Finally, a function simplicial matroid is established via the upper approximation number and the matroidal structure of the covering-based rough set. The rank function is used to introduce a pair of approximation operators called matroid approximation operators.

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13- On soft topological groups and soft continuous functions

Essam Hamed Hamouda salem

Function spaces play an important role in topology. Therefore, it seems desirable to study function spaces also in soft topology. Let $SC(X, Y)$ be the set of all soft continuous functions from a soft topological space X into a soft topological space Y . Our goal in this paper is to study the notions of abstract group, soft group, topological group and soft topological group structure on the soft function space $SC(X, Y)$.

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14- Topological approach for decision-making of COVID-19 infection via a nano-topology model

Mostafa Kamel El-Bably

The conditions of the equivalence relation limit the application fields of the methodology of Pawlak's rough sets. So, to expand the application areas of this theory, it is generalized to any binary relation. Neighborhoods induced from the relations represent a core bridge between rough sets and application since it represents easy tools for dealing with daily-life problems. Accordingly, the first core objective of the current research is to propose a novel neighborhood (so-called an initial-neighborhood) generated from any





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binary relation. Based on this neighborhood, we suggest a new generalization to Pawlak rough sets and some of their extensions. The proposed approaches satisfy all properties of classical rough sets without adding any extra restrictions and hence we can apply them in any real-life problem. The second aim is to generalize the notion of nano-topology into any binary relation to extend the applications of this concept. Properties of the suggested methods are introduced with many counterexamples. Comparisons between the suggested techniques and the other studies published in the literature are examined. We proved that the proposed techniques are extra precise than the earlier approaches. Finally, the medical application of COVID-19 is provided to illustrate the significance of our approaches in deciding the impact factors for COVID-19 infection. The proposed application is based on a reflexive relation, so Pawlak rough sets and some of its generalizations couldn't be applied to solve this problem. Accordingly, we have successes in solving this problem using the suggested techniques. Hence, we write an algorithm to be a useful tool that may help the doctor in diagnosing the infection of COVID-19.

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