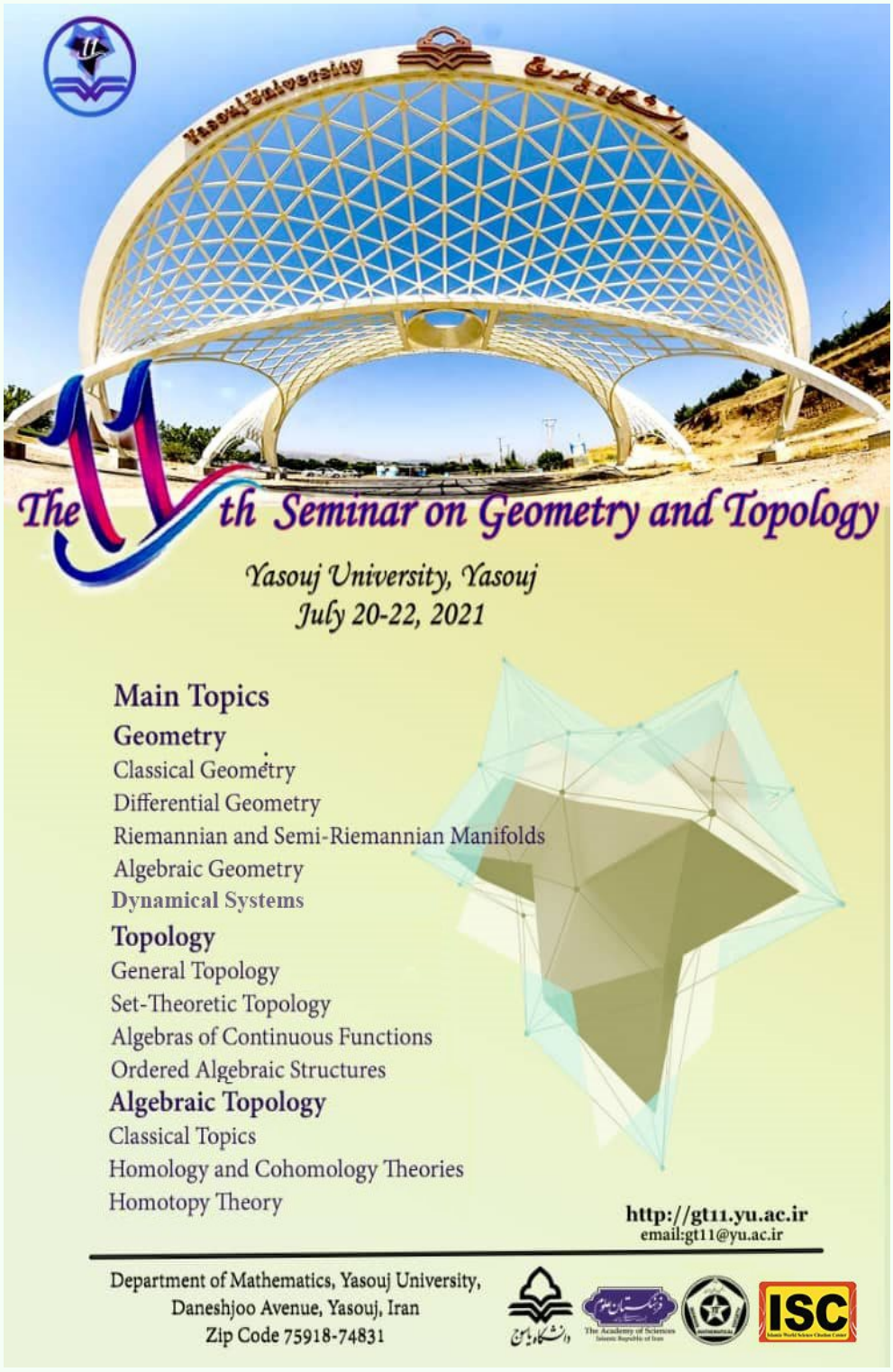
Booklet of Programs and Abstracts

The 11th Seminar On Geometry And Topology

Part II: English Papers




#بسم_الله_الرحمن_الرحيم
IN THE NAME OF GOD,
THE BENEFICENT, THE MERCIFUL.

Contents

Booklet of Programs and Abstracts

The 11th Seminar On Geometry And Topology
Department of Mathematics, Yasouj University
20-22 July 2021, Yasouj, Iran

This booklet includes the list of names of the members of the Scientific and Executive Committee, the seminar programs and the collection of articles that have been presented in the form of lectures and poster in this seminar. It should be noted that these articles have been presented as an extended abstract in the seminar and only the abstract of these articles has been included in this booklet.

1. The Scientific and Executive Committees

List of names of the members of the Scientific and Executive Committee

Name	Position
Dr. Ahmad Oryan	Yasouj University President (and the hed of seminar)
Dr. Morteza Montazerzohori	The Vice president for Research and Technology of Yasouj University (and the representative of the university in the executive affairs of the seminar
Dr. Ehsan Momtahan (Yasouj University)	Chairman of the Scientific Committee Member of the Executive Committee
Dr. Mehdi sharifzadeh (Yasouj University)	Chairman of the Executive Committee Member of Scientific Committee Member of the Referee Committee Responsible for the Secretariat
Dr. Alireza Olfati (Yasouj University)	Member of Scientific Committee Member of the Executive Committee Member of the Referee Committee Responsible for the website
Dr. Ali Taherifar (Yasouj University)	Member of Scientific Committee Member of the Executive Committee Member of the Referee Committee
Dr. Meysam Asadipour (Yasouj University)	Member of the Executive Committee Responsible for communicating with participants
Dr. Aliakbar Nikookar (Yasouj University)	Member of the Executive Committee Responsible for the IT
Mr. Rooholah Zareei	Site Designer https://saminhamayesh.ir/
Ms. Nooshin Ranjbar	Member of the Executive Committee Site technical manager
Ms. Shohreh Sharifzadeh	Seminar poster and logo designer
Dr. Mohamad Abri *(Damghan University)* Dr. Saeid Azam *(Esfahan University)* Dr. Mohamad Akbari Tootkaboni *(Guilan University)* Dr. Mohammad Jelodari Mamaghani	Member of Scientific Committee Member of the Referee Committee

(Allameh Tabatabaei University) Dr. Sajjad Lakzian *(Isfahan University of Technology)* Dr.Behrooz Mashayekhy Fard *(Ferdowsi University of Mashhad)* Dr. Fereshteh Malek *(Khaje Nasir Toosi University of Technology)* Dr. Mehrdad Namdari *(Shahid Chamran University)* Dr. Meysam Nassiri *(Institute for Research in Fundamental Sciences)* Dr. Behzad Najafi Saghezchi *(Amirkabir University of Technology)* Dr. Bijan Honari *(Amirkabir University of Technology)* Dr. Hamid Rezaei *(Yasouj University)* Dr. Hossian Abedi Andani *(Bu-Ali Sina University)* Dr. Hassan Haghighi *(Khaje Nasir Toosi University of Technology)* Dr. Mohammad Reza Kooshesh *(Isfahan University of Technology)* Dr. Eugenii Mikhailovich Vechtomov *(Vyatka State University)* Dr. Themba Dube *(University of South Africa)* Dr. Ronnie Levi *(George Mason University)*	

Dr. Yousef Bahrampour *(Shahid Bahonar University)* Dr. Megerdich Toomanian *(Academy of Sciences of Iran)* Dr. Abbas Heydari *(Tarbiat Modares University)* Dr. Omid Ali Karamzadeh *(Shahid chamran university)* Dr. Fariborz Azarpanah *(Shahid chamran university)* Dr. Mojtaba Ghirati *(Yasouj University)* Dr. Mohammad Bagher Kashani *(Tarbiat Modares University)* Dr. Farhang Loran *(Isfahan University of Technology)* Dr. Anthony W. Hager *(Wesleyan University)* Dr. Warren William McGovern *(Florida Atlantic University)* Dr. Karim Boulabiar *(University of tunis El Manar)*	Member of Scientific Committee
Dr. Vahid Pirhadi Dr. Shahab Kalantari Dr. Ali Darabi Dr. Aliakbar Estaji Dr. Aliasghar Rezaee Dr. Mohamad Sal Moslehian Dr. Fatemeh Ayatolah zadeh Shirazi Dr. Mohamadreza Ahmadi Zandi Dr. Hadi Rahbani Dr. Heydar Ali Mardanifar	Member of the Referee Committee

Dr. Masood Aminizadeh	
Dr. Hasan Azadi Kenari Dr. Seyed Abas Mohamadi Dr. Neda Ebrahimi Dr. Mehdi Vatandoost Dr. Rooholah Roozegar Dr. Masoud Bahrami Seyf Abad	Member of the Executive Committee Member of the Referee Committee
Dr. Roghayeh Katani Dr. Ali Iloon Kashkooly Dr. Rahimeh Pourkhandani Dr. Hossein Hosseini Giv Dr. Latif Pourkarimi Dr. Hasan Maleki Dr. Roya Amini Ms. Seyedeh Kobra Asadi	Member of the Executive Committee

2. The Programs of Seminar

Program Of Seminar, 20 July 2021

	Invite Speakers			Specialized Lectures				Invite Speakers		
9–11	11–12	12–14	14–15	15–15:30	15:30–16	16–16:30	16:30–17	17–18	18–19:30	19:30–20:30
Opening	Dr. Omid Ali Karamzadeh *"From my first encounter of the concept of topology until now"*	Rest	Dr. Joust Eschrnburg *"Exceptional symmetric spaces"*	gt11-1009 Hajar Radmanesh	gt11-1014 Neda Izadian	gt11-1018 Amadreza Atari Pol Sangi	gt11-1019 Razieh Darvazeban	Dr. Amir Asghari *"Hakim Omar Khayyam as a geometer"*	Rest	Dr. Chiu-Yen Kao *"Computation of free boundary minimal surfaces via extremal Steklov eigenvalue problems"*
				gt11-1086 Mohamad Taghi Heydari	gt11-1025 Marzieh Roshandel nia	gt11-1026 Tahereh Aladpoush	gt11-1029 Amin Tanhaei Vash			
				gt11-1008 Somayeh Jangjooy Shaldehi	gt11-1010 Marzieh Najafi	gt11-1030 Soham Majidipour	gt11-1032 Mehdi Shams			
				gt11-1020 Seyed Alireza Ahmadi	gt11-1022 Omolbanin Sedaghatfar	gt11-1028 Fereshteh Shahini	gt11-1034 Homa Golvardi Yazdi			
				gt11-1006 Alireza Salehi	gt11-1023 Esmaeil Rostami	gt11-1027 Somayeh Soltanpour	gt11-1040 Maryam Zeynali			

Program Of Seminar, 21 July 2021

Invite Speakers					Posters			Specialized Lectures				Invite Speakers		
9-10	10-11	11-11:30	11:30-12:30	12:30-14	14-15			15-15:30	15:30-16	16:30-16:30	16:30-17	17-18:30	18:30-19:30	19:30-20:30
					14-14:20	14:20-14:40	14:40-15							
Dr. Reza Rezaeian "Elliptic Curves in Number theory and Cryptography"	Dr. Majid Gazor "A bifurcation control of differential systems for geometric and topological analysis of musical chords"	Rest	Dr. Fariborz Azarpanah "The importance of regular elements in C(X)"	Reast		gt11-1007 Mohamd Javad habibi	gt11-1038 Mohamad Nekofar	gt11-1031 Parvaneh Atash Peykar	gt11-1035 Neda Ebrahimi	gt11-1036 Mehran Girani	gt11-1073 Mehdi Vatan doost	Dr. Vechtemov Evgenij Mikhailovich & Dr. Varankina Vera Ivanovna "Absolute determinability of topological spaces by semirings of continuous relations on them"	Reast	Dr. Ljubisa Kochinac "The Alexandroff duplicate and selective topological properties"
					gt11-1046 Mosayeb Zohehvand	gt11-1052 Seyed Alireza Ahmadi	gt11-1056 Masoomeh Tofighi	gt11-1033 Morad Bahari	gt11-1041 Vahid Pirhadi	gt11-1037 Ghorban Ali Haghighat doost	gt11-1043 Seyed Mostafa Bazghandi			
					gt11-1071 Maryam Naderi Parizai	gt11-1074 Ali Pakdaman	gt11-1079 Hojat Afshar	gt11-1015 Alireza Salehi	gt11-1016 Marzieh Najafi	gt11-1053 Kamran Sharifi	gt11-1060 Hojat Afshari			
					gt11-1013 Samaneh Saberali	gt11-1921 Omolbanin Sedaghatfar		gt11-1045 Arezoo Hoseini	gt11-1059 Meysam Asadipour	gt11-1061 Tayebeh Nasri	gt11-1070 Fatemeh Ayatollah Zadeh Shrazi			
								gt11-1064 Mohamad Mahmoodi	gt11-1065 Elham Zangi abadi	gt11-1077 Roya Amini	gt11-1081 Seyed Mehdi Kazemi			

Program Of Seminar, 22 July 2021

Invite Speakers			Specialized Lectures					Invite Speakers			
9-10	10-11	11-11:30	11:30-12	12-12:30	12:30-14	14-14:30	14:30-15	15-16	16-17	17:30-19:30	19:30-20:30
Dr. Somayeh Borjian *"Space-time singularities"*	Dr. Ali Taherifar *"Some topological concepts and their applications in algebra "*	Rest	gt11-1042 Amir Veisi	gt11-1047 Zohreh Nazari	Rest	gt11-1048 Alireza Sedaghat doost	gt11-1017 Farzaneh Alizadeh	Dr. Ali Kamalinejhad *"Distributing Points on Surfaces and Geometric Discrepancy"*	Dr. Reza SeyedAli *"Calabi Flow on Compact Kahler Manifolds "*	Closing	Dr. Mehrdad Shahshahani *"Geometric ideas in number theory"*
			gt11-1044 Mohamad Javad Afshari	gt11-1058 Hajar Gharamani Gol		gt11-1049 Roohollah Bakhshandeh	gt11-1062 Mohamad Parsamanesh				
			gt11-1068 Meysam Jafari	gt11-1080 Naser Golestani		gt11-1078 Zahra Keshtkar	gt11-1050 Seyed Alireza Ahmadi				
			gt11-1055 Arezoo Hosseini	gt11-1076 Mohamad Reza Ahmadi Zandi		gt11-1073 Majid Kokabi	gt11-1039 Nader Asadi Karam				
			gt11-1063 Mohamad Mahmoodi	gt11-1069 Seyed Mehdi Kazemi		gt11-1082 Hamid Gharib	gt11-1085 Mohamad Hadi Moslehi				

3. Invite Speakers

	**Dr. Omid Ali Shehni Karamzadeh** Shahid Chamran University **"From my first encounter with the concept of topology until now"**	July 20, 2021 11:00 AM (Tehran) Opening Lecture

Omid Ali Shehni Karamzadeh
Shahid Chamran University

From my first encounter with the concept of topology until now

	**Dr. Jost-Hinrich Eschenburg** Universitat Augsburg **"Exceptional symmetric spaces"**	July 20, 2021 02:00 PM (Tehran)

Jost-Hinrich Eschenburg
Universitat Augsburg

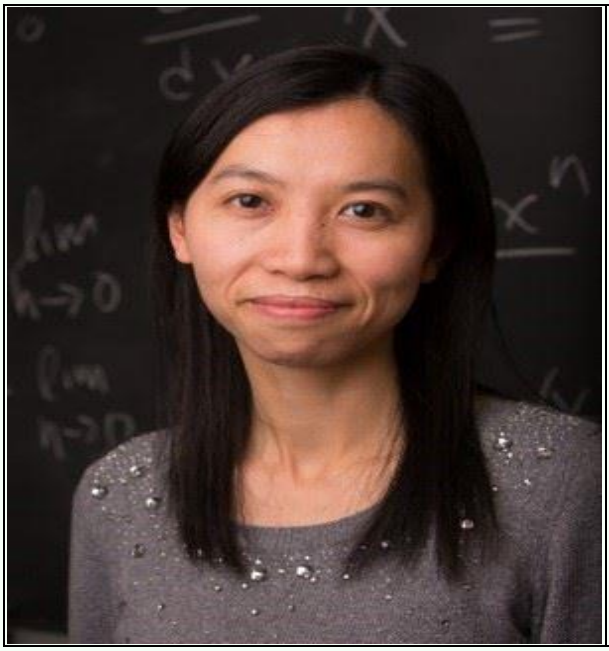
Exceptional symmetric spaces

Symmetric spaces form a very fundamental subject of Riemannian geometry. The main invariant of Riemannian geometry, the curvature tensor, is "constant" (parallel). I confine myself to compact symmetric spaces of non-group type. These spaces have been classified by Élie Cartan 100 years ago. There are seven infinite series of "classical" symmetric spaces which are related to linear algebra over the real, complex and quaternionic numbers: Grassmannians (sets of linear subspaces) and "structures" (e.g. the set of real structures on complex n-space etc.). Besides the classical ones there are 12 single so called "exceptional" spaces which are somehow related to the largest division algebra, the octonionic numbers. The smallest such space (dim. 8) is the set of Quaternionic subalgebras of the octonion algebra. Unfortunately, there is no "linear algebra" over the octonions! Still we would like to give an impression of these 12 spaces and their relation to the octonions, at least on an infinitesimal level (the tangent space with its curvature tensor, i.e the so called Lie triples).

	**Dr. Amir Asghari** Liverpool John Moores University **"Hakim Omar Khayyam as a geometer"**	July 20, 2021 05:00 PM (Tehran)

Amir Asghari
Liverpool John Moores University

Hakim Omar Khayyam as a geometer

	**Dr. Chiu-Yen Kao** Claremont McKenna College **"Computation of free boundary minimal surfaces via extremal Steklov eigenvalue problems"**	July 20, 2021 07:30 PM (Tehran)

Chiu-Yen Kao
Claremont McKenna College

Computation of free boundary minimal surfaces via extremal Steklov eigenvalue problems

Recently Fraser and Schoen showed that the solution of a certain extremal Steklov eigenvalue problem on a compact surface with boundary can be used to generate a free boundary minimal surface, i.e., a surface contained in the ball that has (i) zero mean curvature and (ii) meets the boundary of the ball orthogonally. We develop numerical methods that use this connection to realize free boundary minimal surfaces. Namely, on a compact surface with specific genus and b number of boundary components, we maximize Steklov eigenvalue over a class of smooth metrics with a fixed length. Our numerical method involves (i) using conformal uniformization of multiply connected domains to avoid explicit parameterization for the class of metrics, (ii) accurately solving a boundary-weighted Steklov eigenvalue problem in multi-connected domains, and (iii) developing gradient-based optimization methods for this non-smooth eigenvalue optimization problem. For genus= 0 and $b = 2, , 9, 12, 15, 20$ boundary components, we numerically solve the extremal Steklov problem for the first eigenvalue. The corresponding eigenfunctions generate a free boundary minimal surface, which we display in striking images. For higher eigenvalues, numerical evidence suggests that the maximizers are degenerate, but we compute local maximizers for the second and third eigenvalues with $b = 2$ boundary boundary components and for the third and fifth eigenvalues with $b = 3$ boundary components. (This is joint work with Braxton Osting at University of Utah and E´douard Oudet at LJK, LJK, Universit´e Grenoble Alpes, France).

	**Dr. Reza Rezaeian Farashahi** **"Elliptic curves in number theory and cryptography"**	July 21, 2021 9:00 AM (Tehran)

Reza Rezaeian Farashahi
Isfahan University of Technology

Elliptic curves in number theory and cryptography

Elliptic curves have received a lot of attention throughout the past 4 decades. They have been playing an increasingly important role both in number theory and in related fields such as cryptography. For example, they were used in the proof of Fermat's Last Theorem. They also find applications in elliptic curve cryptography (ECC) and integer factorization. Many researchers became interested in computational problems related to the efficient implementation of the arithmetic of the groups arising from elliptic curves and solving the associated discrete logarithm problems. They have been proposed for applications in cryptography due to their fast group law and because so far no generic subexponential attack on their discrete logarithm problem is known though there are some very efficient algorithms against some very special elliptic curves. Elliptic Curve Cryptography provides greater security and more efficient performance than the first generation public key techniques (RSA and Diffie-Hellman) now in use. ECC is becoming increasingly important in current and future digital technology for various applications such as key management, digital signatures, online banking and secure mobile communications. Elliptic curves and their generalisations are ideally suited for low memory embedded devices such as smart cards. With the rise of mobile computing and the internet, the interest in elliptic curve cryptography is growing rapidly at an international level. The elliptic curve digital signature algorithm is used by Bitcoin. Currently, the elliptic curve secp256k1 with the ECDSA algorithm is used in Bitcoin to ensure that the crypto- currency is only be spent by its authenticated and rightful owner. The isogeny beased cryptography is one of the approaches in post-quantum cryptogra- phy. A post-quantum cryptographic algorithm should be resistant to attacks by large-scale quantum computers. The basic mathematics of isogeny based cryptosystems is the general theory of elliptic curves and isogenies with related computational hard problems. For ex- ample, Supersingular isogeny key exchange uses properties of supersingular elliptic curves and their isogeny graphs to create a Diffie-Hellman like key exchange protocol but resistant to quantum computing attacks. In this talk we give a short introduction to elliptic curves and their applications to computational number theory and in modern public-key cryptography.

	**Dr. Majid Gazor** Isfahan University of Technology **"Topological modeling of tone-color in music: tone-color limit sets and CW complexes"**	July 21, 2021 10:00 AM (Tehran)

Majid Gazor
Isfahan University of Technology

Topological modeling of tone-color in music: tone-color limit sets and CW complexes

We propose a topological approach for timbre (tone-color) modeling of musical sounds using tone-color limit sets and CW complex decompositions. We explain how we hear a cone on a torus and how it is related to the timber of a musical sound. A hearing threshold reduction will cause the partial collapses of these toral cones. In other words, any reduction in your hearing ability will thus cost you to instead hear cones on lower dimensional tori.
We here pay less attention to the convergent speed evolution of audio signals and deal with acoustic signals by observing them as of their phase portraits. In this direction, we introduce a parametric space with a CW structure, where it describes the relative subsound normalized intensity variations and accommodates their qualitative evolutions. We propose a toral manifold for modeling the leading harmonic partials of complex musical sounds as per the *spectral geometric modeling* of their tone-color. The signal of a complex sound would then live in a compact sub-manifold called by *tone-color manifold* of the complex sound. Tone-color manifold is associated with a parameter from the parametric space equipped with the CW structure. Tone-color manifold here is homeomorphic either to a *toral cylinder* or a *cone on a torus*. The toral dimension N of the tone-color manifold is associated with the number of subsounds. Subsounds of a complex sound always converge either to an attracting N-torus or to the origin. The attracting tori are called by the *time-forward tone-color limit set* of the sound.
Keywords: CW complexes; Foliation and leaf manifolds; Timbre; Tone-color limit sets.
AMS Mathematical Subject Classification [2010]: 55U10; 34H20; 57N15.

	**Dr. Fariborz Azarpanah** Shahid Chamran University **"Importance of regular elements of C(X)"**	July 21, 2021 11:30 AM (Tehran)

Fariborz Azarpanah
Shahid Chamran University

Importance of regular elements of C(X)

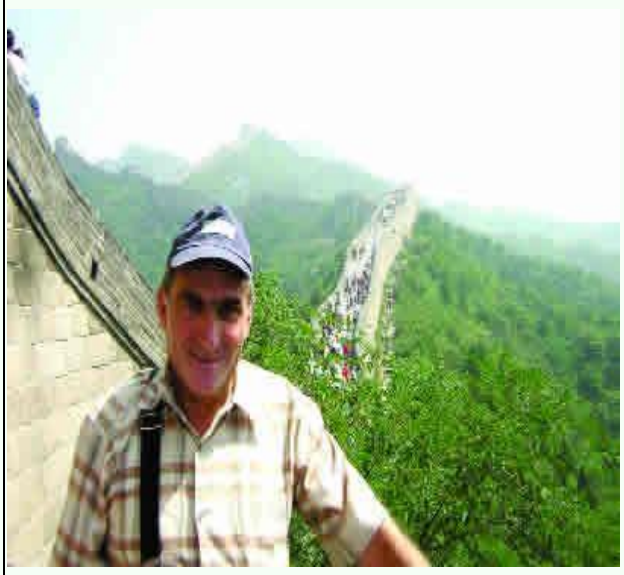
We are to reveal the important role of regular elements of $C(X)$. First we see that different maximal ideals of $C(X)$ may be characterized by these elements. Next we introduce regular sequences in modules and investigate these sequences in $C(X)$. Finally we find the depth of C(X) and more generally the depth of any $C(X)$-module which is the largest length of regular sequences in the respective ring or module.

 	**Dr. Eugenii Mikhailovich Vechtomov** **&** **Dr. Varankina Vera Ivanovna** Vyatka State University **"Absolute determinability of topological spaces by semirings of continuous relations on them"**	July 21, 2021 05:00 PM (Tehran)

Eugenii Mikhailovich Vechtomov and Varankina Vera Ivanovna
Vyatka State University

Absolute determinability of topological spaces by semirings of continuous relations on them

There are the following findings about determinability of arbitrary topological spaces in the work. Every topological space is absolutely determinable by the semiring of all continuous relations on it. Any nontrivial topological space is absolutely determinable by the semigroup of all relatively continuous relations on it. All isomorphisms of such semirings (semigroups) are induced.
Keywords: Topological space, Semiring of continuous relations, Semigroup of relatively continuous relations, Absolute determinability..
AMS Mathematical Subject Classification [2010]: 16Y60 , 54H99.

	**Prof. Ljubiša Kočinac** University of Niš **"The Alexanderoff duplicate and selective topological properties"**	July 21, 2021 07:30 PM (Tehran)

Ljubiša Kočinac
University of Niš

The Alexanderoff duplicate and selective topological properties

	**Dr. Somayeh Borjian** Graduated from Shahid Bahonar University of Kerman **"Space-time singularities"**	July 22, 2021 09:00 AM (Tehran)

Somayeh Borjian
Graduated from Shahid Bahonar University of Kerman

Space-time singularities

In this lecture, we first briefly discuss the space-time singularities, and then introduce two types of naked singularities called nakedly singular future boundary and nakedly singular past boundary. We would like to emphasize that although a naked singularity may lead to several problems of the host space-time, such as stability problem, causal problem etc, however, it is also helpful to explain some inexplicable astronomical phenomena and to study fine structure of the space-time in the lab if it really exists. Thus the classification of naked singularities is of great importance, since it may shed light on the understanding of the host space-time.

	**Dr. Ali Taherifar** Yasouj University **"Some topological concepts and their applications in algebra"**	July 22, 2021 10:00 AM (Tehran)

Ali Taherifar
Yasouj University

Some topological concepts and their applications in algebra

In this talk first we presented some topological properties of Zariski topology and their applications in ring theory. Next, we consider some topological properties of a completely regular space X and find algebraic equivalent conditions of them in $C(X)$.

	**Dr. Ali Kamalinejad** University of Theran **"Distributing points on surfaces and geometric discrepancy"**	July 22, 2021 03:00 PM (Tehran)

Ali Kamalinejad
University of Theran

Distributing points on surfaces and geometric discrepancy

Motivated by speculations about early atomic theory at the beginning of the twentieth century, J.J. Thomson in 1904, investigated the distribution of a finite number of identical electrons on the surface of a sphere that minimizes the Coulomb potential. A variation of the problem becomes known in the mathematical community as the Thomson Problem. This Problem also has applications in different areas of Mathematics. For example, Thomson Problem appears in the study of computational complexity, where M. Shub and S. Smale investigate good starting points for Newton's method on the unit sphere. It also, relates to Problem 7, in the paper entitled "Mathematical problems for the next century", written by S. Smale in 1998, which about, designing a fast algorithm for generating "uniform" or "nearly optimal" distribution of points on the sphere. One of the other well-known measures to evaluate the uniformity of a given distribution of points on the sphere is Discrepancy. While Thomson's Problem is based on the Coulomb potential, the Discrepancy measures the deviation of the number of points in a set from the expected value. In this talk, after briefly review the Thomson Problem and compare it to the concept of Geometric Discrepancy, we introduce the concept of Directed Discrepancy based on which we have developed an algorithm, called Directional Discrepancy, that can offer accurate approximation for the Cap Discrepancy of a finite set distributed on the unit sphere. We also analyze the time complexity of the Directional Discrepancy algorithm precisely; and practically evaluate its capacity by calculating the Cap Discrepancy of a specific distribution, Polar Coordinates, which aims to distribute points uniformly on the Sphere. If time allows, we will attempt to present other techniques for distributing points uniformly on surfaces of higher genera.

	**Dr. Reza Seyyedali** Institute for Research in Fundamental Sciences (IPM) **"Calabi Flux on compact Kahler manifolds"**	July 22, 2021 04:00 PM (Tehran)

Reza Seyyedali
Institute for Research in Fundamental Sciences (IPM)

Calabi Flux on compact Kahler manifolds

	**Dr. Mehrdad Shahshahani** **"Geometric ideas in number theory"**	July 22, 2021 05:30 PM (Tehran) Closing Lecture

Mehrdad Shahshahani
Professor Emeritus in Mathematics

Distributing points on surfaces and geometric discrepancy

Applications of geometric ideas to number theory have a long and illustrious history. Minkowski's geometry of numbers had decisive in uence in algebraic number theory. Topo- logical ideas, especially those of Lefschetz, Hodge and Grothendieck had their imprints on the Weil Conjectures and subsequent developments. Tate's theory of rigid analytic geometry dating back to 1960's was perhaps a visionary's conceptualization of extending ideas from differential and complex geometry to the nonarchimedean case and has now blossomed into a very active area of research through the efforts of Berkovich, Scholze and others. The field of Arithmetic Geometry is, broadly speaking, the application of ideas from geometry and topology to number theory. My purpose is not to give a historical account of these landmarks in mathematics but to bring to your attention a different geometric idea that in spite of the efforts of a number of eminent mathematicians in the past forty years, has not yet led to fundamental new insights. According to a remarkable theorem of Belyi-Weil, the existence of a nonconstant meromorphic function on an algebraic curve over $\mathbb{C}$ with at most three critical values is equivalent the property of the curve being definable over an algebraic number field. This led Grothendieck to surmise that one can define a geometric/combinatorial structure together with an action of the absolute Galois group that can lead to a better understanding of the latter object. I will give a brief description of the collaborative efforts, principally with A. Kamalinejad, in this direction.

4. Specialized Lectures

The articles presented in this section have been accepted and presented in the 11th seminar of geometry and topology in the form of an extended abstract, and only the abstract of these articles has been included in this booklet.

4.1. Depth of Factor Rings of $C(X)$.

A.A. Hesari
Department of Mathematics, Shahid Chamran University of Ahvaz, Ahvaz, Iran
A.R. Salehi
Department of Science, Petroleum University of Technology, Ahvaz, Iran

Depth of Factor Rings of $C(X)$

In [F. Azarpanah, A.A. Hesari, A.R. Salehi, *Computation of depth in $C(X)$*, J. Algebra 550 (2020) 54-68.] the authors showed that $\text{depth}(C(X)/(f)) \leq 1$, for every principal ideal (f) in $C(X)$; although, they were unable to prove this fact in general for an arbitrary ideal of $C(X)$. In this article, we show that the depth of every factor ring of $C(X)$ modulo an ideal I does not exceed 1. Using this, we present another proof to show that $\text{depth}(C(X)) \leq 1$.

Keywords: Regular sequence, depth, factor ring.
AMS Mathematical Subject Classification [2010]: 13C15, 54C40.
Code of paper: gt11-1006

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4.2. The eigenvalues of a class of elliptic differential operators.

Mohammad Javad Habibi Vosta Kolaei
Department of Pure Mathematics, Faculty of Science, Imam Khomeini international university, Qazvin, Iran
Shahroud Azami
Department of Pure Mathematics, Faculty of Science, Imam Khomeini international university, Qazvin, Iran

The eigenvalues of a class of elliptic differential operators

Consider (M, g) as an n-dimensional compact Riemannian manifold. In this paper we are going to study a class of elliptic differential operators which appears naturally in the study of hypersurfaces with constant mean curvature and also the study of variation theory for 1-area functional.

Keywords: Eigenvalue problem, elliptic operators, Bochner type formula.
AMS Mathematical Subject Classification [2010]: 53C21, 58C40.
Code of paper: gt11-1007

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4.3. Semi-open codes.

Somayyeh Jangjooye Shaldehi
Department of Mathematics, Faculty of Mathematical Sciences, Alzahra University, Tehran, Iran

Semi-open codes

We will show that a system is synchronized if and only if it has a cover whose cover map is semi-open. Also, any factor code on an irreducible sofic shift is semi-open and the image of a synchronized system by a semi-open code is synchronized. On the other side, right-closing semi-open extension of an irreducible shift of finite type is of finite type. Moreover, we show that any semi-open code on a synchronized system is bi-continuing a.e..

Keywords: semi-open, shift of finite type, sofic, synchronized, continuing code..
AMS Mathematical Subject Classification [2010]: 37B10, 37B40, 54-XX.
Code of paper: gt11-1008

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4.4. Locally Lipschitz set-valued vector fields on Riemannian manifolds.

Hajar Radmanesh
Department of Pure Mathematics, Faculty of Mathematics and Statistics, University of Isfahan, Isfahan, Iran

Locally Lipschitz set-valued vector fields on Riemannian manifolds

The aim of this paper is to prove that two different definitions of locally Lipschitz vector fields are equivalent. We also study set-valued vector fields and prove that for locally Lipschitz set-valued vector fields this statement holds.

Keywords: Locally Lipschitz vector fields, Set-valued vector fields.
AMS Mathematical Subject Classification [2010]: 58C06, 58C07.
Code of paper: gt11-1009

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4.5. T_0-(quasi)topological MV-algebras.

M. Najafi
Department of Mathematics, Velayat University, Iranshahr, Iran

T_0-(quasi)topological MV-algebras

In this paper, we define the notions of (quasi)topological MV-algebras and we study conditions under which MV-algebra A with topology $\mathcal{T}$ turns into a $(T_0)T_1$-space. Then we show any T_0-quasitopological MV-algebra is a T_1-space. Finally, we prove any T_0-topolgical MV-algebra is a Hausdorff space.

Keywords: MV-algebra, (quasi)topological MV-algebra, T_i-space.
AMS Mathematical Subject Classification [2010]: 11F23, 03G10.
Code of paper: gt11-1010

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4.6. On concircular transformations in Finsler geometry.

Samaneh Saberali
Institute for Research in Fundamental Science (IPM), Iran, Tehran

On concircular transformations in Finsler geometry

In this paper, we characterize Finsler manifolds admitting a concircular transformation such that the difference of the two Ricci tensors is a constant multiple of the metric.

Keywords: Geodesic circle, Concircular transformation, Ricci tensor, Scalar curvature.
AMS Mathematical Subject Classification [2010]: 53B40, 53C60.
Code of paper: gt11-1013

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4.7. Self similar solutions of the Finsler Yamabe flow.

N. Izadian, M. Yar Ahmadi and S. Hedayatian
Department of Mathematics, Shahid Chamran University of Ahvaz, Ahvaz, Iran

Self similar solutions of the Finsler Yamabe flow

We study Yamabe flow and Yamabe soliton on the compact Finsler spaces and show that if there is a Finsler Yamabe soliton then there exists a solution to the Finsler Yamabe flow equation called self similar solution. Conversely, it's proved that the self similar solutions to the Finsler Yamabe flow are Finsler Yamabe solitons.

Keywords: Finsler metric, Yamabe soliton, Yamabe flow.
AMS Mathematical Subject Classification [2010]: 53C60 , 53C44, 35C08.
Code of paper: gt11-1014

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4.8. Nearly Lindelöf Spaces.

A.R. Salehi
Department of Science, Petroleum University of Technology, Ahvaz, Iran

Nearly Lindelöf Spaces

We define a space X to be nearly Lindelöf whenever $\beta X \setminus \Lambda X$ is dense in $\beta X \setminus X$. Several characterizations of nearly Lindelöf spaces are given.
Keywords: Nearly Lindelöf, C_L-pseudocompact, realcompact, weakly almost real maximal ideal.
AMS Mathematical Subject Classification [2010]: 54D35, 54C40.
Code of paper: gt11-1015

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4.9. Some topologies on MV-algebras.

M. Najafi
Department of Mathematics, Velayat University, Iranshahr, Iran

Some topologies on MV-algebras

In this paper, the notions of (para)topological MV-algebras are defined and Uryshon space on topological MV-algebras are studied. Also, topological MV-algebras which only have trivial closed filters (ideals) are investigated. In addition, some topologies are constructed on MV-algebras by ideals, filters and prefilters.
Keywords: MV-algebra, (para)topological MV-algebra, filter, ideal.
AMS Mathematical Subject Classification [2010]: 11F23, 03G10.
Code of paper: gt11-1016

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4.10. Lie symmetry analysis method for the geophysical Korteweg-de Vries (GPKdV) equation.

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Department of Mathematics, Basic Science Faculty, University of Bonab, Bonab, 55517 – 61167, Iran

Lie symmetry analysis method for the geophysical Korteweg-de Vries (GPKdV) equation

In this paper, we analyze the symmetries of the Lie group of geophysical Korteweg-de Vries equation. The classical Lie symmetry reductions of the GPKdV equation are evaluated. Moreover, we obtain the relevant exact solutions for the extracted generators.
Keywords: Lie symmetry, partial differential equation (PDE), geophysical Korteweg-de Vries (GPKdV), Classical symmetry.
AMS Mathematical Subject Classification [2010]: 76M60, 35R11.
Code of paper: gt11-1017

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4.11. Decomposition of complete hom-Lie superalgebras.

Mohammad Reza Farhangdoost and Ahmad Reza Attari Polsangi
Department of Mathematics, College of Sciences,
Shiraz University, P.O. Box 71457- 44776, Shiraz, Iran

Decomposition of complete hom-Lie superalgebras

In this paper we introduce the notion of a complete multiplicative hom-Lie superalgebra. We prove some results on complete multiplicative hom-Lie superalgebras. In particular, we find some conditions in which the decomposition into hom-ideals of the complete multiplicative hom-Lie superalgebras is unique up to order of hom-ideals.
Keywords: hom-Lie superalgebra, complete hom-Lie superalgebra, simple hom-Lie superalgebra.
AMS Mathematical Subject Classification [2010]: 17B65, 17B70, 17B99.
Code of paper: gt11-1018

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4.12. Analyzing the Symmetry Group and Conservation Laws for the King Equation.

Mehdi Jafari, Mohammad Hadi Moslehi and Razie Darvazeban Zade
Department of Mathematics, Payame Noor University, PO BOX 19395-3697, Tehran, Iran

Analyzing the Symmetry Group and Conservation Laws for the King Equation

In this paper, we obtain the symmetry group of the King equation by the classical Lie symmetry method. After analyzing the symmetry group, the optimal system of one-dimension Lie subalgebra is constructed. Also by the scaling symmetry and the concept of variable weight we obtain a new conservation law for the king equation.
Keywords: Lie symmetry, King equation, Scaling symmetry, Conservation Laws .
AMS Mathematical Subject Classification [2010]: 70S10, 68W30, 70H33.
Code of paper: gt11-1019

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4.13. Application of Fuzzy Fourier Cosine and Sine Integrals.

O. Sedaghatfar
Department of Mathematics, Yadegar-e-Imam Khomeini (RAH) Shahre Rey Branch, Islamic Azad University, Tehran, Iran

Application of Fuzzy Fourier Cosine and Sine Integrals

In this paper, application of fuzzy Fourier cosine and sine integrals is introduced. At first fuzzy Fourier cosine and sine integrals are defined, and the convergence theorem to the integral expansion is applied. Then the effectiveness and efficiency of this method is shown with an example. Generalized Hukuhara differentiability ,Fuzzy Fourier cosine and sine integrals ,Fuzzy improper integral **Code of paper:** gt11-1021

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4.14. Application of Fuzzy Complex Fourier Integral.

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Department of Mathematics, Yadegar-e-Imam Khomeini (RAH) Shahre Rey Branch, Islamic Azad University, Tehran, Iran

Application of Fuzzy Complex Fourier Integral

In this paper, The fuzzy complex Fourier integral is introduced and application of this is performed. It is sometimes convenient to have a fuzzy complex form of the fuzzy Fourier integral. This complex setting will prove a natural platform from which to develop the fuzzy Fourier transform. Then the fuzzy Fourier integral representation of an example is obtained.
Fuzzy complex Fourier integral ,Fuzzy Fourier transform ,Fuzzy improper integral **Code of paper:** gt11-1022

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4.15. Non-reduced Configurations of Lines in General Position in Projective Space.

Tahereh Aladpoosh
School of Mathematics, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran

Non-reduced Configurations of Lines in General Position in Projective Space

A well-known theorem by Hartshorne and Hirschowitz states that a generic configuration of lines in $\mathbb{P}^n$, $n \geq 3$, has good postulation. So a natural question in studying the postulation of non-reduced linear configurations is: Can adding a non-reduced component to the configuration still preserve it's good postulation? This is what we investigate here. We study the postulation of a generic configuration of lines and one multiple line. We solve the case of lines and one double line, and give a conjecture to the general case.
Keywords: Configuration of lines, Double Line, Good postulation, Degeneration.
AMS Mathematical Subject Classification [2010]: 14N05, 14N20, 14C17.
Code of paper: gt11-1026

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4.16. Non-reduced Configurations of Lines in General Position in Projective Space.

Tahereh Aladpoosh
School of Mathematics, Institute for Research in Fundamental Sciences (IPM), Tehran, Iran

Non-reduced Configurations of Lines in General Position in Projective Space

A well-known theorem by Hartshorne and Hirschowitz states that a generic configuration of lines in $\mathbb{P}^n$, $n \geq 3$, has good postulation. So a natural question in studying the postulation of non-reduced linear configurations is: Can adding a non-reduced component to the configuration still preserve it's good postulation? This is what we investigate here. We study the postulation of a generic configuration of lines and one multiple line. We solve the case of lines and one double line, and give a conjecture to the general case.
Keywords: Configuration of lines, Double Line, Good postulation, Degeneration.
AMS Mathematical Subject Classification [2010]: 14N05, 14N20, 14C17.
Code of paper: gt11-1026

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4.17. A note on $C(X)$ as an $L_{cc}(X)$-module.

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A note on $C(X)$ as an $L_{cc}(X)$-module

Let $L_{cc}(X) = \{f \in C(X) : |X \setminus C_f| \leq \aleph_0\}$, where C_f is the union of all open subsets $U \subseteq X$ such that $|f(U)| \leq \aleph_0$. We introduce and study $C(X)$ as an $L_{cc}(X)$-module. It is shown that whenever X be a *lcc*-completely regular space, then $L_{cc}(X)$-module $C(X)$ is finitely generated if and only if $C(X) = L_{cc}(X)$.

Keywords: co-locally functionally countable subalgebra, *lcc*-completely regular space, $L_{cc}(X)$-module $C(X)$.
AMS Mathematical Subject Classification [2010]: 54C30, 54C40, 54C05.
Code of paper: gt11-1027

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4.18. On Quotients of topological fundamental groupoids.

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Department of Mathematics, Faculty of Sciences, Golestan University, P.O.Box 155, Gorgan, Iran

On Quotients of topological fundamental groupoids

Quotients of topological groupoids are not necessarily a topological groupoid. In this talk we show that for a given topological groupoid G, the quotient groupoid $\frac{G}{M}$ is a topological groupoid, where M is a totally disconnected normal subgroupoid. By using this, we conclude that $\frac{\pi^L X}{M}$, the quotient of the Lasso topology on the topological fundamental groupoid and the generalization of the Brown's topology on $\frac{\pi X}{M}$ are equivalent.

Keywords: Quotient Topological Groupoid, Fundamental Groupoid.
AMS Mathematical Subject Classification [2010]: 22A22, 55Q05.
Code of paper: gt11-1028

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4.19. One Dimensional Optimal System of the Fast Diffusion Equation.

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One Dimensional Optimal System of the Fast Diffusion Equation

In this article, by using Lie symmetry method, we find the lie symmetry group of fast diffusion equation. Also the one dimensional optimal system of Lie algebra is obtained. Then we classify the invariant group sloutions of the fast diffusion equation.

Keywords: Fast Diffusion Equations, Lie symmetry group, Infinitesimal generators, Optimal System.
AMS Mathematical Subject Classification [2010]: 35D99, 34E70.
Code of paper: gt11-1029

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4.20. On the quasi F_c-spaces versus CP-spaces.

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Department of Science, Petroleum University of Technology, Ahvaz, Iran

On the quasi F_c-spaces versus CP-spaces

Let $C_c(X)$ be the functionally countable subalgebra of $C(X)$. We introduce quasi F_c-space and investigate the relation between topological properties of X and algebraic properties of $C_c(X)$. It is shown that whenever X is strongly zero dimensional and $C_c(X)$ is a Von Neumann regular ring, then X is a quasi F_c-space if and only if X is F_c-space.

Keywords: F_c-space, Quasi F_c-space, Von Nenmann regular ring.
AMS Mathematical Subject Classification [2010]: 52A41, 53C50, 54E35.
Code of paper: gt11-1030

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4.21. Topological group invariance applications in mathematical statistics.

Mehdi Shams
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Topological group invariance applications in mathematical statistics

In this paper, the application of the topological group invariance in mathematical statistics is examined. We will show that how the exhibition of some invariance structures of the statistical model may lead to identify the best equivariant estimator and a minimax estimator. It is possible to extend the minimaxity property beyond than for the compact case.

Keywords: Locally compact topological group, amenable groups, G-invariant statistical model, minimax estimator, best equivariant estimator.
AMS Mathematical Subject Classification [2010]: Primary 62F10, Secondary 05E18.
Code of paper: gt11-1032

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4.22. Remarks on GP-metric spaces, partial metric spaces and fixed points results.

H. Golvardi Yazdy and M. R. Ahmadi Zand
Mathematics Department, Yazd university

Remarks on GP-metric spaces, partial metric spaces and fixed points results

In the present paper, new connections between G-metric spaces, partial metric spaces and GP-metric spaces are established. We show that every fixed point theorem on G-metric (partial metric) spaces implies a fixed point result on partial metric (GP-metric) spaces. Caristi maps on GP-metric spaces are defined and a related fixed point result is given.

Keywords: G-metric, GP-metric, partial metric, T-lower semi-continuous, fixed point..
AMS Mathematical Subject Classification [2010]: 54E35, 54E99, 54H25..
Code of paper: gt11-1034

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4.23. K- causally continuous space-times.

Neda Ebrahimi
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Shahid Bahonar University of Kerman, 7616914111, Kerman, Iran

K- causally continuous space-times

Recent researches showed that there are more relations rather than causal and chronological relations which are important in general relativity. One of these relations is K^+, the smallest closed, transitive relation which contains I^+. In This paper an equivalent condition for inner continuity of $int(K^+(.))$, by using of admissible measure is found.
Keywords: Chronological relation, Causal relation, Addmisible measure , Causal continuity..
AMS Mathematical Subject Classification [2010]: 52A41 , 53C50, 54E35.
Code of paper: gt11-1035

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4.24. On Warped Product Metrics with Isotropic S-Curvature.

Mehran Gabrani, Bahman Rezaei
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and Esra Sengelen Sevim
Department of Mathematics, Istanbul Bilgi University, 34060, Eski Silahtaraga Elektrik Santrali, Kazim Karabekir Cad. No: 2/13 Eyupsultan, Istanbul, Turkey

On Warped Product Metrics with Isotropic S-Curvature

In this paper, we study a class of Finsler metrics called Finsler warped product metrics. We prove that every Finsler warped product metric is of isotropic E-curvature if and only if it is of isotropic S-curvature.
Keywords: Finsler metric, warped product, isotropic S-curvature.
AMS Mathematical Subject Classification [2010]: 53B40, 53C60.
Code of paper: gt11-1036

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4.25. Some examples of co-adjoint orbit of Lie groupoids.

Ghorbanali Haghighatdoost and Rezvaneh Ayoubi
Department of Mathematics,Azarbaijan Shahid Madani University,Tabriz, Iran

Some examples of co-adjoint orbit of Lie groupoids

Our purpose in this paper is to introduce a class of Lie groupoids, which we will call co-adjoint Lie groupoid, by means of co-adjoint representation of a Lie groupoid on its isotropy Lie algebroid. Also, we try to construct and define Hamiltonian systems on the co-adjoint Lie groupoids. By considering some examples, we show that our construction can be considered as a generalization of the construction of the Lie groups to the Lie groupoids.
Keywords: Lie groupoids, Lie algebroids, Hamiltonian system.
AMS Mathematical Subject Classification [2010]: 18B40, 53D17, 70H08.
Code of paper: gt11-1037

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4.26. Mean Equicontinuity on topological dynamical systems.

Nader Asadi Karam, M. A. Tootkaboni and Abbas Sahleh
Department of Pure Mathematics, Faculty of Mathematical Sciences, Guilan University, Rasht, Iran

Mean Equicontinuity on topological dynamical systems

In this work, we study topological dynamical systems with discrete amenable semigroup action. In the following, we present the notion of uniquely ergodic and mean equicontinuous on the discrete amenable semigroup action.

Keywords: Dynamical systems, Semigroup action, Equicontinuity.
AMS Mathematical Subject Classification [2010]: 37B20, 16W22.
Code of paper: gt11-1039

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4.27. A Note On Prime Spectrum Of $C_c(X)$.

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Department of Mathematics, Shahid Chamran university of Ahvaz, Ahvaz, Iran

A Note On Prime Spectrum Of $C_c(X)$

In this article, we introduce $\mathrm{Spec}(C_c(X))$ as a prime spectrum of $C_c(X)$ with Zariski topology. We consider some properties of $D_c(f)$ as a basic element for an open set for the Zariski topology on $\mathrm{Spec}(C_c(X))$. Also, we show that $C_c(X)$ is a disconnected ring if and only if $\mathrm{Spec}(C_c(X))$ is a disconnected space. If $D_c(f)$ is regular-open for every $f \in C_c(X)$, then X is an almost CP-space. Moreover, $Spec(C_c(X))$ is a strongly zero-dimensional space.

Keywords: minimal prime spectrum, regularly closed (open), CP-space, zero-dimensional space.
AMS Mathematical Subject Classification [2010]: 54C40.
Code of paper: gt11-1040

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4.28. Weakly parallel invariant submanifolds of Kenmotsu manifolds.

Vahid Pirhadi
Department of Mathematics, University of Kashan, Kashan, Iran

Weakly parallel invariant submanifolds of Kenmotsu manifolds

In this paper, we introduce the sense of weakly parallel submanifolds. Then, we prove that every weakly parallel invariant submanifold of a Kenmotsu manifold is either pseudo parallel or a submanifold of codimension 2.

Keywords: Kenmotsu manifolds , Riemannian submanifolds , weakly parallel submanifolds.
AMS Mathematical Subject Classification [2010]: 53D15, 53C25.
Code of paper: gt11-1041

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4.29. Some results on generalized groups.

Amir Veisi
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and Ali Delbaznasab
Farhangian University, Kohgiluyeh And Boyer-Ahmad Province, Yasouj, Iran

Some results on generalized groups

In this note, we obtain some corollaries and examples on Molaei's Generalized groups. We observe that every inner product space can become a topological generalized group. As a result, $\mathbb{M}(n,\mathbb{R})$ with $A.B = \text{trace}(AB^t)$ and $A * B = A + \frac{T.B}{\|T\|^2}T$ for some non-zero fixed T, becomes a topological generalized group. For every non-zero vector space L and a non-zero linear functional T from L to the field, we can present a Lie algebra structure on L.
Keywords: Generalized groups, inner product space.
AMS Mathematical Subject Classification [2010]: 08A99, 20B99, 20M20.
Code of paper: gt11-1042

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4.30. Differential Invariants of Harry-Dym Equation.

Ghorbanali Haghighatdoost and Mustafa Bazghandi
Azarbaijan Shahid Madani University, Tabriz, East Azerbaijan, Iran

Differential Invariants of Harry-Dym Equation

In this paper, we consider Harry-Dym equation, which is a very important equation in the theory of solitons. Using the moving frames method, we locate the fundamental differential invariants for the Harry-Dym equation. Every differential invariant can be expressed as a function of the fundamental differential invariants and their invariant derivatives.
Keywords: Differential invariants , Moving frames , Lie groups , Harry-Dym equation.
AMS Mathematical Subject Classification [2010]: 58J70 , 58A15, 58H05 .
Code of paper: gt11-1043

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4.31. Homotopy Classification of Super Vector Bundles.

Mohammad Javad Afshari and Saad Varsaie
Department of Mathematics, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran

Homotopy Classification of Super Vector Bundles

A new generalization of Grassmannians, called ν-grassmannians, and a canonical super vector bundle over this new space, say Γ, are introduced. Then, by constructing a Gauss morphism of a super vector bundle, some properties of this morphism is discussed. Finally, we generalize one of the main theorems of homotopy classification for vector bundles in supergeometry.
Keywords: Super vector bundle, Gauss morphism, ν-grassmannian, Pullback.
AMS Mathematical Subject Classification [2010]: 58A50, 55R15, 54B40.
Code of paper: gt11-1044

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4.32. When the First Non-Abelian Cohomology of Topological Groups Is a $k-$Group.

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Pardis Nasibe–shahid Sherafat, Enghelab Ave., Tehran, Iran

When the First Non-Abelian Cohomology of Topological Groups Is a $k-$Group

Let G, R, and A be topological groups. Suppose that G and R act continuously on A where is a compact radical-based group with $H^0(G, A) = A$. Let G be locally compact first countable which acts continuously on R and (A, θ) be a partially crossed topological $G-$module. Under these conditions, We will show $H^1(G, (A, \theta))$ is a $k-$group.
Keywords: Non-abelian cohomology , $K-$group , Partially crossed modul..
AMS Mathematical Subject Classification [2010]: 22A05; 20J06.
Code of paper: gt11-1045

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4.33. Paraholomorphically projective vector fields on the tangent bundle with the deformed complete lift metric.

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Paraholomorphically projective vector fields on the tangent bundle with the deformed complete lift metric

Let (M_n, g) be a Riemannian manifold and TM_n its tangent bundle. In this paper, we determine the fiber-preserving paraholomorphically projective vector fields on TM_n with respect to the Levi-Civita connection the deformed complete lift metric $\tilde{G}_f = g^C + (fg)^V$, where f is a nonzero differentiable function on M_n and g^C and g^V are the complete lift and the vertical lift of g on TM_n, respectively.
Keywords: fiber-preserving vector fields, paraholomorphically projective vector fields, adapted almost paracomplex structure.
AMS Mathematical Subject Classification [2010]: 53CB20, 53C15.
Code of paper: gt11-1046

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4.34. Anti-invariant Riemannian Submersion from a metallic Riemannian Manifold.

Zohreh Nazari and Elham Zangiabadi
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Anti-invariant Riemannian Submersion from a metallic Riemannian Manifold

In this paper, anti-invariant Riemannian submersions from a metallic Riemannian manifold onto a Riemannian manifold are introduced and some properties of them are investigated.
Keywords: Riemannian submersion, anti-invariant Riemannian submersion from metallic Riemannian manifold.
AMS Mathematical Subject Classification [2010]: 53C15, 53B20.
Code of paper: gt11-1047

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4.35. Associated Smarandache Curves to a Null Curve on the Lightlike Cone in Minkowski Space $\mathbb{R}^4_2$.

Alireza Sedaghatdoost and Nemat Abazari
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Associated Smarandache Curves to a Null Curve on the Lightlike Cone in Minkowski Space $\mathbb{R}^4_2$

In this paper, we introduce Smarandache curves in all types in the lightlike cone $\mathbb{Q}^3_2$. The curvature functions of the Smarandache curves according to the *natural Frenet frame* consist of four null vectors are calculated.

Keywords: Lightlike cone, Null curve, Smarandache curve.
AMS Mathematical Subject Classification [2010]: 53A35, 53A40, 53B30.
Code of paper: gt11-1048

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4.36. Lie symmetry of a new class of two-dimensional heat equation.

Rohollah Bakhshandeh-Chamazkoti
Department of Mathematics, Babol Noshirvani University of Technology, Babol, Iran

Lie symmetry of a new class of two-dimensional heat equation

In this paper, a Lie symmetry classification of a new class of $(2+1)$-nonlinear heat equation $u_t - f(u)(u_{xx} + u_{yy} + u_{xy}) = 0$ where $f(u)$ is a smooth function on u, is presented. The similarity solutions of an illustrative example, for $f(u) = u$, are obtained.

Keywords: Infinitesimal generator, Invariant solution, Heat equation, Lie symmetry..
AMS Mathematical Subject Classification [2010]: 58J70, 76M60, 35L05.
Code of paper: gt11-1049

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4.37. A note on topological dynamics in uniform spaces.

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A note on topological dynamics in uniform spaces

We consider various notions from the theory of dynamical systems from a topological point of view. Many of these notions can be sensibly defined either in terms of (finite) open covers or uniformities.

Keywords: Shadowing, transitivity, sensitivity, topological mixing.
AMS Mathematical Subject Classification [2010]: 54H20.
Code of paper: gt11-1050

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4.38. A new method to control errors on a topological space.

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Department of Mathematics Statistics and Computer science, Faculty of Mathematics, University of Sistan and Baluchestan, Zahedan, Iran

A new method to control errors on a topological space

We introduce a new method for controlling errors in average on a non-metrizable topological space. We study topological version of average shadowing property and we prove that this property implies topological chain transitivity.

Keywords: Shadowing, transitivity, average shadowing, uniform space.
AMS Mathematical Subject Classification [2010]: 54H20.
Code of paper: gt11-1052

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4.39. Gap topologies on adjointable module maps.

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Gap topologies on adjointable module maps

Suppose W is a Hilbert C*-module and $R(W)$ is the set of all unbounded regular operators between W. Suppose $B_1(W)$ denotes the set of all bounded adjointable operators T on W of norm $\|T\| \leq 1$. We equip the sets with gap topologies and show that the adjoint preserving bijection $R(W) \to \{F \in B(W) : \|F\| \leq 1 \text{ and } Range(1 - F^*F) \text{ is dense in } W\}$, $t \mapsto t(1 + t^*t)^{-1/2}$ is bicontinuous. We can use this fact to occasionally think of $R(W)$ as being a subspace of the closed unit ball of $B(W)$.

Keywords: gap topology, unbounded regular operator, Hilbert C*-module .
AMS Mathematical Subject Classification [2010]: 54E35, 47A05, 46L08.
Code of paper: gt11-1053

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4.40. Vanishing of the first non-abelian cohomology.

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Vanishing of the first non-abelian cohomology

In this paper, we prove that there exists a $G-$invariant maximal compact subgroup K of A, and for every such topological submodule K, the natural map $\tau_1^\star : H^1(G; K) \to H^1(G; A)$ is onto. In addition, as a result, If A has trivial maximal compact subgroup then, $H^1(G; A) = 1$.

Keywords: Non-abelian cohomology , Maximal compact group..
AMS Mathematical Subject Classification [2010]: 22A05; 20J06.
Code of paper: gt11-1055

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4.41. Incompressible Euler equation on the three-dimensional manifolds.

Elahe Kazazi and Hajar Ghahremani-Gol
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Incompressible Euler equation on the three-dimensional manifolds

The aim of this paper is to give formulation for incompressible Euler equations on Riemannian manifolds. Moreover, we find exact solution for incompressible Euler equation on the three-dimensional manifolds.

Keywords: Incompressible Euler equations, Geometric Analysis on manifold.
AMS Mathematical Subject Classification [2010]: 76D05, 53C23.
Code of paper: gt11-1058

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4.42. Some Notes On Subspace Convex-cyclicity.

Meysam Asadipour
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Some Notes On Subspace Convex-cyclicity

An operator $T \in \mathcal{L}(X)$ is subspace convex-cyclic for a subspace M if there exists a vector $x \in M$ such that

$$\overline{Co(orb(T,x)) \cap M} = M.$$

We construct some examples of subspace convex-cyclic operator that is not convex-cyclic. Also, we will present the Hahn-Banach characterization for subspace convex-cyclicity .

Keywords: Hypercyclicity, Convex hull, Subspace convex-cyclic operators..
AMS Mathematical Subject Classification [2010]: Primary; 47A16. Secondary; 52A07..
Code of paper: gt11-1059

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4.43. Suzuki type contractions in generalized metric spaces.

H. Afshari
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and S.M.A. Aleomraninjad
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Suzuki type contractions in generalized metric spaces

In this paper we prove a fixed point theorem of a Suzuki type in generalized complete metric spaces. Our result is the generalization of the results announced by Wardowski and Suzuki from metric spaces to generalized metric spaces.

Keywords: F-contraction, Fixed point, Suzuki type contraction.
AMS Mathematical Subject Classification [2010]: 74H10, 54H25..
Code of paper: gt11-1060

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4.44. Totally geodesic foliations with a semi-symmetric metric connection.

Elham Zangiabadi and Zohre Nazari
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Totally geodesic foliations with a semi-symmetric metric connection

Let (M, g) be a semi-Riemannian foliated manifold with foliation $\mathcal{F}$. We study totally geodesic foliations with respect to a semi-symmetric metric connection ∇ on M. In particular, we obtain a characterization of totally geodesic foliation by means of this connection.
Keywords: foliation, totally geodesic, semi-symmetric metric connection..
AMS Mathematical Subject Classification [2010]: 53C12, 53B05.
Code of paper: gt11-1065

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4.45. Uniform Ergodic Theorem for Discontinuous Skew-product Actions of Amenable Groups.

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Uniform Ergodic Theorem for Discontinuous Skew-product Actions of Amenable Groups

In this paper, we establish the Bogoliubov-Krylov theorem and the uniform ergodic theorem for skew-product actions of amenable groups with discontinuity from the point of view of topology. The theorems have extended the classical results which have been established for continuous dynamical systems.
Keywords: Ergodic theorem, Skew-product action, Følner sequence, amenable group.
AMS Mathematical Subject Classification [2010]: 22D40, 43A07, 28D05.
Code of paper: gt11-1068

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4.46. Liouville-type theorems for Sacks-Uhlenbeck biharmonic maps.

Seyed Mehdi Kazemi Torbaghan
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Liouville-type theorems for Sacks-Uhlenbeck biharmonic maps

Let (M^m, g) be a complete Riemannian manifold, (P^p, ϱ) be a Riemannian manifold with $Ricci^P \leq 0$ and $\Phi : (M, g) \longrightarrow (P, \varrho)$ be a Sacks-Uhlenbeck biharmonic map for $\beta > 1$, namely, a critical point of the functional $E_{\beta,2}(\Phi) := \int_M (1+ \mid \tau(\Phi) \mid^2)^\beta dV_g$, where $\tau(\Phi)$ is the tension field of Φ. We prove a Liouville-type theorem for Sacks-Uhlenbeck biharmonic map Φ.
Keywords: Sacks-Uhlenbeck biharmonic maps , harmonic maps , Liouville-type theorems.
AMS Mathematical Subject Classification [2010]: 31B30; 53C21.
Code of paper: gt11-1069

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4.47. Open generalized shifts.

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Open generalized shifts

Suppose X is a topological space with at least two elements, Γ is a nonempty set, $\varphi : \Gamma \to \Gamma$ is arbitrary and X^Γ equipped with product topology. In the following text we prove for discrete X, the generalized shift $\sigma_\varphi : X^\Gamma \to X^\Gamma$ is an open map if and only if there exists finite subset F of Γ such that $\varphi \restriction_{\Gamma\setminus F}: \Gamma \setminus F \to \Gamma$ is one–to–one. Moreover for non–discrete X, the generalized shift $\sigma_\varphi : X^\Gamma \to X^\Gamma$ is an open map if and only if $\varphi : \Gamma \to \Gamma$ is one–to–one.
Keywords: Generalized shift , Open map.
AMS Mathematical Subject Classification [2010]: 54C10.
Code of paper: gt11-1070

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4.48. On *R*-topological spaces and thier properties.

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Payame Noor University, Iran

On *R*-topological spaces and thier properties

Recently, M. Eshaghi et al. [**?**], introduced a new class of topological spaces which are called *R*-topological spaces. In this article, we give some results and examples of this spaces.
Keywords: *R*-topological space, *R*-open set, *R*-continuous function, *R*- metric space.
AMS Mathematical Subject Classification [2010]: Primary: 54H25, 47H10..
Code of paper: gt11-1071

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4.49. Causality conditions and covering spacetimes.

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Causality conditions and covering spacetimes

Recently, lifting causal conditions of spacetime to coverings is considered by many authors as a technique in Lorentzian geometry. In this paper, we discuss how to classify spacetimes by the covering spaces and show that causal pseudoconvexity conditions lift to its coverings for strongly causal spacetimes.
Keywords: Lorentzian geometry, Spacetime, Causality, Pseudoconvexity..
AMS Mathematical Subject Classification [2010]: 52Axx, 53C50, 83Cxx .
Code of paper: gt11-1072

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4.50. When Is a Covering Map a Generalized Regular Covering Map?

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When Is a Covering Map a Generalized Regular Covering Map?

In this talk, via reviewing the concept of regular covering maps, we are trying to extend the definition of this terminology. Furthermore, some properties of generalized regular covering map will be improved. For example, some conditions under which a covering map becomes a generalized regular covering map will be presented.

Keywords: Topological space, Quasitopological fundamental group, Covering map.
AMS Mathematical Subject Classification [2010]: 57M10, 57M12; Secondary 57M05..
Code of paper: gt11-1073

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4.51. Some Results about the Level Sets of Lorentzian Busemann Function.

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Some Results about the Level Sets of Lorentzian Busemann Function

In the early 1980s Yau posed the problem of establishing the rigidity of the Hawking-Penrose singularity theorems. Approaches to this problem have involved the introduction of Lorentzian Busemann functions and the study of the geometry of their level sets. Also they have been used to prove Bartnik's splitting conjecture. In this paper, we have shown several properties of the level sets of Lorentzian Busemann function.

Keywords: Lorentzian geometry, Busemann function, level set.
AMS Mathematical Subject Classification [2010]: 52A41 , 53C50, 54E35..
Code of paper: gt11-1077

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4.52. Some Disconnected Spaces and $C_c(X)$.

Z. Keshtkar
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Some Disconnected Spaces and $C_c(X)$

It is shown that a space X is basically disconnected if and only if X is countably basically disconnected and strongly zero-dimensional. We observ that X is countably basically disconnected if and only if $\beta_0 X$ is countably basically disconnected (basically disconnected) and X is extermally disconnected if and only if $\beta_0 X$ is extermally disconnected. We prove that X is extermally disconnected if and only if very dense (open) subspace in X, is C^F-embedded in X.

Keywords: Extermally disconnected, Basically disconnected, Countably basically disconnected, C^F-embedded, C^*-embedded .
AMS Mathematical Subject Classification [2010]: 54C40, 13A30.
Code of paper: gt11-1078

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4.53. New type of fixed point theorems in generalized metric spaces.

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and S.M.A. Aleomraninjad
Department of Mathematics, Qom University of Technology, Qom, Iran

New type of fixed point theorems in generalized metric spaces

n this paper we prove new type of fixed point theorem in generalized complete metric spaces. Our result is the generalization of the results announced by Wardowski and some others from metric spaces to generalized metric spaces.
Keywords: F-contraction, Fixed point, Complete metric space.
AMS Mathematical Subject Classification [2010]: 74H10, 54H25..
Code of paper: gt11-1079

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4.54. On the rank problem for factors of Cantor minimal systems.

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and Maryam Hosseini
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On the rank problem for factors of Cantor minimal systems

A Cantor minimal system is called of finite topological rank if it has a Bratteli-Vershik representation whose number of vertices per level is uniformly bounded. We prove that if the topological rank of a Cantor minimal system is finite then all its minimal Cantor factors have finite topological rank as well. This gives an affirmative answer to an open question posed by Donoso, Durand, Maass, and Petite in full generality. As a consequence, we obtain the dichotomy of Downarowicz and Maass for Cantor factors of finite rank Cantor minimal systems: they are either odometers or subshifts.
Keywords: Cantor minimal system, topological rank, topological factor, ordered Bratteli diagram, ordered premorphism.
AMS Mathematical Subject Classification [2010]: 54H20, 37B05, 37B10.
Code of paper: gt11-1080

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4.55. Instability of μ-harmonic maps.

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Instability of μ-harmonic maps

In this paper, the μ-energy functional is introduced and variational formulas are obtained and an example is given. As an application, the instability theorem for μ-harmonic maps are given.
Keywords: μ-harmonic maps , harmonic maps , Stability.
AMS Mathematical Subject Classification [2010]: 31B30; 53C21.
Code of paper: gt11-1081

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4.56. Stability and Hopf bifurcation of a four-neuron network with two different delays.

Mohammad Hadi Moslehi and Ebrahim Zangooiezadeh
Department of Mathematics, Payame Noor University, Tehran, Iran

Stability and Hopf bifurcation of a four-neuron network with two different delays

In this paper we consider a delayed Hopfield neural networks model with four neurons. This system will analyze by proving the local asymptotic stability, bifurcation and existence of a Hopf bifurcating periodic solution. This purpose is achieved by analyzing the associated characteristic transcendental equation.

Keywords: Hopfield neural networks, Local asymptotic stability criterion, Hopf bifurcations..
AMS Mathematical Subject Classification [2010]: 92B20 , 30H05, 46A18..
Code of paper: gt11-1085

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4.57. On the compact subsets of complex plane.

Mohammad Taghi Heydari
Department of Mathematics, Yasouj University, Yasouj, Iran

On the compact subsets of complex plane

We prove that each compact subset K of the complex plane that is the spectrum of a normal operator is homeomorphic with a compact convex subset.

Keywords: Compact convex set, C*-algebra, State space, Numerical range.
AMS Mathematical Subject Classification [2010]: 11F23, 47A12..
Code of paper: gt11-1086

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Dr. Ehsan Momtahan
Chairman of the Scientific Committee

Dr. Mehdi Sharifzadeh
Chairman of the Executive Committee