IV. Kadın Matematikçiler Derneği Çalıştayı

Bildiri Özetleri

Matematik Bölümü
Orta Doğu Teknik Üniversitesi

28-29 Nisan 2017

Kadın Matematikçiler Derneği (TKMD) Çalıştayları, Türkiye' de bir grup kadın matematikçinin 2012 yılında kurmuş olduğu Kadın Matematikçiler Derneği tarafından 2014 yılından bu yana her yıl düzenli olarak yapılan bir sempozyumdur. Bu çalıştayların amacı, kadın araştırmacıların, yüksek lisans ve doktora öğrencilerinin araştırma konularını, fikirlerini ve tecrübelerini paylaşabilecekleri bir platform oluşturmaktır.

TKMD çalıştaylarının birincisi Gebze Yüksek Teknoloji Enstitüsü' nün (2014), ikincisi Sivas Cumhuriyet Üniversitesi' nin (2015) ve üçüncüsü de Dokuz Eylül Üniversitesi' nin Matematik Bölümlerinin evsahipliğinde gerçekleşmiştir.

Dördüncü TKMD çalıştayına evsahipliği yapmayı kabul eden Orta Doğu Teknik Üniversitesi, Matematik Bölümü' ne teşekkür ediyoruz.

Çalıştayımızda, üç ana konu başlığı altında çağrılı konuşmalara ve sunumlara yer veriyoruz. Dördüncü çalıştay; Cebir, Uygulamalı Matematik/Analiz ve Cebirsel Topoloji alanlarında konuşmalara ve poster sunumlarına ayrılmıştır. Çalıştayda yer alan konuşma ve posterlerin özetlerini, soyadı sırasına göre elinizdeki kitapçıkta bulabilirsiniz.

Son olarak, bu çalıştayın gerçekleşmesinde emeği bulunan Bilim Kurulu üyelerine, Düzenleme Kurulu' nda yer alan Orta Doğu Teknik Üniversitesi, Matematik Bölümü akademik personeline ve organizasyonda yardımcı olan idari personele özverili çalışmalarından dolayı teşekkür ediyoruz.

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Sözde-Sonlu Cisimlerde Geometrik Temsil

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Modeller teorisi cebir ve matematiksel mantık arasında bir çalışma alanıdır, cebirsel yapıları aksiyomatik olarak incelememizi sağlar. Bu konuşmada modeller teorisinin temel kavramlarından bahsedeceğiz. Sözde-Sonlu Cisimleri tanımlayıp örnekler vereceğiz. Daha sonra bir grubun bir cisimde geometrik temsil edilmesi kavramını açıklayıp, Sözde-Sonlu Cisimler teorisinde temsil edilen grupların sadece değişmeli gruplar olduğunu kanıtlayacağız.

Anahtar Kelimeler. Modeller teorisi, sözde-sonlu cisimler.

Bu çalışma Zoe Chatzidakis ile yapılmış ortak çalışmadır.

Recent Developments in Financial Mathematics

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Financial mathematics is a research field that combines the solid mathematical theory in stochastic analysis and probability theory with the applications in complicated financial models. The theory of stochastic analysis have been studied on for many years. However, it becomes more popular and attractive when Black and Scholes (1973) introduced pricing formula for European vanilla call and put options by assuming the stock prices follow geometric Brownian model.

In this talk, I will basically give the fundamental concepts and features in stochastic differential theory. As an example of stochastic differential equations, we examine the celebrated Black and Scholes model in details. Then, the well-known concepts and models in financial mathematics that are successfully applied in industry will be discussed. Moreover, the applications of stochastic differential equations in finance: interest rate theory and financial derivative pricing will also be shortly introduced. I will conclude my talk with the potential research areas in financial mathematics that will be advised for graduate students who are interested in.

Keywords. Derivative pricing, Black and Scholes model, stochastic analysis.

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A Glimpse of Group Actions on Spaces

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The idea of a group action is related to basic intuitions on the notion of symmetry. Some groups occur naturally as acting on spaces. In the area of group actions on topological spaces or manifolds, one studies the symmetries of such objects or subgroups of the full group of symmetries. The study of group actions on topological spaces brings together many different areas of mathematics. Tools from the algebra of group itself, from algebraic topology of the space, from geometry of manifolds, from representation theory and other areas are brought together to answer questions about which groups act on a space, in which ways a group can act and what geometric information is preserved by a group action etc.

In this talk, we aim to give some basic definitions and a broad view of group actions on topological spaces, especially on manifolds. In particular, we will present a survey of some of the main results of group actions on spheres and product of spheres and some open problems.

Keywords. Group action, manifolds, ...

On a New Class of Nonlinear Functional Differential Equations with Real World Applications

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We deal with a new class of functional differential equations, which includes functional dependence on piecewise constant argument of both retarded and advanced type [1]. We consider the qualitative properties such as existence and uniqueness of solutions, bounded solutions, existence and stability of periodic solutions for this type of equations. We aim in this study to model and analyze real world problems through these equations. We investigate the dynamics of a model of neural networks and also a mechanical model with functional dependence on piecewise constant argument of generalized type.

Keywords. Functional differential equations, neural networks, spring-mass system, periodic solutions.

This is a joint work with Marat Akhmet and Nur Cengiz.

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A Survey on Topological Robotics

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Topological robotics is a field initiated by Michael Farber in 2003. This new field tries to answer topological questions which are inspired by robotics and engineering. In this talk, we will give a brief survey in topological robotics mainly focusing on an important homotopy invariant called Topological Complexity which measures how far a space away from admitting a motion planning algorithm.

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Bazı Sıra-koruyan Kesin Kısmi Dönüşüm Yarıgruplarının Doğuray Kümeleri

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O_n ve PO_n sırasıyla $X_n = \{1, \ldots, n\}$ kümesi üzerinde tanımlı (bilinen sıralama ile) sıra-koruyan (tam) dönüşümler yarıgrubu ve sıra-koruyan kısmi dönüşümler yarıgrubu olsun. Bu durumda X_n kümesi üzerinde tanımlı tüm sıra-koruyan kesin kısmi dönüşümler kümesi $SPO_n = PO_n \setminus O_n$ de dönüşümlerin bileşkesi işlemiyle bir yarıgruptur. Bu çalışmada, $\mathrm{im}\,(\alpha) = \{y \in X_n : \exists x \in X_n, x\alpha = y\}$ olmak üzere, SPO_n nin

$$SPO(n, r) = \{\alpha \in SPO_n : |\mathrm{im}\,(\alpha)| \leq r\}$$

$(2 \leq r \leq n-1)$ şeklinde tanımlanan alt yarıgrupları incelenerek herhangi bir alt kümesinin bir (minimal) doğuray kümesi olabilmesi için gerekli ve yeterli olan koşullar ve rankları belirlenmiştir.

Anahtar kelimeler. Sıra-koruyan (Kısmi/Kesin kısmi) dönüşüm, doğuray kümesi, rank.

Bu çalışma Hayrullah Ayık ile yapılmış ortak çalışmadır.

On Small Covers over a Product of Simplices

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A small cover is a smooth closed manifold M^n which admits a locally standard $\mathbb{Z}_2^n$-action whose orbit space is a simple convex polytope. The notion of a small cover is introduced by Davis and Januszkiewicz [2] as a generalization of real toric manifolds. The aim of this talk is to discuss small covers over a product of simplices. In [1], Choi gives a formula for the number of small covers over a product of simplices in terms of the number of acyclic digraphs with n labeled nodes. In this talk we also provide a formula for the number of $\mathbb{Z}_2^n$-equivariant homeomorphism classes of small covers over a product of simplices.

Keywords. Small covers, characteristic function, equivariant homeomorphism.

This is a joint work with Murat Altunbulak.

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Buckley James Type Estimator

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The Buckley-James (1979) estimator is an estimator for linear regression models with censored data. Jin-Lin-Ying (2006) proposed an estimator of the vector valued regression parameter that consistent and asymptotically normal.We apply Buckley-James Type estimator to the multivariate failure time data. This study provides theoretical results about the performance of Buckley-James and Jin-Lin-Ying estimator for multivariate failure time data with censored data.

Keywords. Buckley-James Estimator, censored linear regression, multivariate failure time data, accelerated failure time data.

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On Complex η-Einstein Normal Complex Contact Metric Manifolds

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The aim of this paper is focusing on η-Einstein geometry of complex contact metric manifolds. We give the definition of complex η-Einstein normal complex contact metric manifolds. In addition, we study on Weyl conformal curvature tensor $\mathcal{W}$ and concir- cular curvature tensor $\mathcal{Z}$ and we show that a normal complex contact metric manifold which satisfy $\mathcal{Z}(U,X).\mathcal{W} = 0$ and $\mathcal{Z}(V,X).\mathcal{W} = 0$ complex η-Einstein. Also, we prove that a projectively semi-symmetric normal complex contact metric manifold is complex η-Einstein.

This is a joint work with Inan Ünal.

Stochastic Delay Differential Equations and Their Applications to Finance

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In many areas of science like physics, ecology, biology, economics, engineering, financial mathematics etc. phenomenas do not show their effect immediately at the moment of their occurrence. Generally, they influence the future states. In order to understand the structure and quantitative behavior of such systems, stochastic delay differential equations (SDDEs) are constructed while inserting the information that are obtained from the past phenomena into the stochastic differential equations (SDEs). SDDEs become a new interest area due to the their potential to capture reality better. It can be said that SDDEs are in the infancy stage when we consider the SDEs. Some numerical approaches to SDDEs are constructed because obtaining closed form solutions by the help of stochastic calculus is very difficult most of the time and for some equations it is impossible. The aim of this talk is to explain general forms of SDDEs and their solution process for the deterministic time delay. Some examples are provided to see the exact solution process. Moreover, we examine numerical techniques to obtain approximate solution processes. In order to understand effect of delay term, these techniques are used to simulate the solution process for different choices of delay terms and coefficients.

Keywords. Stochastic delay differential equations, Euler-Maruyama method for SDDEs.

This is a joint work with Yeliz Yolcu Okur and Ceren Vardar Acar.

The Number of Singular Fibers in Hyperelliptic Lefschetz Fibrations

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In this talk, first we will give some basic definitions and theorems about Lefschetz fibrations [1, 2]. Then we will show our result which states that let N_g be the minimal number of genus-g holomorphic hyperelliptic Lefschetz fibrations over a sphere, then $N_g = 2g + 4$ if $g \geq 4$ and even, $N_g \geq 2g + 6$ if $g \geq 5$ and odd. In addition, we will discuss the number of singular fibers of hyperelliptic Lefschetz fibrations over a sphere which does not carry a complex structure.

Keywords. Lefschetz fibrations, symplectic 4-manifolds, hyperelliptic mapping class group, complex surfaces.

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Homogeneous Monomial Groups

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Let H be a group. A monomial substitution over H is a linear transformation

$$\rho = \begin{pmatrix} x_1 & x_2 & ... & x_m \\ r_1 x_{i_1} & r_2 x_{i_2} & ... & r_m x_{i_m} \end{pmatrix}$$

where each variable is changed into some other variable formally multiplied by an element of H. The elements r_i are called the factors or multipliers in ρ. The multiplication rx has the associative property $r(sx) = (rs)x$ where $r, s \in H$. The set of all monomial substitution on m variables forms a group $\Sigma_m(H)$, called *the complete monomial group of degree m* or *the symmetry of degree m of H*. Ore gives the construction and some basic properties of a complete monomial group of finite degree in [1].

A sequence of positive integers $\xi = (n_i)_{i\in\mathbb{N}}$ is called a divisible sequence if $n_i | n_{i+1}$ for each $i \in \mathbb{N}$. Let $\mathbb{P}$ be the set of all prime numbers and $r_p \in \mathbb{N} \cup \{0, \infty\}$. A *Steinitz number* (or a supernatural number) is an infinite formal product of the form $\Pi_{p\in\mathbb{P}} p^{r_p}$. Any divisible sequence $\xi = (n_i)_{i\in\mathbb{N}}$ corresponds to a unique Steinitz number, the characteristic of ξ, $char(\xi) = \prod_{i\in\mathbb{N}} k_i$ if we define

$$k_1 = n_1 \ , \ k_{i+1} = \frac{n_{i+1}}{n_i} \text{ for each } i \in \mathbb{N}.$$

Let $\xi = (n_i)_{i\in\mathbb{N}}$ be a given divisible sequence and H be a group. A monomial substitution $\kappa \in \Sigma_{\mathbb{N}}(H)$ is said to be ξ-periodic if it is of the form

$$\left(\begin{array}{ccc|ccc|c|ccc|c} x_1 & .. & x_{n_s} & x_{n_s+1} & .. & x_{2n_s} & .. & x_{(k_{s+1}-1)n_s+1} & .. & x_{(k_{s+1}-1)n_s+n_s} & ... \\ h_1 x_{i_1} & .. & h_{n_s} x_{i_{n_s}} & h_1 x_{n_s+i_1} & .. & h_{n_s} x_{n_s+i_{n_s}} & .. & h_1 x_{(k_{s+1}-1)n_s+i_1} & .. & h_{n_s} x_{(k_{s+1}-1)n_s+i_{n_s}} & ... \end{array}\right)$$

for some $s \in \mathbb{N}$ where $k_1 = n_1$ and $k_{i+1} = \frac{n_{i+1}}{n_i}$ for all $i \geq 2$. Then the set of all ξ-periodic substitutions forms a group, called the ξ-homogeneous monomial group over H, denoted by $\Sigma_\xi(H)$ which is isomorphic to the permutational wreath product of H with the homogeneous symmetric group S_ξ [2].

The main purpose of this study is to find the structure of ξ-homogeneous monomial groups.

Keywords. Monomial group, direct limit.

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Projective Structures and Contact Forms

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In [1], Ovsienko showed that a locally simply connected projective manifold of odd dimension is contact. In this talk, first I will give the definiton of real projective structures and contact forms. Then I will show that if an odd dimensional manifold M with any fundamental group admits a special contact form consisting of some functions on M then it admits a real projective structure.

Keywords. Real projective structure, contact form.

This is a joint work with Yıldıray Ozan.

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Projeksiyona Dayalı Çok Ölçekli Varyasyonel Uygun Dik Ayrıştırma Metodunun Modüler Regülarizasyonu

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Bu çalışmada, sıkıştırılamaz Navier-Stokes denklemleri için uygun dik ayrıştırma (POD) metodu ile projeksiyona dayalı varyasyonel çok ölçekli metodun (VMS) bir uygulaması incelenmiştir. Projeksiyona dayalı VMS stabilizasyonu, standart POD yaklaşımına ayrı bir basamak olarak eklenmiştir. Stabilizasyon adımı tamamen ayrıştırıldığından, yöntem geçerli kodlara kolayca dahil edilmiştir. Yeni algoritmanın sonlu elemanlar ayrıklaştırması için kararlılık ve yakınsaklık analizleri sunulmuştur. Ölçüt problemleri kullanılarak önerilen metodun etkinliği test edilmiştir.

Anahtar kelimeler. Uygun dik ayrıştırma metodu, projeksiyona dayalı çok ölçekli varyasyonel metod.

Bu çalışma Songül Kaya Merdan ile yapılmış ortak çalışmadır.

Homogeneous Symmetric Groups

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For any infinite prime sequence $\xi = (p_1, p_2, \ldots)$, let $n_i = p_1 p_2 \ldots p_i$. Then for every $p_i \in \xi$ consider the embeddings d^{p_i} from the symmetric group $S_{n_{i-1}}$ to S_{n_i} where for any $\alpha \in S_{n_{i-1}}$ if $\alpha = \begin{pmatrix} 1 & 2 & \cdots & n_{i-1} \\ j_1 & j_2 & \cdots & j_{n_{i-1}} \end{pmatrix}$, then

$$d^{p_i}(\alpha) = \begin{pmatrix} 1 & 2 & \cdots & n_{i-1} \\ j_1 & j_2 & \cdots & j_{n_{i-1}} \end{pmatrix} \begin{vmatrix} n_{i-1}+1 & \cdots & 2n_{i-1} \\ n_{i-1}+j_1 & \cdots & n_{i-1}+j_{n_{i-1}} \end{vmatrix} \begin{vmatrix} \cdots \\ \cdots \end{vmatrix} \begin{vmatrix} (p_i-1)n_{i-1}+1 & \cdots & (p_i-1)n_{i-1}+n_{i-1} \\ (p_i-1)n_{i-1}+j_1 & \cdots & (p_i-1)n_{i-1}+j_{n_{i-1}} \end{vmatrix}$$

d^{p_i}'s are called strictly diagonal embeddings. For any ξ, the direct limit groups $S(\xi) = \bigcup_{i=1}^{\infty} S_{n_i}$ constructed by using the strictly diagonal embeddings above is called **homogeneous symmetric groups**. The construction and the classification of these groups are due to Kroshko-Suschansky, see [2].

Homogeneous symmetric groups are locally finite groups and depending on the appearance of the prime 2, that is if 2 appears infintely many times in ξ than $S(\xi)$ will be simple locally finite group.
A formal product $n = 2^{r_1}3^{r_2}5^{r_3}\ldots$ where $0 \leq r_i \leq \infty$ is called a **Steinitz number**. For any $\xi = (p_1, p_2, \ldots)$ we can define a Steinitz number $n = 2^{r_1}3^{r_2}5^{r_3}\ldots$ where r_i is the number of times that the prime p_i repeats in ξ. If p_i repeats infinitely many times we set $r_i = \infty$.
In this talk first I will construct the direct limit group $S(\xi) = \bigcup_{i=1}^{\infty} S_{n_i}$ and discuss how the classification of these groups relate to the set of Steinitz numbers. In fact, two groups $S(\xi_1)$, $S(\xi_2)$ coincides if and only if the Steinitz numbers corresponding to ξ_1 and ξ_2 are equal. Moreover, I will discuss the structure of the centralizers of an element in $S(\xi)$ which are done in [1].

Keywords. Symmetric groups, locally finite groups.

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Çarpımsal Genelleştirilmiş Türev Yardımıyla Halkaların Değişmeli Olma Koşulları

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R bir yarıasal halka ve I, R halkasının bir ideali olsun. 1991 yılında M. N. Daif tarafından çarpımsal türev kavramı şu şekilde tanımlanmıştır: $d : R \to R$ bir dönüşüm olmak üzere her $x, y \in R$ için

$$d(xy) = d(x)y + xd(y)$$

koşulu sağlanıyor ise d ye R halkasının bir çarpımsal türevi denir. Bu dönüşüm toplamsal bir dönüşüm olmak zorunda değildir. Daha sonra M. N. Daif ve M. S. Tamman El-Sayiad tarafından bu tanım çarpımsal genelleştirilmiş türev tanımına şu şekilde genelleştirilmiştir: $F : R \to R$ ve $d : R \to R$ iki dönüşüm olmak üzere her $x, y \in R$ için

$$F(xy) = F(x)y + xd(y)$$

oluyorsa F ye d ile belirlenen bir çarpımsal genelleştirilmiş türev denir. S, R halkasının boş kümeden farklı bir alt kümesi, $F : R \to R$ bir dönüşüm olmak üzere eğer her $x, y \in S$ için $[x, y] = [F(x), F(y)]$ oluyorsa F ye R halkasının S üzerinde bir güçlü komütatifliği koruyan (strong commutativity preserving) dönüşümü veya kısaca SCP denir. Bu çalışmada
i) $F([u, v]) = \pm u^m [u, v] u^n$,
ii) $F(u \circ v) = \pm u^m (u \circ v) u^n$,
iii) F , I üzerinde SCP dönüşüm,
iv) $F(u) \circ F(v) = u \circ v$, $\forall u, v \in I$, $m, n \in \mathbb{Z}$
koşullarından biri sağlanıyor ise bu durumda R halkasının sıfırdan farklı merkezi bir ideal kapsadığı gösterilmiştir.

Anahtar Kelimeler. Yarıasal halka, ideal, SCP dönüşüm, çarpımsal genelleştirilmiş türev.

Bu çalışma Cumhuriyet üniversitesi bilimsel araştırma projeleri komisyonun F-515 numaralı projesi tarafından desteklenmiştir.

Kaynaklar

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Lyapunov-type Inequalities for Quasilinear Elliptic Equations with Robin Boundary Condition

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The aim of this study is to prove Lyapunov-type inequalities for a quasilinear elliptic equation in $\mathbb{R}^2$. Also the lower bound for the first positive eigenvalue of the boundary value problem is obtained.

Keywords. Lyapunov-type inequalities, elliptic equations, Robin boundary conditions.

This is a joint work with Ülkü Dinlemez Kantar.

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On A Graph of Submodules

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Let R be an associative ring with identity and M be a right R-module. We define the non-maximal graph $\mu(M)$ of M with all non-trivial submodules of M as vertices and two distinct vertices A, B are adjacent if and only if $A + B$ is not maximal submodule of M. In this paper, we investigate the connectivity, completeness, girth, domination number, cut edges and perfectness of $\mu(M)$. Moreover, we give connections between the graph-theoretic properties of $\mu(M)$ and algebraic properties of M.

Keywords. Non-maximal submodules, complete and connected graph, girth and domination number.

This is a joint work with Ali Öztürk and Erol Yılmaz.

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Tight Contact Structures on Hyperbolic 3-manifolds

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We show the existence of tight contact structures on infinitely many hyperbolic three-manifolds obtained via Dehn surgeries along sections of hyperbolic surface bundles over circle.

Keywords. Contact structure, tight, Stein fillable, open book, hyperbolic manifold.

This is a joint work with Fırat Arıkan.

Decomposing $\mathbb{Z}$-perfect Discrete Morse Functions on a Connected Sum of 3-manifolds

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In this study, we will first give some basic definitions and theorems about discrete Morse theory [1]. Then we show how one can decompose a $\mathbb{Z}$-perfect discrete Morse function [2] on a connected sum of closed, connected, oriented, triangulated 3-manifolds. We also give a way to find a separating sphere on a connected sum to obtain each prime factor if the connected sum admits a $\mathbb{Z}$-perfect discrete Morse function.

Keywords. Perfect discrete Morse function, discrete gradient vector field, closed 3-manifold, connected sum.

This is a joint work with Neza Mramor Kosta and Mehmetcik Pamuk.

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Veri Madenciliği Kullanılarak Mikrodalga Verileri ile Beyindeki Lezyonların Teşhisi

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Beyindeki bir kan damarı patladığında lezyonlar oluşur. Beyin dokusu etrafında biriken kan zamanında saptanmazsa ciddi hastalıklara hatta ölüme neden olabilir. Bu nedenle, beyinde oluşan lezyonların görüntülenmesi ya da tespit edilmesi için farklı alanlarda çok sayıda çalışma sürdürülmektedir. Sağlıklı beyin dokusu ile kanamalı doku arasındaki elektromanyetik malzeme özellikleri mikrodalga frekanslarında kayda değer bir fark oluşturur. Bu durum beyin lezyonlarının tespitinde mikrodalgaların kullanılmasını en ümit verici yaklaşımlardan biri yapmaktadır.
Beyin bir mikrodalga dalga kaynağıyla aydınlatıldığında, beyinden saçılan elektromanyetik alan beynin şekli ve malzeme özellikleriyle birlikte varsa beyindeki kanamalı dokunun bilgisini de içerir. Böylece, saçılan alanın ölçülmesiyle elde edilen veriler yardımıyla kanamalı dokuların tespiti mümkün hale gelir. Bu çalışmada, gerçekçi elektromanyetik malzeme özellikleri içeren sayısal bir kafa modeli [1] kullanılmıştır. Söz konusu verilerin sentetik bir şekilde elde edilmesi amacıyla beyinden saçılma problemi iki integral denklemden oluşan bir matematiksel modele indirgendi ve bu integral denklemler en çok kullanılan sayısal yöntemlerden biri olan Moment metoduyla [2] çözüldü.
Son olarak kanama içeren ve içermeyen beyin modellerinden elde edilen veriler Naïve Bayes, k-en yakın komşu algoritması ve karar ağaçları gibi makine öğrenmesi tekniklerinde kullanılarak kanama olup olmadığına dair sonuçlar elde edilmiştir ve yöntemlerin başarı oranları karşılaştırılmıştır.

Anahtar kelimeler. Veri madenciliği, moment yöntemi, mikrodalga saçılma problemi.

Bu çalışma Birol Aslanyürek ve Hülya Şahintürk ile yapılmış ortak çalışmadır.

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Time-like and Light-like Sectional Curvature of pp-Wave Spacetimes

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In this talk, after we recall basic concepts from Lorentzian geometry, we define pp-wave space-times and state some fundamental facts related to the geometry of this class of space-times (see [1],[2]) and also emphasize their relativistic importance. Then, we will present time-like and light-like (null) sectional curvature properties of pp-wave space-times. More explicitly, we state necessary conditions for a pp-wave space-time to have constant, positive or negative sectional curvature.

Keywords. Sectional curvature, Lorentzian geometry, pp-wave space-times.

This is a joint work with Bülent Ünal.

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On $*-(\sigma,\tau)-$ Lie Ideals Of $*-$Prime Rings With Derivation

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Let R will be an associative ring with center Z. Recall that a ring R is prime if $xRy = 0$ implies $x = 0$ or $y = 0$. An additive mapping $* : R \to R$ is called an involution if $(xy)^* = y^*x^*$ and $(x^*)^* = x$ for all $x, y \in R$. A ring with an involution is said to $*-$prime if $xRy = xRy^* = 0$ or $xRy = x^*Ry = 0$ implies that $x = 0$ or $y = 0$. Every prime ring with an involution is $*-$prime but the converse need not hold general. Let σ and τ two mappings from R into itself. For any $x, y \in R$, we write $[x, y]$ and $[x, y]_{\sigma,\tau}$, for $xy - yx$ and $x\sigma(y) - \tau(y)x$ respectively. Recall that an additive subgroup U of R is said to be a Lie ideal of R if $[U, R] \subseteq U$. Kaya [3] first introduced the $(\sigma,\tau)-$Lie ideal as following: Let U be an additive subgroup of R, $\sigma, \tau : R \longrightarrow R$ be two mappings. Then (i) U is a $(\sigma,\tau)-$right Lie ideal of R if $[U, R]_{\sigma,\tau} \subseteq U$. (ii) U is a $(\sigma,\tau)-$left Lie ideal of R if $[R, U]_{\sigma,\tau} \subseteq U$. (iii) U is a $(\sigma,\tau)-$Lie ideal of R if U is both a $(\sigma,\tau)-$right Lie ideal and $(\sigma,\tau)-$left Lie ideal of R. Every Lie ideal of R is a $(1, 1)-$left (and right) Lie ideal of R, where $1 : R \longrightarrow R$ is the identity map of R. An additive mapping $d : R \to R$ is called a derivation if $d(xy) = d(x)y + xd(y)$ holds for all $x, y \in R$. The following result has been showed for Lie ideals or $(\sigma,\tau)-$ Lie ideals or $*-$prime rings in [2], [1], [4]. In this study, we will be prove:

Theorem: Let R be a $*-$prime ring with characteristic not 2, U a nonzero $*-(\sigma,\tau)-$Lie ideal of R, d a nonzero derivation of R. Suppose σ, τ be two automorphisms of R such that $\sigma d = d\sigma, \tau d = d\tau$ and $*$ commutes with σ, τ, d. If $d^2(U) = (0)$, then $U \subseteq Z$.

Keywords. Derivations, (σ,τ) $-$Lie ideals, $*-$prime rings, involution.
This is a joint work with N. Aydın and E. Koç and it is supported by the CÜBAP-F-514.

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Bennet and Leindler Type Inequalities for Nabla Time Scales Calculus

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We will prove some new dynamic inequalities on a time scale $\mathbb{T}$ for nabla time scales calculus. The generalization of Bennett and Leindler type inequalities which are the converses of Copson inequalities is found for an arbitrary $\mathbb{T}$ for nabla calculus. The special cases of these types of inequalities are also given when $\mathbb{T} = \mathbb{N}$ and $\mathbb{T} = \mathbb{R}$.

Keywords. Nabla derivative, Nabla integration, inequalities time scale.

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Analysing the Iterative Stein Type Estimators

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The iterative Stein type estimators of the disturbance variance in a linear regression model can be obtained by using Stein-rule estimator or positive part Stein-rule estimator instead of ordinary least squares estimator in the variance formula. The contribution of this paper is to examine the performance of these two computationally tractable estimators. Because of the highly parameterized structure of the proposed estimators, comparisons will be addressed both theoretically and numerically.

Keywords. Iterative Stein-type estimator, Stein-rule estimator, positive part Stein-rule estimator.

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28 Nisan 2017 (Cuma)	
8:30-9:30	Kayıt
9:30-9:45	Açılış
9:45-10:45	**Çağrılı Konuşma** Özlem Beyarslan
10:45-11:00	**Ara**
11:00:11:30	Leyla Bugay
11:30-12:00	Duygu Aruğaslan
12:00-12:15	**Ara**
12:15-12:25	Ü.Büşra Güven
12:25-12:35	Sezen Bostan
12:35-12:50	Hatice Çoban
12:50-13:00	Merve Seçgin
13:00-14:30	**Öğle Arası**
14:45-15:45	**Çağrılı Konuşma** Semra Pamuk
15:45-16:00	**Ara**
16:00-16:30	Aslı Güçlükan İlhan
16:30-17:00	Ayşe Borat
17:00-17:15	**Ara**
17:15-17:25	Hanife Varlı
17:25-17:35	Tülin Altınöz
17:35-17:45	Emine Koç
18:30	**Akşam yemeğine gidiş**
29 Nisan 2017 (Cumartesi)	
09:30-10:30	**Çağrılı Konuşma** Yeliz Yolcu Okur
10:30-10:45	**Ara**
10:45-11:15	Aysel T.Vanlı
11:15-11:25	E.Ezgi Aladağlı
11:25-11:35	Tuğba Vural
11:35-11:45	Tahire Öztürk
11:45-12:00	**Ara**
12:00-12:30	Nuray Nurkut Urgan
12:30-12:40	Tülay Özden
12:40-12:50	Bengi Ruken Yavuz
12:50-13:00	Fatma Güler Eroğlu