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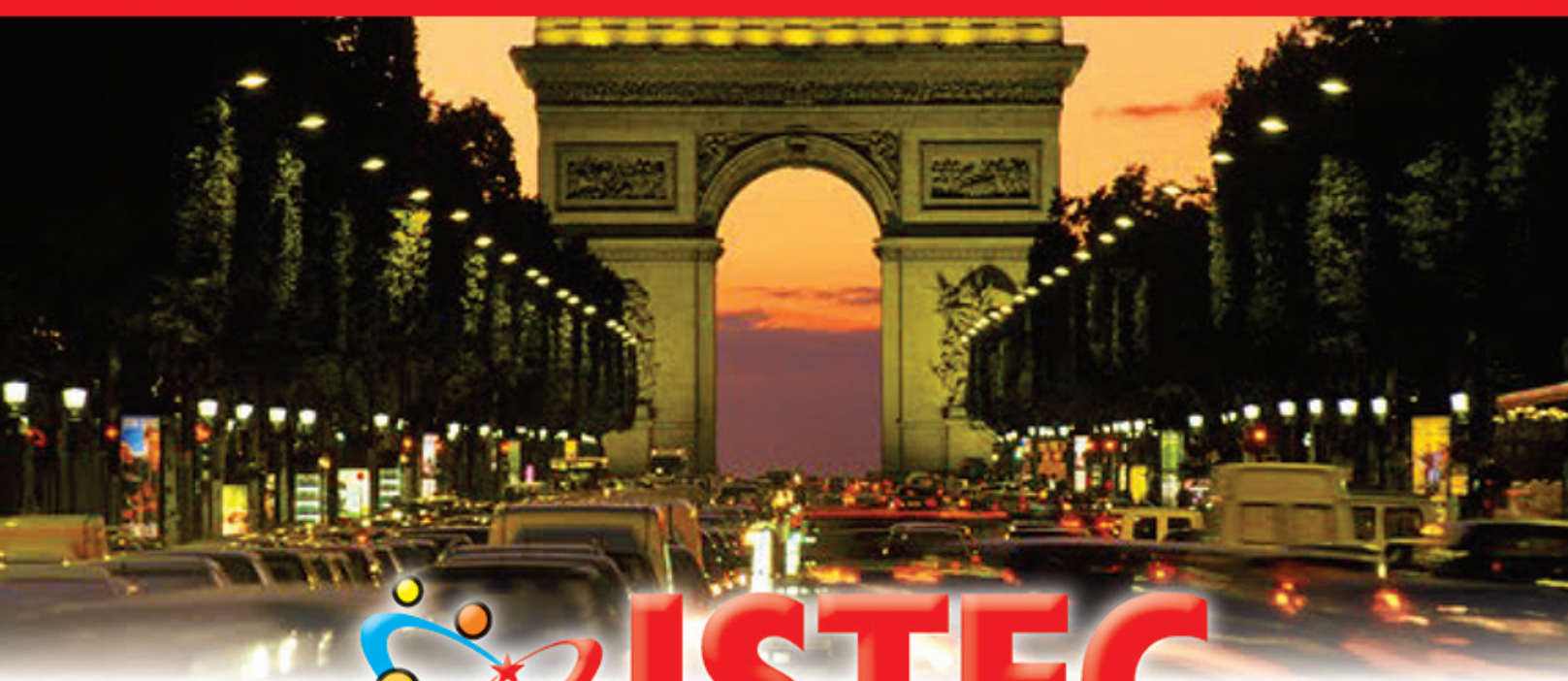

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# İÇİNDEKİLER

# 3 FAZLI ASENKRON MOTORUN ANFİS YÖNTEMİ İLE YÜK MOMENT KONTROLÜNÜN SAĞLANMASI

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**ÖZET**

Asenkron motorların yapısının basit olması yük altında kalkınabilmeleri ve doğrudan yol verme gibi imkanlarının bulunması sebebi ile endüstride DC motorlara karşı tercih edilmesine rağmen DC motorların hızlı moment cevabı ve doğrusal hız kontrolü gibi konularda DC motorlar özel tercih sebebidir.

Son yıllarda kontrol sistemleri ve güç elektroniğindeki gelişmeler sonucunda Asenkron Motoların hız kontrolleri yapılabilmektedir. 1995 yılında ticari olarak kullanıma sunulan Doğrudan Moment Kontrolü (DTC) motor akısı ile momentinin temel kontrol değişkenleri olarak kullanılması , DC sürücülerde yapılan işleme benzer özellik göstermektedir. DTC' de, akı ve momentin her ikisi de bir denetleyici ile kontrol edilir ve PWM ile ilgili gecikmeler ortadan kalkar. Böylece, DC sürücünün sahip olduğu moment kontrol ve doğrudan akı kontrolu ile hızlı cevap verme gibi özellikler elde edilir.

Üç fazlı asenkron motorların hız denetiminde sistemin doğrusal olmayan yapısı, yük momentindeki değişimler, ısı değişimi ,rulman gibi ekipmanların hıza bağlı olarak sürtünme katsayılarının değişmesi ve bozucu harmonik etkiler gibi nedenlerden dolayı PID tipi denetleyiciler ile iyi bir sonuç alınamamaktadır.

Bu çalışmada; matlab simulink ortamında Asenkron Motorun doğrudan moment kontrolünde sadece motor akısı ve moment giriş değişkeni olarak alınmayıp; nüve ile sargı ısısı, dönen ekipmanların sürtünme katsayısı giriş değişkeni alınarak adaptif sinirsel-bulanık denetimli (ANFIS) bir kontrol yöntemi uygulanmış ve PID denetime göre performans karşılaştırılması yapılmıştır. Çalışma sonucunda, asenkron motorun hız kontrolü simülasyon çalışmasında, yükselme zamanı, aşım, yerleşme zamanı ve sürekli hal hatası gibi performans parametreleri ayarlanarak önerilen denetim sistemi geleneksel PID denetime kıyasla daha iyi bir performans sağlamıştır.

**Keywords:** Asenkron Motor, Anfis Yöntemi, DTC

# A "SUPER FOOD" FOR ALTERNATIVE NUTRIENTS: SPIRULINA PLATENSIS

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**ABSTRACT**
Nutrition provides the growth and maintains function of organism. In recent years, there has been an increase in importance of alternative foods for feeding and health, especially Spirulina platensis. S.platensis is a microalgae called as "Super food" as endorsed by lifestyle personalities, and also has been approved as a health food by the World Health Organization. This study we aimed to evaluate the effects of different doses of S.platensis (500-1000 mg/kg bw) on physiological such as growth, haemotogical and biochemical parameters. During trial the rats were weighed weekly and the haemogram parameters (haematocrit, haemoglobin, red-white blood cell counts, leukocyte subtypes, MCV, MCHC, RDW and PLT) were analyzed. Serum total cholesterol, its fractions (LDL, HDL) and atherogenic indices (TC:HDL-C, LDL-C:HDL-C) were observed. Besides that, serum protein, albumin, globulin and albumin/globulin ratio were determined. Although there were no statistically differences occurred among all groups, all parameters were found in their reference values. However, effects of lower dose of S.platensis showed the best result for those physiological parameters. As a result that, S. platensis with its high concentration of functional nutrients is called as an important alternative therapeutic food and can be said that it can be used safely.

**Keywords:** Alternative food, Spirulina, microalgae, health.

# A CASE STUDY OF A GRAVITY WALL LOCATED IN THE FISHING PORT AREA

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**ABSTRACT**
In a technical sense, a gravity wall is defined as any structure that resists soil pressure. The gravity wall is typically a permanent structure constructed in the form of a retaining element for the slope.
The advantages of this wall type are that the excavation materials can be used in the walls of these walls, the evaluation of the waste materials and the integrity of nature by adapting to the ground conditions of the weight wall.
The gravity wall, which is built between the service road of the fishing port and the highway, is about 340 meters in length and varies in height and has a maximum height H = 10.50 meters.
During the construction of the road, some parts of the gravity wall which had been built, were collapsed in the form of breakage in the wall as a result of the surcharge load effect caused by mass transfer from the road embankment. Damaged parts of the wall were repaired.
In this study, bearing capacity and stability analysis were carried out on the failure cross section (Section-A) which has the height of 5.16 meter along the wall route. GEO5 package program is used in the analyses. The parameters used in the analyses were obtained from the laboratory studies and literature. The port area is located in the second-degree earthquake zone and the seismic effect was considered in the analysis.

**Keywords:** gravity wall, retaining structure, bearing capacity

# A COMPARATIVE STUDY OF VARIOUS POROUS ADSORBENTS FOR CO2 ADSORPTION

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**ABSTRACT**
Zeolites, metal organic frameworks (MOFs), carbon nanotubes, polymers, and activated carbons have been commonly used as porous adsorbents for $CO_2$ adsorption [1]. The objective of the study was to prepare low-cost activated carbon from carob stones and compare its adsorption capacities for $CO_2$ with that of commercial activated carbon, mesoporous silica and four zeolites (zeolite, 4A zeolite, ammonium Y and sodium Y zeolites). $CO_2$ adsorption on these porous adsorbents was investigated by using volumetric adsorption apparatus, TriStar II 3020 at room temperature and at pressures up to 900 mmHg. The adsorption isotherm data of the $CO_2$ for the porous adsorbents were compared with the Freundlich, Langmuir, Temkin, Dubinin-Radushkevich, and Harkins-Jura isotherm models. The $CO_2$adsorption capacities (wt%) were determined using the values of the quantity adsorbed at 900 mmHg. It could be confirmed that chemical activation plays an important role in determining the porous structure and amount of $CO_2$ adsorbed.

**References**

Z. Liu, C. A. Grande, P. Li, J. Yu, A. E. Rodrigues; *Separation Science and Technology*. **2011**, 46, 434-451.

**Keywords:** carob stones, activated carbon, zeolite, mesoporous silica, CO2 adsorption, isotherm models.

# A CONCEPTUAL APPROACH TO CHEMICAL CORE

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**ABSTRACT**
Given the rich diversity of research fields usually ascribed to chemistry in a broad sense, the present paper tries to dig our characteristic parts of chemistry that can be conceptually distinguished from interdisciplinary, applied, and specialized subfields of chemistry, and that may be called chemistry in a very narrow sense, or 'the chemical core of chemistry'. Unlike historical, ontological, and 'anti-reductive' approaches, we use a conceptual approach together with some methodological implications that allow to develop step by step a kind of cognitive architecture for chemistry, which basically contains: (1) systematic chemical knowledge on the experimental level; (2) clarification of chemical species; (3) chemical classification systems; (4) theoretical foundation through the chemical theory of structural formulas. In a succeeding paper the results will be checked for resisting physicalistic reduction.

**Keywords:** chemical properties, pure substances, theory of structural formulas

# A NUMERICAL STUDY USING MIXTURES OF WATER - ETHYLENE GLYCOL BASED NANOFLUIDS ON LAMINAR HEAT TRANSFER OF AN ANNULUS

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**ABSTRACT**
In this study, developing laminar flow and heat transfer behavior of ethylene glycol (EG) and water mixture based $SiO_2$ nanofluids in an annulus have been numerically investigated.A constant heat flux was applied to the inner walls of the annulus with 100 W / $m^2$. Water 100% - EG 0%, water 50% - EG 50% and water 0% - EG 100% mixtures have been utilized as the base fluids. $SiO_2$ nanoparticles have been used with d = 20 nm and volume fractions $\phi$ =0%-4%. The Reynolds number varies from 200 to 1000. The physical model of the test section mainly consists of two concentric horizontal cylinders that form an annular space ranging from two interconnected elliptical tubes with axis ratio($r_1/r_2$=1/2) placed at the centre of a circular cylinder with major radius of $2r_2$ with the length of 1 m. Governing equations have been solved with Ansys Fluent programme. The velocity distribution, temperature contours, average Nusselt number and thermal-hydraulic performance have been analysed and presented. The effects of nanofluids have been examined on heat and flow fields and it has been observed that the heat transfer increases together with the nanoparticle volume concentration. When the nanofluid is used in a forced convection, the amount of heat transfer increases as the Reynolds number increases. The highest value of the average Nusselt number was obtained in the EG based nanofluid with $\phi$=4% and Re=1000 as 29.14, and the lowest value was obtained in the water-based nano-fluid with $\phi$=4% and Re=200 as 5.61. Results show that the use of nanofluid in the annulus channel increases the thermal performance of systems.

**Keywords:** Elliptic annulus, heat transfer, nanofluid, CFD.

# A PATTERN RECOGNITION SYSTEM FOR DETECTION OF ROAD SIGNS

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**ABSTRACT**
The recognition of pattern comes from different disciplines, which are mathematics, engineering sciences, computer science and artificial intelligence, our objective in this study is to recognize road signs through an image captured by a multifunction camera located in front of the vehicle, and which allows to detect the signs and compares to the models registered in a database, the information returned by this recognition is displayed on the dashboard, and which makes it possible to avoid unpleasant consequences.

**Keywords:** DETECTION OF ROAD SIGNS

# A SCIENTIFIC APPROACH TO PROTECTING MASONRY SURFACES FROM MICROBIOLOGICAL GROWTH

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**ABSTRACT**
Sanitation efforts in public institutions quietly operate behind the scenes to ensure comfort and safety of the building occupants. Without extremely consistent, detail oriented service, the aesthetic appeal and sanitation of surfaces can quickly deteriorate to a level that puts the occupants of a building at risk. Public restrooms are, understandably, one of the most mission-critical areas in a janitorial regimen due to the number of revolving occupants and the activities conducted therein. Though a significant amount of research has been dedicated to developing sanitary architectural design practices, many of these practices were not utilized in prior construction and are not being adopted in new construction. Therefore, there is a need for coatings and sealants that can aid janitorial efforts in keeping surfaces clean and hygienic. Researchers from West Texas A&M University (Canyon, Texas, USA), in collaboration with Buffalo Technology Group LLP (Canyon, Texas, USA) explored several mixtures of antimicrobial additives that could be incorporated into commercially available masonry sealants to provide tile grout and other masonry surfaces with protection from fungi and bacteria. These sealant mixtures were subjected to standardized microbiologically testing procedures against bacteria (including non-spore-forming and spore-forming strains) in static and dynamic fluid conditions as well as common household fungi. Results from microbiological testing indicate that the sealants enhanced with the antimicrobial additives deactivated over 95% of bacteria cells and resisted fungi growth completely. These results are significant because the additive material eliminates the primary sources of aesthetic and hygienic contamination on masonry surfaces in public areas.

**Keywords:** antimicrobial surfaces, masonry sealants, sanitation technology

# A STUDY ON MONITORING METHOD FOR ACCIDENT PREVENTION OF INDUSTRIAL VALVES

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**ABSTRACT**
An industrial valve is a device used to control, direct, and regulate the flow of gases, liquids, and flowing solids. Valves are connected to pipes for the production or transport of products and are important because once a failure occurs, the entire production is interrupted or an accident occurs. Foreign matter, wear, cracks, scratches, sticking, operation defects may lead to accidents. It is necessary to monitor the risk factors related to breakdowns and accidents, and to take initial measures to minimize the damage in the event of a leakage accident. In this study, environmental and failure data of industrial valves were analyzed. The monitoring method was also derived through analysis of operation, failure and damage characteristics of industrial valves. As a result, we developed a valve fault diagnosis and accident prediction technique for preventive maintenance by selecting relevant sensors that can monitor the major influential factors of the valve. This technology can not only prevent accidents, but also minimize energy consumption by maximizing management efficiency.

**Keywords:** Industrial Valves, Monitoring Method, accident prediction technique, fault diagnosis

# A STUDY ON THE SUMS INVOLVING TRIANGULAR NUMBERS AND FACTORIALS

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**ABSTRACT**
The sequence of triangular numbers comes from a pattern of dots that form an equilateral triangle. Each subsequent number in the sequence adds a new row of dots to the triangle. In this work, we consider the new integer sequences which is formed by adding corresponding numbers of the sequence of factorials and triangular numbers. We study on some algebraic relations related to this sequences. The definition, recurrence relation and the exponential generating function of this sequence are mentioned. Additionally, the relationships with the other integer sequences of this sequence are investigated.

**Keywords:** Triangular numbers, factorials, recurrence relations

# A WEB CSS FRAMEWORK WHICH FAST AND SMOOTH: W3.CSS

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**ABSTRACT**
The aim of this work is to explain how to use the W3.CSS library, one of the Css (Cascade Style Sheet) style libraries used in preparing web pages. Web Css libraries are largely lacking in the HTML language, which is based on web pages. Css libraries such as Bootstrap are widely used in the web design world. The World Wide Web Consortium (W3C), an international organization that sets Web standards, has developed a fast and smooth Css library called W3.CSS. Some of the key features of the W3.CSS library; It is space-saving, fast, compatible with all web browsers, does not require JavaScript codes, responsive to the screens of the hardware. In this study, the basic benefits of Css libraries will be explained. Examples of usage patterns will be given. It will be explained examples of how to use. The basic characteristics of the W3.CSS library will be explained and the results will be discussed using sample codes. It will be explained how some designs needed on a web page can be done with W3.CSS.

**Keywords:** Html, CSS (Cascade Style Sheet), W3.CSS, Bootstrap CSS Library, Web Browsers, W3C (World Wide Web Consortium)

# ACTIVATING THE DISTANCE LEARNING MANAGEMENT SYSTEM ON A CLOUD COMPUTING SYSTEM

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**ABSTRACT**
In this study, the basic elements of the distance learning management system will be explained. It will provide basic information about Moodle, a distance learning management system running on a web browser. It will be emphasized that the Moodle education system, an open source remote learning management system, is a very popular educational system. The creation and generalization of a distance learning management system that can be activated on a cloud computing system running on a server will be practically explained. As a result, it will be explained that the server infrastructure required for the installation of a distance learning management system which can be accessed from any environment where the internet is available can be easily obtained by the cloud computing system. In a very short period of time, a distance learning management system with full features in terms of training infrastructure may become operative. The main aim is to express that the remote learning management system, which will meet the educational needs of people without face-to-face training, is easily applicable.

**Keywords:** distance education, moodle, bigbluebutton, moodlecloud, live conference systems

# ADSORPTION OF MALACHITE GREEN BY CHITOSAN IMMOBILIZED MONTMORILLONITE

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**ABSTRACT**
This work, the potential of using chitosan modified montmorillonite (CM) for adsorbing malachite green (MG) was studied. Batch tests were carried out as function of contact time, initial adsorbate concentration, initial solution pH and temperature. Adsorption rate was initially rapid and the equilibrium was reached after 360 min. The dynamic data fit well with the pseudo-second-order kinetic model ($R^2$> 0.9999). An aqueous solution without controlling pH shows no effect on the MG adsorption. The Langmuir model agrees very well with the experimental data ($R^2$>0.9900). On the basis of the Langmuir analysis, the maximum adsorption capacities were determined to be 322.58 mg/g. The negative values of Gibbs free energy indicate the spontaneous nature of the adsorption. It is suggested that the adsorption is likely to be chemical adsorption.

**Keywords:** Adsorption, Chitosan immobilized montmorillonite, Malachite Green, Isotherm, Kinetic

# AĞIRLIKLI ERKEN VE GEÇ BİTİRME MALİYETLİ ÇOK MODLU KAYNAK KISITLI ÇOKLU PROJE ÇİZELGELEME PROBLEMİ

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**ÖZET**

Birden fazla projeyi yönetmek zorlu bir karar verme sürecidir, bu ortama bir de faaliyetlerin çok modlu olma durumu eklendiğinde zaten NP-Zor sınıfta yer alan problem iyice zor hale gelmektedir. Bu çalışmada, küçük bir atölyede üretilen mutfak projelerini çizelgelemek adına dörder faaliyetli üç projeli çok modlu kaynak kısıtlı çoklu proje çizelgeleme problemi için bir model önerilmiştir. Önerilen modelde her bir faaliyetin iki moda sahip olduğu varsayılmıştır. Her modda ise iki farklı kaynak türünün kullanımı söz konusudur. Modlar arasında değişim yapılmasının maliyeti vardır ve proje teslim zamanlarının önceden bilindiği varsayıldığı için erken ve geç bitirme maliyetleri de oluşabilmektedir. Çalışmada problemin matematiksel modeli verilmiştir. Modelde amaç, ağırlıklı erken ve geç bitirme maliyetleri ile mod değiştirme maliyetlerinin toplamının minimize edilmesidir.Önerilen model, ele alınan çizelgeleme problemi için farklı senaryolar göz önüne alınarak GAMS optimizasyon programında çözülmüş ve elde edilen sonuçlar umut verici bulunmuştur.

**Keywords:** Kaynak Kısıtlı Proje Çizelgeleme, Çoklu Proje, Çoklu Mod, Erken Bitirme, Geç Bitirme

# AKILLI KASİS SİSTEMİ İLE ŞEHİR İÇİ HIZ KONTROLÜ

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**ÖZET**
Ülkemizin gelişen ekonomisine bağlı olarak araç ve sürücü sayısı her yıl hızlı artmaktadır. Son on yılda motorlu araç sayısında %64, sürücü sayısında ise %56 artış olmuştur. Hızla artan araç sayısı, buna paralel olarak ortaya çıkan trafik yoğunluğu ile birlikte trafik kazalarını çözülmesi gereken önemli bir problem haline getirmiştir. Trafik kazaları, birey ve toplum yaşamı üzerindeki olumsuz etkileriyle günümüzde çok önemli bir sosyal problemdir.
2016 TÜİK verilerine göre trafik kaza oranları sürekli olarak artmaktadır. Kazaya neden olan kusurlar içinde sürücü kusurları %89,6 ile ilk sıradadır. Bu kusurların en başında ise ölüm oranı diğer kaza türlerine göre en yüksek olan aşırı hız gelmektedir. Çağımız teknolojisine göre yeni üretilen araçların hız kabiliyetleri ise sürekli artmaktadır. Bunun paralelinde aşırı hızdan kaynaklı kazaların oranları da sürekli olarak artmaktadır.
2001 – 2017 arası TÜİK verilerine göre şehir içi kazaların büyük çoğunluğu dolaylı veya direk olarak aşırı hızdan dolayı meydana gelmektedir. Ülkemizde şehir içi hız kontrolünü sağlamakta günümüz teknolojisine uygun olmayan kasisler kullanılmaktadır. Belirli standartlara uyulmadan yapılan bu kasisler günümüz teknolojisine uymamasının yanı sıra amacına hizmet etmediğini belirten birçok haber bulunmaktadır. Bunun yanı sıra hız düşürme amacıyla yapılan bu kasislerin kazaya bizzat sebebiyet verdiğine dair birçok haber bulunmaktadır.
"Akıllı Kasis" sistemi ile hız sınırlarının üzerinde seyreden araç için kasis ile araç hızının düşürülmesi sağlanmış olacaktır ve hız sınırları içerisinde hareket eden araç için gereksiz veya ani yavaşlamalar önüne geçilmiş olacaktır. Böylelikle, yerleşim yerleri içerisinde hız limitlerinin üzerinde seyreden araçların yavaşlatılması ve hız limitleri içerisinde seyreden şoförlerin daha konforlu bir yolculuk ile ödüllendirilmesi sağlanmış olacaktır. Bunun yanı sıra kasis içerisine yerleştirilecek bir sensör ile geçen araç sayısı ve ağırlıklarının plaka bilgileri ile kayıt edilmesi sağlanabilecektir.

**Keywords:** akıllı kasis, akıllı hız kontrol

# AN ANALYSIS OF EMISSION DISPATCH AT POWER SYSTEMS USING VORTEX SEARCH ALGORITHM

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**ABSTRACT**
Thermal power plants releases great amount of emission gases to the nature. These gases have harmful effects to our nature so that they must be controlled. In this study, Vortex Search Algorithm (VSA) is proposed for solving emission dispatch (ED) problem. VSA is developed by take as an example of blended liquids. Two different power system is selected to shown applicability of VSA and compared with genetic algorithm (GA). It can be seen that obtained results, VSA is very powerful and practical method to solve emission dispatch problem compared to GA.

**Keywords:** Emission dispatch, Transmission losses, Vortex search algorithm, Optimization

# AN ARCHITECTURAL EVALUATION OF KONYA CITY CENTRE

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**ÖZET**

Konya is an important city that has been home to different civilizations throughout history, has been used as a capital by the Seljuk State for a long time and extending to the neolithic turn of the past. The foundation of the historical city center of Konya started around the mound settlement known today as Alâeddin Hill. This area has been used centrally by different civilizations for many years and the most magnificent time of this area was the Seljuk period. The development of the historical city center was realized between Alâeddin Hill and Mevlana Tomb. The rich architectural content of different civilizations is clearly seen on this powerful axis. It contains many different artifacts belonging to the Seljuk, Ottoman and Republican era, where the architectural values that can be accepted as our cultural heritage of different periods are together and serve as a whole. This axis, which contributes to the rich architectural content of the city today, still maintains its vitality. With this study, the daily contribution of the historical city center was examined through the buildings. Alaeddin Hill - Mevlana Museum, which are contain many qualified building, has been accepted as an area study. The three qualified samples which are identified on the axis were analyzed in terms of historical, urban and structural, and the influence of these structures on the area was determined. The effects of urban and cultural heritage of architectural values are revealed in the analyzes made. As a result of these analyzes; It has been reached that the buildings give an identity to the center of the city and its surroundings, that it is an important factor in the perception of the places it is in, its reading and that it creates a focus reflecting character of the its period.

**Keywords:** Konya, Architectural Space, Historical City, Historical Building.

# AN EXPERIMENTAL AND COMPUTATIONAL STUDY ON NOVEL 1-ARYL-2-BENZYLIDENEHYDRAZINE-1-CARBOTHIOAMIDE DERIVATIVES

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**ABSTRACT**
In this study it was aimed to synthesize and characterize novel 1-aryl-2-benzylidenehydrazine-1-carbothioamide. For this purpose, in the first step, 2-benzylidenehydrazine-1-carbothioamide was synthesized via the reaction of benzaldehyde and thiosemicarbazide. In the second step 2-benzylidenehydrazine-1-carbothioamide was reacted with various aryl halides to obtain novel 1-aryl-2-benzylidenehydrazine-1-carbothioamide derivatives. Reaction pathway is given in Figure 1.
In the second part of the study, some DFT calculations have been performed on the investigated molecules. Geometry optimizations, vibrational analysis, molecular electrostatic potential maps, frontier molecular orbital calculations, determination of some global reactivity descriptors and NMR calculations have been performed. In the computational part, calculations have been performed at DFT B3LYP level of theory using various basis sets including 6-31G(d), 6-31G(d,p), 6-311G(d,p) and 6-311+G(2d,p) basis sets. NMR calculations have been performed using both CSGT and GIAO methods.

**Keywords:** computational chemistry, thiosemicarbazide, 2-benzylidenehydrazine-1-carbothioamide, DFT

# AN INVESTIGATION ON THE EFFECTS OF ECAP ON THIXOTROPIC MICROSTRUCTURE OF AA7075 ALUMINUM ALLOY

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**ABSTRACT**
With Zn as the primary alloying addition, alloy from the 7000 family offers higher tensile strength than many steel especially in T6 temper. These family are widely employed for aircraft, wheels and major structural components, due to its high strength-to-density ratio. Semi-solid forming has many advantages such as able to produce high density material, long tool life, less production forge and near net shape. Also less liquid fraction then cast, results as less shrinkage. Semi-solid products are more durable then cast ones because of non-dendritic microstructure and less porosity, also cheaper then both cast and forged products. ECAP is an operation that involves simple shear deformation by severe plastic deformation processes. However, the material will not be subjected to any cross sectional changes. No cross sectional changing is the most important feature that distinguishes it from conventional methods.
In this study, one of the most important wrought alloys for aerospace applications, AA7075 was used. In order to get the best semi-solid forming feedstock, thixotrophic character has been determined in terms of pre-deformation rate, heating temperature and holding time.

**Keywords:** AA7075, Semi-solid Processing, ECAP

# ANALYSIS OF BLACKOUT CASES IN THE POWER SYSTEMS

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**ABSTRACT**
Power quality is one of the most important criteria for consumers and electric utilities. Every year because of the lack of power quality in some countries, billion dollars are being lost. Complex and sensitive equipment's of the new technologies may lead to such as electrical breakdowns and voltage unbalance in the network.
Identification and classification of voltage and current disturbances in power systems are an important task in power system monitoring and protection. When defining power quality, usually current, voltage and frequency deviation problems are indicated. Power quality is used in various means, however usually it is referred voltage quality. The most common voltage abnormalities are harmonics, voltage swells, voltage sags and short duration interruptions. Any deviation or significant changes from the normal frequency or wave in AC and DC sources is defined as problems of power quality. Power quality has very important negative effects and cause the breakdowns of sensitive equipment in industrial processes.
As the most important result of the power quality disturbances emerge the system blackouts. Thousands of disturbances occurred in the modern power systems every year in the world and some of them led to blackouts. Large scale blackouts rarely happened in power systems. However, the damages that occur as a result of the system blackouts of the countries are caused a greatly losses in social and economic terms. Therefore, the system blackouts is very important for societies and countries.
This paper presents a different approach for classifying the events that represent or lead to the degradation of power quality and analyses some major blackouts in the world. In this context, the purpose of this study is to examine in the causes, on sequences and effects of the system blackouts and emphasize the importance.

**Keywords:** Power System, Blackout, Power Quality, Disturbances

# ANDROID İŞLETİM SİSTEMİ İZİNLERİ VE RİSKLERİ

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**ÖZET**

Günümüzde akıllı telefonlar günlük hayatın oldukça önemli bir parçası haline gelmiştir. Bu cihazlar için hazırlanmış onlarca işletim sistemi olmakla birlikte, Google firmasının Android işletim sistemi toplam pazar payının açık ara en yüksek kullanım oranına sahiptir. Buna bağlı olarak da bu platform için hazırlanmış ve onlarca kategoriye ayrılmış milyonlarca uygulama sunulmaktadır. Kullanıcılar bu uygulamaları resmi veya resmi olmayan uygulama indirme noktalarından indirmekte ve kullanmaktadırlar. Bununla birlikte nereden indirilmiş olmuşsa olsun, indirilen her uygulama faydası yanında bazı risk ve tehlikeleri beraberinde getirmektedir. Bu durumda uygulamaların indirilen cihazda yetkilerini belirleyen izinler oldukça önem arz etmektedir. Önceki Android sürümlerinde uygulama indirildiği veya güncellendiği zaman uygulama izinleri kullanıcılardan talep edilmekteyken, Android 6.0 versiyonunda yetki izni uygulamanın kullanımı sırasında talep edilmektedir. Her iki durumda da büyük bir çoğunluktaki kullanıcılar kendi cihazları için anlamlarını tam olarak bilmedikleri yetkileri uygulamaya verip uygulamayı kullanmaya başlamak veya devam etmek eğilimindedirler. Kullanıcıların bilgisizliği, Google'un eksik dokümantasyonu nedeniyle bazı uygulama geliştiricilerinin hataları ile bilinçli kötüye kullanım şartlarının bir araya gelmesi, ciddi donanım ve enformasyon ihlallerine neden olmakta ve ciddi zararlar oluşturabilmektedir. Bu çalışmada Android işletim sistemine yüklenen uygulamalara verilen izinlerin anlamları ve olası riskleri kısaca tartışılmaktadır.

**Keywords:** Android, Yazılım İzinleri, Yazılım Riskleri

# APPLICATION OF THE FMEA FOR ANALYZING DEPENDABILITY OF POWER TRANSFORMER AT HASSI R'MEL GAS FIELD

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**ABSTRACT**
The inherent dependability parameters of such complex systems are a concern of the protection engineer and present a significant analytical problem. Transformers are essential elements in electrical network. This equipment is classically constructed out of copper, steel, paper and insulating oil. Transformers have been used worldwide for many years and their availability and reliability is a major concern for all electricity users. This paper describes the use of the failure modes analysis and their effects (FMEA) for analyzing the dependability of power Transformer in boosting station at Hassi R'Mel gas field in Algeria .

**Keywords:** transformers, dependability, reliability,power

# ARSENIC ACCUMULATION IN COMMON VETCH (VICIA SATIVA L.) IRRIGATED WITH CONTAMINATED WATER

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**ABSTRACT**
Arsenic is released into the environment from anthropogenic sources and transferred into the human, plants, and animals by food and waters. When the plants are irrigated with arsenic-contaminated water, the level of arsenic in plants and also arsenic concentration is increased in the soil.
Due to the Turkish livestock total population (cattle, sheep, and goats) between years of 2001 and 2017 increased from 44.542.000 to 60.255.894, feed requirements for expanding livestock necessitate the introduction of forage legumes into crop rotations. Common vetch (*Vicia sativa L.*) is one of the most important annual forage legumes in Mediterranean-type environments because of its multiple uses, high nutritional value, and ability to grow over a wide range of climatic and soil conditions.
In this experimental study, the accumulation of As in shoots as well as growth of common vetch plants at various As contaminated waters (control, 0.5-1.0-1.5-2.0-2.5-3.0-4.0-6.0-8.0 mg/L) was evaluated. Dry weight of common vetch plants which were irrigated with As-contaminated water were higher than the control pots. As accumulation in the shoots of common vetch increased from about 3.9 mg/kg to 34.2 mg/Kg with increasing As concentrations from zero to 8.0 mg As/L in the irrigation waters.

**Keywords:** Arsenic, common vetch, irrigation water

# ASSESSING TECHNOLOGIES FOR MATRICES

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**ABSTRACT**
This article introduces the notion of technology as a conceptual framework for technologies suitable for degrowth societies. This paper is inspired by Ivan Illich's notion of convivial tools but reconsiders it in the light of current practices and discussions. Looking for a definition of matrix technologies it uses qualitative empirical research conducted with degrowth-oriented groups developing or adapting grassroots technologies like Open Source cargo bikes or composting toilets. The basic ethical values and design criteria that guide these different groups in relation to technology are summed up into five dimensions: relatedness, adaptability, accessibility, bio-interaction and appropriateness. These dimensions can be correlated with the four life-cycle levels material, production, use and infrastructure to form the Matrix for Convivial Technology. The Matrix for Convivial Technology is a 20-field schema that can be filled in. Experiences with the tool in different fields are presented. The Matrix for Convivial Technology is itself a convivial tool as it allows for degrowth-oriented groups to self-assess their work and products in a qualitative, context sensitive and independent way. It is a normative schema that fosters discussion concerning degrowth technologies in contexts of political education.

**Keywords:** matrix, technology, dimension

# ATIKLARDAN ALÜMINA ESASLI AEROJEL TOZU ÜRETIMI

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**ÖZET**
Düşük yoğunluğa, yüksek gözenekliliğe ve çok iyi yalıtım kabiliyetine sahip olan aerojeller son yıllarda giderek önem kazanmış ve birçok alanda kullanım yeri bulmuştur. Dayanıklı ve çevre dostu malzemeler olmaları sebebiyle günümüzde yapılan çalışmalar aerojeller üzerine yoğunlaşmış olup, özellikle gözenek yapıları ve yüzey alanlarının geliştirilebilmesi için etkili yollar araştırılmaktadır.
Mevcut çalışmada, ikincil alüminyum üretiminde cüruf olarak oluşan atık alümina kullanılarak alümina esaslı aerojel tozu üretimi amaçlanmıştır. Bu sayede çevre için zararlı olan atık, katma değeri yüksek nano gözenekli toza dönüştürülerek alüminyum üretici firmaların bertaraf etmek için çözüm yolları aradığı atığa yeni bir uygulama alanı kazandırılmış olacaktır. Atık malzeme NaOH çözeltisi içerisinde 90°C'de 3 saat karıştırılmış, HCl asit ile pH=7 olacak şekilde titrasyon sonrası 1 hafta yaşlandırma işlemine tabi tutulmuştur. Hazırlanan jeller, EtOH+su banyosunda 24 saat dinlendirildikten sonra EtOH çözeltinde 24 saat daha bekletilip süzülmüştür. Oluşan jel n-heptan içerisinde 2 gün bekletilerek yaşlandırma aşaması tamamlanmıştır. Alümina esaslı aerojel tozları atmosferik şartlarda etüvde 50°C, 90°C ve 120°C'lerde 48 saat boyunca kurutularak elde edilmiştir. Hazırlanan alümina esaslı aerojel tozlarının karakterizasyonu, FT-IR, SEM ve FESEM-EDS analizleri ile gerçekleştirilmiştir. Faz yapıları XRD analizi ile yoğunluk değerleri ise hacmi belli bir kap kullanılarak yoğunluk formülü ile belirlenmiştir.

**Keywords:** Alümina Aerojel, İkincil Alüminyum Cürufu, sol-jel metodu

# BASIT BIR UYGULAMA ÜZERINDE HTML, PHP, JAVASCRIPT, ASP.NET DILLERININ VE ACCESS, MYSQL, MONGO, ORACLE, MICROSOFT SQL VERITABANLARININ KARŞILAŞTIRILMASI

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**ÖZET**
Internet programlamada, genelde bir dil ve bir veritabanı ile çalışılmakta, diğer dil ve veritabanları ile çalışma istenmemektedir. Bu dillerin, basit bir uygulama üzerinde çalışmaları karşılaştırmalı olarak incelenmektedir. Ayrıca, basit bir php, aspx uygulamaları üzerinde; Access, Mysql, Mongo, Oracle, Microsoft sql veritabanlarının bağlantı işlemleri yine karşılaştırmalı olarak incelenmiştir.

**Keywords:** internet programlama,asp.net,veritabanı

# BIOCHEMICAL PROPERTIES OF POLYPHENOL OXIDASE FROM DAUCUS CAROTA

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**ABSTRACT**
Polyphenol oxidase (PPO) is a very important enzyme that is responsible for the enzymatic browning of vegetables and fruits, which is undesired process and need to be prevented in food technology. In this study, PPO from *Daucus carota* bark (carrot) was extracted and some of its biochemical properties were investigated. The optimum temperature and pH of PPO were found to be 40 °C and 8.0, respectively. The Lineweaver – Burk plot analysis of the PPO was carried out and the Km and Vmax values were determined for the substrate catechol.We also found that some inhibitors such as SDS and sodyum azide inhibited the enzyme. This is the first study on characterisation of PPO from *Daucus carota* bark that may provide new insight into how to overcome the enzymatic browning

**Keywords:** Polyphenol oxidase, Daucus carota, inhibition, characterisation.

# BIOLOGICAL ACTIVITIES OF TWIN-FLOWERED DAPHNE

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**ABSTRACT**
Daphne genus belongs to *Thymeleaceae* family which is comprised of approximately 500 plant species. Daphne species have been preferred in traditional public health for different purposes according to ethno-pharmacological studies. In this study, we aimed to analyze antimicrobial and DNA protection activities of twin-flowered daphne(*Daphne pontica*) extracts. Leaf, root and stem extracts of twin-flowered daphnewere dissolved in methanol. Antimicrobial activity tests were performed by micro-well dilution assay. Minimal inhibition concentration (MIC) and minimal bactericidal concentration (MBC) values were determined for 12 different test bacteria. pUC19 DNA was used for DNA protection activity test. According to the results, methanol extracts of leaf and stem samples belonging to twin-flowered daphnewere effective on all studied test bacteria for low concentrations (125 µg/ml). However, 125 µg/ml concentration of root extracts were inhibited only *Staphylococcus aureus* ATCC 25923, *Proteus vulgaris* and *Enterobacter aerogenes* ATCC 13048 species. In addition, there were no DNA protection activity for leaf, root or stem extracts of twin-flowered daphne. This study provides new insights into the antimicrobial activity of twin-flowered daphneextracts and their usage as an antimicrobial agent.
**Acknowledgement:** This work was supported by the Kastamonu University, Scientific Research Project Coordinatorship with the project code of KU-BAP01/2018-6.

**Keywords:** Daphne pontica, Antimicrobial activity, DNA protection, Methanol extract

# BUHAR SIKIŞTIRMALI MEKANİK SOĞUTMA SİSTEMİNDE ALTERNATİF SOĞUTUCU AKIŞKANLARIN TERMODİNAMİK ANALİZİ

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**ÖZET**
Günümüzde ilerleyen teknolojik gelişmelere bağlı olarak soğutma alanında da büyük gelişmeler olmuştur. Bu gelişmeler sonucu soğutma sistemlerinde kullanılan soğutucu akışkanların hem ozon tabakasına zarar verdiği hem de küresel ısınmaya neden olduğu tespit edilmiştir. Bu kapsamda bu çalışmada buhar sıkıştırmalı mekanik soğutma sisteminde çevre dostu olan alternatif soğutucu akışkanların kullanıldığı kabul edilerek termodinamik analiz çalışması yapılmıştır. Soğutucu akışkan olarak $NH_3$, R-134a, R404A, R410A, R407C, R290, R-123, R-500, R-502, R-744, R600 ve R600a soğutucu akışkanları seçilmiştir. Teorik olarak analiz edilen soğutma çevrimlerinin performans katsayılarının karşılaştırılması yapılmıştır. Buhar sıkıştırmalı mekanik soğutma sistemlerinde ozon tabakasına olumsuz etki yapmayan ve küresel ısınmaya az neden olan akışkanların kullanılması önerilmektedir.

**Keywords:** Mekanik soğutma sistemi, Soğutucu akışkanlar, Performans Analizi.

# BULANIK DEMATEL METODU İLE ENDÜSTRİ 4.0 SÜREÇLERİNİ ETKİLEYEN FAKTÖRLERİN ANALİZİ

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**ÖZET**

Günümüzde faaliyet gösteren tüm işletmeler, çevresel, toplumsal, ekonomik ve teknolojik gelişmelere bağlı olarak birtakım zorluklarla karşı karşıya gelmektedir. Geleceğin işletmeleri ise bu zorluklara karşı fikir aşamasından başlayarak ürün geliştirme ve üretim siparişinden, bir ürünün son kullanıcıya dağıtımını ve geri dönüşümünü de kapsayacak şekilde tüm zinciri içine alan sanal ve fiziksel yapılara ihtiyaç duyacaklardır. Küresel rekabet ortamında sürdürülebilirliğin sağlanması için teknolojiye dayalı üretim zorunlu hale gelmiştir. Bu durumda işletmeler için Endüstri 4.0 kavramlarının anlaşılması ve uygulanabilmesi büyük önem arz etmektedir. Literatür incelendiğinde Endüstri 4.0 kavramları üzerine çalışmalar yapıldığı görülse de Endüstri 4.0 süreçlerinin pratikte uygulanması konusunda hangi faktörlerin daha çok önem taşıdığının belirlenmesi konusunda yapılan çalışmaların yetersiz kaldığı görülmektedir. Bu çalışmada Bulanık DEMATEL yöntemi uygulanarak 9 faktörün (Stratejiler, Liderlik, Müşteriler, Ürünler, Süreçler, Kurum Kültürü, Çalışanlar, Devlet Politikası, Teknoloji) Endüstri 4.0 üzerindeki etkileri analiz edilmiş ve birbirleri arasındaki etkileşimlerden hareketle ilişki haritası oluşturulmuştur. Endüstri 4.0 süreçlerini hayata geçirme arzusunda olan işletmelerin kaynaklarını öncelikle Teknoloji, Stratejiler ve Süreçler faktörleri ile ilgili olan faaliyetlerine aktarmasının daha etkili olacağı belirlenmiştir.

**Keywords:** Endüstri 4.0, Bulanık DEMATEL, İlişki haritası

# CHEMICAL TECHNOLOGY FOR CHEMISTRY STUDENTS

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**ABSTRACT**
In recent times there has been a dramatic expansion in chemical knowledge with the promise that chemistry may bring positive changes in our society and solve the problems that we face in the 21st century. This will only be possible if the chemical industry succeeds in promoting breakthrough inventions from the laboratory into new products and services in the marketplace. Obviously, the future chemist will need to have acquired the technical skills to successfully undertake the new challenges that await. Key to all this is the formation of the chemistry graduate which presently continues to lack the necessary technical aptitudes. In this paper, various chemical technology courses are described for incorporation in a flexible curriculum in a traditional chemistry bachelor degree. These courses should prepare future chemistry graduates for their possible incorporation in industry giving them a far superior technical background than that normally obtained.

**Keywords:** chemistry, chemical technology, education

# CHEMISTRY: ON THE SCIENTOMETRIC STUDIES

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**ABSTRACT**
The number of chemical substances is considered as a cumulative measure of the cognitive growth of preparative chemistry. During the past 200 years there is approximately exponential growth without saturation. Separate analysis of organic and inorganic chemistry suggests at least a two-phase model either. Detailed discussion of the results (considering also the growth of chemists, chemical papers, patents, and chemical elements) reveals that an external (socio-economical) explanation is insufficient. Instead, an internal (methodological) approach is suggested to explain the exponential growth as well as balancing phenomena in war and post-war times.

**Keywords:** exponential growth, chemical substance, bibliometric indicator

# CHEMISTS CONCERNING LAWS OF NATURE

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**ABSTRACT**
The law of definite proportions and the law of multiple proportions are two of the important laws of chemistry associated with the development of the atomic theory in the early nineteenth century. A detailed study of these laws shows that they have characters which cannot be reconciled with philosophers' accounts of laws of nature. They are non-universal, and one of them is imprecise. Philosophers have approached an account of laws of nature by trying to fit their character to a particular model. Duhem, in particular, who introduces the law of multiple proportions as an example, misrepresents the law to make it fit his conventionalist model. The various models adopted by philosophers have differed widely, but there has been a universal failure even to recognize the possibility of diversity among laws, let alone face its reality. A more liberal and pluralistic view of just what is a law of nature is required. Contrary to standard accounts, laws of nature are a diverse group of dicta, of widely varying character. Unlike philosophers, chemists have recognized this diversity for at least a hundred years. In many ways the differences between the characters of laws are more interesting than the similarities.

**Keywords:** philosophers, chemists, law of nature

# CHOQUET INTEGRAL KULLANILARAK AKADEMIK PERFORMANS DEĞERLENDIRMESI

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**ÖZET**

Akademik performans değerlendirmesi, yüksek öğrenim kurumlarının kritik konularından biridir. Performans değerlendirme kriterleri ise doğası gereği bağımlı olmasına rağmen, geleneksel değerlendirme yöntemlerinin çoğu bu bağımlılığı dikkate almamaktadır. Choquet integrali ise değerlendirme kriterleri arasındaki etkileşimleri göz önünde bulunduran etkili bir birleştirme operatörü olarak önerilmektedir. Çalışmada, Türkiye'de bulunan bir üniversitedeki öğrencilerin akademik performans değerlendirmesi, karmaşıklık temelli ve entropi temelli Choquet integral kullanılarak değerlendirilmiştir. Ayrıca, iki farklı yapıdaki Choquet integrali yöntemlerinin etkinliğinin karşılaştırılması amacıyla öğrencilerin performanslarının değerlendirilmesinde yaygın olarak kullanılan *k*-ortalama yöntemi ile de sınıflama yapılmıştır. Elde edilen sonuçlar, entropi temelli Choquet integrali yönteminin, çoğu durumda karmaşıklık temelli yöntemden ve *k*-ortalama yönteminden üstün olduğunu göstermektedir.

**Keywords:** performans değerlendirmesi, bulanık ölçü, Choquet integral, k-ortalama

# COMMUNICATION OF ANALOG INFORMATION

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**ABSTRACT**
The earliest days of electrical generation, distribution, and transmission presented a problem that persists today. The system must survive changing conditions of power demand, faults, equipment failures, and other unforeseen conditions while continuing to serve as many people as possible. This requires either armies of operators or automatic systems to detect changes and adapt appropriately. Regardless of the technology, the individuals or devices in control follow a process of evaluating input information, making decisions, and affecting changes in system configuration and operation.

**Keywords:** communication, electrical protection, analog information

# COMPARISON OF ACTIVATED CARBON PRODUCED FROM CAROB STONES WITH 4A ZEOLITE FOR ALLURA RED AC DYE ADSORPTION

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**ABSTRACT**
The objective of the study was to prepare low-cost activated carbon from carob stones (Ceratonia siliqua) and compaire its adsorption behavior for allura red dye with that of a commercial 4A zeolite. The carob stones activated carbon (AC) and commercial 4A zeolite (4AZ) were characterised BET surface area, micropore volume, total pore volume, average pore size. Adsorption of a food dye, allura red, by AC and 4AZ was examined. Batch adsorption test showed that extent of allura red adsorption was dependent on allura red concentration, contact time, solution temperature and adsorbent dosage. The experimental adsorption equilibrium data were compared with the Langmuir, Freundlich, DR (Dubinin-Radushkevich), Temkin and Harkins-Jura isotherm models and the isotherm model parameters were determined. Pseudo-first-order and pseudo-second-order equations were fitted to the kinetic data, and the rate constants were evaluated. Results showed that activated carbon produced from carob stones is suitable for the adsorption of allura red food dye and could be used as a low cost effective adsorbent in the treatment of the industrial wastewater.

**Keywords:** Allura red AC, Carob stones, Activated carbon, 4A zeolite, Adsorption

# DEFINING CLOUD COMPUTING AND SETTING UP YOUR OWN CLOUD COMPUTING SERVER OR CLIENT SYSTEM

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**ABSTRACT**
With the development of computing technologies that have been at many points in our lives, cloud computing technology has begun to be used in a wide range of environments from a portable computer to a server computer. Accessibility is easy, cloud computing is at the top of the reasons for preference. Big companies in information technology (Microsoft, Google etc.) are leading the cloud computing services. It is thought that the installation of the cloud computing system is a big financial budget. However, a cloud computing system can be installed even in our home or office computers.
Accessibility is easy, cloud computing is at the top of the reasons for preference. Cloud computing facilitate access to data greatly. However, it should be known that the data are collected on the servers of the cloud computing service provider. In terms of importance, more or less important data are stored in cloud computing servers. It is important not to forget that in the event of a corruption of trust relations it will have serious results.
The aim of this work is to explain the installation steps of our own cloud computing server and client system on a virtual or real server system. It is to explain that a cloud computing system is easily installable. A cloud computing system can be set up in short steps and at low cost. In this way, contributed to the growth of national software works. The data is stored in cloud computing servers, one or more national and reliable institutions.

**Keywords:** cloud computing, server, linux operating system, open source software, owncloud, cyber security

# DETERMINATION OF FATTY ACID COMPOSITIONS OF TOTAL LIPID, PHOSPHOLIPID AND TRIACYLGLYCEROL FRACTIONS OF THE WILD EDIBLE MUSHROOM PLEUROTUS OSTREATUS AND RUSSULA DELICA WITH CYTOTOXIC ACTIVITIES ON PC-3 CELL LINES

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**ABSTRACT**

Fatty acids (FAs) of *Pleurotus ostreatus and Russula delica* were identified in TL(Total Lipid) , TG (Triacylglycerol ) and PL (Phospholipid) fractions.
The major FAs of TL, TG, PL in bothspecies were C16:0 (palmitic acid, PA), C18:1 n−9 (oleic acid, OLA) and C18:2 n−6 (linoleic acid, LA).
In both species, total PUFA amounts were found to be higher than total MUFA and total SFA in TL, TG and PL fractions.
The efficient production of the fatty acids especially linolenic and oleic acids which are majorly needed in building blocks of dietary human has confirmed these species as good source of nutrition.
On the other hand, insufficiently studied cytotoxic activity (using PC-3 cell lines) of these mushrooms were investigated by using various solvent systems .
Ethyl acetate extract of *Russula delica* and *Pleurotus ostreatus* showed significant inhibitory value at the concentrations of 520-530 µg/ml (99,45 % - 92,82 %) against PC-3 cell lines with $IC_{50}$; 274,53-297,77 µg/mL respectively.
Methanol extracts did not show any cytotoxic activity. It has been found that the potential of cytotoxic activity is depended on concentration and solvent type of extracts.
As a result, the present study is a guide for biochemical and nutritional values of the both species and can be useful for further investigation on pharmacological applications.

**Keywords:** Russula delica , Pleurotus ostreatus, Fatty acids , Cytotoxic activity, PC-3 cell lines

# DETERMINATION OF PHYSICAL AND MECHANICAL PROPERTIES OF POLYPROPYLENE FIBRE CONCRETE

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**ÖZET**

İnsanlığın varlığından bu yana, ikinci temel gereklilik yeme ve içme gerekliliğinden sonra barınak olmuştur. Böylece yapı sektörü daima gündemde kalmış ve pratik yöntemler geliştirmeye devam etmiştir. Günümüz dünyasında olduğu gibi, tüm alanlarda olduğu gibi, temel hedef, en az masrafsız bir şekilde çözüme ulaşmaktır. Günümüz kullanımında ortaya çıkan ihtiyaçlar nedeniyle çeşitli özel özellikler geliştirilmiş veya farklı üretim ve uygulama tekniklerine sahip bazı özel beton yaygın olarak kullanılmaktadır. Kullanım amacıyla betonun tasarımı ve ekonomik üretimi çok önemlidir. Beton yıllardır en çok kullanılan yapı malzemesidir. Betonun yaygın kullanımı, araştırmacıların beton üzerinde daha fazla gelişmelerini sağlamıştır. Aşamalı beton teknolojisi, elyaf takviyeli beton geliştirmiştir, bu beton, mükemmele ulaştıran bir çözümdür. Eklenen liflerbeton da basınç dayanımı ve beton dayanımına katkıda bulunur.

Yüksek performanslı beton özellikleri, özel uygulamalar ve ortamlar için geliştirilmiştir; gerekli olabilecek bazı özellikler arasında, yüksek dayanım, yüksek elastikiyet modülü, yüksek aşınma direnci, yüksek dayanıklılık ve şiddetli ortamlarda uzun ömür, düşük geçirgenlik ve difüzyon, kimyasal atağa karşı direnç, donmaya karşı yüksek dayanıklılık ve deicer ölçekleme hasarı, tokluk ve çarpma direnci, hacim kararlılığı, yerleştirme kolaylığı, ayrışma olmadan sıkıştırma, bakteriyel ve küf büyümesinin engellenmesi.

Bu çalışmada, polipropilen lif takviyesinin betonun seçilmiş fiziksel ve mekanik özelliklerine olan etkisini araştırmayı amaçladık. Çalışma sonucunda farklı oranlarda güçlendirilmiş polipropilen lif kullanılarak elde edilen betonun, fiziksel ve mekanik özelliklerinde pozitif değişiklikler olduğu kadar basınç ve eğilme dayanımlarını da arttırdığı bulunmuştur.

**Keywords:** Concrete Technology, Polypropylene Fiber

# DETERMINATION OF SOME HEAVY METALS IN FOOD SAMPLES USING ICP-OES AFTER DIFFERENT DIGESTION METHODS

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**ABSTRACT**
Trace metals are important in daily diets, because of their essential nutritious value and possible harmful effects. Various analytical techniques have been used to quantify metals following in the analysis of heavy metals in plant materials and food samples atomic absorption spectrometry (GFAAS, FAAS) and ICP-OES is reported the most frequently.
Some food samples were digested with wet and microwave digestion methods. After making up the final solution to volume with UHQ water, the concentrations of each of some heavy metals were determined by ICP-OES equipped with an auto-sampler. Prior to analysis, the instrument was calibrated according to manufacturer's recommendation. We used standard addition method for possible matrix effect. Quality of the analytical procedures was assured using Certified Reference Material (NIST-SRM 1515-Apple Leaves and tea leaves (INCYTL-1). The analytical parameters show that the microwave oven digestion procedure provided best results as compared to the wet digestion procedure.

**Keywords:** Food; Digestion; Heavy metal; ICP-OES.

# DEVELOPING AN ARCHITECTURAL FRAMEWORK FOR ARTIFICIALLY INTELLIGENT COMPUTER BASED TRAINING PROGRAMS

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**ABSTRACT**
Computer Based Training and Artificial Intelligence are two areas of the technology arena which has advanced over the beginning of the 21st century. Computer Based training allows learners to work at their own pace and from the comfort of their desired locations while Artificial Intelligence allows processes to be done without the direct involvement of a human. Companies in Silicon Valley have demonstrated a high demand for experts with experience in Artificial Intelligence. Experts from various government organizations have called for a need for more Computer Based training using Artificially Intelligent educational programs. Experts have concluded that there is a need for an Architectural framework which demonstrates artificial intelligence in computer-based training. In addition to this, the Department of Defense lacks the presence of artificially intelligent induced educational programs.
By Developing a Systems Architectural Framework for building a more advanced Computer Based training program, we fill a gap to eliminate the absence of this framework. We also eliminate the need to constantly restructure a framework for each AI Computer Based System. In this case, we provide the fundamental building blocks for establishing this framework. This entry into the world of Science and Technology will provide a platform for the advance of education and artificial intelligence so that people will benefit from around the world.

**Keywords:** artificial intelligence, technology, education, architecture framework

# DEVELOPMENT OF A METHOD FOR ADIPRENE MIXING AND OPTIMIZATION FOR MATERIALS IN EXTREME CONDITIONS

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**ABSTRACT**
Engineers at West Texas A&M University investigate the compounding formulations and curing parameters for a new dynamic mixing system. Experiments are conducted to demonstrate the use of the new dynamic mixing technology to adequately dispense new formulations of Adiprene and report physical properties of the new formulations which are then characterized based on the current testing requirements established by the Department of Energy in the USA. Curing temperatures and times for the formulations are optimized. Physical properties of the new formulations include hardness values and viscosity measurements. New color formulations are also developed that indicate physical properties and create ease of use for production employees. Experiments show that material loss in plastics formulations are reduced from 80% to less than 2% resulting in significant cost and time savings for the manufacturer.

**Keywords:** Dynamic mixing, adiprene, explosive materials

# DEVELOPMENT OF MESH-STRUCTURE APPLIED GUM METAL ARTIFICIAL MEDICAL PRODUCTS

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**ABSTRACT**
Present metal artificial medical products for bone grafts have the problems like too heavy and excessive elastic modulus compared with natural bones. In this study developments on mesh-structure applied Gum Metal (one kind of titanium alloy, also called Gum Titanium) plates with high biocompatibility, elastic deformability and comparatively lower elastic modulus for implant applications are intrested.
Meshed plate models with excellent 3-demensional flexibility and light-weight performance compared to usual metal plate implants are designed parametrically using 3D CAD tools and sample meshed gum metal plate specimens are manufactried through wire-cut discharge processing.Mechanical properties like tensile/compression and bending stiffness and volume densities of sample meshed gum metal plates are experimentally and analytically evaluated with respect to different design parameters like basic mesh shapes, mesh line width etc.As the result of this study, artificial medical products using the designed and devised meshed structures can be improved in safety and fatigue fracture when used in the orthopedic field and dental implant treatment field.

**Keywords:** Meshed gum metal plates, Flexibility, Mechanical property, Experiment, FEM analysis

# DIFFERENTIATION OF BUILDING WITH THE COMMUNITY CONCEPT FROM EXISTING MODELS, AND ITS IMPLEMENTATION IN PROJECTS IN AFRICA

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**ABSTRACT**
Building with the community, which is starting to construction with training of labors to construct their vernacular in larger scale, became a trend in 80s and 90s in Africa in order to not only to construct building but also to develop society and it drew apart a different path from existing models. This research examines the rationale of this architectural trend by focusing on mostly projects which won Aga Khan Architectural Award (AKAA) like Halawa House by Abdel Wahed El-Wakil, Yaama Mosque by El Hadji Falke Barmou and Gando Primary School Francis Diebedo Kere and socio-economic and cultural backgrounds of their locations. The preliminary results of the research show that this technic gave chance to society both to survive in such a bad condition by gaining necessary skills and to implement these skills in other buildings forms like schools and hospitals which have a great importance for the development of the society with low-cost solutions. The conclusion can also be drawn that how the way of implementing architecture helps communities in the form of sociological, psychological and economical aspects.

**Keywords:** Building with the community, Traditional African Architecture, Aga Khan Award for Architecture, Diebedo Francis Kere, local materials, local technology

# DIGITAL HUMANIZATION ON QUANTUM (MULTIPLE THINKING ACTION), PROCESSABLE COLLECTIVE RAW MIND, YOUTUBER, APPLE:NETFLIX RELATED WITH SEMIOTICS

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**ABSTRACT**
Science proves that the language learning center in the human's brain is designed to understand the whole easier than the single. In other words, the inductive method, empirical and experimental method that are required and applied in sciences replaces with the superiority of the deductive method in language learning. Therefore, as it influences the thought process, the importance of the first information transfer method on changing and transforming masses cannot be disregarded as a fact. It is a provable fact that the state of being motivated as masses for humans is related to managing the thought process. Of course, this occurs in different stages and the first stages carry huge importance for managing the masses.

This manifesto has two objectives; the first of which is to explain with an example from social sciences how a mother language teaching method affects the thought process with an approach that is the opposite of the way it normally operates and that will make things difficult for the language learning center in the brain: How to make people who can see in singles but not the whole (the big picture), can't think analytically and have underdeveloped or non-developed reasoning ability, etc.

The second one is to discuss the influence of teaching abstract math knowledge using non-tangible methods on thought process and its results on the area of absorbing grammar and math knowledge, with an example from sciences.

**Keywords:** Analytical thinking, reasoning, first information transfer method, big picture, mathematics, Turkish

# EDGE INTERPRETATION USING HORIZONTAL GRADIENT MAGNITUDE, TILT ANGLE AND CONTINUOUS WAVELET TRANSFORM OF MAGNETIC ANOMALIES OF THE SAROS BAY AND SURROUNDINGS, TURKEY

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**ABSTRACT**
The magnetic anomalies caused by variations in the magnetic susceptibilities of the causative sources at different depth levels provide the key information regarding faults or structural trends. This paper attempts to map the subtle linear features of Saros bay and surrondings, western Marmara region, Turkey using Horizontal Gradient Magnitude (HGM), Tilt Angle (TA) and 1D Continuous Wavelet Transform (CWT). The HGM from magnetic anomalies reduced to pole emphasizes the boundaries of the causative sources, reducing the unwanted interference effects with enhancement. The HGM maxima track the subtle linear features which are approximately correlated with Ganos fault and southern flank of the Gallipoli block by NE-SW trending lineaments.The TA method is also used to map geological discontinuities, lineaments and structural trends of the region. Both methods are well correlated with each other. The modulus of wavelet coefficients obtained from CWT of magnetic anomalies exhibit cone like structure. The modulus maxima lines are located in the area where geological discontinuities are extended in any direction. Thus all methods confirm possible new lineaments and structural trends of Saros bay and surroundings.

**Keywords:** magnetic anomalies, edge detection, geological discontinuities, wavelet transform

# EFFECT OF PRANDLT NUMBER ON TURBULENT HEAT TRANSFER OF CORRUGATED TRAPEZOIDAL PLATE HEAT EXCHANGERS USING NANOFLUIDS

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**ABSTRACT**
In this study, fully developed turbulent flow and heat transfer behavior of water, ethylene glycol, mercury and propane based nanofluids in a corrugated trapezoidal plate heat exchanger have been numerically investigated.A constant heat flux was applied to the heat exchanger and the constant heat flux was chosen to be 6 kW / $m^2$, volume fractions $\phi$=0%-4%, diameter d = 20 nm and $Al_2O_3$ was selected as nanoparticle.The Reynolds number varies from 6000 to 20000.Geometric parameters of the corrugated trapezoidal channel, trapezoidal height e=5mm, trapezoidal pitch Pe=12mm, width of the top trapezoidal channel w=3mm.Executive equations have been solved with Ansys Fluent programme. The velocity distribution,temperature contours,pressure drop, average Nu number and thermal-hydraulic performance have been analyzed and presented.The effects of nanofluids have been examined on heat and flow fields and it has been observed that the heat transfer increases together with the nanoparticle volume concentration.When the nanofluid is used in a forced convection, the amount of heat transfer increases as the Prandtl number increases. The highest value of the average Nusselt number was obtained in the ethylene glycol-based nanofluid, and the lowest value was obtained in the mercury-based nano-fluid.Results show that the use of nanofluid in the corrugated trapezoidal channelincreases the thermal performance of systems and thus contributes to the design of more compact heat exchanger.

**Keywords:** Heat exchanger, corrugated trapezoidal plate, nanofluid, Prandtl number, CFD

# EFFECTS OF EARTHQUAKES ON HUMAN LIFE IN TURKEY AND THE PRECAUTIONS THAT SHOULD BE IMPLEMENTED

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**ABSTRACT**
Earthquake is a natural disaster, in which the vibrations, which are formed as a result of the deep layers of the earth's crust's being broken after the sudden discharge of the tensile energy that is accumulated in the earth's crust due to the movements of the tectonic plaques, and that radiate in waves, shake the Earth's surface and cause great damage even in remote places.
Turkey is an earthquake country, therefore, a large part of Turkey is threatened by earthquakes. In Turkey, numerous large-scale earthquakes have occurred and thousands of people lost their lives. As a result of these earthquakes, life and property losses have been experienced, the economy has suffered severe damage and these earthquakes have left negative results in social memory. The main problems are not fulfilling the responsibilities, not taking the necessary precautions, and the society's not being sufficiently conscious about living with the earthquake reality. When the literature on the subject was searched, it was seen that the academic studies carried out on the subject were not enough.
As well as the large-scale earthquakes occurred in Turkey, which is located in one of the world's major seismic zones, small earthquakes have also been endangering the human life. In this context, the purpose of this study has been determining the effects of earthquakes on human life in Turkey and find out measures to be taken in order to reduce these effects. In the study, the primary effects that occur due to earthquakes in Turkey were identified as the changes in topography, tsunami risk, major damage and destruction of residential areas, and these issues were discussed. In addition, fire, epidemics, floods, social and economic damages, which are secondary effects of earthquakes, are also explained. In addition, in order to raise people's consciousness, the processes to be followed in the pre-earthquake, during the earthquake and after the earthquake periods have been determined. As the result, prior to the earthquakes to occur in Turkey, increasing the earthquakes awareness and sensitivity has emerged as a necessity, and in this respect, the measures to be taken both in technical and practical terms were determined.

**Keywords:** Turkey, Effects of Earthquake, Earthquake Awareness

# EFFECTS OF LOW DOSE CAPSAICIN (CAP) ON OVARIAN FOLLICLE DEVELOPMENT IN PREPUBERTAL RAT

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**ABSTRACT**
The study was carried out to investigate the effect of CAP level equal to the level getting from hot pepper in daily diet on follicular development and follicular atresia in the rat ovary.
In this study, 80 immature female Spraque-Dawley rats (21 days old) were used. The rats were randomly divided into 4 groups according to injection periods (6, 9, 12, 15 days). Each group was subdiveded into three groups. The first subgroup (control A n:5) was not under enjection. The second subgroup (experiment, n:10) received subcutaneous injection of CAP (0.5mg/kg/d; prepared in solvent consisting of 10% ethanol, 10% Tween 80 and 80% distilled water) and the third subgroup animals (control B, n:5) received an equal volume of solvent (10% ethanol, 10% Tween 80 and 80% distilled water) in the same way used for CAP. Rats were given daily s.c. injections of either solvent (control B) and CAP dissolved in solvent (experiment groups) for 6, 9, 12, and 15 days. At the end of the experiment, ovarian sections were immunohistochemically stained with Ki 67 (marker of cell proliferation), active caspase-3 (marker of apoptosis) and also TDT- mediated dUTP-biotin nick end labeling (TUNEL) was applied on these sections.
Follicular atresia was observed in the antral follicles (types D and E) of all ovary sections but, in the CAP-treated group, the apoptotic indexes coupled to atresia were significantly lower compared to controls particularly on Days 9 and 15 and the active caspase 3 accumulation in cytoplasm was also significantly depressed. By contrast, follicle proliferation indexes was increased in treated rodents compared to controls on days 12 and 15.
The results indicate that the administration of low dose CAP may play an important role in the regulation of ovarian follicular development. As a result, it could concluted that administration of low dose capsaicin may stimulate neuropeptides present in the capsaicin-sensitive sensory neurons which may be involved in the regulation of female reproductive function.

**Keywords:** Capsaicin, rat ovary, ovary follicle, neuropeptide

# EĞRILIK TEORISI ÜZERINE KINEMATIK YAKLAŞIMLAR

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**ÖZET**
Düzlem ya da bir yüzey üzerindeki bir eğrinin eğrilik değeri, o eğrinin doğrusal harekete göre sapmasını ölçer. Eğrilik kavramı, bir eğrinin bulunduğu yüzeyle ilişkisini ve dolayısıyla yüzeyin yapısı hakkındaki temel kavramların oluşturulmasını sağlar. Dolayısıyla eğrilik teorisi, düzlem ve yüzeylerin geometrisinde en temel konulardan biridir. Bu çalışmada, kinematik yaklaşımlarla teori desteklenmiş ve örneklendirilmiştir.

**Keywords:** Eğrilik, Evolüt, Evolvent, Bobillier teoremi, Hartmann tasarımı, Sarmal yörünge

# ELECTRIC POWER DISTRIBUTION SYSTEMS

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**ABSTRACT**
Recently, due to concerns about the liberalization of electricity supply, deregulation, and global impact on the environment, securing a reliable power supply has become an important social need worldwide. To ensure this need is fulfilled, detailed investigations and developments are in progress on power distribution systems and the monitoring of apparatus. These are on (1) “digital technology” based on the application of semiconductor high-speed elements, (2) intelligent substations applying IT (information technology), and (3) system configurations aimed at high-speed communication. Incorporated in these are demands for the future intelligent control of substations, protection, monitoring, and communication systems that have advantages in terms of high performance, functional distribution, information-sharing and integrated power distribution management. Today’s conventional apparatus also requires streamlining of functions, improvements in sensor technology, and standardized interfaces.

**Keywords:** electrical system, new technology, environment, security

# ENERGY MANAGEMENT OF PHOTOVOLTAIC SYSTEM UNDER PARTIALLY SHADED CONDITIONS

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**ABSTRACT**
One of the recent concerns in the photovoltaic (PV) system practice is solving the mismatching losses due to the partially shaded conditions. Mismatching problems mean that the *I-V* and *P-V* curves between the shaded and non-shaded parts of PV module are totally different. Under mismatching condition, multiple local peaks can be observed in the PV module characteristics which put difficulties for controllers to track the maximum point. To overcome such problems, current injection method is used to compensate the output current of the shaded part. This paper presents current compensation method for improving the maximum power transfer of PV system under short-term period of shading by using Electric Double Layer Capacitors (EDLC). The amount of injected current and to which part of EDLC being injected are determined by utilizing the intelligent network by means of Artificial Neural Network (ANN). The proposed method is always end up with single local maximum point and prevents to occur multiple local maximum power point (MPP) that makes the optimum point can be easily identified using conventional controller algorithm.

**Keywords:** ANN, current sources, EDLC, PV module, partially shaded conditions

# ERGONOMİK RİSK DEĞERLENDİRMEDE GEREKLİ AÇILARIN GÖRÜNTÜ İŞLEME İLE HESAPLANMASI: REBA YÖNTEMİ UYGULAMASI

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**ÖZET**

Çalışma hayatında dikkat edilmeyen çalışma pozisyonları, ilerleyen zamanlarda çeşitli rahatsızlıklara (bel fıtığı, boyun ağrısı, diz ve bacak rahatsızlıkları) sebebiyet vermektedir. Oluşan bu iskelet ve kas sistemi rahatsızlıklarının işçi üzerinde yarattığı psikolojik ve fizyolojik sebepler neticesinde özellikle artan yaş grubundaki tecrübeli çalışanlarda belirgin oranda verimlilikte azalmasına görülmektedir. İşçilerin rutin ancak ergonomik açıdan riskli işleri yapması sonucunda meydana gelebilecek iskelet rahatsızlıkları sonucunda alacakları raporlar hem iş göremezlik ödeneğine ayrılan bütçenin etkin kullanılamamasına hem de işverenlerin ödemek zorunda kalacağı tazminatlara sebep olabilmektedir. REBA yöntemi ergonomik risk değerlendirme yöntemlerinden olup literatürde sıklıkla kullanıldığı çalışmalar yer almaktadır. Ancak bu yöntemin uygulanmasında çalışma pozisyonu açılarının elle hesaplanması hem hatalı ölçümlere sebep olabilmekte hem de zaman almaktadır. Bu çalışmada işçilerin fotoğrafının çekilerek otomatik olarak insan vücudu üstünde ağırlık merkezlerinin nümerik analizinin yapılması ve bunların görüntü işleme teknikleri ile görsel olarak sonuçların alınması, açıların hesaplanması sağlanmıştır. Bu sayede REBA puanı otomatik olarak hesaplanmakla birlikte, geliştirilen sistem kişiye ergonomik risk analiz raporu da sunmaktadır.

**Keywords:** Ergonomik risk değerlendirme, REBA, Görüntü işleme

# EXPERIMENTAL INVESTIGATION OF MACHINABILITY PROPERTIES OF 5035 STEEL

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**ABSTRACT**
One of the main purposes in machining is to bring surface roughness to the top level. The stage where the most decisive work can be done in improving the product quality is the parameter design phase for both product and process design. In order to determine the most effective parameters and to evaluate the results more efficiently, the Taguchi experiment design technique is preferred to realize the experiments in a shorter time. This performed study was done by the aim of investigating the effect of change in terms of hardness, feed rate, and cutting tool of "Dual Phase" steel, which is a class of HSLA (High Strength Low Alloy) steels that increases usage and importance day by day, onsurface quality in turning process in the pieces subjected to high forces in machine, device, car manufacturing. Experimental design In the Minitab statistical analysis program, Taguchi experiment design technique and 9 trials according to L9 orthogonal design. Experiments were performed in dry cutting conditions in CNC Turning Table that has 1.5 kW power and rotates with maximum 2000 rpm. Variance analysis and signal / noise ratio were used in the evaluation of the test results. . It was possible to achieve the intended results with only one third of the number of experiments required in full factorial design (9 experiments instead of 27). In the experiments, the cutting tool type (CBN, Ceramic and Carbide cutter), the feed rate (0,02, 0,04 and 0,06 mm/cycle) and the material hardness (Material with two different hardness values obtained by annealing at 745 and 760 degrees without heat treatment and obtained after heat treatment) were used as the independent variable (factor). The mean surface roughness value (Ra) as a dependent variable was determined from measurements taken at 6 different points in three trials. As a result, the most effective parameters on the surface quality are the feed rate, the material hardness (microstructure) and the cutting tool. The results obtained are interpreted together with the evaluations which have been entered into the literature before.

**Keywords:** Taguchi, Dual Phase, Surface Quality, Machinability

# EXPRESSION ANALYSIS OF THE RPL9 AND LIAS GENES IN LUNG CANCER APOPTOSIS

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**ABSTRACT**

Worldwide, lungcancerisaleadingcauseofdeath, is the most commonly diagnosed form of cancer, and hasan increasing incidence rate in countries with a high prevalence of smoking. *RPL9* and *LIAS* were previouslyfound to be mutated in CHO (ChineseHamster Ovary)cell linesthathadbecome resistanceto apoptosis. Themainobjectiveofthisstudywastoevaluatetheexpressionpatternof RPL9and LIAS genes inlungcancerandtocharacterisetheirroleinapoptosis. This study also aimed to determineifthe expression pattern ofthesegenesvarybetween the normaland diseased state. *InSitu*hybridizationindicatedthat*RPL9*and *LIAS* transcription levels were higher in lungcancerrelativetonormallung tissues.The mRNA levels of *RPL9*is higher relative to thatof LIAS as determinedby theintensity of the staining. These results were confirmed by Quantitative real-time PCR.TUNEL assays showedthat thehighestDNAfragmentation occurred in adenocarcinoma,followed by squamous celllung carcinomathenlargece ll lung carcinoma wherethesame localisation pattern was observedfor both *RPL9*and*LIAS*mRNA using *in situ* hybridization. Bio-informaticanalysisrevealedthatRPL9ishighly conservedthroughoutevolution, with human RPL9 sharing 100% identity with that of chimpanzeesand98% with that of mice. Human LIASwasfoundtobe91%identicaltoratand 90%identicalto mouse. These findingscoupledwith to the fact that mutations in RPL9andLIAS resulted in a CHO being resistant toapoptosis, strongly suggeststhatRPL9playsarolein regulating the cellcycleandapoptosis.

**Keywords:** Lung cancer, RPL9, LIAS, in situ Hybridization, Quantitative Real-Time PCR, and apoptosis.

# FARKLI ORANLARDA HİPER AKIŞKANLAŞTIRICI VE POLİPROPİLEN LİF KATKILI BETONLARIN GERİ DÖNÜŞÜMÜ

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**ÖZET**

Bu çalışmanın amacı günümüzde yaygın olarak kullanılan polipropilen lif katkılı betonlardan elde edilen agregaların yeniden beton üretiminde değerlendirilmesidir. Geri dönüşümün elde edildiği kaynak betonu polipropilen lif katkılı betondur. Kaynak betonundan elde edilen agregalar, çeneli kırıcıda kırıldıktan sonra, polipropilen lifler agregalardan ayrıştırılmadan betonda kullanılmıştır. Kaynak betonlarda sekiz çeşit polipropilen lif kullanılmıştır. Deneyler için 150 mm çapında ve 300 mm yüksekliğinde silindir numuneler kullanılmıştır. Numuneler 120 gün sonunda çeneli kırıcıda kırılmıştır. Kırma sonucunda, 4-15 mm ve 15-22.4 mm boyutlarında polipropilen lifli geri dönüşüm iri agregalar elde edilmiştir. Laboratuvar tipi çeneli kırıcıda yeterli incelikte ince agrega elde edilememiştir. Bu yüzden geri dönüşüm agregalı betonda,ince agrega olarak 0-4 mm doğal kum kullanılmıştır. Geri dönüşüm agregalı üretilen betonda, basınç, yarmada çekme, dört nokta eğilme, aşınma ve su emme deneyleri yapılmıştır. Polipropilen lif katkısı kaynak betonun basınç basınç dayanımını düşürmüş, yarmada çekme ve eğilme dayanımını arttırmıştır. Geri dönüşüm agregalı betonun kaynak beton değerlerine yaklaşabilmesi için, ince agrega olarak doğal kum kullanılması sonucuna varılmıştır. Elde edilen geri dönüşüm agregalı betonun 28 günlük basınç 32.2 ile 43.6 MPa arasındadır. Geri dönüşüm agregalı betonun dört nokta eğilme, yarmada çekme dayanımları düşmüştür. Aşınmaya karşı direnci zayıflamıştır. Su emme değerleri artmıştır.

**Keywords:** Polipropilen lif, geri dönüşüm, basınç, eğilme, yarmada çekme, su emme, aşınma

# FATTY ACID COMPOSITIONS OF TOTAL LIPID, PHOSPHOLIPID AND TRIACYLGLYCEROL FRACTIONS OF MATURE BREAST MILK IN TURKEY

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**ABSTRACT**
In this study, compositions of fatty acids, including mature milk samples, of a mother who just gave birth from 35 mothers were analysed. Total milk lipids extracts were transmethylated and analyzed by using an improved gas-chromatographic method. There were 20 fatty acids measured in the milk samples.The major components were palmitic acid (C16:0), stearic acid (C18:0),myristic acid (C14:0), oleic acid (C18:1ω-9), linoleic acid (LA, C18:2ω-6), in total lipid, PL and TAG fractions. In comparison with PL fractions, total lipid and TAG fractions were characterized by a lower percentage of saturated fatty acids (SFA),a higher percentage of monosaturated fatty acids (MUFA) and polyunsaturated fatty acids (PUFA). There was no statistical differences in total lipid and triacylglycerol fractions (TAG) in mature milk samples.

**Keywords:** Phospholipids, breast milk, chromatography, triacylglycerols

# GROUP EXPLORER IN ABSTRACT ALGEBRA

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**ABSTRACT**
This study explores the use of Group Explorer in an undergraduate mathematics course in abstract algebra. The visual nature of Group Explorer in representing concepts in group theory is an attractive incentive to use this software in the classroom. However, little is known about students' perceptions on this technology in learning concepts in abstract algebra. Twenty-six participants in an undergraduate course studying group theory were surveyed regarding their experiences using Group Explorer. Findings indicate that all participants believed that the software was beneficial to their learning and described their attitudes regarding the software in terms of using the technology and its helpfulness in learning concepts. A multiple regression analysis reveals that representational fluency of concepts with the software correlated significantly with participants' understanding of group concepts yet, participants' attitudes about Group Explorer and technology in general were not significant factors.

**Keywords:** visualization, group theory, group explorer, abstract algebra, technology

# HYBRID CONTROL OF RECTIFIER/REGULATOR FOR WPT 4 LEVEL WIRELESS CHARGING SYSTEM OF ELECTRIC VEHICLE

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**ABSTRACT**
In this paper, hybrid control of rectifier/regulator of wireless power transfer system for electric vehicle has been studied. Hybrid control comprises integral cycle control and PWM control. It has good control capability in itself not causing severe switching loss. A prototype of 22 kW is made and tested, and its proposal is verified.

**Keywords:** Wireless Charging, Electric Vehicle, Hybrid control, WPT 4

# IMPROVEMENT OF SELF-LOOSENING PREVENTION EFFECTS OF THREADED FASTENERS THROUGH FINITE ELEMENT ANALYSIS

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**ABSTRACT**
Threaded fasteners using bolts are used not only in industrial field but also in various fields such as precision instruments and medical field. There are various kinds of fastening methods using bolts, such as using bolts and nuts together or tapping screws, and designer can select assuming the environment in which different products are used. However, loosening problems of threaded fasteners are unavoidable through the bolt tightening method, and many accidents are actually occurred and reported. Different bolts with nuts or screws having locking functions are designed and developed to reduce such kind of accidents, but the loosening problems still need to be prevented under some special cases like no-using nuts.
In our previous study, the self-loosening prevention effects of threaded fastenersare confirmed by applying the swelling effect in loosening direction and contraction effect in tightening direction, which are called spring characteristic effects, to screw structures. In this study, improvement on self-loosening prevention effects of threaded fasteners by changing design parameters of helical cutting structures introduced for screw structures are carried out analytically. Experimental evaluation on the improved self-loosening prevention effects of threaded fasteners should be carried out in further study.

**Keywords:** Threaded fasteners, Spring characteristic effect, Self-loosening prevention, Finite Elements Analysis

# IMPROVEMENT ON TENSILE STRENGTH AND FATIGUE PERFORMANCES OF MESHED GUM METAL PLATES FOR BONE GRAFT APPLICATIONS

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**ABSTRACT**
Recently in Japan, degenerative intervertebral discs have a sign of epidemic as one of diseases caused by aging and lifestyle habits. Currently practiced treatments called spinal fusion surgery using pure titanium or titanium alloy implant products have the problems like overloading on healthy natural-bones caused by the extra stiffness and weight of such metal implants. Therefore, creation of implant products that meets mechanism like density, elasticity/rigidity of natural-bones are required to reduce the burden on patient's health bones.Meshed titanium plates for bone graft applications have improved with excellent three dimensional flexibility, lower elastic modulus and higher strength in previous studies. In this study, mesh structure applications on GUM METAL plates with high biocompatibility are interested and their strength/fatigue performance are investigated through analytical and experimental approaches for implant application on intervertebral disc defections. Based on different basic mesh shapes designed in this study, sample meshed GUM METAL plates were fabricated by laser cutting process and fatigue experiments were executed. It concluded that high strength and fatigue performance of meshed GUM METAL plates can be obtained as applied with some kind of designed basic mesh shapes.

**Keywords:** Strength, Fatigue, Mesh Structure, GUM METAL Plates, Analytical and experimental Approaches

# INFLUENCE OF TI ADDITION ON MAGNETIC LEVITATION FORCE PROPERTIES OF MGB2 SUPERCONDUCTING SAMPLES

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**ABSTRACT**
We present here a detailed investigation of the effects of Ti adding on levitation force properties of bulk $MgB_2$ at different temperature. All samples were prepared from magnesium powder (99.8 %), amorphous nano-boron powder (≥98 %), Ti powder (99.98 %). We used 5 wt% excess Mg powder to compensate Mg evaporation during heat treatment. The level of added Ti powder was 0, 2.5, 5, 7.5, 10, 15, 25, 35 wt% of $MgB_2$ powders. These mixed powders were grounded for an hour and pressed into (385 MPa) pellets with a diameter of 26 mm. The pellets were placed on $Al_2O_3$ boat, then placed inside a stainless steel tube and vacuumed. The sintering process was carried out at 675°C for 2 h following vacuum process. During the heat treatment, high-purity argon gas was maintained 8 bar in a stainless steel tube. After heating process, $MgB_2$ samples were cooled in furnace at room temperature. The vertical levitation force measurements were executed at the temperatures of 20 and 25 K under zero-field-cooled (ZFC) and field-cooled (FC) regimes and the lateral levitation force measurements were executed at the temperature of 25 K under field-cooled (FC) regimes using a low temperature magnetic levitation force measurement system(MLFMS).Cylindrical NdFeB permanent magnet (PM) polarized axially with a magnetization of $\mu_0 M$=0.48 T (with 19 mm diameter and 10 mm thickness) was used as a magnetic field source in this system. The PM was free to move on the bottom of $MgB_2$ samples both in the axial and the radial direction. At all temperatures $MgB_2$ samples exhibit high levitation force according to the literature. At 20 K and 25 K under ZFC regime, the 5, 7.5, 2.5, 15 wt% Ti added samples, respectively exhibit a higher vertical levitation force than the pure sample. At 20 K and 25 K under FC regime, the 5 wt%, 2.5 wt%, 7.5 wt% Ti added samples compared to the pure sample have higher attractive force values, respectively.

**Keywords:** MgB2, Ti, Levitation Force

# INFORMATION TECHNOLOGY FOR ALGEBRA

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**ABSTRACT**
This paper was concerned-with teaching algebra novices, all girls aged 13 or 14 years, to solve algebra word problems using an electronic spreadsheet. It was based on the realization that a spreadsheet cell provides a suitable cognitive model for an algebraic variable and that the manipulation of a spreadsheet is essentially based on the construction of algebraic expressions. The main objectives were to test the effectiveness of spreadsheet use on the ability to construct algebraic expressions and to examine the effect of manipulating problem contexts (abstract vs. concrete) on this ability. Other objectives were to determine the relationship between general numerical ability, attitude to mathematics.

**Keywords:** information technology, algebra, teaching

# INVESTIGATION INTO CARRIER BASED PWM METHODS FOR MATRIX CONVERTERS

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**ABSTRACT**
In this study, the carrier based pulse width modulation for matrix converters is studied. A number of significant changes have been applied to the carrier signal to improve the output current's total harmonic distortion. Also third harmonics are injected to the voltage references for a better voltage gain. The matrix converter with an ohmic-inductive load has been simulated for each method for comparison. According to the simulation results, the change which makes the carrier based PWM preferable to use with matrix converters is emphasized as it has no mathematical complexity**.**

**Keywords:** Matrix Converters, Carrier Based Pulse Width Modulation, Virtual DC Link, Third Harmonic Injection.

# INVESTIGATION OF FACTORS AFFECTING SURFACE ROUGHNESS OF HEAT TREATED 5040 STEEL BY EXPERIMENTAL DESIGN METHOD

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**ABSTRACT**
One of the main problems to be tried to solve in machining is machinability. Manufacturer seeks answer of how he can produce his product cheaper and more quality. One of the main purposes in machining is to bring surface roughness to the top level. The stage where the most decisive work can be done in improving the product quality is the parameter design phase for both product and process design. In order to determine the most effective parameters and to evaluate the results more efficiently, the Taguchi experiment design technique is preferred to realize the experiments in a shorter time. This performed study was done by the aim of investigating the effect of change in terms of hardness, feed rate, and cutting tool of “Dual Phase” steel, which is a class of HSLA (High Strength Low Alloy) steels that increases usage and importance day by day, on surface quality in turning process in the pieces subjected to reasonable forces in machine, device, car manufacturing. Experimental design In the Minitab statistical analysis program, Taguchi experiment design technique and 9 trials according to L9 orthogonal design. Experiments were performed in dry cutting conditions in CNC Turning Table that has 1.5 kW power and rotates with maximum 2000 rpm. Variance analysis and signal / noise ratio were used in the evaluation of the test results. . It was possible to achieve the intended results with only one third of the number of experiments required in full factorial design (9 experiments instead of 27). In the experiments, the cutting tool type (CBN, Ceramic and Carbide cutter), the feed rate (0,02, 0,04 and 0,06 mm/cycle) and the material hardness (Material with three different hardness values obtained by annealing at 745, 760, and 775 degrees obtained after heat treatment) were used as the independent variable (factor). The mean surface roughness value (Ra) as a dependent variable was determined from measurements taken at 6 different points in three trials. As a result, the most effective parameters on the surface quality are the feed rate, the material hardness (microstructure) and the cutting tool. The results obtained are interpreted together with the evaluations which have been entered into the literature before.

**Keywords:** Taguchi, Dual Phase, Surface Quality, Machinability

# INVESTIGATION OF FLUOROELASTOMER DEGRADATION IN SIMULATED SEVERE ACCIDENT ENVIRONMENT OF NUCLEAR POWER PLANTS

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**ABSTRACT**
Polymeric materials widely used in safety-related equipment are relatively vulnerable to severe environments such as high temperature and radiation environment during the severe accident. Therefore, to ensure the integrity and performance of the safety-related equipment, degradation effect of severe accident on polymer must be investigated.
In this paper, to evaluate the degradation effect of radiation and heat during normal operating condition and severe accident environment, hardness measurement and tensile test were carried out. And FT-IR analysis was conducted to investigate the molecular structure and bonds. The mechanical properties were not changed significantly in pre-aging, normal operating condition. But radiation of severe accident environment significantly affects the mechanical properties of fluoroelastomer and molecular structure, such as C=O formation.

**Keywords:** Polymeric materials, Severe accident, Degradation, FT-IR analysis

# INVESTIGATION OF THE PROTECTIVE EFFECT OF ASCORBIC ACID AGAINST SILVER NANOPARTICLES BY THE DROSOPHILA COMET ASSAY

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**ABSTRACT**
Nanotechnology is increasingly used in many different industries, such as personal care products, textiles, drug delivery systems, disinfectant products, dyes and construction materials. The release of these materials, which are frequently used, is also continuing today and is expected to increase gradually. These materials are spread around the environment during production, use and disposal. Silver nanoparticles are a material used in many antimicrobial applications. Oxidative stress is one of the important mechanisms in silver nanoparticle toxicity. It is one of the most important triggers of DNA damage and this damage can cause mutation, cancer and age-related diseases in the human body. Antioxidants fight against oxidative damage by clearing the products of damaged nucleotides and lipids found in the cell or by scavenging radicals. In this study, the protective potential of ascorbic acid (AA) against the toxic effects of silver nanoparticles was evaluated by *Drosophila* COMET (single cell gel electrophoresis) method. In the COMET experiment, 10 mM silver nanoparticles and AA were administered with 3 different doses (10, 50 and 250 mM). In the results obtained, genotoxicity was observed to decrease in increasing doses of AA.

**Keywords:** Ascorbic acid, silver nanoparticles, Drosophila, Comet assay

# INVESTIGATION ON DEVELOPMENT OF HIGH PERFORMANCE MEDICAL STENTS AS APPLIED WITH MESH STRUCTURES

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**ABSTRACT**
There are concerns about the occurrence of fatigue fractures caused by stress concentrations due to different shape structures and manufacturing methods in conventional stents, and then new stents having high strength and high flexibility are required. Applicable mesh structures for medical stent applications based on the design concepts of high strength and flexibility are designed to solve various problems of conventional stents in this research. The influence of introduced design variables of basic mesh shapes on compression characteristics of meshed stent models are evaluated through finite element analysis using ANSYS Workbench. From analytical results, compressive stiffness of meshed stent models are found to be changed periodically with compressive directions due to the designed basic mesh shapes. Secondly, compressive flexibility of meshed stent models mostly depends on arm's number and shapes of basic mesh shapes. It concluded that the compressive performance of designed meshed stent models in this study can be easily controlled by increase some design variables like angle proportional to the arm length of designed basic mesh shapes and get closed to conventional medical stents with higher strength performances.

**Keywords:** Medical Stents, Mesh Structure, Finite Elements Analysis, Compressive Stiffness

# IS TURKEY REALLY A GLOBAL COMPETITOR IN YACHT BUILDING INDUSTRY?

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**ABSTRACT**
As it is well known, Turkey took place near the top of 24m or longer yacht building countries. In the world there are a few leading countries which dominate both production and other processes. In recent years, Turkey is one of the yacht building centers in the world. And, attract not only key players' interest but also tourists' with long and beautiful coastal lines and long sunny season. From this point of view, Turkish yacht building industry investigated in terms of design and engineering, yards locations, yacht types, project length, installed engine, transmission or propulsion systems, navigation and telecommunication systems, generator, hull and superstructure materials and classification in this study. From the results, it can be said that Turkey has lots of advantages to compete with the leading players of this industry but must be focused on added value activities to increase of its share from the market.

**Keywords:** Yacht, Super or Mega Yacht, Turkish Yacht Building Industry

# İMZA TANIMA İLE ÖĞRENCİ DEVAM SİSTEMİ TASARIMI

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**ÖZET**
Yükseköğretim kurumlarında öğrencilerin derslere katılması başarıyı etkileyen en önemli faktörlerin başında gelmektedir. Buna çözüm olarak belirli oranda devam etmeyen öğrencilerin devamsızlıktan kalması bazı üniversitelerin yönetmeliklerinde yer almaktadır. Bu kapsamda ek donanım gerektiren manyetik veya biyometrik okumaya dayalı birçok yoklama sistemi geliştirilmiştir. Bu sistemlerde donanım maliyetlerinin yüksek olması, manyetik kartların başka öğrenciler tarafından okutulması başlıca problemler arasında gelmektedir. Bu çalışmada ek donanıma gerek duyulmayan, imza tanıma ve karşılaştırmasına dayalı bir yoklama sistemi tasarlanmıştır.

**Keywords:** imza tanıma, öğrenci devam, yoklama

# İNANDIK (ÇANKIRI) ÇÖKME DOLİNLERİ

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**ÖZET**

Bu çalışmaya konu olan dolinler, Çankırı il merkezinin güneybatısında jips katmanlarını içeren Bozkır formasyonunun bulunduğu İnandık Köyü yerleşim alanının iki kilometreden yakın çevresinde oluşmuştur. İlki (derinliği 12-13 m, çapı 15 m) 2015 yılında olmak üzere günümüze kadar üç çökme dolininin oluştuğu arazi çalışmamızda belirlenmiştir. Dolinler İnandık Köyü'nün kuzeyinde, KB-GD yönündeki bir çizgi boyunca oluşmuştur. Bu çizgi, uzanış yönü değiştirilmeden güneye doğru uzatıldığında köy yerleşim alanından geçmektedir. İlk çökme dolini oluştuktan sonra Çankırı Valiliği'ne bağlı birimlerce köy yerleşim alanında yer radarı (GPR) kullanılarak jeofizik testleri yapılmıştır. Yapılan testler sonucunda köy yerleşim alanının zemininde, yüzeyden üç metre aşağıda başlayan boşlukların çökme riski oluşturacak düzeyde olduğu değerlendirilmiştir. Bu çalışmalar sonucunda İnandık Köyü'nün bulunduğu yerden taşınması bakanlar kurulu kararıyla onaylanmıştır.

Yapısal özellikleriyle birlikte litolojik birimlerin karstlaşmaya uygun olduğu bölgelerde yeraltı sularının düşey ve yatay hareketleri zamanla karstik boşlukların oluşmasına neden olur. Bu boşlukların hacmi büyüdüğünde boşluk tavanında dikey zayıf hatlar boyunca bacalar şeklinde, üst kısımlardaki katmanlarla bağlantılı oluklar gelişir. Yer yüzeyinden aşağıya sızmaya başlayan meteorik suların hareketiyle aynı yönde, karstik boşlukların tavanındaki bacalardan aşağı taşınmaya başlayan gevşek materyaller karstik boşluk tavanının hemen üstünde yeni boşlukların oluşmasına neden olur. Materyal taşınmasıyla yeni oluşan boşluğun hacmi büyüdükçe dayanağını kaybeden yer yüzeyine yakın katmanlar çökmeye başlar. Bu süreçler çalışırken yeraltı su tablasının konumu da şüphesiz önemlidir. Çünkü yeraltı suyuyla doygun olan bir ortamda materyal taşınımı gerçekleşmeyecektir. Bu nedenle su tablasının karstik boşluklardan daha aşağıdaki seviyelere, en azından karstik boşlukların alt seviyelerine kadar çekilmiş olması gerekir. Kalker, jips veya kayatuzu katmanlarından oluşan yeraltı litolojisine sahip bölgelerde yukarıda anlatılan mekanizmanın çalışması, oldukça derin olabilen genellikle dairesel bir şekle sahip çukurların (çökme dolinlerinin) oluşmasına neden olur. İnandık Köyü'nde oluşan çökme dolinleri çamurtaşı, kumtaşı, jips ve tüf ardalanmalı alt pliyosen yaşlı 500-600 metre kalınlığındaki Bozkır formasyonunda gelişmiştir. Birimde egemen kaya türü olan jipslerin oluşturduğu katmanlardaki karstlaşma, yeraltı boşluklarının oluşmasına neden olarak çökme olaylarına zemin hazırlamıştır.

İklim değişikliğiyle bağlantılı su kaynaklarının azaldığı ve yeraltı suyunun kontrolsüz kullanıldığı bölgelerde çökme dolinlerinin gelişmesine uygun jeolojik koşullar da varsa, çökme olaylarından tarım arazileri, yerleşim alanları ve mühendislik yapıları büyük zararlar görebilir. Nitekim İnandık Köyü'nde çökme olayları gerçekleştiğinde konutlarda yıkım olmamakla birlikte hasar gerçekleşmiştir. Bir sonraki çökme olayının köy yerleşim alanında gerçekleşme olasılığına karşı yerleşim alanının terk edilmesi kararlaştırılmış ve yeni yerleşim alanı belirlenmiştir.

**Keywords:** Çökme dolini, Jips, Karst, İnandık

# İŞ YERİ UYGULAMA EĞİTİMİNDE ÖĞRENCİLERİN BAŞARI DURUMLARININ DEĞERLENDİRİLMESİ

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**ÖZET**
İş Yeri Uygulama Eğitimi; öğrencilerin eğitim kurumlarında gerek teorik gerekse pratikte edindiği bilgi ve tecrübelerin, uygulamaya dökülebilmesi ve pekiştirilebilmesi adına İş Yeri Uygulama Eğitimi dersi adı altında, tam zamanlı olarak iş yerlerinde yapacakları yeni bir eğitim modelidir. Bu yeni eğitim modelindeki eğitim süreci 15 haftadır. Devam zorunluluğu %90'dır. Devam zorunluluğu yüksek bir oranda tutularak öğrencinin bu eğitimden elde edeceği edinimlerin maksimum düzeyde olması amaçlanmıştır. Öğrencilerimizin İş Yeri Uygulama süreci boyunca hem üniversite hem de çalıştığı iş yerinde sorumluları bulunmaktadır. Çalıştığı kurumdaki sorumlu kişi "İş Yeri Eğitim Sorumlusu", üniversitedeki sorumlu kişi de "İzleyici Öğretim Elemanı" olarak adlandırılmaktadır. İş Yeri Eğitim Sorumlusu öğrencinin çalıştığı firmada bulunduğu bölümde yetkili amiri olmaktadır. İş Yeri Eğitim Sorumlusu öğrencilere meslek alanlarıyla alakalı işler vermek, öğrencilerin devam durumlarını takip edip sisteme işlemek, dönem sonunda öğrencilerin başarı durumlarını değerlendirmekle görevlidir.
Bu çalışmada amaç; öğrencilerimizin İş Yeri Uygulama Eğitimi sürecinde başarı durumlarının değerlendirilmesi sisteminin doğru olup olmadığını sorgulamaktır. Çalışmanın kapsamı 62 firmada çalışan 108 öğrenci tarafından oluşmaktadır. Öğrencilerimizin başarı durumunun değerlendirmesinde oran olarak İş Yeri Eğitim Sorumlusunun verdiği notun %50'si İzleyici Öğretim Elemanının verdiği notun %50'si alınmıştır. Öğrenci stajdan başarılı olmak için 100 üzerinden 60 almak zorundadır. Başarılı olamaması durumunda İş Yeri Uygulama Eğitimini tekrarlamaktadırlar. Hem İş Yeri Eğitim Sorumlusuna hem de İzleyici Öğretim Elemanına eşit oranda not verme yetkisi bulunmaktadır. Öğrencilerimizin İş Yeri Eğitim Sorumlularından alınan geri dönüşlerde, uygulanan not verme sisteminin eşit olması, öğrencinin hem iş yerinde yaptığı çalışmalara hem de İzleyici Öğretim Elemanına vereceği rapora aynı özeni göstermesini sağlamaktadır. Çalışma sonucunda; 62 firmadan 56'sı olumlu dönüş sağlamıştır. Çalışmada firmaların ve öğretim elemanlarının verdiği notlar değerlendirilmiş ve tartışılmıştır. Sonuç olarak bu sistem, öğrencinin hem iş yerinde bulunduğu çalışmalara pozitif katkı sağlamış, hem de yaptığı işleri raporlama kabiliyetini geliştirmiştir.

**Keywords:** İş Yeri Uygulama Eğitimi, İş Yeri Eğitim Sorumlusu, İzleyici Öğretim Elemanı, Eğitim Modeli

# LAZER NOKTA KAYNAĞI İLE KAYNATILAN AISI 304 PASLANMAZ ÇELİKLERİN MİKROYAPI VE MEKANİK ÖZELLİKLERİN İNCELENMESİ

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**ÖZET**

Günümüzde AISI 304 kalite paslanmaz çelik malzemeler, 650 ºC sıcaklığa kadar oksidasyon direncinin istendiği kimya, petro-kimya uygulamalardan mutfak araç gereçleri ve gıda sektörüne kadar pek çok alanda kullanılmaktadır. AISI 304 paslanmaz çelik, mikroyapısında östenit ve ferrit fazlarından oluşan östenitik paslanmaz çeliklerin en önemli tiplerinden biridir. Östenitik paslanmaz çeliklerin kaynağında önemli bir sorun olan karbür çökelmesi 2 yolla çözülebilir. Bunlar, AISI 304 gibi düşük karbonlu östenitik paslanmaz çelik kullanmak ve karbür oluşumunu azaltmak için hızlı kaynak işlemlerinden birini uygulamaktır. Lazer nokta kaynağı bu hızlı işlemlerden biridir. Bu çalışmada, AISI 304 östenitik paslanmaz çelik lazer nokta kaynaklı bağlantısının sertliği ve mikroyapı morfolojisi incelenmiştir.

**Keywords:** AISI 304 paslanmaz çelik, Lazer nokta kaynağı, mikroyapı incelemesi

# LEVELS OF VOLATILE ORGANIC COMPOUNDS IN A UNIVERSITY BUILDING

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**ABSTRACT**
In this study, Volatile Organic Compounds (VOCs) were collected at Gebze Technical University Department of Environmental Engineering by passive sampling method and collected samples were analyzed by Gas Chromatography Flame Ionization Detector (GC-FID). In the study, passive sampling tubes were placed in 21 points including 2 classrooms, 4 outdoors, 3 offices, 4 corridors and 8 laboratories. Two campaigns were carried out during the study. The first (i.e. winter) campaign was conducted from February 27 to March 3, 2016 and the second (i.e. summer) campaign was conducted from May 8 to May 12, 2016. The measured pollutant concentrations ranged from 0.10 μg $m^{-3}$ (isopropylbenzene) to 2182 μg $m^{-3}$ (hexane) during the summer, while the concentrations of the organics were between 0.10 μg $m^{-3}$ (3-methylhexane) and 1954 μg $m^{-3}$ (hexane) during the winter. In the study, hexane was found to be pollutant which made the greatest contribution to the total VOC mass for both summer (77%) and winter (33%) campaigns. Since summer to winter ratios of the target VOCs were examined; ratios were found to be higher than "1" except benzene, cyclohexane, 2,2,4-trimethylpentane, n-heptane, methylcyclohexane, 2-methylheptane, ethylbenzene, m,p-xylene, n-propylbenzene and n-undecane. This may indicate that the evaporation from the chemicals and solvents which are used and stored in the laboratories in the building has increased with the temperature. Furthermore, the highest organic concentrations were also detected in the laboratories for both summer and winter seasons. Therefore, it can be concluded that the stored and used solvents and chemicals become effective and important for the indoor air quality of the building.

**Keywords:** Indoor air, Passive sampling, Solvent usage, University building, VOCs

# LINEAR MULTISECRET-SHARING SCHEMES

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**ABSTRACT**
Cyclic codes form an important class of linear codes.These codes have a rich algebraic structure. Secret sharing is a major topic of cryptography. In this paper, we present a multisecret-sharing scheme based on cyclic codes. This scheme is linear in the sense of that form of each secret. Its security improves on that of multisecret-sharing schemes.

**Keywords:** Secret sharing, multisecret-sharing scheme, clylic code.

# MATHEMATICS IN CHEMISTRY

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**ABSTRACT**
Integration of chemistry and math can be implemented in many different ways. What is considered here is to bring more examples of applications from chemistry into the math courses, for motivation and better understanding, and to incorporate more math into the chemistry courses to reach a higher level. A “full” integration of math and chemistry courses would probably be to push things too far. In the mathematics courses we consider very general types of problems in abstract form, with applicas then important to meet particular concretizations of such problems and to investigate the performance of solvers in a concrete setting, to get the perspective and a better understanding.

**Keywords:** chemistry, mathematics, applications

# MERMER İÇEREN BETONLARIN YÜKSEK SICAKLIKTAKİ DAYANIMLARININ BELİRLENMESİ

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**ÖZET**
Günümüzde kullanımda ortaya çıkan ihtiyaçlar nedeni ile çeşitli özelikleri geliştirilmiş veya üretim ve uygulama teknikleri farklı bazı özel betonlar yaygın biçimde kullanılmaktadır. Üretilen betonların kullanım amacına yönelik olarak tasarımının yapılması ve ekonomik olması çok önemlidir. Betonların çeşitli özelliklere sahip olmalarının yanı sıra servis ömrü süresince dayanıklı yani yüksek durabiliteli olmaları da amaçlanmaktadır. Beton; çimento, su, agrega ve gerektiğinde katkı maddelerinin (mineral, kimyasal, fiber vb) belirli şartlar ve oranlarda karıştırılmasıyla elde edilen, başlangıçta şekil verilebilen plastik formda olup, zamanla çimento ve su arasındaki kimyasal reaksiyonun gelişmesiyle (hidratasyon) sertleşerek mukavemet kazanan, harç fazı ve agregadan oluşan kompozit bir yapı malzemesidir
Ülkemizde ve yurt dışında mermere olan talep hızla artmakta ve bunun sonucu olarak mermer sektörü ile uğraşan işletmelerin de sayısının artmasına neden olmaktadır. Bu işletmelerin büyüklüğü ve yoğunluğuna bağlı olarak çamur ve parça mermer atıklar açığa çıkmaktadır. Mermer atıklarının kullanılabilir tarım arazilerine boşaltılması çevre sağlık ve doğal görünüme bozucu etki yapmakta ve çevrecilik açısından olumsuz bir tepki oluşturmaktadır. Bununla birlikte, ocak ve işletmelerde yapılan üretime göre oluşan atıkların miktarları % 75' lere ulaşmaktadır. Bu nedenle mermer atıklarının değerlendirilmesi konusunda bulunabilecek seçenekler, mermer fabrika işletmecilerine, ülke ekonomisine, çevre ve ekolojiye önemli katkıda bulunulacağı düşünülmektedir
Bu çalışmada, Burdur ve çevresindeki mermer ocaklarından elde edilen atık bej mermer (kireçtaşı) agregası kullanılacaktır. Belirlenecek olan oranlarda ve granülometrideki sahip atık bej mermer (kireçtaşı) agregası katkı maddesi olarak kullanılarak daha dayanıklı ve özellikli betonlar elde edilmeye çalışılmıştır. Bu çalışmada hesaplanan agrega miktarının tamamı normal agrega olmak üzere kontrol betonları üretilecektir. Agrega hacminin ağırlıkça %5, %10, %15, %20 ve %25 oranlarında agrega yerine atık bej mermer (kireçtaşı) agregası kullanılarak yeni karışımlar oluşturulup betonlar üretilecektir. Bu çalışmada üretilmiş olan değişik tip betonların yüksek sıcaklık etkisinin dayanıma etkisinin belirlenmesi için, ısıtma ve soğutma süreci,numunelerin yüksüz olarak istenilen sıcaklık derecesine kadar ısıtılması ve oda sıcaklığına kadar soğutulduktan sonra deneylerin yapılması prensibine göre planlanmıştır. Numuneler, 28. günde sudan çıkarılacak ve sonra her gruptan üçer adet numune 100, 300 ve 600 °C sıcaklıklara kadar ısıtılıp, numuneler 100, 300 ve 600 °C ye vardıklarında 2 saat bekletilip ve daha sonra kül fırınından çıkartılacaktır. Fırından çıkarılan numuneler havada soğutma yöntemi kullanılarak, hava ile teması sağlanıp Numuneler oda sıcaklığına kadar soğuduktan sonra ise basınç dayanımı değerlerinin karşılaştırılması yapılacaktır.

**Keywords:** Mermer, Yüksek Sıcaklık

# MYCORRHIZAL EFFECTS ON NUTRIENT LEACHING IN SEMI-ARID LAND AFFORESTATION OF CENTRAL ANATOLIA

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**ABSTRACT**
Using mycorrhizae inoculated seedling in semi-arid land afforestation may affect nutrient leaching. Therefore, the objective of this study is to assess the mycorrhizal inoculation on nutrient leaching in experimental afforestation sites established in semi-arid lands of Central Anatolia.
Mycorrhizae inoculated and non-inoculated seedlings of Taurus Cedar (*Cedrus libani* A. Rich), Black Pine (*Pinus nigra* J.F Arnold) and Turkish Oak (*Quercus cerris* L.) seedlings were planted in three sites located in semi-arid regions of Central Anatolia. All three sites were ripped down to about 80 cm depth then plowed for site preparation. Each site then was divided into 9 experimental unites. For each species, one of the experimental units is used to plant 40 seedlings inoculated with arbuscular mycorrhizae + ectomycorrhizae, one of the experimental unit is used to plant 40 seedlings inoculated with arbuscular mycorrhizae and one of the experimental unit is used to plant 40 seedlings without any mycorhizae inoculation (Control). Ions in soil solutions were collected with resin bags located in periphery of the seedling roots for 3 months (April-June) for the second and third years of the plantation. In the second growing season, neither in black pine nor in cedar sites the leaching nutrients were not significantly different. However, in oak sites amount of leaching $NO_3^-$ differed significantly (*P-value = 0.0260*). In the third growing season, amount of leaching $Ca^{+2}$ were significantly different (*P-value = 0.0453*) among cedar sites.
In conclusion, the data suggested that using mycorrhizae inoculated seedlings in afforestation of these nutrients poor sites may help to increase available nutrient in upper part of soil profile.

**Keywords:** Mycorrhiza, Nutrient Leaching, Semi-Arid Land, Afforestation

# NITROREDUCTASES FROM THERMOPHILIC BACILLUS SPECIES

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**ABSTRACT**
Nitroreductases (NTR) are members of the NAD(P)H/FMN oxidoreductase that exists widely in bacteria.NTRs have raised a great interest due to their potential in biomedicine, especially in prodrug activation for chemotherapeutic cancer treatments, in bioremediation and enzyme-based biosensors for nitro-sensitive compounds**. T**hermophilic *Bacillus* species isolated from hot water springs in Turkey were identified by 16S rRNA gene sequence analysis. By the phylogenetic analysis, these species were identified as *Bacillus subtilis* (4NK), *Bacillus cereus* (KG5), *Bacillus paralicheniformis* (5NK), *Bacillus paralicheniformis* (FMB2), *Bacillus licheniformis* (FMB3), with sequence similarity of 98%, 100%, 97%, 99.65% and 98.66%, respectively. They were all found to possess the putative NADPH nitroreductase genes.Genomic DNAs for isolation of nitroreductase genes were isolated by conventional phenol-chloroform extraction method. The nitroreductasegenes from thermophilic *Bacillus* species were amplified by PCR, using the designed three primer pairs. The corresponding DNA fragments were fractionated by agarose gel electrophoresis and PCR products were purified and concentrated for cloning and sequencing.

**Keywords:** Nitroreductases, Thermophilic Bacillus, PCR

# NOVEL PHTHALOCYANINES BEARING N,N-¬BIS(PROPYLENEOXY)ANILINE MOIETIES: SYNTHESIS AND CHARACTERIZATION

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**ABSTRACT**
Two-dimensional 18 $\pi$-electron conjugated polymeric phthalocyanines have been investigated in detail for many years, especially with regard to their optical, electronic, catalytic and structural properties as dyestuffs, chemical sensors, photosensitive materials for nonlinear optics (NLO) and optical storage devices [1,2].
In this work the synthesis and characterization of a novel diphthalonitrile and its polymeric metal-free and metallophthalocyanines bearing *N*,*N*-bis(propyleneoxy)aniline moieties is reported. For this purpose *N*,*N*-bis(3-hydroxypropyl)aniline**3** was synthesized by the reaction of 3-chloro-1-propanol and aniline in calcium carbonate medium according to slightly changed literature procedure [3]. 4-[*N,N*-bis[(3,4-dicyanophenoxy)propyl]amino]benzene **5** was synthesized via a base-catalyzed nucleophilic aromatic nitro displacement of 4-nitrophthalonitrile with compound **3**. Afterwards the metal-free and metallophthalocyanine polymers (M=2H, Zn, Cu, Co and Ni) were prepared via polycyclotetramerization reactions of **5** with under suitable conditions. All the novel compounds have been characterized by elemental analysis, UV–Vis, FT-IR, NMR and MS spectral data techniques.

Scheme 1. Synthesis of novel phthalocyanines bearing *N*,*N*-bis(propyleneoxy)aniline moieties

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**Keywords:** Phthalocyanines, Polymeric phthalocyanines, Characterization

# ON ADAPTIVE RELAYING IN POWER SYSTEMS

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**ABSTRACT**
The electrical distribution system is considered one of the most complicated machines in existence. Electrical phenomena in such a complex system can inflict serious selfharm. This requires damage prevention from protection schemes. Until recently, there was a safe gap between capacity to deliver power and the demand. Therefore, these protection schemes focused on dependability allowing the disconnection of lines, transformers, or other devices with the purpose of isolating the faulted element. On some occasions, the disconnections made were not necessary. The other extreme of reliability calls for security. This aspect of reliability calls for the operation of the protective devices only for faults within the intended area of protection. There is a tradeoff here; where a dependable protection scheme will assuredly prevent damage, it is prone to unnecessary operation which can lead to cascading outages. Where a secure scheme will not operate unnecessarily, it is prone to pieces of the system becoming damaged when relays fail to operate properly. With microprocessor based relaying schemes, a hybrid reliability focus is attainable through adaptive relaying.

**Keywords:** electrical systems, power system, advancement

# ON AN ASSISTANT BED DESIGN

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**ABSTRACT**
Pressure ulcer is a common skin disease when patients or the elderly stay in bed for long. Although it is a tradition that children look after their old parents in China, and in some western countries, nursing home takes charge of that, the situation of nursing is still a big problem. The assistant bed is aiming at making the nursing easier or even make the elderly living independently possible. The concept of the bed is: two units, one for living, one for service. Two boards make up the prototype. The service board is mostly used for toileting, washing, and offers smart tablet entertainment to users. The living board is divided into head zone, upper zone, lower zone. To meet the ergonomics needs better, the upper and lower zone are divided into more semi-zones. In-between two adjacent zones, pivot connects the two parts to offer rotational flexibility. The living board is covered with a kind of mattress to prevent from Pressure ulcer. A prefabricated platform is assembled in the room in advance. It is consisted of one strong central pivot which is fixed onto the wall and two strong "arms". With the help of these two arms and the cooperation of two units, a tough problem in nursing: turning-over can be solved. The arm for living unit locates on a half-envelop structure which is designed for hiding the equipment for the whole system. The mechanisms under the living board for moving the zones have the potential for transforming the bed to a wheelchair through a special docking method.

**Keywords:** bed design, pressure ulcer, skin disease

# ON BIOPOWER AND BIOFUELS

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**ABSTRACT**
Fuels, heat or electricity must be produced from biological sources in a way that is economic and therefore efficient at a local scale, energetically and greenhouse gas efficient, environmentally friendly and not competitive with food production. The proportion of solar radiation that reaches the Earth's surface each year is more than 10,000 times the current annual global energy consumption and about 0.2 per cent of it is fixed by plant life. Biomass is thought to contribute over 10 per cent of global primary energy and more than 80 per cent of this is used for cooking and heating in households in developing countries.
The relatively low conversion efficiency of sunlight into biomass means that large areas of agricultural land would be required to produce significant quantities of biofuels using current technology. There are significant opportunities associated with developing energy crops. For example, genetic engineering could be used to enable plants to grow on land that is unsuitable for food crops, or in other harsh environments such as oceans.

**Keywords:** biopower, biofuels, chemistry, environment, biomass

# ON DECIPHERMENT OF THE INSCRIPTIONS OF LINEAR A IN THE COMMON KARTVELIAN LANGUAGE: A VESSEL FOR LIQUID

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**ABSTRACT**
The object of this paper is deciphering of Cretan Linear A (LA) inscriptions spread all over the Aegean area, also found on the territory of Palestine, Bulgaria, Georgia.

1. The paper presents an overview of the data on the ancient population of the Peloponnese, Asia Minor, Aegean islands before the migrations of Indo-European tribes into Europe began.

It is supposed that indigenous inhabitants of this area were of non-Indo-European and non-Semitic origin but were South Caucasian – Proto-Kartvelian tribes.

2. The Common Kartvelian (CK) language formed an influential substratum for the language of Proto-Greek tribes after their invasion of the Peloponnese. The toponyms of *'unknown etymology'* (J.Chadwick, R.Beekes) are now prove to be CK.

3. The analysis of linguistic material (of special importance are toponyms, ethnonyms, anthroponyms and theonyms), the study of graphical qualities of LA and the signs of related scripts (Linear B, Linear C), the previous phonetic reading of Linear B script by M.Ventris and J.Chadwick granted the correctness of my decipherment of LA inscriptions in the CK.

The texts of LA inscriptions are mostly agricultural accounts with anthroponyms, agricultural produce (e.g., cereals, etc.), domestic animals, and signs denoting natural numbers and fractions, etc.

4. My deciphering has been carried out according to the principles of the algorithm presented by me for the Phaistos Disk script. One of the rules of the algorithm has been applied to the whole stock of LA texts.

Some of the deciphered LA words are the following:

*a.* The toponyms and anthroponyms: ma-ka-ri-te – *'Macris'*; pa-i-to – *'Phaistos'*; a-ja – *'Aea'*; ku-ku-da-ra – '*Colchian'*; names of pots: ka-ti; ka-di, and also, numerous other anthroponyms with regular reliable correspondence to Kartvelian personal names.

*b.* The words for the operations on numerals (addition): ku-ro – '*to bind*, *gather*, *collect, add*', and ki-ro – '*fault*, *defect*; *to subtract*, *lessen*, *diminish*, *cut off*, *decrease*, *reduce*'.

All the above terms also display regular phonological and semantic relations to Kartvelian materials.

**Keywords:** Linear A script, the Common Kartvelian language, Proto-Kartvelian tribes, the algorithm for the reading Cretan scripts

# ON HORIZONTAL BUILDING CONSTRUCTION

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**ABSTRACT**
Construction has always been a labour intensive industry, but the demographic changes, high-wage manpower and their shortage are the factors posing new challenges especially for the developed countries. This paper outlines the study for a construction project to meet the new challenges. The aim of the study and initial idea was to provide a construction solution for an urban environment while integrating certain design parameters, creating least disturbance to neighbors, applying modern construction engineering techniques and management to limit the structure erection time down to ten days. In most of the Japanese automated construction systems like Shimizu's SMART and ABCS & Big Canopy of Obayashi, robotic trolleys/cranes are used for transportation and positioning of building elements. These systems have vertical material transportation/delivery systems for high rise buildings, but there is nothing significant for rapid construction if the buildings are longer horizontally.

**Keywords:** horizontal building, labour intensive industry, vertical systems

# ON MULTI-ENDED FAULT LOCATION DESIGN

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**ABSTRACT**
This paper presents a new fault location system for multi-terminal transmission lines. The algorithm used by this system is suitable for inclusion in a numerical protection relay that communicates with remote relay(s) over a protective relaying channel. Fault location estimation does not require pre-fault load flow information. In addition, the data volume communicated between relays is sufficiently small to be easily transmitted using a digital protection channel. The new algorithm does not require data alignment or phase selection information and does not perform iterations to achieve accuracy. This new method of fault locating is not affected by pre-fault load flow, zero-sequence mutual coupling, fault resistance, power system nonhomogeneity, and current infeed from other line terminals or tapped loads.

**Keywords:** fault location, fault analysis, two-terminal fault location, multi-terminal fault location, numerical relaying

# ON NEWLY DISCOVERED DEUTONYMPH STAGE OF STIGMAEUS KUMALARIENSIS AKYOL & KOÇ (ACARI: STIGMAEIDAE) FROM TURKEY

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**ABSTRACT**
**Introduction:** With consisting of 34 genera including *Stigmaeus* Koch, Stigmaeidae is one of the most abundant mite families in the superfamily Raphignathoidea. *Stigmaeus kumalariensis* Akyol & Koç, 2007 were only given before from Turkey. Until now, female and male of this species were known, but its immature stages were not. With this study, deutonymph of *S. kumalariensis*has been found from Turkey for the first time. In the present work, we aimed to contribute to the knowledge on mite existence in Turkey.
**Material and Methods:** Mite specimens were collected in litter and soil from Ekşisu marsh, Erzincan. The mite specimens were extracted by using Berlese-Tullgren funnels, cleared in 60% lactic acid and mounted on microscopic slides in Hoyer's medium.The specimens were examined by using a Leica DM 4000B phase-contrast microscope. The photos were taken by an Olympus BX63-CBH DIC microscope. The measurements were taken in micrometers (µm) with the aid of the Leica Application Suite (LAS) Software Version 3.8.
**Results:** *Stigmaeus kumalariensis* was given from type locality Afyonkarahisar, and later reported from Hakkari and Erzincan in Turkey. During afaunistic study carried out on mites in Erzincan (Turkey),31 females, 6 males, 4 deutonymph specimens were identified as *S. kumalariensis*. Thedeutonymph stage of the species was found for the first time. In addition, we noted that variations in the number of aggenital setae and structure of median zonal shields in the adult specimens.
**Acknowledgements:** This study was prepared mainly from the mite material collected by a research project (№ FEN-A-311212-0005/12.02.04) supported by Erzincan Binali Yıldırım UniversityScientific Research Projects Coordination Unit.

**Keywords**: Mite, *Stigmaeus*, immature, variation, Turkey.

# ON TECHNOLOGICAL APPLICATION OF LINEAR ALGEBRA

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**ABSTRACT**
The aim of this study was to give some examples where Linear Algebra can be useful in solving real life problems, which include physics problems. This involved modelling those problems and then finding solutions. In the following, it will be given a brief summary of some linear algebra applications involving Physics which tackled. One of the key points in physics is to relate theories to real life observations. If the real life data does not correspond to the theoretical relations, then one concludes that either the real life observation is wrong or that the theoretical relation has made wrong assumptions.
The real life observation data could be taken and plotted versus the various variable factors and we could derive relations from drawing a graph, which may not be accurate. Another way, used by most computer programs, is the Method of Least Squares, though this may take time with so many data points. But it could be solved using linear algebra.

**Keywords:** linear algebra, technology, application, physics

# ON THE ALGEBRAIC CONSTRUCTION TECHNIQUE

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**ABSTRACT**
Projections of charged particle beam current profiles are frequently used as a measure of beam position and size. In conventional practice only two projections, usually horizontal and vertical, are measured. This puts a severe limit on the detail of information that can be achieved. A third projection provides a significant improvement. The Algebraic Reconstruction Technique uses three or more projections to reconstruct 3-dimensional density profiles. We have used this technique to measure beam density, and it has proved very helpful, especially in helping determine if there is any coupling present in x-y phase space. We will present examples of measurements of current densities using this technique.

**Keywords:** algebra, reconstruction, x-y space

# ON THE BUILDING TECHNOLOGY FOR PEOPLE

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**ABSTRACT**
Industrialization in Construction will become more customer oriented. Systems for adaptable manufacturing and robot technologies will merge the best aspects of industrialization and automation with aspects of traditional manufacturing. Concepts of mass customization can be implemented via the application of robots in construction and building project/product life cycle as prefabrication processes, on site and in service as socio technical systems. Topics include but are not limited to the following aspects of Automation and Robotics in Construction: a) Industrialized Customization in Architecture: Mass Customization off site, Factory Production, Logistics and Factory Networks, Production. b) Service Science through Automation and Robotics: Mass Customization of performance-oriented environments, Automation and Robotic Assisted Living, Service Robotics, Personal Assistance, Demographic change design and management of socio technical systems by human ambient technologies in daily life especially for aging society.

**Keywords:** building technology, constructions, people, robotic design

# ON THE CHEMICAL ENGINEERING

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**ABSTRACT**
Engineering plays a major role in shaping the world today. The application of science, mathematics, and technology into engineering benefits people and makes the world we live in possible. Most students are unaware of the benefits that engineering provides people in their daily lives. One of the more critical reasons most students, particularly those from underrepresented populations in urban school districts, are not interested in pursuing careers in engineering is that they are not exposed to topics in engineering during their studies. Most teachers have not been trained to incorporate engineering and technology topics into their classroom lessons and there is a lack of high quality curricular materials in these areas. Comprehensive professional development programs are needed for teachers to address the new skills and knowledge necessary for improved classroom teaching and learning if we expect them to integrate engineering concepts into their classroom practice. One perspective on the features influencing effective professional development outcomes is provided by a Council of School Officers report, in which five features were considered: three core features (active learning, coherence, and content focus), and two structural features (duration and collective participation). With this in mind, the Research Experiences for Teachers program was designed to include each of these five features: 1) Active Learning: Teachers were involved in discussion and planning, as well as research; 2) Coherence: Activities were built on what they were learning and led to more advanced work; 3) Content Focus: Content was designed to improve

**Keywords:** chemical engineering, technological development, curricular material

# ON THE CONNECTION BETWEEN CHEMISTRY AND PHYSICS

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**ABSTRACT**
Opinion is divided as to whether chemistry is reducible to physics. The problem can be given a satisfactory solution provided three conditions are met: that a science not be identified with its theories; that several notions of theory dependence be distinguished; and that quantum chemistry, rather than classical chemistry, be compared with physics. This paper proposes to perform all three tasks. It does so by analyzing the methodological concepts concerned as well as by examining the way a chemical rate constant is derivable with the help of the quantum atomic theory. The conclusion is that chemistry, and in particular quantum chemistry, is not a part of physics although it is certainly based on the latter.

**Keywords:** chemistry, physics, concepts of chemistry, concepts of physicson the constructıon sıte automatıon

# ON THE CONSTRUCTION SITE AUTOMATION

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**ABSTRACT**
Many industries have made smart use of arising innovations which has resulted in great improvements in terms of productivity, functionality and final user's convenience. A good example is the automobile industry; cars only appeared as a product roughly a hundred years ago, but today their fabrication process has a high degree of complexity and efficiency, increasing their productivity exponentially over the years. Construction industry however, does not show this exponential development. With this in mind, the latest trend is to boost the quality, efficiency and productivity in construction processes by having automated construction sites which implement robotics and information modeling. This paper aims to establish a set of guidelines regarding construction site automation and apply them to an academic example that tries to solve specific site (location), technical, economical, and logistical issues.

**Keywords:** construction site, automation system, construction industry

# ON THE ENERGY TECHNOLOGIES

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**ABSTRACT**
Solar Power is produced by the conversion of sunlight into DC (Direct Current) electrical power using PV cells. PV cells are modular and light, have no moving parts, have no direct impact on the environment, and require only minimal maintenance. They therefore offer many potential advantages compared with more conventional power generation systems, including easy installation, long life and durability and low operating costs. PV cells were originally developed in 1970s, at the time they were expensive and quite inefficient. Since then, PV technology has been further developed to improve the efficiency and to reduce costs.
Over the last ten years, there has been a huge global effort to develop fuel cells. Originally driven by the prospect of improved electrical efficiency and of improving air quality in urban and indoor environments, fuel cells are now seen as an important potential option for improving the sustainability of energy consumption, reducing emissions of greenhouse gases and reducing emissions in energy use in sectors like transport or portable electronic products.

**Keywords:** energy technology, fuel cell technology, generation systems

# ON THE FINITE COMMUTATIVE RINGS

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**ABSTRACT**
Finite commutative ring theory is a fast-developing subject and has recently been seen to have important applications in theoretical areas like Combinatory, Finite Geometries and the Analysis of Algorithms. Moreover, in the last twenty years, there has been a growing interest in application of commutative rings to Algebraic Cryptography and Coding Theory. In fact, several codes over finite fields, which are widely used in Information and Communication Theory, have been investigated as images of codes over Galois rings, especially over the ring of integers modulo 4. On the one side, applied mathematical research has motivated a more systematic analysis of Finite Commutative Algebra; on the other side, pure Mathematics has offered innovative tools in Coding Theory.

**Keywords:** finite commutative ring, combinatory, coding theory

# ON THE FUTURE OF COMPUTER TECHNOLOGIES

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**ABSTRACT**
Progress in computer technology over the last four decades has been spectacular, driven by Moore's Law which, though initially an observation, has become a self-fulfilling prophecy and a board-room planning tool. Although Gordon Moore expressed his vision of progress simply in terms of the number of transistors that could be manufactured economically on an integrated circuit, the means of achieving this progress was based principally on shrinking transistor dimensions, and with that came collateral gains in performance, power-efficiency and, last but not least, cost. The semiconductor industry appears to be confident in its ability to continue to shrink transistors, at least for another decade or so, but the game is already changing. We can no longer assume that smaller circuits will go faster or be more power-efficient. As we approach atomic limits device variability is beginning to hurt, and design costs are going through the roof. This is impacting the economics of design in ways that will affect the entire computing and communications industries.

**Keywords:** computer technology, communication industry, design

# ON THE NEW PROGRAMMING LANGUAGE: GO PROGRAMMING LANGUAGE

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**ABSTRACT**
Everyone knows that hardware does not mean anything without software. Software is developed by programming languages. One of the most important factors determining the reach of software is the characteristics of the programming language. Many rich applications can be developed with a language that is fast, easy to learn, and has a large library.
The aim of this work is to provide information about the Go programming language that a powerful, fast, easy to learn programming language. Go programming language, developed by Google. Many of the deficiencies of traditional programming languages have been eliminated. It appeared in 2009 and 1.0 version was released in 2012. With the Go programming language, fast and sophisticated projects that can work on the web or in a different environment can be produced. It is an open-source programming language that is evident by the notion of rule, flexibility and speed. In a short time, he was among the fastest growing programming languages.

**Keywords:** Programming Languages, Go Programming Language, Software Development, Google, Open Source Software, Web Programming

# ON THE NOTION OF NATURE IN CHEMISTRY

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**ABSTRACT**
If nature is by definition the object of the natural sciences, then the dichotomy 'natural' versus 'chemical', held by both chemists and nonchemists, suggests an idiosyncrasy of chemistry. The first part of the paper presents a selective historical analysis of the main notions of nature in chemistry, as developed in early Christian views of chemical crafts, alchemy, iatrochemistry, mechanical philosophy, organic chemistry, and contemporary drug research. I argue that the dichotomy as well as quasi-moral judgments of chemistry have been based on static and teleological notions of nature throughout history and that chemists, unlike physicists, have neglected the dynamic notion of nature. The second part provides a philosophical criticism of the former notions and argues for the latter as well as for an explicit discourse about values in chemistry.

**Keywords:** history and philosophy of chemistry; notion of nature; synthetic organic chemistry

# ON THE PREFABRICATION IN CONCRETE BUILDING

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**ABSTRACT**
One of the most urgent issues faced by human being nowadays is the gradually decreased space for living. Especially the growing number of people on one hand creates the demand for higher quality house, on the other hand the decline trend of workers drives up a sore need of highly advanced methodology in building technology. Concrete building as a main form of houses in some densely populated developing country such as china calls for a fundamental reformation for both the ideology and technology in this field. 1.The paper will sum up and analyze the most advanced automation technologies for both the production and information management of concrete prefabrication.2. Solutions will be provided to overcome the shortage of labor, because of the demographic change.3. To find ways of solving the house shortage issue especially in developing country by means of an advanced building technology. It is defined as the technology that increases production efficiency when compares to the traditional concrete house building technology.4. To find methodology of making the concrete house supply chain more efficient.

**Keywords:** prefabricate structures, concrete building, automation technology

# ON THE RENEWABLE ENERGY SYSTEMS

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**ABSTRACT**
This module provides an outline and brief description, including fundamentals, of the different renewable energy technologies, wind, solar, bioenergy, hydro and geothermal energy. It provides a general overview of the technologies and their applications. Electricity generation from wave and tidal energy is not discussed. The use of this technology is less relevant for developing countries as mostly these technologies are still at the prototype stage. While these technologies are not fully proven yet, promising research and development is being conducted.

**Keywords:** renewable energy, electricity generation, technology

# ON THE SIMULATION APPROACHES IN CONSTRUCTION

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**ABSTRACT**
As robotics and automation technologies are integrated in building construction processes, it is also necessary to visualize and simulate the construction work with the help of augmented reality. Model simulation and visualization can help project engineers to estimate construction schedule, workforce necessity, proper utilization of resources and to meet the client's demand precisely before the beginning of real construction work. Engineers can also monitor detailed construction work during realization and simulate on-site activities with the table-work. This paper is aimed to analyses some projects, identify the common project failures and common reasons behind the failures of those projects. Analysis of research papers for some proposed visualization systems for pre-project estimation was done throughout the paper. Workflow with augmented reality during construction lifecycle was discussed in this paper. However, author aims for demonstrating the achievable degree of efficiency by augmented reality before and during construction process. Nevertheless, a comparative study was done for evidencing the advantages of visualization approach.

**Keywords:** construction, simulation, visualization, engineering

# ÖĞRENCİLERDE ALKOLLÜ İÇECEK KULLANIMININ VERİ MADENCİLİĞİ YÖNTEMLERİ İLE İNCELENMESİ

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**ÖZET**
Günümüzde alkollü içkiler ve benzeri tehlikeli maddelere bağımlılık riski özellikle gençler için her geçen gün artan şekilde tehlike yaratmaktadır. Bu tehlikeli maddeleri kullanmaya başlama yaşı ülkeden ülkeye değişmekle beraber alınan tüm yasal düzenlemelere rağmen 10'lu yaşlara kadar düşmüştür. Gençler yetişkinlere kıyasla hem risk almaya daha fazla açıktır hem de daha az deneyime sahiptir. Gençlerde alkol bağımlılığı çok daha hızlı olduğu gibi gençlik dönemindeki sakıncalı alkol tüketimi, ilerleyen yıllarda alkol bağımlılığı riskini yükseltmektedir. Alkollü içecek tüketen gençlerin verileri bu tüketimin sebep ve sonuçlarının öngörülebilir olması için çok önemlidir. Verinin işlenmesine katkısı ile teknolojinin en büyük kazançlarından biri olan Veri Madenciliği bu yüzden çok değerlidir. Bu çalışmada popüler veri madenciliği yöntemleri kullanılarak, elde edilen verilerin analizleri sonucunda gençlerde alkollü içecek tüketimi ile birçok ilişkiyi inceleyen kapsamlı bir çalışma yapılmıştır.

**Keywords:** Anahtar Kelimeler: Veri Madenciliği, Faktör Analizi, Kümeleme, Karar Ağacı Alkollü İçki Tüketimi

# PASSENGER SATISFACTION ASSESMENT OF COMFORT CONDITIONS IN LIGHT RAILWAY STATION BUILDINGS: BURSA/TURKEY

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**ABSTRACT**
**Aim:**The objective of this research paper is to investigate users' perception of building comfort in light railway station buildings, focusing on thermal comfort, acoustical comfort, visual comfort and indoor air quality. The study consists of three main parts: literature review, evaluation of user satisfaction survey, and discussion of the research findings. **Method:** A user's satisfaction survey was conducted to light railway station buildings that people use most intensively which are Uludag University, Acemler, Osmangazi, Sehrekustu, Arabayatagi, Emek light railway stations in Bursa. The questionnaires were applied to users subjecting building comfort parameters of the light railway station buildings.The answers have statically analyzed in terms of percentages. **Results:** In the research findings part, investigated comfort parameters of the survey are presented in tables. As a result of the survey on the evaluation of each comfort, most respondents answered that they were dissatisfied with the thermal comfort conditions, but were satisfied with acoustic and visual comfort conditions and also ambient air quality.**Conclusion:** The research findings of the interaction between the indoor environment and passengers can be transferred into the design process of light railway station buildings considering thermal, visual, auditory parameters required for occupant's well-being and comfort.

**Keywords:** Passenger Comfort, Light Railway Station Buildings, Building Comfort

# PRELIMINARY RESULTS OF GENOTOXICITY OF AGBR, CUI NANOPARTICLES AND AGBR: CUI COMBINATION ON ROOT MERISTEM CELLS OF ALLIUM CEPA BY COMET ASSAY AND RAPD ANALYSIS

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**ABSTRACT**
Nanomaterials are used in dye, fuel, medicine, food industry and many other fields and they are released to the environment during production, transportation, recycling and use. Increased production of nanomaterials in very different areas is inevitable accumulation in the environment, and non-target organisms can be negatively affected. Metallic nanoparticles, such as Ag and Cu, are frequently used NPs because they exhibit broad antibacterial activity. Ag:Cu NPs combination of these two metallic NPs have more antibacterial effect than AgNP and CuNP, and its use is thought to be widespread. In this study, genotoxicity of AgBr NP (50 nm), CuI NP (90 nm) and Ag: Cu NP mixture (65 nm) were evaluated using the Single Cell Alkali Gel Electrophoresis Assay (COMET) method and molecular markers (RAPD) in *Allium cepa* root meristem cells.
According to the results of the tail length parameter obtained from the COMET test, 10 ppm and 25 ppm doses of CuI NP were statistically significant ($p<0.001$) compared to distilled water (negative control group). At other doses, the differences were not statistically significant.
Five primers (UBC 178, UBC 190, UBC 159, UBC 149 ve OP-A 01) of 20 primers scanned were selected for genomic stability analysis. The result of RAPD analysis also supports the results obtained from the COMET test. The DNA profile of distilled water was significantly different from EMS. DNA Profiles of 10, 25 and 50 doses of CuI NP appear to be similar to those of EMS. The results indicate that the primers selected for RAPD analysis may be candidate primers for the evaluation of genotoxicity. However, it would be appropriate to continue scanning the new primers and continue to work with the most appropriate ones selected.

**Keywords:** COMET assay, DNA damage, genotoxicity, nanoparticle

# PRELIMINARY RESULTS OF LEAF-LITTER DECOMPOSITION IN BEECH-CHESTNUT MIXED FORESTS IN WESTERN BLACKSEA REGION OF TURKEY

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**ABSTRACT**

**Introduction:** Many studies have revealed that both the plant nutrients and the stored carbon stocks in managed forest ecosystems have declined significantly. For this reason, the best preservation and sustainable use of existing forest areas, as well as the rehabilitation of degraded forest areas and the determination of ecosystem functions becomes as the fundamental ecosystem researches in forest ecosystems. Knowing the litter decomposition presents very important information about the ecosystem functions such as primary production, carbon and nutrient cycles. The data obtained from this kind of researches can be used for long-term decisions on forest ecosystems and the information necessary to sustain them in a sustainable manner. Therefore the aim of this study is to determine biomass and carbon content of plant, litter and soil and dynamics of litter and to estimate leaf litter decomposition rates in eastern beech (*Fagus orientalis* Lipsky) and Sweet chestnut (*Castanea sativa* Mill.) mixed stands in Duzce-Akçakoca located in Western Black Sea Region of Turkey.

**Material and Methods**: Eight sites (2 aspects x 4 altitudes) were used leaf-litter decomposition experiment. Each study site was divided into six 20 m x 20 m plots where three plots were chosen as chestnut dominated and the other three plots were chosen as beech dominated sites. To determine litter decomposition rates, 3 litter bags each containing 5 g leaf-litter samples were placed on mineral soil surface on each plot in 2011 and were collected in 2015. The litterbags were opened and the decomposed leaf-litter samples were air dried initially, brushed to remove adhering soil particles, and finally oven dried at 65 °C for 48 hours and weighed to be able to determine mass loss by using the difference between initial mass and the decomposed mass.

**Results:** According the preliminary results of this study, it has been estimated that 50-70% of beach and 60-80% of chestnut leaves were decomposed according the fourth year analyses of leaf-litter decomposition. This shows that mass loss of chestnut leaves were greater than those of beech leaves. Decomposition rate has varied among the elevation and aspects for bots species. This means spatial or temporal variation in temperature and moisture might have affected decomposition rates.

**Discussion**: Results of the studies from different regions have suggested that at the regional scale, climatic variables especially evapotranspiration exerts the strongest influence on litter decomposition. However, litter chemistry is the driving variable of decomposition process at the local scale. Equations for litter decomposition derived from this study may be used for similar ecosystems and help to make more accurate models for mountainous sites like the study area. It also may be submitted to global estimations made by various organizations. Additionally, data obtained from these ecosystems may be stored for long-term monitoring and evaluation.

**Acknowledgement:** We would like to express our appreciation to the Duzce University Scientific Researches and Projects (DUBAP) which supported this study with the project number **2017.02.02.586**.

**Keywords:** Beech, Chestnut, Leaf-Litter Decomposition.

# PROLIFERATIVE AND APOPTOTIC EFFECTS OF DIFFERENT DOSES OF TAMOXIFEN ON MOUSE OVARY

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**ABSTRACT**
The objective of this study was to investigate the effect of Tamoxifen (TAM) treatment on ovarian morphology and follicle number in pubertal mice.
In this study, 80 female mice (8 week-old) were used. Animals divided four groups; non-injected (control A), injected with TAM's vehicle solution (control B). The mice in groups TAM 0.5 and TAM 1.5 were treated with TAM at a dose of 0.5 and 1.5 mg/mouse/day respectively. TAM was dissolved with 10% ethanol: 90% corn oil. Mice were given daily subcutaneous injections for 5 days.
Ovarian weights and body weights gain were determined, ovarian histology was examined, and follicles were counted. Ovarian sections were stained with Ki 67 (cell proliferation marker), triple staining for examining the general structure and TUNEL method for apoptosis. In the present study, there were no significant differences in body weight gain and ovarian weight between all groups. The number of primordial follicles was higher in the TAM-treated groups than in the control groups while the number of antral follicle and corpus luteum reduced. In addition, follicular atresia was increased, cell proliferation rate was decreased with TAM treatment. However, the interstitial cells were increased, follicular cysts were formed in the stroma.
As a result, the TAM-treated doses suppressed the follicular development and had a negative effect on ovarian morphology.

**Keywords:** Apoptosis , Follicle, Ki 67, Ovary, Tamoxifen

# PUBLIC FINANCIAL MANAGEMENT AND GOVERNANCE: WHY IT IS IMPORTANT FOR SUSTAINABLE DEVELOPMENT?

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**ABSTRACT**
Globalization, especially over the last two decades, has wrought many changes in economies, to not only the perception of public financial management, but also to the perception of good governance. Both are vital for all nations to guarantee the supportability of national spending plan and money related frameworks, and additionally common monetary security and feasible financial and social development. The general population segment assumes a noteworthy part in the public arena. In many economies, open consumption frames a noteworthy piece of total national output (GDP) and open division elements are significant managers and real capital market members.
General society part decides, for the most part through a political procedure, the results it needs to accomplish and the distinctive kinds of mediation. These incorporate ordering enactment or directions; conveying products and ventures; redistributing wage through systems, for example, tax collection or standardized savings installments; and the responsibility for or substances, for example, state claimed endeavors. Governments additionally have a part in advancing reasonableness, peace and request, and sound universal relations. Successful administration in general society part empowers better basic leadership and the productive utilization of assets and reinforces responsibility for the stewardship of those assets. Individuals' lives are subsequently moved forward.

**Keywords:** Governance, Public Financial Management, Fiscal Transparency Code, Government Budget, Transparency, Participation, Rule of Law, Accountability.

# PYTHON PROGRAMMING LANGUAGE: BASIC PROGRAMMING LANGUAGE FOR UNIVERSITY STUDENTS

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**ABSTRACT**
Rapid technological developments in the world of information have led to a rapid change of hardware and software. Hardware and software, which are inseparable pairs, have not changed at a parallel speed. In the hardware world, a faster development has been observed. But in the software world, they have not developed at the same speed.
Without a software, we know that a piece of hardware cannot sum two numbers. Therefore, the programming language, which is the main factor in the production of software, has a great importance. The most widely used programming languages are C, C ++, Java, C# programming languages.
There are a number of enhancements as well as a lack of script-based programming languages. The obvious features of coding are easy to understand and easy to learn. For the first time, students who will start learning programming languages have great benefits when starting with a language that is easy to learn. Especially Python and Ruby programming languages are simple to learn. However, these languages have quite advanced features.
The aim of this study is to make sure that the reasons that will enable university students to turn to scripting languages in their programming language teaching curriculum. It is to explain the basic features of the Python programming language and to explain that it is easy to learn. Python programming language to explain what can be done with examples.

**Keywords:** programming language, script programming languages, python programming language, ruby programming language

# RELATIONSHIP BETWEEN DENSITY OR PROPAGATION LENGTH AND ULTRASONIC WAVE VELOCITY IN CEDAR (CEDRUS LIBANI) WOOD

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**ABSTRACT**
This study investigated the effect of density and propagation length on ultrasonic wave velocity. In this study, cedar test samples, 20, 30, and 40mm length, and 20x20mm cross section, were used to conduct measurements. Slope of grain and fiber orientation or angle were taken into consideration while preparing the test samples. Therefore, effect of these parameters could be minimized. Samples were acclimatized at 65% relative humidity and 20°C temperature till their weight became constant. It took around 6 or 8 weeks. 1MHz longitudinal and 2.25MHz shear wave contact type transducers were used for ultrasonic wave propagation. Certified contact medium was used to ensure contact between transducers and provide fewer signals to noise ratio. According to results obtained in this study, it's found that there is a significant relation between density and ultrasonic wave velocity. Also, it's determined that propagation length has reverse effect on signal amplitude and it causes attenuation of the wave.

**Keywords:** Cedar, density, ultrasonic wave velocity, non-destructive testing and evaluation

# REMOVAL OF MALACHITE GREEN WITH MAGNETIC CHARGED PUMPKIN SHELLS

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## ABSTRACT

Population growth and increasing environmental pollution all over the world cause more and more pollution of living resources.

Water, which is the source of life, is heavily contaminated with pollutants that are eventually released by industrial activities compared to air and soil [1].

Agricultural wastes attract attention as raw material because of their availability for low water pollution control and low cost [2].

In this study, the magnetic properties of pumpkin shells were obtained by chemical precipitation method. the effectiveness of magnetic

pumpkin shells obtained and Malahide green dye from solution were investigated.

In adsorption experiments, the effects of the adsorption of Malachite green, the initial pH, the initial dye concentration, the temperature, the duration

and the amount of adsorption were investigated. The equilibriu m data obtained were applied to the Langmuir and Freundlich adsorption isoterms and the

isotherm constants were calculated. Experimental results have been shown to be more appropriate for Langmuir's equation. As a result of the studies, adsorban

obtained from the modification of pumpkin shell with $Fe_3O_4$ was determined to be effective in the removal of dyestuff from aqueous solution

and its availability as adsorbent was determined.

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**Keywords:** Pumpkin shell, Malachite green, Water pollution

# SEED PRIMING WITH CONSORTIA OF PLANT GROWTH PROMOTING RHIZOBACTERIA PROMOTES WHEAT GROWTH AND SOIL PROPERTIES UNDER CONTRASTING SOILS

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**ABSTRACT**
Plant growth promoting rhizobacteria (PGPR) have gained considerable interest in plant sciences because of their eco-friendly nature in agri-systems. But no report is available that shows comparative efficacy of PGPR in promoting wheat growth as well as effects on soil properties under different soil conditions. In the present investigation, different strains of PGPR viz. *Bacillus megaterium*, *Pseudomonas fluorescens* and *Bacillus subtilis* were evaluated for their growth promoting effects on wheat as well as their effects on soil properties under field conditions at two different sites having sandy loam and silt loam type of soils. PGPR strains were evaluated either singly or in consortia. Amongst all the treatments, wheat inoculated with consortia of PGPR strains with half dose of NPK was found most effective as it increased number of tillers upto 27%, biomass up to 43%, grain yield up to 50% and 1000 grains weight upto 29% over control in silt loam soil, whereas, corresponding effects in sandy loam soil were less pronounced as effect of 25%, 28%, 31% and14% was observed in corresponding treatments, respectively. Enhanced effects on soil properties were also more intense in silt loam as there was an increase of 205% organic matter as against sandy soil where this value was 110%. Similar behavior was observed in case of available P and K. It was generally concluded that PGPR work better under silt loam soil as compared to sandy loam soil. Moreover, 50% of recommended NPK dose can be substituted by the combined inoculation of these PGPR strains to enhance wheat yield and soil properties and to avoid ill effects of commercial inorganic fertilizers.

**Keywords:** Rhizobacteria, Bacillus, Pseudomonas, Bacillus, Wheat, Soil properties

# SEQUENTIAL EXTRACTION PROCEDURE FOR SPECIATIVE DETERMINATION OF HEAVY METALS IN DUST DEPOSITIONS

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**ABSTRACT**
The sources of road dust, their metal compositions and distributions are not the same all around the city. Suspended dust particles in city transport heavy metals through the air. Therefore, dust can also be used as pollution indicator for the environment. In this study, suspended dust samples were collected once in a month in different regions of selected sampling sites of Sakarya city center, Turkey, from April to October. The extracted metals (Pb, Fe, Zn, Cr, Cu and Mn) of dust samples were analyzed by FAAS. The mobility sequence based on the sum of the BCR sequential extraction stages was: Pb (99.85%) > Mn (88.72%) > Zn (81.42%) > Fe (60.51%) > Cu (42.17%) > Cr (10.60%). Validation of the analytical results was carried out by using a Certified Reference Material (BCR 701). The results showed a good agreement between the determined and the certified values for the metals analyzed. All mean recoveries were acceptable and in the range of 92.92% and 101.90%. Consequently, the results showed that the content of heavy metals was observed higher in some places with heavy traffic, crossroad points and traffic lamps. The results are in agreement with the reported values in the literature.

**Keywords:** Dust, Heavy metal, Turkey, FAAS.

# SOCIAL INCLUSION YOUTH THROUGH EDUCATION TRAINING AND MEDITATION

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*Social Inclusion through Education, Training and Youth.*

**ABSTRACT**
The purpose of this study is to combat radicalism, violence and terrorism, by conducting pilot projects with intervention techniques in secondary schools through Meditation Technique and Quiet Time. An international consortium consisting of 12 partners, the leading partner being Villa Montesca in Italy, applied and received a grant for conducting the above mentioned pilots project in secondary schools throughout Europe. The project started at January 1, 2017. Children on secondary schools are tested, the intervention technique is applied and after four months the children are tested again and compared to a control group. The intervention technique that is used is Quiet Time based on Transcendental Meditation. By the project scientific research has been conducted, to measure the effectiveness of the used intervention technique. Pre- and posttests were conduted in experimental and control groups for teachers, students , parents and schoolmanagement. Demographic factors, such as age, sex and psychological well-being via PANAS, STAI, LOT were measured in three countries (i.e., Sweden, Portugal and The Netherlands). It was hypothesised that Quiet Time Results resulted in more positive affect and less agression, stress, anxiety and more cooperation skills. Resuts will be discussed per country and overall.

**Keywords:** Secondary Schools, Stress, Anxiety, Agression, Violence, Trancendental Meditation

# SOLID PARTICLE EROSION BEHAVIOR OF MUSSEL SHELL REINFORCED POLY (PHENYLENE SULFIDE) PPS

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**ABSTRACT**
Poly(phenylene sulfide) (PPS) is a high-performance thermoplastic engineering polymer and it exhibits outstanding properties such as electrical insulation, dimensional and thermal stability, chemical resistance etc. In addition to this, PPS has a high degree of crystallinity and it exhibits good physical properties at supernal temperatures. Owing to these properties, PPS is widely used in electrical and electronic components, aeronautics and space industry, automobile industry and mechanical applications. These outstanding properties of PPS can be attributed to its chemical structure, composed of phenyl groups linked by a sulfur atom, which gives rigidity to the chain. Waste of mussel shells is a significant environmental problem on earth. These wastes could be evaluated as an economical loss. On the other hand mussel shell can be called as an economical filler material for PPS matrix which also gives a contribution to solve the environmental problem of this waste material. In order to understand the effects of waste mussel shells in polymeric material, It was added as a particles in PPS matrix at various weight ratios (0, 1, 3, 5, 10 wt %). Solid Particle erosion behaviour of samples were examined by universal solid particle test system. Solid particle erosion tests were applied at ambient temperature at two impingement angle (30° and 90°) with 80 mesh sized $Al_2O_3$ particles. Erodent particles were sprayed onto the samples with 3 bar pressure for 10 seconds. Erosion rate and wear volume of the samples were examined. Furthermore, surface characterisations of eroded surfaces were studied by non-contact laser profilometer and Scaning electron microscope. According to test results mussel shell reinforcement increases the solid particle resistance of PPS polymer, so mussel shell could be using as eco-friendly alternative filler material for PPS matrix composites.

**Keywords:** Poly(phenylene sulfide), mussel shell, Solid Particle Erosion, Roughness

# SPATIAL DISTRIBUTION OF OCPS IN SOILS OF ISTANBUL

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**ABSTRACT**
Persistent organic pollutants (POPs) are organic pollutants that are resistant to degradation. They are characterized by their low solubility in water and high solubility in oil, which accumulate in oil masses. When POPs are released into the environment, due to their resistant structure, they accumulate through the food chain in the fatty tissues of humans and animals. Consequently, they cause serious health problems. In addition, POPs can be transported by air flows at long distances and create a global environmental problem. OCPs (Organochlorine Pesticides) are among persistent organic pollutant group and they are have the characteristics of semi-volatility. Due to their semi-volatile structure, they can be transported long distances and they are suitable for transportation in both vapor phase and adsorbed on the particles.
In this study, spatial distribution of organochlorine pesticide (OCP) pollution levels in the soil of Istanbul in both Anatolian and European lands were investigated. A total of 35 points were identified on both sides of Istanbul and the spatial state of the points was chosen to represent the urban and rural characteristics. According to the obtained results, α-HCH and DDT compounds predominated over the 7 months of sampling in OCP species. Higher OCPs were identified in western, south-western, Bosphorus, and along Marmara Sea shore.

**Keywords:** Persistent Organic Pollutants, Organochlorine Pesticide, Soil Distrubition

# SPORADİK VE DİFFÜS DANDRUFFLU HASTALARIN DEMODEX AKAR (ACARI: DEMODICIDAE) POZİTİFLİĞİ VE YOĞUNLUĞU BAKIMINDAN KARŞILAŞTIRILMASI: BİR ÖN ÇALIŞMA

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**ÖZET**

**Giriş:** *Demodex* akarlar (Acari), Trombidiformes takımının Demodicidae familyasına ait eklembacaklı mikroskobik organizmalardır. Sadece memelilerde parazitlenen ve 100 dolayında türle temsil edilen *Demodex* akarların insanların kıl folikülleri ve meibomian bezlerinde yaşayan 2 türü (*Demodex folliculorum* ve *D. brevis*) tanımlanmıştır. Göz hekimlerinin klinikte sıklıkla karşılaştığı ve kronik blefaritin (göz kapağı iltihabı) belirtilerinden biri olan silindirik dandruff kirpiklerde meydana gelen kepeklenme olarak tanımlanmaktadır. Silindirik dandruffun 2 tipi vardır: Kepeklenen kirpik sayısı 10'dan az ise sporadik dandruff (SD), 10'dan fazla ise diffüz dandruff (DF). *Demodex* akarların üyeleri ile kirpik diplerinde yaptığı küçük aşınmalar kirpiklerde epitelyal hiperplazi (epitel hücre sayısının artması) ve reaktif hiperkeratinizasyon (keratin birikimi) meydana getirerek silindirik dandruff oluşmasına neden olmaktadır. Bu yüzden silindirik dandruffun birçok araştırmacı tarafından *Demodex* enfestasyonu için klinik bir belirti olduğu değerlendirilmektedir. Bu çalışma SD ve DD'li hastaların *Demodex* spp. pozitifliği ve yoğunluğu bakımından karşılaştırılması amacıyla yapılmıştır.

**Yöntem:** Çalışma için Erzincan Binali Yıldırım Üniversitesi Klinik Araştırmalar Etik Kurulundan onay alındı. Çalışmaya klinik muayene ile kirpiklerinde silindirik dandruff tespit edilen 98'i SD'li, 88'i DD'li olmak üzere toplam 186 hasta dahil edildi. Tüm hastaların sağ ve sol gözlerinin alt ve üst kapaklarından 2'şer adet (toplam 8 adet) kirpik örneği ''Epilasyon Yöntemi'' ile alındı. Kirpik örnekleri Hoyer ortamında preparat haline getirilerek ışık mikroskobunda farklı büyütmelerle *Demodex* akar varlığı ve sayısı bakımından incelendi. Kirpik örneklerinin en az 1 tanesinde *Demodex* akarların larva, nimf veya erginine rastlanılan hastalar *Demodex* bakımından pozitif kabul edildi. Ortalama *Demodex* akar sayısı, toplam akar sayısının *Demodex* pozitif hasta sayısına bölünmesi ile hesaplandı. Verilerin istatistiksel değerlendirmesi SPSS 23.0 paket programı kullanılarak yapıldı. Hasta gruplarının *Demodex* spp. pozitifliği bakımından karşılaştırılmasında Ki kare testi, *Demodex* spp. yoğunluğu bakımından karşılaştırılmasında Mann-Whitney U testi kullanıldı. P değerinin 0.05'den küçük olması durumunda istatistiksel olarak anlamlı kabul edildi.

**Bulgular:** Çalışmaya 98 SD'li (63 kadın, 35 erkek, ortalama yaş 55.4) ve 88 DD'li hasta (47 kadın, 41 erkek, ortalama yaş 64.3) dahil edildi. Çalışmada SD'li hastaların %41.8'inde DD'li hastaların %100'ünde *Demodex* pozitifliği saptandı. *Demodex* pozitif olan SD'li hastaların kirpiklerinden toplam 88 *Demoedx* spp. (ortalama 2.15), DD'li hastalardan ise toplam 961 *Demodex* spp. (ortalama 10.92) izole edildi. SD ve DD'li hastalar *Demodex* spp. pozitifliği ve yoğunluğu bakımından karşılaştırıldığında aradaki farklar anlamlı bulundu ($P<0.001$).

**Sonuç:** DD'li hastalarda SD'li hastalara göre ortalama *Demodex* spp. yoğunluğunun yaklaşık 5 kat daha fazla olduğu tespit edildi. Bu yönde elde edilen bulgular *Demodex* akarların silindirik dandruff oluşmasında etkili oldukları ve *Demodex* akar sayısındaki artışın kepeklenen kirpik sayısını artırdığı fikrini desteklemektedir. Dolayısı ile silindirik dandrufflu hastalarda *Demodex* akarların göz ardı edilmemesi ve parazit saptandığında antiparaziter tedavi başlanmasının uygun olacağı düşünüldü.

**Teşekkür**: İlk yazarın yüksek lisans tezine dayalı olan bu çalışmaya destek olan Erzincan Binali Yıldırım Üniversitesi Bilimsel Araştırmalar Proje Koordinatörlüğüne (Proje No: TSA-2017-441), Erzincan Binali Yıldırım Üniversitesi Klinik Araştırmalar Etik Kuruluna (Karar No: 2016-08/07) ve tüm katılımcılara teşekkür ederiz.

**Anahtar Kelimeler**: Blefarit, *Demodex*, enfestasyon, kirpik, parazit
**Keywords:** Blefarit, Demodex, enfestasyon, kirpik, parazit

# STRATEGY TO STRENGTHEN THE SOCIAL RESPONSIBILITY OF S&T : FOCUSED ON THE 4TH S&T BASIC PLAN

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**ABSTRACT**
The philosophy of the role of science and technology is well organized in the EU. The EU suggests Responsible Research and Innovation(RRI) as a philosophy that science and technology innovation should pursue. The concept of RRI was presented at Horizon 2020, the 8thFramework Program(2014-2022), which presented science and innovation as tools for a better society, not just as a tool for economic growth.
In this regard, we analyzed how the role of S&T is defined through the analysis of the 4th Science and Technology Basic Plan newly established in the Republic of Korea this year. For reference, the S&T Basic Plan is the highest S&T related plan established by relevant ministries in accordance with the 『Framework Act on Science and Technology』, related to mid and long term policy goals, direction, strategy, and important issues related to science and technology development in Korea. Compared with the basic plans of the past, one of the most important features of the 4th Basic Plan is to expand the policy target to 'people'. The scope of policy has been extended to the quality of life, and it has expanded to the strategic level of the field that was covered only in the level of technology development from the past basic plan. Also, in the detailed task of the Basic Plan, we strengthened the social role of S&T by expanding the participation of the people throughout the R&D process, and specifically reinforced the role of R&D in the problems closely related to the life of the people.
Now, in the process of policy making, it is necessary to change the perception of the people to a 'subjective role to participate in S&T' rather than 'passive enjoyment of S&T'. In addition, as they have long thought about the concept of RRI in the EU and reflected it in the EU framework, we also believe that it is time to establish the basic philosophy such as 'social responsibility of S&T innovation' that penetrates all plans and policies related to S&T.

**Keywords:** Science and Technology Innovation, Social Responsibility, Science and Technology Basic Plan

# STUDY POTENTIAL PHENOLIC COMPOUNDS STEM BARK OF DENDROPHTHOE FALCATA (LORANTHACEAE) PLANT AS ANTIOXIDANT AND ANTIMICROBIAL AGENT

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**ABSTRACT**
*Dendrophthoe falcata* is a hemiparasite that was most frequently observed on hosts *Mangifera indica* (Anacardiaceae), *Melia azedarach* (Meliaceae) and *Psidium guajava* (Myrtaceae). The whole hemiparasitic plant *Dendrophthoe falcata* is used in indigenous system of medicine as cooling, bitter, astringent, aphrodisiac, narcotic and diuretic and is also useful in pulmonary tuberculosis, asthma, and menstrual disorders.This study was conducted to identify total phenolic and flavanoid compounds and to test antioxidant and antimicrobial activity from ethanol extract of stem bark of *Dendrophthoe falcata*the hemiparasite at *Melia azedarach.* The milled dried stem bark of *D. falcata* (4 kg) was extracted exhaustively with ethanol. The ethanol extract was partitionated three times by n-hexane, chloroform, and ethyl acetate respectively. Each fraction were identification total phenolic and flavanoid compounds. The total phenolic was expressed as mg/mL of gallic acid. Total flavonoid content was calculated according to a standard curve established with rutin as reference. Antioxidant was tested by 2,2-diphenyl-1-picrylhydrazyl (DPPH) method. Antimicrobial was screened for activities againts pathogenic by the disk-diffusion method. The results showed that there was a high content of total phenolic and flavanoid from stem bark of *D. falcata*. Each extract also showed significant antioxidant and antibacterial activity. The result of the study suggests that *D. Falcata* have potential phenolic compounds could be suitable for antioxidant and the treatment of various infections caused of microbial.

**Keywords:** Dendrophthoe falcata ; antioxidant; antimicrobial; phenolic compound

# SUBSTITUENT EFFECT STUDY ON EXPERIMENTAL 13C NMR CHEMICAL SHIFTS OF 3-(SUBSTITUTED PHENYL)-3A,4,8,8A-TETRAHYDRO-[1,3]DIOXEPINO[5,6-D] [1,2] ISOXAZOLE DERIVATIVES

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**ABSTRACT**
Twelve novel 3-(substituted phenyl)-3a,4,8,8a-tetrahydro-[1,3]dioxepino[5,6-*d*] [1,2] isoxazole derivatives were synthesized in the present study. Studied compounds were obtained by the 1,3-dipolar cycloaddition reaction of the nitrile oxide to 4,7-dihydro-2*H*-1,3-dioxepine compound. 1,3-dipolar cycloaddition reactions to construct five membered heterocycles are both powerful tools for assembling organic molecules [1]. These isoxazole derivatives were characterized by IR, 1H NMR, 13C NMR and elemental analyses. 13C NMR spectra of studied molecules were measured in **Deuterochloroform**(CDCl3). The correlation analysis for the substituent-induced chemical shift (SCS) with Hammett substituent constant (σ), and Swain-Lupton substituent parameters (F, R) were performed using SSP (single substituent parameter), and DSP (dual substituent parameter) methods, as well as single and multiple regression analysis. From the result of regression analysis, the effect of substituent on the 13C NMR chemical shifts was interpreted according to the literature [2-4].

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**Keywords:** Isoxazole, nitrile oxide, Hammett substituent constant, Swain-Lupton substituent parameters

# SYNTHESIS AND CHARACTERIZATION OF HYDROXYAPATITE FROM CLAM SEASHELL

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**ABSTRACT**
Hydroxyapatite, ($Ca_{10}(PO_4)_6(OH)_2$) is the major inorganic component of natural bones and widely used as hard tissue repair and biomedical substitutions. Seashell, mainly consist of calcium carbonate, is one of the natural resources of hydroxyapatite (HA). In the present study, an attempt is made to convert calcium carbonate of seashell to hydroxyapatite. For this purpose, milled and calcined seashells are reacted with phosphoric acid using a precipitation method to maintain fine and pure hydroxyapatite with a Ca/P molar ratio of 1.67. Obtained powders in each synthesis steps are characterized using Fourier transform infrared spectroscopy (FTIR), Scanning electron microscopy (SEM), Energy dispersive spectra (EDS) and X-ray diffraction (XRD) analysis with Rietveld refinement. According to characterization results, nanosized and high purity HA powders are obtained from seashell as a natural resource using facile and low-cost precipitation method.

**Keywords:** Seashell, Hydroxyapatite (HA), Acid-base synthesis

# SYNTHESIS OF SOME NOVEL 3-(4-CHLOROPHENYL)-1-(4-METHOXYPHENYL)PROP-2-EN-1-ONE O-BENZYL OXIMES: AN EXPERIMENTAL AND COMPUTATIONAL STUDY

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**ABSTRACT**
In this study it was aimed to synthesize some novel 3-(4-chlorophenyl)-1-(4-methoxyphenyl)prop-2-en-1-one O-benzyl oxime derivatives. For this purpose, in the first step, 4-chloro-4'-methoxychalcone has been synthesized from 4-methoxyacetophenone and 4-chlorobenzaldehyde. In the second step the chalcone was converted to 4-chloro-4'-methoxychalcone oxime. In the third step, 4-chloro-4'-methoxychalcone oxime was reacted with various arylhalides to form oxime ethers. The reaction pathway is given in Fig.1.
In the second part of the study, some DFT calculations have been performed on the investigated molecules. Geometry optimizations, vibrational analysis, molecular electrostatic potential maps, frontier molecular orbital calculations, determination of some global reactivity descriptors and NMR calculations have been performed. In the computational part, calculations have been performed at DFT B3LYP level of theory using various basis sets including 6-31G(d), 6-31G(d,p), 6-311G(d,p) and 6-311+G(2d,p) basis sets. NMR calculations have been performed using both CSGT and GIAO methods.

**Keywords:** chalcone oxime, oxime ether, computational chemistry, DFT

# SYNTHESIS OF SOME NOVEL 4-CHLORO-1',6'-DIHYDRO-[1,1':3',1''-TERPHENYL]-5'(2'H)-ONE O-BENZYL OXIMES: AN EXPERIMENTAL AND COMPUTATIONAL STUDY

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**ABSTRACT**
In this study it was aimed to synthesize some novel 4-chloro-1',6'-dihydro-[1,1':3',1''-terphenyl]-5'(2'H)-one O-benzyl oxime derivatives. For this purpose, in the first step, 4-chlorochalcone has been synthesized from acetophenone and 4-chlorobenzaldehyde. In the second step the chalcone was reacted with ethyl acetoacetate and the product was converted to 4-chloro-1',6'-dihydro-[1,1':3',1''-terphenyl]-5'(2'H)-one at the third step. In the fourth step, 4-chloro-1',6'-dihydro-[1,1':3',1''-terphenyl]-5'(2'H)-one was converted to oxime via the reaction of the ketone with hydroxylaminehydrochloride. At the last step oxime was reacted with various arylhalides to form oxime ethers. The reaction pathway is given in Fig.1.

In the second part of the study, some DFT calculations have been performed on the investigated molecules. Geometry optimizations, vibrational analysis, molecular electrostatic potential maps, frontier molecular orbital calculations, determination of some global reactivity descriptors and NMR calculations have been performed. In the computational part, calculations have been performed at DFT B3LYP level of theory using various basis sets including 6-31G(d), 6-31G(d,p), 6-311G(d,p) and 6-311+G(2d,p) basis sets. NMR calculations have been performed using both CSGT and GIAO methods.
**Keywords:** computational chemistry, DFT, chalcone, oxime, oxime ether

# TEACHING ABOUT MEDICINAL PLANTS IN MEDICAL SCHOOLS

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**ABSTRACT**
**Introduction**:
The treatment of diseases through the use of medicinal plants and their derivatives is the oldest proven therapy in the world. Its use is widespread worldwide and is based on the belief that the natural origin of the products represents a decreased risk when compared to allopathic medicine, however, it has already been shown that these medications may be responsible for serious adverse effects. This is why it is important that this subject be taught in medical schools.
**Objective:**
This study aims to describe the level of knowledge about medicinal plants amongst medical students.
**Materials and Methods:**
A cross-sectional study was conducted through the use of a questionnaire with the objective of describing the level of knowledge that medical school students had regarding certain general aspects, uses and risk posed by medicinal plants. With the intention of collecting the opinions of students in the different academic levels, and different medical schools, an online questionnaire platform was used.
**Results:**
230 responses were obtained from medical students in different grades and medical schools. Observations showed that little was known about uses and risks of medicinal plants, despite these observations, the students expressed a great interest in studying the therapeutic uses of medicinal plants.
**Conclusion:**
Plants, without a doubt, possess a great potential to be used in medicine given that they are and excellent option for the exploration and discovery of new drugs. It is thus convenient to conduct clinical trials and studies to distinguish their effects as well as implement their teaching into medical school curriculums in regards to their potential therapeutic mechanisms, adverse reactions and interactions.

**Keywords:** medical education; herbal medicine

# TEACHING GLOBAL SOFTWARE ENGINEERING TO UNDERGRADUATE STUDENTS: CHALLENGES AND COURSE DESIGN

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**ABSTRACT**
Unlike many courses in the field of computer science, teaching software engineering comes with a set of challenges. These major challenges can be categorize into five aspects, namely: (1) incorporating a case study based approach to the design of lectures and assignments, (2) including projects from a range of domains, technology, and platforms, (3) keeping up with rapid evolution of technology, (4) setting up a development environment enabling students to understand the impact of geographical, social, and cultural implications on software development, and (5) having students understand the fact that software development is not simply a technical activity, but involves facilitating effective operation of teams. Since software systems have now become an integral part of almost every single industry, producing students who can develop and maintain systems that span across various industries is critical. This paper describes each of these challenges and possible approaches towards overcoming these challenges. This paper will address the challenges of creating a course within an undergraduate computer science curriculum to teach global software engineering. Due to the globalization of software development activities, industries are looking at recruiting students who are equipped with skills needed to deal with challenges around global software engineering. Designing instructional materials and assessment tools to develop this unique mix of skill sets is addressed in this paper. We also discuss both the traditional and non-traditional aspects of teaching software engineering to computer science students.

**Keywords:** global software engineering, course design, challenges

# THE EFFECT OF FIBERBOARD MODIFICATION ON COATING ADHESION STRENGTH

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**ABSTRACT**
The aim of this study was to determine the adhesion strength of polyvinyl chloride (PVC) and Eastern beech (*Fagus orientalis* L.) veneers glued onto specially produced fiberboards with urea-formaldehyde (UF), polyvinyl acetate (PVAc) and polyurethane (PU) adhesives. Inorganic fillers including rock salt (NaCl), calcite (CaCO3), borax pentahydrate ($Na_2B_44O_7.5H_2O$) and talc ($3MgO\ 4SiO_2\ H_2O$) were added at the ratios of 3, 6 and 9% to the specially produced fiberboard mixtures. The adhesion strength of the samples was determined according to the principles of the TS EN 311 standard. In the scope of the study, scanning electron microscopy (SEM) was employed to determine the structural morphology at the bonding interface of the veneers and the specially produced fiberboards. According to the results of the study, the veneer adhesion strength was reduced by the inorganic fillers used in different ratios in the fiberboard modification. The highest adhesion strength was obtained with Eastern beech veneer applied using UF adhesive on the control samples. It was concluded that UF and PVAc adhesives were not appropriate for bonding PVC veneers.

**Keywords:** Medium density fiberboard (MDF), inorganic fillers, polyvinyl chloride (PVC), wood veneer, wood adhesives

# THE FORM AND FUNCTION OF DENOMINAL VERB CONSTRUCTIONS IN KARTVELIAN LANGUAGES

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**ABSTRACT**
This paper describes the consrtuctions and the functions of denominal verbs in Georgian and the other Kartvelian languages. Comparatively little theoretical work has been done on denominale verbs (DNV) constructions.
In Gorgian and other Kartvelian languages in derivation of verbal forms from denominale stems actively participate deverbalizing suffix and prefix, which are directly added to the nominal stem (simple, derivative), after what the nominal loses its nominal form. In some cases affixation causes phonetic changes (syncope, elision, reduplication etc.) which sometimes cause semantic changes. In Kartvelian languages there are also neutral non-differentiated stems, which have both - nominal as well as verbal meaning simultaneously. DNVs use structural models of action and paasive voice.

**Keywords:** Keywords: denominal verb, Active, Passive, Georgian, Mingrelian, Laz, Svan, morpology

# THE IMPACT OF USING TECHNOLOGY AS PART OF A LANGUAGE LEARNING STRATEGY IN TERMS OF TEACHING AND LEARNING ENGLISH: A CASE STUDY OF A SAUDI PRIMARY SCHOOL

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**ABSTRACT**
As a still growing area of research interest, using technology as part of a language learning strategy is an area that still needs to be explored so as to provide results with regard to different contexts and age groups. Specifically, this study seeks to research the Saudi Arabian school situation. Simply put, the Saudi government has been observed to put a great deal of time and lots of money into the education sector. However, as several researchers have pointed out (Abbot, 2006; Alnufaire & Grenfell, 2012), there are still weaknesses in Saudi primary schools in terms of using technology in the classroom. The use of technology can help teachers to enhance the students' learning and motivate them, especially with regard to learning English as a foreign language. This study will employ qualitative and quantitative methods. The target population will be Saudi Arabian school children and their teachers. The current study draws upon surveys, interviews, observations, and assessment in an experimental research format to understand how English language classes using technology in teaching and learning within Saudi Arabian primary schools are perceived. References: Abbot, M. L. (2006). ESL reading strategies: Differences in Arabic and Mandarin speaker test performance. Language Learning, 56, 633-670. Alnufaire, M., and Grenfell, M. (2012). EFL students of writing strategies in Saudi Arabian ESP writing classes: Perspectives on learning strategies in self-access language learning. Studies in Self-Access Learning Journal, 3,407-422.

**Keywords:** Elementary education

# THE IMPACT ON CHEMICAL SPECIES

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**ABSTRACT**
Enceladus Organic Analyzer is an innovative miniaturized microfluidic organic chemical and biochemical analysis instrument that will sample and determine trace organic content from plumes or comas. In situ organic analysis is a powerful and cost-effective approach for detecting molecules of relevance for chemical evolution in our solar system. Furthermore, biologically important classes of compounds, such as amino acids, show a strong chiral bias on Earth, and are ideal for probing the presence of extraterrestrial life. The goal of the EOA is to sample the Enceladus south pole plumes and perform sensitive organic measurements and probe for indications of life.

**Keywords:** chemical specie, biochemical analysis, biological system

# THE INSTRUCTIONAL DESIGN OF COMPUTER LITERACY COURSE FOR DISTANCE EDUCATION

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**ABSTRACT**
Computer literacy course is a required course for undergraduate / graduate students. Problems such as the fact that the number of students that education cannot be reached and the physical facilities of the university and the the work force of teaching staff cannot be used effectively were encountered when carrying out the course with face-to-face training. For this reason, the need to use the distance learning environment in which new technologies equipped with rich learning environments independent of time and space are used has emerged. The purpose of this study is to prepare the instructional design so that the Computer Literacy course can be implemented using distance learning technologies. The instructional design for distance education was followed by a systematic process with analysis, design, development, implementation and evaluation phases. Topics were set up by considering the basic module and standard module of the European Computer Driving License (ECDL) in the creation of the course syllabus. General objectives and sub-objectives were put forward and purpose analysis was established. Then, measurement tools have been developed for these purposes. The course syllabus and 14 weeks of enriched offline course resources have been designed and developed and made accessible to the Learning Management System. The course was piloted in spring semester 2015-2016, and then in the fall semester of 2016-2017 the whole university started to be given this course by distance education. The analysis of the data obtained from the students and the lecturers is thought to contribute to the academic environments that want to carry out this course by distance education.

**Keywords:** Distance education; instructional design; instructional design for distance education; computer literacy course

# THE INVESTIGATION OF EFFECTS OF POLYESTER RESINS AND TENSILE ADDITIVES ON ABRASIVE WEAR OF GLASS FIBER REINFORCED POLYESTER COMPOSITES

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**ABSTRACT**
Composite materials are made by combining two or more materials which have very different properties. The biggest advantages of composite materials are light and strong. The fiber reinforced polymer (FRP) composite material consists of a polymer and a reinforcing material. Polymeric materials are commonly reinforced with synthetic fibers such as glass and carbon. Synthetic fibers are very strong but brittle and it will break if bent sharply. The polymer matrix holds the synthetic fibers together and also protects them from damage. The glass fiber reinforced polyester (GFRP) composites are used with different polyester resins and tensile additives. The aim of this study is investigation of effects of different polyester resins and tensile additives on abrasive wear properties of GFRP. In this experimental study, orthophthalic and isophthalic polyester resins were used as polymer matrix material in GFRP composite samples. The polystyrene, polyvinyl acetate and plasticizers were used as tensile additive in GFRP composite samples. GFRP samples were produced by hot-compression molding at 140°C, 150bar for 3min. Abrasion tests were done to determine wear properties of samples. The wear rate values of samples were calculated according to test results. The Barcol hardness values of samples and densities of samples were measured.

**Keywords:** Glass fiber, Polyester Resins, Tensile Additives, Abrasive wear

# THE LOCAL BUSINESS ANALYSIS SERVICE USING BIG DATA IN SEOUL METROPOLITAN GOVERNMENT

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**ABSTRACT**
The transition into a service oriented government is the focal point of the Seoul Metropolitan Government(SMG) administrative transformation. This transformation must be conducted according to the specific needs of each local municipality. SMG provides a customized service for individual citizens and support job creation by opening and sharing public information and offering the advaced service to help their local business which is called 'Golmoksangkwon Ananlysis Service'. SMG expects to contribute to improving the competitiveness and self - sufficiency of the self - employed by converting the support of the beneficiary point of view of the self-employed into the support of the policy macro perspective by analyzing the factors affecting the business environment of the alley business through the big data analysis.

**Keywords:** e-Government, citizen-oriented, big data, data analysis

# THE MEANING OF CHEMISTRY FOR TOMORROW

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**ABSTRACT**
Global change is creating enormous challenges for humanity. By 2040 the world's population is expected to have increased by 1.7 billion to over eight billion, with the majority of those people living in cities. Global energy requirements will continue to increase as will the pressure on the Earth's natural resources to provide this rapidly expanding population with enough food, water and shelter. The newly industrialized countries of Asia and Latin America are experiencing very rapid economic growth that is bringing modern society's environmental problems, including air and water pollution and waste problems, to wider areas of the globe. The ecological problems caused by human activity such as climate change are worsening. At the same time, it is estimated that more than one billion people now live in poverty without sufficient food, water or adequate sanitation and healthcare provision.

**Keywords:** chemistry, global world, ecological problem

# THE RAPHIGNATHOID MITES (ACARI: TROMBIDIFORMES) FROM KEMAH, ERZİNCAN (TURKEY)

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**ABSTRACT**

**Introduction:** The Raphignathoidea is a superfamily belonging to the mite superorder Acariformes, order Prostigmata. It contains many predators of small invertebrates, while some are herbivores and others parasites. Small and soft bodied thesemites are one of the oldest groups of the world and have a wide distribution in the world. They commonly live in soil, litter, grassy soil, moss, lichen, tree bark, tree cavity, house dust and stored products.In the present work, six mite species of the superfamily Raphignathoidea have been found from Kemah where is a district, located 50 km southwest of Erzincan, on the left bank of river Euphrates. With this study, we aimed to contribute to the knowledge on Raphignathoid mite existence in Turkey.

**Material and Methods:** Mite specimens were collected in litter under *Populus* sp., *Quercus* sp., *Prunus* sp. and *Juglans* sp. from Kemah, Erzincan. The mite specimens were extracted by using Berlese-Tullgren funnels, cleared in 60% lactic acid and mounted on microscopic slides in Hoyer's medium.The specimens were examined by using a Leica DM 4000B phase-contrast microscope. The short descriptions and the distributions of all species were given.

**Results:** A total of six raphignathoid species, four of them from the family Stigmaeidae Oudemans, *Eustigmaeus segnis* (Koch), *E. anauniensis* (Canestrini), *Ledermuelleriopsis ayyildizi* Doğan, *Stigmaeus erzincanus* Doğan, Bingül, Dilkaraoğlu & Fan; two species from the familyCaligonellidae Grandjean, *Neognathus terrestris* (Summers & Schlinger) and *Caligonella humilis* (Koch) are found from Kemah. All the species already known from Turkey are newly recorded from Kemah.

**Keywords:** Raphignathoidea, mite, distribution, Kemah, Turkey

# THE RESEARCH OF SOCIO-ECONOMIC DEVELOPMENT IN THE EUROPEAN UNION COUNTRIES WITH AN APPLICATION OF THE MODIFIED HDI INDICATOR

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The aim of this paper will be the presentation of an alternative, a deeper one compared to the popular measure of the standard of living, which is HDI, a measure of the socio-economic development of residents of the European Union. In this article the synthetic index of the socio-economic development of the European Union countries will be presented. It will be calculated through the use of the following determinants: 'Economy and Finance', 'Science and Technology', 'Health', 'Education' and 'Living Condition'. This index of the socio-economic development of residents of the European Union countries will be created as an arithmetic mean of indicators counted for particular determinants. The index, which will be created, is treated as a modified Human Development Index due to the fact that it will be completed with the added information.

**Keywords:** socio economic development

# THE SCIENCE OF THE TRANSFORMATION OF SUBSTANCES FOR CHEMISTRY

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**ABSTRACT**
One area of research in the philosophy of chemistry is concerned with the nature of chemical substances such as gold and vitamin C and it investigates the status and relationship of concepts such as pure substance also called chemical compound, chemical species, chemical kind, molecule often considered the microscopic essence of a pure substance, atom building block of a molecule; also called chemical element, and of associated concepts such as valence a measure of affinity between constituents of a substance, structure in the sense of spatial distribution of affinities between microconstituents and phase the state of aggregation of a substance such as solid, liquid, vapour. Although it is generally assumed that a pure substance is defined in terms of atomic composition and molecular structure, strictly macroscopic definitions are also possible

**Keywords:** chemistry, transformation, substance, philosophy of chemistry

# THE USE OF NEW TECHNOLOGIES IN THE ELDERLY IN THE NORTH OF PORTUGAL

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**ABSTRACT**

**Introduction**

The elderly, especially those living in institutions, have many health limitations, such as reduced vision, hearing and locomotion, which necessarily implies the risk of loneliness. Based on the project SAICT-POL/24048/2016-NIE- Natural Interfaces with the Elderly, with reference NORTE-01-0145-FEDER-024048, a study was developed with the objective of identifying the appetence of the elderly for the use of new technologies.

**Materials and Methods**

An exploratory and cross-sectional study was carried out, using a form consisting of socio-demographic characteristics, clinical antecedents and issues related to the use of new technologies. Data collection took place between February and May 2018, in 5 residential structures for the elderly in the north of Portugal. The elderly who participated in the study were aged 65 or over, oriented in time and space and gave their informed consent.

**Results and Discussion**

The study included 130 elderly people, 68,5% female and 31,5% male, with an average age of 82,43 years and average stay in the institution of 4,5 years and 57,7% are widowers. The institutionalization happened because to 23,8%, the family did not have time to take care of them and 19,2% of the elderly lived alone. 95,4% reported having health problems and 86,9% suffer from some disability, namely 22,3% in hearing, 59,2% in mobility and 50% in vision. Only 37,7% use the mobile phone and only 2,3% use a computer. 81,5% would like to have more frequent contact with the family and 70,8% with friends. 43,1% of the elderly would see a robot that interacted with them as interesting and very interesting, 53% would see a robot, that would make it easier for some activities and daily tasks as interesting and very interesting and 39, 2% of the elderly would see a robot, who proposed playful activities as interesting and very interesting.

**Conclusion**

The data found in this study indicate that it is essential to provide the elderly with new forms of social relationships with the help of new technologies in order to avoid loneliness and contribute to a better quality of life.

In this study it was aimed to develop new experimental method for the synthesis of 5-(benzylthio)-1,3,4-thiadiazol-2-amine derivatives via the reaction of 5-amino-1,3,4-thiadiazole-2-thiol and various benzyl halides. In the first

step 5-amino-1,3,4-thiadiazole-2-thiol was synthesized from thiosemicarbazide and carbondisulfide. In the second step, 5-amino-1,3,4-thiadiazole-2-thiol was reacted with various benzyl halides to obtain 5-(benzylthio)-1,3,4-thiadiazol-2-amine derivatives. In both two steps ultrasound was used, and the results showed that sonication can increase the efficiency of the investigated reactions. Reaction pathway is given in Fig.1.

Fig.1: Reaction pathway.

In the second part of the study, some DFT calculations have been performed on the investigated molecules. Geometry optimizations, vibrational analysis, molecular electrostatic potential maps, frontier molecular orbital calculations, determination of some global reactivity descriptors and NMR calculations have been performed. In the computational part, calculations have been performed at DFT B3LYP level of theory using various basis sets including 6-31G(d), 6-31G(d,p), 6-311G(d,p) and 6-311+G(2d,p) basis sets. NMR calculations have been performed using both CSGT and GIAO methods.

**Keywords:** sonochemistry, computational chemistry, thiosemicarbazide, 5-(benzylthio)-1,3,4-thiadiazol-2-amine, 5-amino-1,3,4-thiadiazole-2-thiol

**USE OF BROMASS IN BROILER RATIONS AS A DIFFERENT PROTEIN SOURCE**

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**ABSTRACT**
In this study, we aimed to determine the effects of betaine-enriched β-vinasse (Bromass) on live weight (LW), live weight gain (LWG), feed intake (FI), feed conversion rate (FCR), carcass yield (CY), litter quality, blood serum Ca, P, and cholesterol and broiler performance index. A total of 600 Ross-308 broiler chicks were used in the experiment, and the chickens were divided into the following 4 main groups: Control (0 g/kg Bromass), Group I (5 g/kg Bromass), Group II (30 g/kg Bromass), and Group III (60 g/kg Bromass). Additionally, each of the main groups was divided into 10 subgroups of 15 chickens each. The trial lasted for 42 days. Supplementation with Bromass (5, 30 and 60 g/kg) caused significant ($p< 0.05$) increases in the average LW, LWG, FI, FCR, carcass weights (CW), and CY. Additionally, bromass supplementation caused more dry litter at a significant level ($p= 0.002$) and significant ($p< 0.05$) decrease in serum cholesterol concentration. The addition of bromass to broiler diets resulted in a significant decrease in feed prices ($p= 0.001$) and an important increase ($p <0.05$) in the broiler performance index values. At the end of the study, we concluded that the addition of Bromass as a different protein source, especially at the 30 g/kg level, caused positive effects and bromass makes it possible to produce a more profitable broiler.

**Keywords:** Broiler, Bromass, β-Vinasse, Performance, Protein Source

# USE OF DIFFERENT GRAPHICS PROCESSING UNIT ARCHITECTURES TO ANALYZE VARIANCE IN HASH CRACKING RATE AND REAL WORLD IMPLICATIONS OF PASSWORD CREATION BY USERS

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**ABSTRACT**
In this day and age, anyone using the internet has a password to anything from emails, bank accounts and the like however it can be compromised no matter how secure you think it is. This research looks at the relation of Graphics Processing Unit (GPU) Architectures and Password Cracking of the software named “hashcat”. The thesis statement of this study is that “There is no variance between Graphics Processing Unit Architectures to Hash cracking rate.” The experiment was coded in the researcher’s household where the two GPU Architectures are compared based on their hash cracking rates and which can be applied in a large amount of preset hashes. It contains two tests, the first aims to find out if there is a variance in the usage of GPU Architectures, in the sense that if a GPU Architecture can do better in any hash function, regardless of whether or not an Architecture performs better than the other. The second test aims to show the implications of the raw results of the first test, it puts into practical use of real, randomly sampled hashes collected from a leaked database online, and decrypts them using the “hashcat” software. The first test has been subjected using ANOVA testing to see if there is or isn’t a variance between GPU Architecture and Hash Cracking Rate. Two tables were created as a more organized presentation of the results. Different GPU Architectures yield comparative results yet there is no variance between that and Hash Cracking Rate. One GPU Architecture was also utilized for its practical use with its Hash Cracking Rate in five trials with a preset number of hashes. The findings may be useful in the password creation and security of all people that use online services that require password creations.

**Keywords:** Graphics Processing Unit,Hash Cracking Rate, password

# USE OF JUNIPER ESSENTIAL OIL IN QUAIL DIETS AS A NATURAL ANTIOXIDANT INSTEAD OF SYNTHETIC ANTIOXIDANTS

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**ABSTRACT**
This studyfor safe and natural alternative to reduce over-dependence on the use of antibiotic aimed to evaluation of the effects of Juniper oil on growth performance and meat quality of quails. A total of 1000 1-day-old Pharaoh (*Coturnix coturnix Pharaoh*) quails, including both males and females, were divided into four groups containing 250 quails and treated as follows: (1) a control group with 0 mg volatile oil/kg of diet; (2) 100 mg/kg juniper oil plus; (3) 150 mg/kg juniper oil and (4) 200 mg/kg juniper oil. The diets were prepared fresh for each treatment. The experiment was carried out for 42 days. The results of the study showed that the supplementation of Juniper oil (100 and 150 mg/kg) caused a significant ($p< 0.05$) increase in live weight, live weight gain and carcass yields during the growing and finishing periods. But feed intake and FCR were not significantly influenced by treatments. The quails fed with rations containing the Juniper oil had reduced ($p< 0.05$) malondialdehyde levels (MBA) in raw thigh meat samples at different storage time. And at this study was determined that Juniper oil has a significant antioxidant activity in preventing lipid oxidation in stored meat. In conclusion, natural antioxidants as a juniper oil have been used instead of synthetic antioxidants to retard lipid oxidation in poultry diets to improve meat products quality and animal performance.

**Keywords:** quail, antioxidants, juniper,natural,

# USE OF NEW TECHNOLOGIES TO PROMOTE HEALTH IN TOURISTS WHO TAKE CRUISES ON THE DOURO RIVER - PORTUGAL

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**ABSTRACT**

**Introduction**

The health and well-being of the tourists who make river cruises in the river Douro should be a premise of the vessels that realize this type of cruises. In this context, the project SAICT-POL/23434/2016 - Health TuriDouro - Interventions aimed at the health needs of tourists of the Douro river cruises, with reference NORTE-01-0145-FEDER-023434, is being developed and, one of the objectives, has to do with the evaluation of the health needs of the tourists that make the river cruises in the river Douro and later a construction of an application of backoffice and mobile application.

**Materials and Methods**

This is an exploratory and cross-sectional study, where a questionnaire is being applied, consisting of socio-demographic characteristics, clinical antecedents and issues related to the use of new technologies. The data collection instrument began to be applied in April 2018 to the tourists that carry out the river cruise from Régua to Pinhão and on board the ships of the company Barcadouro, having been assured the total anonymity and confidentiality of the information obtained.

**Results and Discussion**

416 tourists participated in this study. 62,7% are women and 37,3% are men, with a mean age of 54,9 years. 39,2% of the tourists were Portuguese nationals and 60,5% were foreign nationals, with the French being 17,1%, the Brazilian with 7,9%, the Canadian with 7,7%, the German with 6, 7% and the American with 6,5%. 64,7% are married and 62% have higher education. For 59,6% of tourists this is the 1st cruise that it performs. 28,6% of tourists have some type of disease or limitation, and 36,1% take medication. 75,2% of the tourists saw the use of a health data platform that would allow their health surveillance to be interesting/very interesting, and 74,8% considered interesting/very interesting the existence of a computer application in tour operators, to identify their health needs.

**Conclusion**

The existence of a mobile application and a back-office application for database management and information to be provided to tourists and tour operators, respectively, will add value to safety in terms of well-being and health.

**Keywords:** Data platform; Mobile application; Tourists

# VERGİ BİLİNCİ VE VERGİ AHLAKI KAVRAMININ EĞİTİM BİLİMİ ÖZELİNDE İNCELENMESİ

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**ABSTRACT**
Vergi kamusal hizmetlerin finanse edilmesi, sürekliliğinin sağlanması ve daha nitelikli hizmet sunulması için devletin egemenlik gücüne bağlı olarak topladığı en önemli gelir kalemidir. Şüphesiz ki devletlerin vergiler dışında elde ettiği gelirler söz konusudur. Ancak vergilerin en önemli alternatiflerinin borçlanma ve senyoraj gelirleri olduğu ve söz konusu gelir kalemlerinin ülke ekonomileri üzerinde uzun vadede meydana getirdiği olumsuz durumlar düşünüldüğünde vergi gelirlerinin önemi ortaya çıkmaktadır. Bu sebeple ülkelerin güçlü ve istikrarlı bir ekonomik yapıya sahip olmalarında vergi bilincine sahip bir toplum yapısının olması büyük önem taşımaktadır çünkü vergi bilincine sahip olmayan toplumlarda kayıt dışı ekonomi olgusu oldukça ciddi boyutlara ulaşmaktadır. Bu tür toplumlarda insanlar vergisel yükümlülüklerini zamanında ve etkin bir biçimde yerine getirmek yerine vergiden kaçınma ve vergi kaçırma yoluna gitmektedir. Böyle bir durumun oluşmasında sıklıkla vergi af uygulamalarına gidilmesi de etkili olmaktadır.
Vergi bilinci üst seviyede bir toplumun oluşması çeşitli politikalara başvurarak kısa vadede oluşturulması pek mümkün olmayıp ancak uzun vadede sonuç alınabilecek bir durumdur. Bu çalışmada, ekonomik politikaların yanı sıra eğitim sistemi içerisine başta genel kavramsal çerçevesi ile vergi kavramı olmak üzere vergi bilici ve vergi ahlakı kavramının dahil edilmesi ile vergi bilinci yüksek bir toplum oluşturulabilir mi? Sorusu çerçevesinde ülkemizdeki mevcut durum değerlendirilecektir.

**Keywords:** vergi bilinci, vergi ahlakı, maliye bilimi, eğitim bilimi

# VERIFICATION OF SIMPLIFIED MODELLING METHOD FOR THERMAL LAG ANALYSIS

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**ABSTRACT**
Safety equipment used in nuclear power plants is required to maintain its function for safety shutdown and containment integrity during severe accident. However, the high temperature environment resulted from hydrogen explosion during severe accident causes the malfunction of safety equipment. Especially, non-metallic parts of equipment installed inside the metal housing, such as cable and torque switch in actuator of motor operated valve, have been reported as vulnerable in high temperature environment. Therefore, it is important for the non-metallic part temperature during severe accident to be estimated for evaluating the survivability. The temperature estimation is generally through thermal lag analysis.
This study is aimed to estimate the temperatures of non-metallic parts inside safety equipment through thermal lag analysis and verify the results of analysis by comparing with the temperature measured by performing the related experiment to thermal lag. Temperatures on inner and outer surface of specimen composed of stainless steel and insulation materials layers were estimated with computational fluid dynamics analysis. Then, for verifying the results of analysis, an experiment using rapid thermal process equipment was performed with mock-up sample of metal housing.

**Keywords:** Severe Accident, Equipment Survivability, Thermal Lag Analysis, fluoroelastomer (Viton), convective heat transfer coefficient

# WEAR BEHAVIOUR OF TIC PARTICLE REINFORCED AZ31 MAGNESIUM ALLOY

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**ABSTRACT**
Inthis effort, effect of TiC particle addition in two distinct size (13 and 93 μm) on the sliding wear properties of AZ31 magnesium matrix alloy has been investigated. Composites were produced by powder metallurgy technique and they contains 10 vol.% of TiC particles. Microstructural evaluation showed that the primary $\alpha$-Mg phase grains surrounded by β-$Mg_{17}Al_{12}$ and TiC particles which embedded in β-$Mg_{17}Al_{12}$ phase boundary. The TiC particles exhibited significantly improved sliding wear performance over that of the alloy. Fine TiC particles provided enhanced wear resistance at same volume fraction than did the coarse particles.

**Keywords:** Magnesium metal matrix composites, TiC particles, Sliding wear

# YUMURTA PARAZITOITI TRICHOGRAMMA (HYM:TRICHOGRAMMATIDAE) TÜRLERINE BESINLERIN ETKISI

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**ABSTRACT**
Biyolojik mücadele çalışmalarında en çok kullanılan etmenlerden birisi yumurta parazitoitleridir. Yumurta parazitoitleri içinde bulunan *Trichogramma* (Hymenoptera:Trichogrammatidae) türleri, birçok Lepidoptera yumurtalarını parazitleme yeteneğine sahiptir. Bu parazitoitin erginleri doğada çeşitli bitkilerin özleri, polenleri ve ballı maddeleri ile beslenmektedir. Tarım ürünlerine zarar veren böcekler ile mücadelede kullanılabilen bu parazitoitin laboratuvarda kitle üretimleri yapılabilmektedir. Kitle üretim çalışmalarında parazitoitin etkinliğini birçok faktör etkilemektedir. Bu çalışma ile parazitoitin etkinliğine besinin etkisi değerlendirilmiştir. Denemede *Trichogramma*'nın üç türüne (*Trichogramma evanescens*, *T. brassicae* ve *T. dendrolimi*) besin olarak arı sütü, polen, propolis ve bal verilmiştir. Bir günlük çiftleşmiş dişiye ortalama 50 adet *Ephestia kuehniella* (Lepidoptera:Pyralidae) yumurtaları verilmiş ve parazitoitlerin parazitleme oranları, parazitli yumurtalardan erginlerin çıkış oranı, gelişme süreleri ve cinsiyetler oranı belirlenmiştir. Denemeler 26±1 ºC, %65±5 orantılı nem ve 8:16 aydınlatmalı iklim kabininde 10 tekrarlı olarak yürütülmüştür. Yapılan değerlendirme sonucu, parazitoitin, verilen konukçu yumurtalarını parazitleme oranı, ergin parazitoitlerin çıkış oranı ve cinsiyetler oranı yönünden en iyi sonuçlar *T. evanescens* türünün bal ile beslenen bireylerinden elde edilmiştir. *T. brassicae* türüne ait bireylerden ikinci en iyi sonucu alınmıştır. Bal ile *beslenen T. evanescens* ve *T. brassicae* bireyleri gelişmelerini 8 günde tamamlamış, diğer 3 besinde ise bu bireyler 9 günde gelişmişlerdir. *T. dendrolimi*türü ise tüm besinlerde en düşük parazitlemeyi ve en uzun gelişmeyi gerçekleştirmiştir.

**Keywords:** Arı ürünleri, Propolis, Trichogramma

# YÜKSEKOKUL ÖNCESI ÖĞRENIMIN SÜRECININ ÜNIVERSITEDEKI EĞITIME YANSIMASI

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**ÖZET**

Teknolojinin günden güne ilerlemekte olması, ülkemizde gelişen iş alanlarına ve bu alanlardaki rekabete bağlı olarak nitelikli eleman ihtiyacının artmasına neden olmaktadır. Bununla beraber günümüzde endüstri 4.0 ile birlikte gelişen ve teknolojik bir yapıya kavuşan işletmelerde nitelikli elemanın yanında olası problemlere karşı çözüm üretebilen, analitik düşünce yapısına sahip ara elaman tercih sebebi olmaktadır.

Günümüzde istenilen ara elamanı yetiştiren kurumlar arasında Meslek yüksekokulları ve meslek liseleri büyük önem arz etmektedir. Nitelikli ara eleman ihtiyacını karşılamada önemli yere sahip olan Meslek Yüksekokullarını düz lise ve meslek lisesi öğrencileri tercih etmektedir. Meslek yüksekokullarında hazırlanan Eğitim programları, öğrencilerin hazırbulunuşluk durumları göz önüne alınarak temel bilimler ve meslek dersleri olarak iki gruba ayrılmaktadır. Şüphesiz ki öğrencilerin hem Temel bilimlerde hem de mesleki derslerde başarılı olması iş hayatına da olumlu katkı sağlayacaktır.

Bu çalışmada 2016-2017 eğitim öğretim yılında Manisa Celal Bayar Üniversitesi Teknik Bilimler Meslek Yüksekokulundan mezun olan öğrencilerin başarı durumları ile Meslek Yüksekokullarına kaynak olan eğitim programları arasındaki korelasyon sonuçları incelenmiştir. Yöntem olarak Öğrenci kayıt sistemindeki başarı durumları, IBM SPSS programları kullanılarak analiz edilmiş olup korelasyon sonuçlarına bakılmıştır. Çalışmada; yüksekokulumuzu tercih eden düz lise ve meslek lisesi mezunlarının 4 yarıyıllık eğitim sonucundaki başarı durumları, buna etki eden sebepler, başarının artması hususunda alınacak önlemler değerlendirilmiş ve tartışılmıştır. Çalışma sonucunda; meslek lisesi müfredatında meslek derslerinin yanında genel liselerde uygulanan müfredatın eklenerek mezun olacak öğrencilerin hem mesleki derslerde hem de temel bilimlerde yeterli eğitiminin alınması sağlandığında yükseköğretimde daha nitelikli ara eleman yetişmesi sağlanacağı görülmektedir.

**Keywords:** Başarı Durumu, Öğrenim Süreci, Eğitim, Meslek Yüksekokulu

# ZİHİNSEL ENGELLİ BİREYLERDE DEMODEX FOLLICULORUM VE DEMODEX BREVIS (ACARI: DEMODICIDAE) PREVALANSI VE YOĞUNLUĞU

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**ABSTRACT**

**Giriş:** Eklembacaklılar şubesine ait olan *Demodex* akarların (Acari: Demodicidae) insanlarda parazit olarak yaşayan iki türü bulunmaktadır. Bunlardan uzun opistozomaya sahip olan *Demodex folliculorum* kıl foliküllerinde, kısa opistozomaya sahip olan *D. brevis* sebase bezlerde yaşamaktadır. Sahip oldukları delici ağız parçaları ve çeşitli enzimleri sayesinde foliküler epitel hücrelerin içeriği ile beslenmektedirler. Ortalama yaşam süreleri 15 gün kadar olan bu organizmalar 0.3-0.4 mm vücut büyüklüğüne ve dört çift bacağa sahiptir. Gerek sağlıklı bireylerde gerekse çeşitli hasta gruplarında *Demodex* spp. prevalansı ve yoğunluğunu belirlemeye yönelik çok sayıda epidemiyolojik çalışma yapılmıştır. Ancak günümüze kadar zihinsel engelli bireylerde bu konuda yapılmış herhangi bir çalışma bulunmamaktadır. Bu çalışma Erzincan ilindeki rehabilitasyon merkezlerinde bakım hizmeti almakta olan zihinsel engelli bireylerde *D. folliculorum* ve *D. brevis* prevalansı ve yoğunluğunu belirlemek amacıyla yapılmıştır.

**Yöntem:** Çalışma için Erzincan Binali Yıldırım Üniversitesi Etik Kurulu, Erzincan Aile ve Sosyal Politikalar İl Müdürlüğü ve Erzincan İl Milli Eğitim Müdürlüğünden onay alındı. Çalışmaya Erzincan ilindeki 7 ayrı rehabilitasyon merkezinde bakım hizmeti almakta olan zihinsel engelli bireyler dahil edildi. Katılımcıların yüz bölgelerinden Standart Yüzeyel Deri Biyopsi yöntemi ile alınan örnek materyalleri Hoyer ortamında preparat haline getirilerek ışık mikroskobunda 4X, 10X ve 40X büyütmelerle *Demodex* akar varlığı ve sayısı bakımından incelendi. Örnek materyalinde *D. folliculorum* veya *D. brevis*'in larva, nimf veya erginine rastlanılan katılımcılar *Demodex* bakımından pozitif kabul edildi. Ortalama *Demodex* akar sayısı, toplam akar sayısının *Demodex* pozitif katılımcı sayısına bölünmesi ile hesaplandı. Verilerin istatistiksel değerlendirmesi SPSS 23.0 paket programı kullanılarak yapıldı. Katılımcıların *Demodex* spp. pozitifliği Ki kare testi ile, *Demodex* spp. yoğunluğu Mann-Whitney U testi ile karşılaştırıldı. P değeri 0.05'den küçük olduğunda istatistiksel olarak anlamlı kabul edildi.

**Bulgular:**Çalışmaya 135'i kadın (ortalama yaş 26.4), 82'si erkek (ortalama yaş 24.5) olmak üzere toplam 217 zihinsel engelli birey dahil edildi. Katılımcıların 80'i hafif, 96'sı orta, 41'i ağır düzeyde zihinsel engele sahipti ve yaşları 10 ile 60 arasında değişmekteydi. Çalışmada zihinsel engellilerin %57.6'sında *D. folliculorum* (ortalama 5.10/cm$^2$), %25.3'ünde *D. brevis* (ortalama 0.77/cm$^2$) olmak üzere toplamda %61.3'ünde *Demodex* spp. (ortalama 5.88/cm$^2$) tespit edildi. Zihinsel engellilerde *D. folliculorum*'ungörülme sıklığı *D. brevis*'e göre yaklaşık 2 kat daha fazla bulundu. Benzer şekilde cm$^2$'deki ortalama akar sayısı bakımından karşılaştırıldığında *D. folliculorum*'un, *D.brevis*'ten yaklaşık 7 kat daha fazla olduğu saptandı. Diğer taraftan zihinsel engel şiddeti ile *Demodex* spp. varlığı ve yoğunluğu karşılaştırıldığında, zihinsel engel şiddetinin artışına bağlı olarak *Demodex* spp. varlığı ve sayısında da artış olduğu tespit edildi (P<0.05).

**Sonuç:** Gerek sağlıklı bireylerde gerekse birçok hasta grubunda olduğu gibi zihinsel engelli bireylerde de *D. folliculorum* ve *D. brevis*'in yaygın ve yoğun olduğu tespit edildi. Çalışmada elde edilen bulguların dermatolojik şikayetleri olan zihinsel engelli bireylerin klinik değerlendirme sürecinde göz önünde bulundurulmasının faydalı olabileceği düşünüldü.

**Teşekkür**: Çalışmayı destekleyen Erzincan Binali Yıldırım Üniversitesi Bilimsel Araştırmalar Proje Koordinatörlüğüne (Proje No: SAĞ-A-080715-0156), Erzincan Binali Yıldırım Üniversitesi Etik Kurul Başkanlığına (Karar No: 2015-01/6), Erzincan Aile ve Sosyal Politikalar İl Müdürlüğüne, Erzincan İl Milli Eğitim Müdürlüğüne ve tüm katılımcılara teşekkür ederiz.

**Keywords:** Demodex, deri, enfestasyon, rehabilitasyon, zihinsel engelli