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Editör

Dr. Doç. İskender IŞIK
(Fen Bilimler Enstitüsü Müdürü V.)

Yayın Kurulu

Prof. Dr. İsmail KOCAÇALIŞKAN
Prof. Dr. Ahmet KARAASLAN
Doç. Dr. İskender IŞIK

Dergi Sekreteryası

Bahattin TÜZÜNER
Bülent KIVANÇ

Yazışma Adresi

Dumlupınar Üniversitesi
Fen Bilimleri Enstitüsü
Mühendislik Fakültesi 3. Kat
Merkez Kampüsü
KÜTAHYA

Tel: 0-274-265 20 61

Fax: 0-274- 265 20 60

E-Mail: Webmaster@dumlupinar.edu.tr.

Hakem Kurulu:

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İÇİNDEKİLER

ADP, ATP, NAD, CoA, DNA VE RNA'NİN BİYOLOJİK KAYNAKLARDAN İZOLASYONU Vahdettin BAYAZIT – Sait BULUT	13
ENNE BARAJINDA GÖRÜLEN BALIK ÖLÜMLERİ ÜZERİNDE YAPILAN BİR ARAŞTIRMA Mustafa KOYUN.....	25
KÖMÜR OCAĞINDA ÇALIŞAN İŞÇİLERDE BAZI TÜMÖR MARKER DÜZEYLERİNİN DEĞERLENDİRİLMESİ Mustafa YÖNTEM – Fatma GÜNDOĞAN.....	31
BAZI BİTKİ TOHURLARININ ÇİMLENMESİ VE FİDE BÜYÜMESİ ÜZERİNE YONCA ÖZÜTLERİNİN ALLELOPATİK ETKİLERİ Prof. Dr. İsmail KOCAÇALIŞKAN -Hatice ÖĞÜTÇÜ.....	39
KAYABOĞAZI BARAJ GÖLÜ (Tavşanlı-Kütahya)'NÜN BAZI FAUNİSTİK ÖZELLİKLERİ Prof. Dr. Kemal SOLAK – Ali ALAŞ	51
KAYA SANSARI (MARTES FOİNA ERXLEBEN, 1777)'NA AİT BAZI VOKAL SESLERİN ANALİZİ A. Selçuk ÖZEN	59
ELEKTRİKLİ DEMİRYOLU KATENER HATLARININ KOMPANZASYONUNDA STATİK VAR KOMPANZATÖRLERİNİN KULLANILMASI Bekir MUMYAKMAZ	65
DURABLE PROPERTIES AND STRUCTURE OF COMPASITIONS OF POLYPROPYLENE/POLYETHYLENE OBTAINEB BY DIFFERENT WAYS H. MEMMEDOV- İ. ASKEROV- E. HALİLOVA- S. AYDOĞU S. ZEYREK- TM. VELİYEV- S.A. ABBASOV-M.J ZEYNELOVA...	73
ACCUMULATED PROCESSES IN KINETIC OF MECHANICAL AND ELECTRICAL DESTRUCTION OF POLYMERS H. MEMMEDOV- İ. ASKEROV- E. HALİLOVA- S. AYDOĞU S. ZEYREK- TM. VELİYEV- S.A. ABBASOV-M.J ZEYNELOVA...	83
SERAMİK FİLTRE ALTLIĞI ÜRETİMİNDE LİÇ EDİLMİŞ KAOLEN KULLANIMI Osman ŞAN - İlknur GÜLSEVER	93
YARIDAİRESEL VE DÜZ LOBLU VİSKOZ POMPALARIN ANALİZİ VE OPTİMİZASYONU N. CEYLAN- Y. PANCAR - Ö. AYDIN	101
TEMELLERDE KOLON DONATI ÇUBUKLARININ ADERANSI Yrd. Doç. Mahmut TURAN	111
DUVAR KAROSUNDA KALSİT VE DOLOMİT MİKTARININ BÜNYE FİZİKSEL ÖZELLİKLERİNE ETKİSİ Prof. Dr. A. YAMIK - M. AKBAŞ - M. ÇINAR- C. KARAGÜZEL ...	119
MURGUL-ÇAKMAKKAYA SÜLFÜRLÜ BAKIR CEVHERİ KABA FLOTASYONUNDA ORTAM SUYU SICAKLIĞININ ETKİSİ İsmail BENTLİ - Prof. Dr. Ahmet YAMIK - Osman ŞAN- Nihat ÖZBAYRAK - Doç. Dr. Muammer KAYA.....	127

3 BOYUTLU CEVHER YATAĞI MODELLEMESİ; ETİ GÜMÜŞ A.Ş. KÜTAHYA-GÜMÜŞKÖY UYGULAMASI	
Yrd. Doç. Dr. Kaan ERARSLAN - Hamdi AKÇAKOCA- Sunay BEYHAN	135
ALTIN MADEN İŞLETME YATIRIMLARI RİSKLİLİĞİNDE FİYAT DEĞİŞİMLERİNİN ETKİLERİ	
Doç. Dr. Adnan KONUK – Seyhan ÖNDER.....	149
EVALUATION OF HEMATITE ORE BY MAGNETIC ROASTING AND PELLETIZING	
Prof. Dr. Ahmet YAMIK - Cengiz KARAGÜZEL Ata U. AKCIL A. Namık GÜNEŞ	159
TUNÇBİLEK TERMİK SANTRALI UÇUCU KÜLÜNDEN METALLERİN LİÇ EDİLEBİLİRLİĞİ VE Nİ KAZANIMI	
Haldun KURAMA.....	167
ŞEKİL BELLEKLİ ALAŞIMLAR	
Agah AYGAHOĞLU	179
ELASTO-PLASTIC STRESS ANALYSIS IN A COMPOSITE PLATE WITH SQUARE HOLE	
Mehmet ŞENEL	193
BENZİNLİ MOTORLARDA EGZOST EMİSYONLARINI AZALTMA KRİTERLERİ	
Özer AYDIN- Ramazan KÖSE- Nuri CEYLAN.....	205
DÖRT DAİRESEL BOŞLUKLA ZAYIFLATILMIŞ SİLİNDİRİK ÇUBUĞUN BURULMASI	
Elçin AĞACANOV- Murat Fazıl AKKOÇ.....	215
SECTION IN GAP	
Murat ALP- Sedat PAK	225
UNDERLYING GRUPOIDS	
Murat ALP- Sedat PAK	239
ON THE MOTION OF THE FRENET VECTORS AND TIMELIKE RULED SURFACES IN THE MINKOWSKI 3- SPACE	
Doç. Dr. Yusuf YAYLI	247
PARALEL HİPERYÜZEYLERDE YÖRÜNGE HORTUM KABUĞUNUN HACMİ	
Hasan ES.....	255
FONKSİYONLARIN KONSTRÜKTİV TEORİSİNİN DİREK PROBLEMLERİ ÜZERİNE	
Ferhat NASİBOV - Murat ALP.....	265
OLTU (Erzurum) TAŞI YATAKLARININ STRATİGRAFİSİ VE MİNERALOGİSİ	
Doç. Dr. İskender IŞIK - Mustafa DÖNMEZ	281
ANADOLU LEVHASI ÜZERİNDE KÜTAHYA'NIN DEPREM TEHLİKESİ	
Alpay İNANGU - Yrd. Doç. Dr. Hüseyin KIRBAÇ	297
KENT İÇİ VE KENTLERARASI KARAYOLU ULAŞIMINDA GÜRÜLTÜ KİRLİLİĞİ VE ALINABİLECEK ÖNLEMLER.	
Yrd. Doç. Dr. Hüseyin KIRBAÇ - Bülent TUZCU	313
KÜTAHYA VE ÇEVRESİNİN BİTKİ ÖRTÜSÜ'NE GENEL BİR BAKIŞ	
Prof. Dr. Âdem TATLI - Arş. Göv. Ahmet Zafer TEL	333

SUMMARY

THE ISOLATION OF ADP, ATP, NAD, COA, DNA, AND RNA FROM BIOLOGICAL SOURCES

Vahdettin BAYAZIT - Sait BULUT

This study was carried out to obtain ADP, ATP, NAD, CoA, DNA and RNA from different biological sources. ATP from skeleton muscles of the male rabbits, ADP from ATP, NAD and CoA from yeast, DNA and RNA from thymus gland, spleen, liver, testis, kidney, lung, bone marrow and erythrocytes were obtained.

At the end of this study, 3 gr Ba_2 ATP $4H_2O$; 0.3 gr $Ba_3(ADP)_2 4H_2O$; 0.6 gr NAD; 15 gr CoA were isolated. The most amount of DNA and RNA were isolated from the liver. The least amount of DNA from the kidney and RNA from lung were isolated.

Key Words: ADP, ATP, NAD, CoA, DNA and RNA.

AN INVESTIGATION ON FISH MORTALITY IN ENNE DAM LAKE

Mustafa KOYUN

Enne dam lake is located on north-west of Kutahya and 15 km far from city center. In recent years, a high fish mortality have been seen in this lake, especially in summer terms. This research was carried out to investigate the causes of high mortality. Chemical and physical analysis of water samples taken from the lake were analysed, also some examinations were done on dead fish body.

EVALUATION OF SOME TUMOR MARKER LEVELS OF WORKMEN WORKING IN COAL-MINE

Mustafa YÖNTEM - Fatma GÜNDOĞAN

This study has been performed on 29 workmen between 36 and 45 years old ($\bar{x}=36,27$) which are working underground coal-mine of Ömerler-Tunçbilek (Kütahya), and on 36 healthy officers between 23 and 53 years old ($\bar{x}=36,52$) which are nonsmoker and nonalcoholic men. The second group has been evaluated as control.

Determination of CEA and AFP levels were done with RIA method, the other determination (ALP, ACP, total protein and albumin) with spectrophotometric methods. All the determinations were carried out in serum samples of both workmen and officers.

In conclusion; the levels of ACP, AFP, ALP ve CEA (tumor markers) were found significantly higher in workmen than those of the officers ($p < 0.0001$ and $p < 0.005$, respectively). On the other hand, total protein levels were found lower in workmen ($p < 0.025$), but albumin levels, contrarily, higher according to control group.

From these results; it was thought that coal dusts, chemical substances and environment of coal-mine would cause negative effects on the organs of workmen.

Key words: Tumor markers, workmen, coal-mine

ALLELOPATHIC EFFECTS OF ALFALFA EXTRACTS ON GERMINATION AND SEEDLING GROWTH OF SOME PLANT SEEDS.

Professor İsmail KOCAÇALIŞKAN - Hatice ÖĞÜTCÜ

In this study, the allelopathic effects of alfalfa extracts on germination of four different plant seeds have been investigated. The seeds were germinated in petri dishes at 25^o C. The

applied extracts were obtained by homogenization and centrifugation from the root and stem of the alfalfa. The germination rates of the seeds were recorded during five days and lengths and weights of the seedlings were measured at fifth day. As conclusion, germination and seedlings growth of wheat, barley, watermelon and cucumber seeds were inhibited strongly by all the treatments. Stem extract was found more inhibitory effect than root extract.

SOME FAUNISTIC CHARACTERISTICS OF KAYABOĞAZI DAM LAKE (TAVŞANLI-KÜTAHYA)

Ali ALAŞ –Professor Kemal SOLAK

This study was carried out between January, 1996 and December, 1997 in Kayaboğazi Dam Lake. At the end of this study, faunistic elements of the dam lake was determined. In addition, temperature, dissolved oxygen, pH and conductivity of the dam lake were determined as well. The effects of these limnological values on faunistic elements in the dam lake were discussed.

Key words: Kayaboğazi Dam Lake, faunistic elements, ecology

THE ANALYSIS OF SOME VOCAL VOICES OF BEECH MARTEN (*MARTES FOİNA* ERXLEBEN, 1777)

Ahmet Selçuk ÖZEN

In this study the vocal voices of two Beech martens were used. These two samples were caught in the field, and they were fed in the laboratory during the study about Martens in Turkey between 1994-1998. Against the some artificial action, gaved sound reaction have been analysed when the specimens captivated. According to results of analyses the voices were separated to three categories (A,B,C) and amplitude-frequence grafics were shown.

Key Words: *Martes foina*, vocal voice, behavior.

APPLICATION OF STATIC VAR COMPENSATORS ON RAILWAY CATENARY LINES

Bekir MUMYAKMAZ

Power factor of an AC voltage supplied railway catenary line is changed in a very short time period and in big amounts while a train passes. Also, average power factor level in a month of the line is so low. When the monthly power consumption amounts are compared, reactive power consumption of such line could be more than its active power consumption. In that case, reactive power compensation is necessary not to pay money to the utility.

Using static var compensators can provide most suitable compensation for a railway catenary line. In this paper, static var compensation schemes for a railway catenary line are explained, and their advantages and disadvantages are mentioned.

Key Words: Railway catenary line compensation, Static VAR compensator.

DURABLE PROPERTIES AND STRUCTURE OF COMPOSITIONS OF POLYPROPYLENE - POLYETHYLENE OBTAINED BY DIFFERENT WAYS

*H. MEMMEDOV - I. ASKEROV - E. HALILOVA - S. AYDOĞU - S. ZEYREK
T. M. VELİYEV - S. A. ABBASOV - M. J. ZEYNALOVA*

The measurement of durable properties and structures of composition is carried out on the basis of polypropylene (PP) and polyethylene with low density (PELD), obtained in the mixer "Benbery" and in rotor dispergator. It is shown that regulating the regime of crystallization and content of components in system PP-PELD. It is possible to change considerably the physical structure and improve the durable characteristics of composition. It is determined that the improvement of homogeneousness of composition, reaching the rotor dispergator brings to naturally increase of mechanical and electrical durability and longevity. One of the directions of science on physics of polymers is the search of ways the increase of mechanical and electrical durability as well as the heatproofness.

Key Words: Durable properties and structures of composition of polypropylene and polyethylene, Benbery mixer, rotor dispergator.

ACCUMULATED PROCESSES IN KINETIC OF MECHANICAL AND ELECTRICAL DESTRUCTION OF POLYMERS

*H. MEMMEDOV - I. ASKEROV - E. HALILOVA - S. AYDOĞU
S. ZEYREK - T. M. VELİYEV - S. A. ABBASOV - M. J. ZEYNALOVA*

The distribution on longevity τ -time of waiting of bursting (mechanical destruction on constant tension) and punching (electrical destruction on constant intensity of field) of polymer films of polyethyleneterephthalate and polyethylene was measured. The results of uninterrupted experiments and experiments with interrupting the influence of load on samples, remained whole after tested within a time, answering the average value of $\lg \tau$ were compared. The duration of interval, temperature, tension of field of opposite sign, depending on what was observed the various degree of regeneration of durable properties of polymer objects, varied in the intervals. For the mechanical destruction it was displayed the irreversibility of accumulated changes, which were identified as fluctuation break of tense chain molecules. The capability of accumulated changes to regeneration (up to complete) was determined for the electrical destruction. This permits to connect the kinetics of electrical destruction with the formation of time of volumetric electronic charges, on achieving the initial value which begin with punching.

Key Words: Polymer, accumulated process, kinetic of mechanical and electrical destruction.

LEACHED KAOLIN USED IN THE PRODUCTION OF CERAMIC FILTER SUBSTRATE

Osman ŞAN - İlknur GÜLSEVER

In this study, a ceramic substrate was prepared by quartz, alumina, feldspar and kaolin which was treated by HNO_3 as agitation leaching. When the kaolin was leached with HNO_3 , metal silicates was occurred as a binder in the solid phase, i.e., MgSiO_3 , Na_2SiO_3 and K_2SiO_3 . The agitation leaching of kaolin was conducted at 1000 rev/min through 2.5 hours then the liquid phase was dried at 100 °C. The solid phase was used to prepare the ceramic substrate. The ceramic body was shaped by filtration and fired at 1100 °C throughout 48 hours. The experimental results showed that, as the body composed of leached kaolin the substrate has a higher green and fired strength with a higher permeability.

ANALYSIS AND OPTIMIZATION OF SEMICIRCULAR AND STRAIGHT LOBE VISCOUS PUMPS

Nuri CEYLAN- Professor Yaşar PANCAR-Özer AYDIN

In this study, a new design has been developed and investigated for analysis and optimization of lobe viscous pumps. The aim for the new design is to use a straight lobe as opposed to the semicircular lobes of the previous design. The geometry of the straight lobes does not lend itself as straightforward solution as the semicircular lobe analysis. Approximations are made and then verified using upper and lower shape factor bounds. Lobe geometry for each lobe design is optimized to produce maximum pumping capacity. The results of the optimization show that the new design is theoretically superior to the semicircular lobe pump.

BOND OF COLUMN LONGITUDINAL REINFORCEMENT IN FOUNDATIONS

Assistant Professor Mahmut TURAN

In the transference of load from reinforced concrete columns to foundations the compression bond of column longitudinal reinforcement has been investigated. The tests conducted on full scale bases with ribbed bars have indicated that the bond strength varied due to concrete compressive strength, bar size, anchorage length, plan area of the base, links around the column reinforcement in the base and the quantity of base tension reinforcement. It is observed from the test results that the bond stresses specified in TS 500 are too low. It is therefore suggested that the values given in the code should be increased.

THE EFFECT OF AMOUNT OF CALCITE AND DOLOMITE IN WALL TILES ON THE PHYSICAL PROPERTIES OF SERAMICS BODIES

Professor A. YAMIK - M. AKBAŞ - M. ÇINAR - C. KARAGÜZEL

In the production of wall tiles, minerals of clay group and dolomite or calcite are used. More important factors that affect the physical properties are, grain dimension, compounds of prescription and firing temperature. Calcite and dolomite are in the prescription standart of Eczacıbaşı tile ceramic, 0% and 10% respectively. The exist 7 different prescriptions. These ceramic bodies are shaped by pressing process and fired at 1125 °C. Physical tests like compaction after draying, compaction due to firing, dry strength, firing strength, water absorbtion, Harkort and autoclave test are done in order to find the charecterization of the material that is prepared. In this study, the effect of various amounts of calcite end dolomite on physical properties of the body and consistency with glaze have been investigated. As a conclusion, use of calcite in wall tile is preferable to dolomite because it provides minimum or no compaction.

THE EFFECT OF PULP WATER TEMPERATURE ON MURGUL-ÇAKMAKKAYA COPPER SULFUR FLOTATION

***İsmail BENTLİ - Osman ŞAN - Nihat ÖZBAYRAK -
Associated Professor Muammer KAYA - Professor Ahmet YAMIK***

In Blacksea Copper Works (K.B.I.), Murgul-Çakmakkaya flotation plant which evaluate Artvin, Murgul-Çakmakkaya copper sulfur ores which are very important copper ore deposit of Turkey, automation control system is implemented. However, temperature of flotation medium water is not controlled. Flotation recovery will be affected by temperature variation during winter and summer at most 40 °C. In this study, the effect of ore grade and recovery on laboratory-scale bulk flotation circuits has been investigated by changing flotation medium temperatures as 5, 13, 20, 27, 40 °C. From these lab tests it is found that concentrate grade and flotation recovery were lowest at low flotation temperatures and concentrate grade was low but flotation recovery was high at high temperatures. The highest copper grade is obtained at the lowest silicate contamination in the bulk flotation experiments at 20 °C.

3 DIMESIONAL ORE BODY MODELING; CASE STUDY OF ETİ GÜMÜŞ A.Ş. KÜTAHYA-GÜMÜŞKÖY SILVER DISTRICT

Yrd. Doç. Dr. Kaan ERARSLAN - Hamdi AKÇAKOCA - Sunay BEYHAN

Volume, area and shape of ore bodies which are invisible, affect characteristics of open pit mines, primarily. It is absolutely necessary to know ore structure before design of pit from both technical and economical point of view. For this purpose, several methods have been developed and using drill hole data, 3 dimensional ore body model has been obtained in computer. In this study, geostatistical extension method has been applied to ETİ A.Ş. Kütahya-Gümüşköy silver deposit to form 3 dimensional data base and a practical visualisation approach has been employed processing on this data base. Drill holes of the district have been utilised and the variogram model of the deposit has been generated. Thereafter, parameters like grade, thickness, etc., have been assigned on to block model of the district by applying kriging method. Next, 3 dimensional ore body model has been obtained using the visualisation technique called DXF formatting. Photo-quality views have been handled by the approach used this study enabling utilisation of all services provided by systems processing DXF formatted views.

THE EFFECT OF PRICE VARIATIONS ON GOLD MINING INVESTMENT RISKINESS

Assistant Prof. Dr. Adnan KONUK - Seyhan ÖNDER

The recent falls in world gold prices have considerably increased loss risks in mine investments. Such a case has established the need for determination of uncertainties in gold prices and its effects on mine investment riskiness.

In this study, firstly, using the past years (1960-1996) gold prices data a price prediction model has been investigated. Then, a risk analysis model considering error distribution parameters in gold price prediction has been developed, and by using the mining investment project data of a gold mine in Turkey risk analyses have been realised. As a result of the risk analyses, it has determined that when gold prices fell below \$ 275/troy onz the mining company will be in loss with a probability of 100%; and when the price increases over \$ 400/troy onz the company will be in profit with a probability of 100%.

EVALUATION OF HEMATITE ORE BY MAGNETIC ROASTING AND PELLETIZING

Professor Ahmet YAMIK - Cengiz KARAGÜZEL -

Ata U. AKCIL - A. Namık GÜNEŞ

High intensity magnetic separation of hematite ores is a well-known but an expensive method. In comparison with this traditional method, magnetic concentration of magnetite ore formed after magnetic roasting of hematite has been an alternative and reasonable process. Utilization of this process would be more economical than the traditional type and therefore, it has been preferred recently. In this process, the aim of the roasting is to increase the magnetic susceptibility of hematite and thus make it recoverable by a low intensity magnetic separator. Divriği Hematite ore having 47.06% Fe of grade was recovered with an efficiency of 91.23% and the grade was increased to a level of 62.26% Fe. Using the magnetic product obtained in this process, pellet production suitable for the industry was achieved.

THE LEACHABILITY OF METALS AND Ni RECOVERY FROM TUNÇBİLEK TERMİK POWER PLANT FLY ASH

Haldun KURAMA

The leachability of metals (Ni, Cr, Mn) from fly ash obtained from Tuncbilek coal fired electric plant was investigated. In the first part of the study, column-leaching experiments were carried out under different pH values. It was found that, decrease in pH of the leachant favours the extraction of metals from solid particles of coal combustion fly ash. In the initial 20 minutes of leaching Ni and Cd to be rapidly removed from ash particles. Mn, a fly ash matrix element, was leached at a more constant rate. In the second part, laboratory mixing-leaching tests were used to recover Ni from ash particles. Three leaching procedure were used to recover the Ni in the various fractions. The results of mixing tests show that Ni can be recovered at 72% extraction percentage.

SHAPE MEMORY ALLOYS

Agah AYGAHOĞLU

All shape memory materials deformed (bending, shape change, etc.) return their original shapes by heating. Because shape memory alloys have martensitic structure; Shape memory alloys deformed at martensitic condition recover their original shapes at the phase of high temperature (austenite) when heating.

Keywords : Martensite, Shape Memory Effect, Thermoelastic Martensite, Electron to Atom Ratio.

ELASTO-PLASTIC STRESS ANALYSIS IN A COMPOSITE PLATE WITH A SQUARE HOLE

Mehmet ŞENEL

In this study, the elasto-plastic stress analysis of the plates with a square hole manufactured steel-aluminum composite is made under the uniform tension loads. In the solution, two dimensional isoparametric rectangular element with nine nodes is used. The automatic mesh generation is used in finite element model and the special computer programmes are used to solve problem. Distributions of plastic regions near the hole and variations of residual stresses are investigated in the different orientation angles.

THE CRITIQUES TO REDUCE THE EXHOUST EMISSIONS AT GASOLINE ENGINES

Özer AYDIN - Ramazan KÖSE - Nuri CEYLAN

In our daily life, automobiles and engine vehicles, which make our life easy, unfortunately, leave a lot of dirty gas.

The number of vehicles has been increasing continuously. There are lots of things sailing air. These sailers have been made good with increasing new technologies. Therefore, these new technologies make the sail rate of vehicle emission important. Furthermore, there are several factors which make emission more important than other emissions. The first factor is that vehicle emission has tocsit quality, the second factor is that it exists long time in air, the third is that it causes photochemical fog and acid rains, the fourth is that it can be measured by only special instruments and the last factor is that it doesn't depend upon season conditions.

TORSION OF CIRCULAR SHAFTS CONTAINING 4 CIRCULAR HOLES

Elçin AĞACANOV - Murat Fazıl AKKOÇ

In this paper we investigated a torsion problem which is constructed as mathematical model. This problem is solved by holomorphik function which satisfied boundary conditions.

Two examples were investigated and illustrated the curves of the tangential stress-strain.

SECTIONS IN GAP

Murat ALP - Sedat PAK

In this paper we describe a share package XMOD (Alp, Wensley, 1997) of functions for computing with finite, permutation crossed modules, their morphisms and derivations; cat^1 -groups, their morphisms and their sections, written using the GAP (Schönert, 1993) group theory programming language. We also give the implementation method of sections to the GAP.

Keywords: Crossed modules, derivation, whitehead multiplication, Cat^1 -groups, sections. 1991 A. M. S. C.: 13D99, 16A99, 17B99, 17D99, 18D35.

UNDERLYING GRUPOIDS

Murat ALP - Sedat PAK

In this paper we describe a package XMOD (Wensley and Alp, 1993) of functions for computing with crossed modules, their morphisms and derivations; cat^1 -groups, their morphisms and sections, written using the sf GAP (Schönert, 1993) group theory programming language. We have also enumerated the isomorphism classes of cat^1 -groups in (Alp, 1997) and (Alp, Wensley, 1997) and (Alp, 1997) We gave the application algorithms and some mathematical results on cat^1 -group structures in (Alp, 1998). We also made a computational comment on pre-crossed modules, pre- cat^1 -groups and underlying grupoids in this paper.

Keywords: Crossed modules, Cat^1 -groups, underlying grupoids.

1991 A. M. S. C.: 13D99, 16A99, 17B99, 17D99, 18D35.

ON THE MOTION OF THE FRENET VECTORS AND TIMELIKE RULED SURFACES IN THE MINKOWSKI 3-SPACE.

Associated Professor Yusuf YAYLI

In this paper, we obtained the distribution parameter of a timelike ruled surface generated by a timelike straight line in Frenet trihedron moving along a space-like curve. We show that the timelike ruled surface is developable if and only if the base curve is a helix (inclined curve). Furthermore, some theorems are given for the special cases which the line is being the principal normal and binormal of the base curve. In addition, it is shown that when the base curve is the same as the striction curve, the ruled surface is not developable.

THE VOLUME OF A TUBULAR ON PARALLEL HYPERSURFACES *Hasan ES*

In this paper, We gave the relations between any two parallel hypersurfaces. Moreover, we investigated and evaluated the length of curvature line of any two parallel hypersurfaces. We also calculated the volume of a tubular which is an orbit.

ON THE PROBLEM OF THE FUNCTION OF CONSTRUCTIVE THEOREY *Ferhat NASİBOV – Murat ALP*

In this paper We presented some problems of konstrutive theory of functions. We also gave some special results.

THE STRATIGRAPHY AND MINERALOGY OF THE DEPOSIT OF OLTU STONE (ERZURUM) *Mustafa DÖNMEZ –Associated Professor İskender İŞİK*

Permo-Carboniferous (?), Upper Cretaceous and Quarterner aged rocks are outcropped in the investigated area. At the basement, Permo – Carboniferous (?) aged schist, serpentine and granite are overlain unconformably by Upper Cretaceous aged sandstone, marl and limestone which are characterized as ptych. In study area, the Upper Cretaceous ptych, where Oltu stone is deposited within, is also overlain unconformably by Eocene aged ptych containing sandstone and conglomerate sequence. Investigated area is located between the belts of Pontis on the north and Anatolids on south, where compressional movements have been happening since the period of Cretaceous.

On the basis of geologic map of the district, study of the local stratigraphy, field observations, as well as petrographic and polishing analyses, Oltu stone is occurred within Upper Cretaceous ptych as a result of folding the ptych and developing dynamometamorphism occurred simultaneously.

KÜTAHYA'S EARTHQUAKE DANGER ON THE ANATOLIA TABLET *Alpay İNANGU- Assistant Prof. Dr. Hüseyin KIRBAŞ*

Our country which its geological position is one of the most frequently destroying earthquake occurrence line states and lies on the shaking line Alp-Himalaya which starts from Azor Islands and goes through south. East Asia and Turkey lies on this most mixing shaking.

To the movage of the Anatolia Tablet making the region glide west and when tried to be stopped by Aegean Tablets. The Anatolia Tablet expansions through the north-south side and Aegean Crouching position sides occurred by the time and the main reason of the earthquakes occurrence in the West Anatolia is this regimen.

In cities the scenarios about the earthquakes occurrence is based on; 1. Danger microreligionation, 2. The analysis of wreckage probability and risk definition. The destroyer affects of the earthquake is increased by population, the usage of false area and wrong building, incomplete down set up, unorderly servicecal and environmental factors.

In addition the need of the durable set up in construction it is admitted that there will be more ruined according to the violence of the earthquake. By the economical life of a structure mostly for once a most destroyer earthquake occurs. The carrier parts of the construction may have a damage but it mustn't go down and there mustn't deaths.

Kütahya city (center) states on the second line earthquake. There are main and adjunct breaches. Therefore in all kinds of ground and buildings the Earthquake Regulations must certainly be obeyed. Because of this, municipality and concerning vocational representatives must give important to education and systematic construction control activities.

THE PRECAUTIONS WHICH CAN BE MADE FOR THE NOISE POLLUTION DURING THE HIGHWAY TRANSPORTATION BETWEEN CITIES AND INSIDE CITIES

Bülent TUZCU - Assistant Prof. Dr. Hüseyin Kırbay

Noise, can be described as a disturbing sound. Which causes disturbing feelings to a rouse in human beings an undesirable place and time and also causing wreckage's in human organisms.

In our country, in recent years because of the increasing degree of vehicles in highways between cities and inside cities. Traffic jams noise pollution can effect citizens living this area, physiological, pathological performance failures can be had by them.

Up till today as it was understood from the noise pollution investigations in environmental noise the traffic noise is on important stage an related with the traffic capacity it was understood that the noise level has also shown different features the noise level is less in fallen capacity but according to the increase in traffic capacity. It is understood that in noise level there was increase, but during the traffic flood, it goes to the uppermost capacity because of the slowness in flooding speed. It was seen that noise level decreasing had occurred.

During the highway transportation between cities and inside cities the prevention of the environmental noise is related throughly with the position of the road and the development. So, the most financial and most suitable solution is; first, during the planning level of the highways, the need of the needed sensitivity must be shown and the second, most suitable area and the needed prevention must be applied.

A GENERAL VIEW ON THE VEGETATION OF KÜTAHYA AND ITS ENVIRONMENT

Professor. Âdem TATLI - Research Assistant Ahmet Zafer TEL

Vegetation of the Kütahya region was build by the influence of Marmara, Aegean and Central Anatolian climate. The trees and bushes, which form the Thermomediterranean forest, xerophytic forest, semi-humid forest and gallery forests, cover half of the region. The Mediterranean forest is characterised by *Pinus brutia*, *Juniperus oxycedrus*, *Pistacia lentiscus* species and the xerophytic forest is represented by trees such as *Pinus nigra*, *Quercus cerris*, *Quercus pubescens*, *Quercus infectoria*, *Quercus ithaburensis* ssp. *macrolepis*, *Juniperus foetidissima*, *Juniperus excelsa*, *Crataegus monogyna*. In the semi-humid forest *Pinus sylvestris*, *Populus tremula*, *Fagus orientalis*, *Carpinus orientalis*, *Tilia rubra*, *Castanea sativa* and in the gallery forest *Salix fragilis*, *Salix babylonica*, *Populus alba* are the most common species. However, the step regions are mostly characterised by *Poa bulbosa*, *Festuca valesiaca*, *Astragalus microcephalus*, *Astragalus angustifolius*, *Acanthalimon puberulum*, *Verbascum lerianthum* and *Hypericum perforatum*. There are 282 endemic species in Turkey, also found in Kütahya province boundaries, but 11 species out of 282 are endemic only for Kütahya region.

Key words: Kütahya, Vegetation, Xerophytic forest.