"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

USSR

UDC: 8.74

KULINKOVICH, A. Ye., KHANKIN, A. L.

"A Program for Computer Calculation of Lateral Logging Curves"

V sb. Avtomat. obrabotka i preobrazov. geofiz. inform. (Automatic Processing and Conversion of Geophysical Information--collection of works), No 5, Moscow, "Nedra", 1972, pp 97-106 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V550)

Translation: A computer program in ALGOL-60 is presented for calculating lateral logging curves. The program gives a set of master curves for any ratios between the diameters of the zone of penetrations and the well, sets of master curves for probes based on measurement of an arbitrary potential of zero, first, second and third orders, and also for multiplicative resistance combinations. Authors' resumé.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

USSR UDC 615.357.452.017:615.849.1.015.25

KULINSKIY, V. I., Department of Roentgenology, Ukrainian Institute of Advanced Training of Physicians, Kharkov

"The Possibility of Catecholamines Having an 'Antiradioprotective' Effect"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 1, 1971, pp 31-34

Abstract: The radioprotector isadrine is capable of decreasing the prophylactic activity of sympathomimetics ("antiprotective" effect). In mice subcutaneously injected with isadrine before irradiation (806 rad), the drug markedly reduced the antiradiation activity of large doses of norepinephrine (1.84 mg/kg) and mezaton (phenylephrine) (3.2 mg/kg). This effect was completely abolished by the beta-adrenolytic anapriline (propanolol) (8.7 mg/kg). Anapriline potentiated the radioprotective activity of norepinephrine and epinephrine but not that of phenylephrine. It was conjectured that the catecholamines have an "antiradioprotective" effect (or action component) that is realized through

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KULINSKIY, V. I., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 1, 1971, pp 31-34

the beta$_1$-receptors. Potential prophylactic activity is clearly manifested when this effect is blocked. A combination of dibenamine, anapriline, and norepinephrine was found to possess high protective activity with low toxicity (the norepinephrine dose used was 320 times smaller than LD_{50}).

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

USSR

UDC 575.595.773.4

GONCHAROVA, R. I., KULINYe. T., and SENATOROVA, T. P.

"Relationship Between the Intensity of Mutation in Drosophila and the Frequency of Electromagnetic Fields in the 1 to 600 mHz Range"

Minsk, Izvestiya Akademii Nauk BSSR, No 1, 1973, p 140

Translation of Russian abstract: The authors studied the genetic activity of radiofrequency fields in the 1 to 600 mHz range in experiments with Drosophila melanogaster, using recessive sex-linked lethal mutations as a criterion. They also studied the mutation response in sperm from males of the Berlin strain. They used continuous oscillations created by a GZ-12 oscillator in the 1 to 135 mHz range and by a GS-6 oscillator in the 200 to 900 mHz range. The flies were exposed in a specially constructed chamber whose upper and lower sides were made of brass and consisted of condenser plates 80 mm in diameter.

Exposure to frequencies of 1, 5, 30, 40, 50, 60, 70, 80, 90, 100, 130, 200, 340, 360, 400, 420, 500, and 600 mHz did not have any statistically significant effects. Only fields at frequencies of 300 and 440 mHz exhibited mutagenic activity.

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(1)

Sc: JPRS 57165
31 MAY 1973

MISMANAGEMENT IN FERTILIZER PRODUCTION SCORED

[Article by G. Nikolayenya, head of the republic people's control committee department, and [illegible] senior engineer of the Chirchik branch of the State Institute of the Nitrogen Industry, L. Larina, group supervisor of the Samarkand Laboratory of the State Surveillance Committee for Standards and Measuring Equipment, and A. Zaiev, chairman of the people's control group of the Samarkand China Plant; "Fertilizer Is Not Taken Care Of", Moscow, Sel'skaya Zhizn', Russian, 27 March 1973, p 2]

Mass checking of the production, transportation, and storage of mineral fertilizer by the people's controllers is continuing in the country. More than 4,000 patrols, specialists, and workers and rural correspondents are taking part in unexpected inspections at enterprises and warehouses and on the roads of Uzbekistan. Today, the newspaper publishes the communique from the inspection team which visited the Samarkand Superphosphate Plant.

We encountered many facts of serious losses in fertilizer and in the raw materials for its production in the shops of the enterprises and on its broad territory. One could only be amazed at such mismanagement.

Nearly 700 tons of ammoniated superphosphate was dumped in heaps along the outside walls of one of the warehouses. These "deposits" are the result of an overfilling of the warehouse.

Because of mismanagement and violations of technical methods, the plant has lost thousands of tons of iron pyrite. In the final count, this amount of raw material is sufficient for the production of a large amount of superphosphate.

Some 200 tons of phosphorite flour was spoiled at the plant as a result of careless storage and contamination. The transporter gallery is in an unsatisfactory state and organizational-technical conditions are violated in the superphosphate and ammoniation shops. All of this also leads to large losses in products as the wind disperses it over the territory of the enterprise.

KULISH, A.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

USSR

UDC 621.317.76:621.373.42

KULISH, G. M., GITELSON, A. A.

"Sweep Generator with Intrapulse Frequency Deviation"

Obmen opytom v radioprom-sti (Exchange of Experience in the Radio Industry), Vyp. 2, Moscow, 1970, pp 59-61 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A436)

Translation: A superhigh-frequency sweep generator with intrapulse frequency deviation and with increased output power has been developed. It insures a frequency deviation rate up to 17.5 megahertz/microsecond. The instrument permits measurement of the parameters of superhigh-frequency four-terminal networks during the time of a pulse, their variation from pulse to pulse and when averaging the parameters -- for a time from 1 to 40 seconds.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

USSR UDC 548.0

KULISH, U. M., Kalmytskiy State University

"Calculation of the Growth Rate of Layers of Semiconductors Obtained by Epitaxy From Liquid Metal Solutions"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 12, 1971, pp 112-116

Abstract: The growth rate of semiconductor epitaxial layers from a forced-cooled solution is calculated. The model of multilayer two-dimensional growth of the layer is used as the basis of the calculation. It is noted that important parameters determining the electrical and structural properties of layers and pn-junctions obtained from the liquid phase are the rate of dissolution and growth of the semiconductor, the level of doping of the film and substrate, the nature of the doping material, and the epitaxy mode. The purpose of the study is to produce epitaxial semiconductor devices with required properties through a study of the growth mechanism of the layers and the effect of epitaxy conditions on the film characteristics. Calculated and experimental data are presented for In-Ge and Ga-GaAs systems. Tables are given showing the effective

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USSR

KULISH, U. M., Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 12, 1971, pp 112-116

rate of growth of the layer, the rate of nucleus formation, and the rate of nucleus growth as functions of temperature for these two systems.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

USSR UDC 621.382.2:546.19'681

[redacted], VASIL'YEV, A.P., VYATKIN, A.P., YELISEYEV, P.G., GEORGOGENOV, V.P.

"Effect Of Formation Conditions On The Electrical Properties Of Epitaxial P-N Junctions In Gallium Arsenide"

V sb. Arsenid galliya (Gallium Arsenide--Collection Of Works), Issue 3, Tomsk, Tomsk University, 1970, pp 152-162 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3B384)

Translation: The electrical properties were investigated of p-n junctions in GaAs obtained by the method of liquid epitaxy. The electrical characteristics of p-n junctions obtained in a narrow temperature interval depend on the epitaxy temperature, which is explained by the corresponding dependences of the solidus curves of the corresponding quasi-binary systems. During subsequent heat treatment even short-duration annealings lead to a leveling of the electrical characteristics of "abrupt" p-n junctions and a disappearance of the dependence of their parameters on the epitaxy temperature. The crystallographic orientation of the substrate significantly influences the electrical and optical properties of laser junctions. Acceptor impurities exert various effects on the electrical and optical properties of epitaxial laser semiconductor diodes. 8 ref. Summary.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PERFECTION OF THE STRUCTURE OF EPITAXIAL LAYERS OF DEGENERATE GALLIUM ARSENIDE -U-

AUTHOR--KULISH, U.M.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 389-91

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--EPITAXIAL GROWTH, GALLIUM ARSENIDE, CRYSTAL DISLOCATION, SINGLE CRYSTAL, DOPED ALLOY, GERMANIUM CONTAINING ALLOY, ZINC CONTAINING ALLOY, TIN CONTAINING ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1565 STEP NO--UR/0070/70/015/002/0389/0391

CIRC ACCESSION NO--AP0125191

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

2/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125191

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANAL. OF THE EXISTING HYPOTHESIS ON THE APPEARANCE OF DISLOCATIONS DURING THE GROWTH OF LAYERS CONTG. LARGER AMTS. OF ALLOYING ADDITIVES FROM THE LIQ. PHASE IS PRESENTED AS WELL AS RESULTS OF INVESTIGATIONS ON THE DISLOCATION STRUCTURE OF SINGLE CRYSTAL LAYERS OF GAAS DOPED WITH SN (N TYPE), GE, AND ZN (P TYPE), RESP. EPITAXY WAS ATTAINED IN A CLOSED VOL. RENDERING THE ESCAPE OF AS FROM THE SOLN. IMPOSSIBLE. THE SINGLE CRYST. CHARACTER AND THE DEGREE OF PERFECTION OF ALYERS WERE DETD. ON THE BASIS OF THE JUMP OF INTEGRAL INTENSITY I SUB1-I SUB2 AT THE K EDGE OF ABSORPTION. THE DISLOCATION D. WAS MEASURED BY ETCHING. THE MOST PROBABLE MECHANISMS OF DISLOCATION FORMATION ARE: (1) INTERGROWTH OF DISLOCATIONS FROM THE SUPPORT FOLLOWED BY THEIR DEGENERATION IN THE LAYER; AND (2) APPEARANCE OF DEFECTS BECAUSE OF THE NONUNIFORM IMPURITY DISTRIBUTION IN THE GROWING LAYER, WHICH EXPLAINS THE REASON FOR INCREASED DISLOCATION D. WITH INCREASING DOPANT CONCN. FACILITY: SIB. FIZ.-TEKH. INST., TOMSK, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--OXYGEN CYCLE IN THE ALDAN ARCHEAN ATMOSPHERE --U-

AUTHOR--KULISH, YE.A.

COUNTRY OF INFO--USSR

SOURCE--DOLK. AKAD. NAUK SSR 1970, 191(4), 921-3 (GEOCHEM)

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--SEASONAL VARIATION, OXYGEN, GEOCHEMISTRY, ROCK

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0301 STEP NO--UR/0020/70/191/004/0921/0923

CIRC ACCESSION NO--AT0127883

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0127883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LOCAL GRAPHITE AND SULFIDE CONTG. ZONES ARE PRESENT IN THE ENTIRE SECTION OF THE ALDAN COMPLEX, HAVING ARCHEAN AGE, IN THE ALDAN TERRITORY. IN THE DZHELTULIN SERIES, THEY FORM VERY THICK AND EXTENDED HORIZONS. SULFIDES THERE ARE PYRITE, CHALCOPYRITE, OCCASIONALLY COVELLITE AND VERY RARELY GALENA AND SPHALERITE. LITHOL. ANAL. OF THESE ROCKS SHOWED THAT THEY FORMED UNDER H SUB2 S CONTAMINATION CONDITIONS OF SEDIMENTATION MEDIUM WHERE REDUCING CONDITIONS WERE CREATED BY THE PRESENCE OF A LARGE QUANTITY OF ORG. SUBSTANCE, SULFIDES, AND S PRIME2NEGATIVE IONS. THESE CONDITIONS WERE LOCAL AND CONFINED TO VARIOUS STRATIGRAPHIC UNITS FORMED PREDOMINANTLY IN DEEP WATER AND STAGNANT AREAS OF MARINE BASINS. THE RELATIVELY WIDE DISTRIBUTION OF GRAPHITE IN ARCHEAN ROCKS OF THE ALDAN COMPLEX AND ITS LIT,PAR,LIT DISTRIBUTION INDICATE PROLIFIC AND OMNIPRESENT DEVELOPMENT OF ORGANISMS. THE ORGANISMS WERE SHORT LIVED BECAUSE THE PERIODS OF THEIR MAX. DEVELOPMENT AND MAX. DYING AWAY COINCIDED. PERIODIC SEASONAL ACCUMULATION OF ORG. SUBSTANCES IN THE RELATIVELY DEEP WATER SEDIMENTS CAN BE CREATED ONLY BY DEVELOPMENT OF A PHOTOPHILIC ORGANISM GENERATING O. PROBABLY THE SIMPLEST ALGAE WERE DEVELOPED IN THE NEAR SURFACE LAYER OF THE BASIN BECAUSE SEASONAL VARIATIONS DO NOT AFFECT THE DEEPER LAYERS. THE PRESENCE IN ARCHEAN PRIMARY SEDIMENTARY ROCKS OF FE OXIDIZED TO A HIGHER DEGREE THAN IN DEEP SEATED SERIES OF IGNEOUS ROCKS AND THE DEVELOPMENT OF PHOTOPHILIC ORGANISMS INDICATE THAT THE ARCHEAN ATM. CONTAINED LARGE AMTS. OF FREE O.

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USSR

KULISH, Ye. N., SINITSA, M. A.

"Sampling Operational Testing Considering Significance and Reliability of Objects"

Kibernet. i Vychisl. Tekhn. Resp. Mezhved. Sb. [Cybernetics and Computer Equipment. Republic Interdepartmental Collection], 1972, No 18, pp 81-83 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V584, by the authors).

Translation: The problem of optimization of a procedure of sampling testing of groups of objects of different importance and reliability is studied. Usability testing is studied with rigid limitations on test equipment and servicing time. An algorithm is described for solution of the problem by computer using the method of dynamic programming.

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II. Combinatory Analysis. Graph Theory
A. General Theory of Combinatory Analysis

USSR

KULISH, YE. N. and YABLONSKIY, P. M.

"The Problem of Reliability of a System Working in Two Modes"

Gibrid. Vychisl. Tekhn. i Elektronika [Hybrid Computer Equipment and Electronics -- Collection of Works], Kiev, Nauk. Dumka Press, 1972, pp 267-276 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V278)

Translation: The system operates in two modes. The time of operation in either mode is a random quantity with fixed distribution. Failures occur according to an exponential rule with parameters dependent on the mode. The Laplace-Stilt'es transform of the mean time between failures of the system is written. One particular case is studied, when the time spent in each mode is a deterministic quantity.

Abstractor's note. The formula for P(t) can be produced somewhat more simply by replacement of time $\tau = \int_0^t \lambda(x)dx$, where $\lambda(x)$ is the intensity of failures at moment x.

I. Kovalenko

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

Acc. Nr. AA0108178

Abstracting Service: CHEMICAL ABST. 6-70

Ref. Code UR 0482

K

135535k Powder wire for surfacing. Vernik, V. S.; Ruleva, A. F.; Kliman, T. G.; Razikov, M. I.; Korolev, N. V.; Kulishenko, B. A. U.S.S.R. 261,147 (Cl. B 23k), 08 Jan 1970, ~~Appl. 14 Aug 1968~~; From *Otkrytiya, Izobret., Prom. Obrazcy, Tovarnye Znaki* 1970, 47 (4), 146-7. Powder wire for surfacing consisted of a steel casing and a powd. core contg.: graphite 0.24-2.6, ferromanganese 22.5-7, Fe powder 1.9-5.2, W 14-16%, and a steel strip the remainder. •MSCL

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19891844

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--CRYSTAL STRUCTURE OF A COMPLEX OF GERMANIUM DICHLORIDE WITH 1,4,DIOXANE -U-

AUTHOR--KULISHOV, V.I., BOKIY, N.G., STRUCHKOV, YU.T., NEFEDOV, O.M., KOLESNIKOV, S.P.

COUNTRY OF INFO--USSR

K

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 71-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CRYSTAL STRUCTURE, GERMANIUM COMPOUND, COMPLEX COMPOUND, DIOXANE, X RAY STUDY, CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0316 STEP NO--UR/0192/70/011/001/0071/0074

CIRC ACCESSION NO--AP0103971

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

UNCLASSIFIED PROCESSING DATE--11SEP70

2/2 019

CIRC ACCESSION NO--AP0103971

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRYSTAL STRUCTURE OF THE COMPLEX OF GECL SUB2 WITH 1,4,DIOXANE, GECL SUB2 TIMES C SUB4 H SUB8 O SUB2, IS DETD. BY MEANS OF 3 DIMENSIONAL X RAY DATA. THE CRYSTALS BELONG TO THE MONOCLINIC SYSTEM, A 7.59, B 11.72, C 8.85 ANGSTROMS, BETA EQUALS 96.3DEGREES, ZETA EQUALS 4, AND SPACE GROUP IS CC. THE CRYSTAL IS MADE UP OF ENDLESS CHAINS...-GECL SUB2-OC SUB4 H SUB8 O)- BETWEEN WHICH ONLY VAN DER WAALS INTERACTION EXISTS. THE GE ATOM FORMS TWO NORMAL ELECTRON BONDS WITH ATOMS OF CL (GE-CL DISTANCES OF 2.25 AND 2.28 ANGSTROMS, CL-GE-CL-ANGLE EQUALS 94.6DEGREES) AND ITS VACANT THIRD P,ORBITAL INTERACTS WITH TWO ATOMS OF O (GE-O DISTANCES OF 2.41 AND 2.48 ANGSTROMS).

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CRYSTAL AND MOLECULAR STRUCTURE OF TETRAKIS(CYCLOPENTADIENYL)ZIRCONIUM -U-

AUTHOR-(02)-KULISHOV, V.I., BRAININA, E.M.

K

COUNTRY OF INFO--USSR

SOURCE--J. CHEM. SOC. D. 1970, (8), 475

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--MOLECULAR STRUCTURE, CYCLOPENTANE, X RAY ANALYSIS, CHEMICAL BONDING, ORGANOZIRCONIUM COMPOUND, CRYSTAL LATTICE STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2099 STEP NO--UR/0000/70/000/008/0475/0475

CIRC ACCESSION NO--AP0125683

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 022

CIRC ACCESSION NO--AP0125683

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN X RAY STRUCTURAL ANAL. INDICATES THAT ZR(C SUB5 H SUB5) SUB4 (C SUB5 H SUB5 EQUALS CYCLOPENTADIENYL) BELONGS TO THE ORTHORHOMBIC SPACE GROUP P4 SUB1 2 SUB1 2 SUB1 WITH A 20.83, B 8.53, AND C 8.77 ANGSTROM; THE D. IS 1.50 AND Z EQUALS 4. THE ZR-C DISTANCES FOR 3 C SUB5 H SUB5 RINGS VARY RANDOMLY INDICATING THAT THESE RINGS ARE PI BONDED WITH THE ZR ATOMS OR FROM A CENTRAL SIGMA BOND WITH IT. THE 4TH C SUB5 H SUB5 RING FORMS A LOCALIZED 2 CENTER BOND WITH THE ZR ATOM. THE ZR ATOM COORDINATION IS VERY SIMILAR TO THAT FOUND IN (C SUB5 H SUB5) SUB3 UCL, WHERE THE CL ATOM ACTS AS A SIGMA BONDED LIGAND. AN X RAY STUDY OF HF(C SUB5 H SUB5) SUB2 INDICATES THAT THE COMPLEX IS TETRAGONAL, SPACE GROUP P42 SUB1 M, WITH A 9.80 AND C 8.22 ANGSTROM; Z EQUALS 4. FACILITY: INST. ELEM.-ORG. COMPDS., MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

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JPRS 52268

6-73

XX-12. GROWTH FROM THE LIQUID PHASE AND SOME PROPERTIES OF $In_xGa_{1-x}As$ FILMS

[Article by B. G. Abramov, B. G. Zakharov, U. M. Kulits, F. I. Ledneva, F. Ye. Bagatanov, Tomsk; Novosibirsk, III Simposium no Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 138]

A study was made of the structural perfection, mechanical stresses, the component distribution and the optical and luminescent properties of the $In_xGa_{1-x}As$ epitaxial layers. The method of epitaxy was used to obtain $In_xGa_{1-x}As$ layers in the $0 < X < 0$ region on the Ga (111) side of GaAs and in the $1 > X > 0.8$ region on the In (111) side of InAs.

The growth rate was calculated as a function of the growth conditions. The results obtained are compared with the experimental results. The growth rate as a function of the cooling rate is nonmonotonic. This leads to the dependence of the component distribution in the direction perpendicular to the growth plane on the growth conditions.

The structural perfection and mechanical stresses in the films were caused physically by the difference both of the linear expansion coefficients and the lattice parameters. The dislocation density on the surface and the morphology of the films depend on the growth conditions. The optical and luminescent studies show that the dependence of the width of the forbidden zone $In_xGa_{1-x}As$ on composition can be described by a linear expression.

KULITS, U.M.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

UDC 547.26'118.07

USSR

KULIYEV, A. M., RAGIMOVA, Sh. A. A., ZEYNALOVA, G. A., and KULIYEV, A. B., Institute of Chemistry of Additives, Academy of Sciences of the Azerbaydzhan SSR

"A Method of Making Alkyl-β-trichloroacetoxyethylphosphorous Acids"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 6, Feb 72, Author's Certificate No 328091, Division C, Filed 20 Jun 69, published 2 Feb 72, p 64

Translation: This Author's Certificate introduces: 1. A method of making alkyl-β-trichloroacetoxyethylphosphorous acids. As a distinguishing feature of the patent, β-trichloroacetoxyethylphosphorous acid is interacted with aliphatic alcohols with subsequent isolation of the goal product by conventional methods. 2. A modification of this method distinguished by the fact that the process is done in an inert organic solvent such as benzene.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

UDC 547.26'118.07

USSR

KULIYEV, A. M., ZEYNALOVA, G. A., KULIYEV, A. B., and RAGIMOVA, Sh. A., Institute of the Chemistry of Additives, Academy of Sciences, Azerbaydzhan SSR, Baku

"Synthesis of the Phosphorous Acid Esters Containing Trichloromethyl Group"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1497-1498

Abstract: Esters of phosphorous acid containing the trichloroacetyl group were synthesized by the reaction of hydroxyalkyltrichloroacetates with ethylenechlorophosphite or catecholphosphorous acid chlorides.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

UDC: 622.011.43

USSR

KULIYEV, A. K., ASKEROV, F. A., IMANOV, A. A.

"Studies of the Mechanical Properties of Rocks by the Method of Punch Identation Under a Lateral Pressure of up to $2.74 \cdot 10^8$ $N \cdot m^{-2}$"

V sb. Bureniye i razrabotka glubokozalegayushchikh neftyanykh mestorozhd. (Drilling and Working Deep Petroleum and Gas Deposits--collection of works), Baku, "Elm", 1972, pp 64-70 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7V621)

Translation: The paper deals with destruction of rocks by a boring tool in different stressed states. In a series of experiments cylindrical rock specimens were loaded by pressure on the lateral surface. The end faces were indented by flat punches. It was found that with an increase in lateral pressure up to a certain value for each rock, the values of hardness and yield stress change basically only slightly, while a further increase in lateral pressure leads to an increase in these characteristics. The volume of rock destroyed under the punch increases with lateral pressure considerably faster than the increase in hardness. Bibliography of six titles. A. B. Fadeyev.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

UDC 547.26'118.07

USSR

KULIYEV, A. M., ZEYNALOVA, G. A., KULIYEV, A. B., and BAGIMOVA, Sh. A., Institute of the Chemistry of Additives, Academy of Sciences, Azerbaydzhan SSR, Baku

"Synthesis of the Phosphorous Acid Esters Containing Trichloromethyl Group"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1497-1498

Abstract: Esters of phosphorous acid containing the trichloroacetyl group were synthesized by the reaction of hydroxyalkyltrichloroacetates with ethylenechlorophosphite or catecholphosphorous acid chlorides.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

UDC 632.95

USSR

KULIYEV, A. M., GASANZADE, G. R., RASULOVA, M. A., ALIYEVA, R. G., and RASULOVA, F. A., Institute of Additive Chemistry of the Academy of Sciences Azerbaydzhan SSR

"Method of Producing Alkoxymethyl Esters of Dialkyldithiocarbamic Acids" USSR Authors' Certificate No 316687, Cl. C 07 c 135/04, filed 17 Dec 69, published 23 Dec 71 (from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14N470 by T. A. Belyayeva)

Translation: Carbamic acid derivatives of the formula $ROCH_2SSCNEt_2$ (I) (R = alkyl or benzyl) which can be employed as pesticides are obtained by the reaction of alkali-metal salts of dialkyldithiocarbamic acids with the alpha-chloroether of aliphatic and aromatic alcohols in an organic solvent at 70-80°. One mole of alpha-chloroisobutyl ether is added to 1 mole of $Et_2NCSSNa$ in C_6H_6 at 70-80°, held for 5-8 hours, washed with water and dried; I is isolated by distillation (R = iso-Bu), yield 90-95%, boiling point 122-6°/1, d_4^{20} 1.0393, $n^{20}D$ 1.5375. The following I's are similarly produced (cited hereinafter are R, boiling point in °C/mm, d_4^{20}, $n^{20}D$): Bu, 136-7/1, 1.0450, 1.5420, C_5H_{11}, 154-5/3, 1.0321, 1.5368; C_6H_{13}, 153-4/1, 1.0178, 1.5300; C_7H_{15}, 163-4/1, 1.0073, 1.5278, $PhCH_2$, 177-8/0.7, 1.1297, 1.5798

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UDC 547.26'118.07

USSR

KULIYEV, A. M., RAGIMOVA, Sh. A. A., ZEYNALOVA, G. A., and KULIYEV, A. B., Institute of Chemistry of Additives, Academy of Sciences of the Azerbaydzhan SSR

"A Method of Making Alkyl-β-trichloroacetoxyethylphosphorous Acids"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 6, Feb 72, Author's Certificate No 328091, Division C, filed 20 Jun 69, published 2 Feb 72, p 64

Translation: This Author's Certificate introduces: 1. A method of making alkyl-β-trichloroacetoxyethylphosphorous acids. As a distinguishing feature of the patent, β-trichloroacetoxyethylphosphorous acid is interacted with aliphatic alcohols with subsequent isolation of the goal product by conventional methods. 2. A modification of this method distinguished by the fact that the process is done in an inert organic solvent such as benzene.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

USSR UDC 547.261'118.07

KULIYEV, A. M., ZEINALOVA, G. A., KULIYEV, A. B., RAGIMOVA, SH. A.,
Institute of Chemistry Additives of Academy of Sciences AzerSSR

"Synthesis of Certain Phosphite Esters With Trichloromethyl Group"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2209-2211

Abstract: In the search for antiwear additives to lubricating oils, β-trichloroacetoxyethyl- and δ-trichloroacetoxybutylphosphorous acid chlorides and dichlorides were synthesized by the reaction of β-hydroxyethyl- and δ-hydroxybutyl trichloroacetates with phosphorus trichloride. Also a series of P,P-dialkyl β-trichloroacetoxyethyl phosphites were prepared by the reaction of β-trichloroacetoxyethylphosphorous acid dichloride with aliphatic alcohols in the presence of pyridine. The structure of the synthesized compounds was determined by their IR spectra, two of which are shown. Physical constants and formulas of the compounds are tabulated and preparation procedures are described.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

UDC 661.183.7

USSR

KULIYEV, Al. M., GRIGORYAN, E. V., and ARUTYUNOVA, E. G., Bakinsk Branch, All Union Scientific Research Institute of Gasses

"Study of the Effect of Chemical Composition of a Displacer on the Adsorption Capability of Silica gel"

Baku, Azerbaydzhanskiy Khimicheskiy Zhurnal, No 5-6 (71-72), 1971, pp 90-92

Abstract: It was shown in earlier work that substituting high molecular weight fractions of petroleum for the water molecules of a hydrogel yields silica gel with high adsorption. This particular study was devoted to individual fractions of petroleum, especially to their effect on the gel. The study showed that treatment of silica gel with a displacer containing primarily aromatic hydrocarbons will yield an adsorbent with very fine pores, and high activity. When treated with paraffine hydrocarbons, the pores in the adsorbent become coarse.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ANTISMOKE ADDITIVES FOR DIESEL FUEL -U-

AUTHOR-(05)-KULIYEV, A.M., ALIYEV, Z.E., AGAYEVA, S.M., SHAKHGELDIYEV, M.A., VARSHAVSKIY, I.L.

COUNTRY OF INFO--USSR

K

SOURCE--U.S.S.R. 264,843

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--03MAR70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--FUEL ADDITIVE, DIESEL FUEL, CHEMICAL PATENT, PHENOL, FORMALDEHYDE, CONDENSATION REACTION, ANTISMOKING PROGRAM, ORGANOBARIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1343 STEP NO--UR/0482/70/000/003/0006/0006

CIRC ACCESSION NO--AA0128750

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

2/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0126750

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BA SALT OF A CONDENSATION PRODUCT OF AN ALKYLPHENOL WITH HCHO IS USED AS AN ANTISMOKE ADDITIVE FOR DIESEL FUEL. FACILITY: INSTITUT KHIMII PRISADOK AN AZERBAYDZHANSKOY SSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--OIL ADDITIVES -U-

AUTHOR-(05)-KULIYEV, A.M., ZEYNALOVA, K.A., SADYKHOV, K.I., SULEYMANOVA, F.G., DRUDZHEVA, I.M.

COUNTRY OF INFO--USSR

K

SOURCE--BAKINSKIY RABOCHIY, SEPTEMBER 18, 1970, P 3, COL 3

DATE PUBLISHED--18SEP70

SUBJECT AREAS--MATERIALS, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--LUBRICATING OIL, LUBRICANT ADDITIVE, CHEMICAL SYNTHESIS, PETROLEUM REFINING, HONORARY TITLE AWARD, CHEMICAL PERSONNEL/(U)BFK LUBRICATING OIL ADDITIVE, (U)SB3 LUBRICATING OIL ADDITIVE, (U)SK3 LUBRICATING OIL ADDITIVE, (U)AZNII8U LUBRICATING OIL ADDITIVE, (U)INKHP21 LUBRICATING OIL ADDITIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605011/B09 STEP NO--UR/9000/70/000/000/0003/0003

CIRC ACCESSION NO--AN0140180

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

2/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AN0140180

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. "THE DEVELOPMENT OF THE SYNTHESIS TECHNOLOGY FOR THE EFFICIENT ADDITIVES TO MOTOR OILS REFINED FROM THE BAKU PETROLEUMS, BFK, SB 3, SK 3, AZNII 8U, AND INKHP 21, AND REDUCING IT TO INDUSTRIAL APPLICATIONS", THE WORK DONE BY A. M. KULIYEV, K. A. ZEYNALOVA, K. I. SADYKHOV, F. G. SULEYMANOVA, I. M. DRUDZHEVA, I. I. NAMAZOV, AND V. YE. BASHAYEV HAS BEEN NOMINATED BY THE INSTITUTE OF CHEMISTRY OF ADDITIVES OF THE AZERBAYDZHAN ACADEMY OF SCIENCES FOR THE STATE PRIZE OF THE AZERBAYDZHAN S.S.R.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SYNTHESIS OF 3,AMINOTHIOPHENOL AND SOME OF ITS S DERIVATIVES -U-

AUTHOR-(02)-AGAYEV, A.N., KULIYEV, A.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 809-12

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SYNTHESIS, AMINE, PHENOL, THIOL, ZINC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1948 STEP NO--UR/0366/70/006/004/0804/0812

CIRC ACCESSION NO--AP0125537

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125537

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REDN. OF 3,O SUB2 NC SUB6 H SUB4 SO SUB2 CL WITH ZN IN HCL GAVE 20PERCENT 3,H SUB2 NC SUB6 H SUB4 SH (I). THE REACTIONS OF I WITH CLCH SUB2 CH SUB2 OH, ETBR, PRBR, ISO-PRBR, H SUB2C:CHCH SUB2 BR, MECL, PHCH SUB2 CL, H SUB2 C:CHNC, H SUB2 C:CMECO SUB2 ME, OR H SUB2 C:CMECO SUB2 BY GAVE 3,H SUB2 NC SUB6 H SUB4 SR (R IS CH SUB2 CH SUB2 OH, ET, PR, ISO-PR, H SUB2 C:CHCH SUB2, ME, PHCH SUB2, CH SUB2 CH SUB2 NC, CH SUB2 CHMECO SUB2 ME, OR CH SUB2 CHMECO SUB2 BU).

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ANTISMOKE ADDITIVES FOR DIESEL FUEL -U-

AUTHOR-(05)-KULIYEV, A.M., ALIYEV, Z.E., SHAKHGELDIYEV, M.A., VARSHAVSKIY, I.L., MALOV, R.V.

COUNTRY OF INFO--USSR

K

SOURCE--U.S.S.R. 264,842

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--03MAR70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--CHEMICAL PATENT, FUEL ADDITIVE, DIESEL FUEL, BENZENE DERIVATIVE, ORGANOBARIUM COMPOUND, ANTISMOKING PROGRAM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1342 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128749

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

2/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128749

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A HIGH ASH BA ALKYLPHENOLATE IS USED AS A SMOKE INHIBITOR FOR DIESEL FUEL. FACILITY: INSTITUT KHIMII PRISADOK AN AZERBAYDZHANSKOY SSR.

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USSR UDC:[537.226+537.311.33]:[537+535]

KULIYEV, A. Z., OKHOTIN, A. S., ASADOV, D. A., and KAKHRAMANOV, K. Sh.

"Effect of Deformation on the Thermoelectrical Characteristics of Bi_2Te_3-Bi_2Se_3"

V sb. Teplofiz. svoystva tverd. tel (Thermophysical Characteristics of Solids--collection of works) Kiev, Nauk. dumka, 1971, pp 30-33 (from RZh-Fizika, No. 11, 1971, Abstract No. 11B1075)

Translation: The effect of external, single-sided pressure (up to 250 kg/cm^2) on the electrical conductivity (σ), the thermal emf coefficient (α), and the thermal conductivity ($\varkappa$) of a solid solution of n-type 80% Bi_2Te_3-20% Bi_2Se_3 are investigated in the temperature interval of 300-500° K. It is established that at 300° K, with an increase in load from 0 to 100 kg/cm^2, σ increases linearly to more than double its value. With elevations in temperature, this type of sharp increase in σ is not observed. The change in α did not exceed 10%. An increase in $\varkappa$ is also observed with increasing deformation, reaching a maximum at 100 kg/cm^2. The reduction of σ and $\varkappa$ at pressures >100 kg/cm^2 is explained by electron and phonon dispersion in the defects formed.G. I. Makovetskiy. 1/1

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PHYSICS

Crystals and Semiconductors

USSR

ABDULLAYEV, G. B., KULIYEV, A. Z., AGAYEV, A. I., ABDULLAYEV, E. A., KAKHRAMANOV, K. Sh., Institute of Physics, Academy of Sciences of the Azerbaydzhan SSR

"N-Type Lead Sulfide Strain-Sensing Semiconductor Resistors"

Baku, IAN Azerbaydzhanskoy SSR, Seriya Fiziko-Tekhnicheskikh i Matematicheskikh Nauk, Fizika i Astronomiya, No 1, 1971, pp 39-44

Abstract: The authors study specimens of $PbCl_2$+Pb-doped lead sulfide strain-sensing resistors with electron concentrations of $6.3 \cdot 10^{18}$/cc. This dopant gives specimens with a high electron mobility. Contacts were made by the galvanic method, thermal welding, and vaporization. The output of the GZ-34 sonic generator was used as the source of supply. The signal frequency was 2 kHz. A study was made of the effect of strain on the current-voltage characteristic of a specimen. It was found that the slope of this curve is a linear function of strain in the range of $2 \cdot 10^{-1}$-$5 \cdot 10^{-4}$ relative units. Deformation curves show that the change in relative resistance is practically linear and depends on the current flowing through

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USSR

ABDULLAYEV, G. B. et al., IAN AzerbSSR, Seriya Fiz.-Tekhn. i Mat. Nauk, Fiz. i Astron., No 1, 1971, pp 39-44

the specimen. In the case of tensile strain, the deformation curve at 20 ma has two linear segments with different slopes: the first at relative deformations below $1.2 \cdot 10^{-4}$ relative unit, and the second (with greater slope) from $1.2 \cdot 10^{-4}$ to $2.2 \cdot 10^{-4}$ relative units. Strain sensitivity in the range from $5 \cdot 10^{-5}$ to $2 \cdot 10^{-4}$ unit of relative deformation is 1.5 times as great for tension as for compression. Experiments with P-type lead sulfide strain-sensitive resistors showed that specimens of this type made by powder metallurgy methods have low resistance to mechanical and thermal loading. Chlorine-doped pressed polycrystalline specimens of N-PbS are thermally stable at temperatures up to 1000°K. Specimens tested under various dynamic conditions withstood $2 \cdot 10^{6}$ cycles. Strain gauges based on lead sulfide resistors can be used to measure relative deformations of as little as 10^{-6} relative unit. Three figures, bibliography of seven titles.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--THERMAL CONDUCTIVITY OF, HYDROCARBON, PRODUCTS OF SELECTIVE REFINING -U-

AUTHOR-(02)-KULIYEV, F.A., KULIYEV, R.SH.

COUNTRY OF INFO--USSR

SOURCE--AZERB. NEFT. KHOZ. 1970, (1), 38-9.

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PETROLEUM PRODUCT, THERMAL CONDUCTIVITY, AROMATIC HYDROCARBON, TRANSFORMER OIL, PETROLEUM REFINING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1799 STEP NO--UR/0437/70/000/001/0038/0039

CIRC ACCESSION NO--AP0135364

UNCLASSIFIED

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2/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0153364

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FURFURAL EXTN. AT LEVELS OF 50, 100, AND 150PERCENT, BY REDUCING TAR CONTENT FROM 2.9 TO 2.1, 1.8, AND 1.5PERCENT AND HEAVY AND MEDIUM AROMATIC HYDROCARBON CONTENT FROM 19.7 TO 10.6, 7.7, AND 5.6PERCENT, REDUCED THERMAL COND. (LAMBDA SUB1 TIMES 10 PRIMEG) FROM 309 FOR THE ORIGINAL DISTALLATE TO 306, 299, AND 293 CAL-CM,SEC,DEGREE FOR RAFFINATES OF TRANSFORMER OIL DISTILLATE AND RAISED LAMBDA SUB2 TIMES 10 PRIMEG TO 336,325, AND 314 CAL-CM,SEC,DEGREE FOR THE EXTS. WITH INCREASING REFINING DEPTH, MONOCYCLIC AROMATIC AND PARAFFINIC,NAPHTHENIC HYDROCARBONS WERE ENTRAINED BY THE TARS AND HEAVIER AROMATIC HYDROCARBONS EXTD. CLAY TREATMENT ALSO REDUCED TAR CONTENT AND LAMBDA SUB1. DEVIATIONS FROM THE ADDITIVITY RULE FOR LAMBDA SUB1 AND LAMBDA SUB2 VARIED FROM MINUS 2.9 TO PLUS 1.3PERCENT. AT 20-100DEGREES THE DEPENDENCE OF LAMBDA ON TEMP. WAS GIVEN BY LAMBDA EQUALS LAMBDA SUB20 (1 MINUS 0.0009(T MINUS 20DEGREES)).

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USSR UDC 539.3

KULIYEV, G. G., Institute of Mechanics, Academy of Sciences UkrSSR

"Stress Concentration Near a Reinforced Curved Opening Considering the Nonlinear Elasticity Properties of the Material"

Kiev, Dopovidi Akademiy nauk Ukrainskoy RSR, Seriya A. Fiziko-tekhnichni ta matematichni nauki, No. 9, Sep 71, pp 801-803

Abstract: The stress state near a reinforced curved opening in a physically nonlinear plate was investigated. It is assumed that the reinforcing rod operates only on the expansion in biaxial and uniaxial stress states. The following effects were studied: rigidity of the ring, properties of the material, the curvilinearity of the opening, and the external load as they effected the stress state. A perturbation method involving varying the shape of the boundary was used in the solution. The characteristics of a ring are given for a nonlinearly elastic plate with elasticity moduli $0.46 \cdot 10^6$ kg/cm^2 and $1.37 \cdot 10^6$ kg/cm^2 and with a nonlinearity characterized by the constants $g_2 = 0.18 \cdot 10^6$, $\nu = 1/3$, and $\kappa = 2$.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

USSR

UDC 539.3

KULIYEV, G. G., TSURPAL, I. A., Kiev

"Stressed State of a Nonlinear-Elastic Plate with a Fastened Round Hole"

Kiev, Prikladnaya Mekhanika, Vol VII, No 4, 1971, pp 118-121

Abstract: The basic equations, boundary conditions and junction conditions are formulated for a nonlinear (cubic) law of the relation between the stresses and strains for the case of attaching circular holes by wide rings (generally speaking made of a different physically nonlinear material) in nonlinear-elastic plates. The nonlinear equations obtained are solved by the small parameter method. The problem of stress concentration near the solder in a nonlinear-elastic plate with pure shear at infinity is investigated as an example. The effect of the rigidity of the wide ring, the external load and the physical nonlinearity on the stress distribution in the plate with a round hole is demonstrated.

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USSR

UDC 539.374

KULIYEV, K.M.

"Concentration of Stresses in a Plane Weakened by Two Unequal Round Openings, at Low Elastoplastic Deformations"

Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Seriya Fiziko-Tekhnicheskikh i Matematicheskikh Nauk, Kibernetika, No 1, 1972, pp 30-33

Abstract: An elastic isotropic plane is weakened by two unequal openings, the centers of which lie on a straight line coinciding with the x-axis. The distance between the contours of the openings is S, the distance between the centers of the openings is l. The radius of the small opening is r = 1, and that of the large opening is R > 1. The contour of the large opening is designated by L, and that of the small opening by L_0. A stretching force, crosswise to the line of the centers, is given at infinity as q. A formula expresses the relationships which determine the stresses at the openings. It is shown that stresses acting near the small opening have greater significance, since the large opening exerts considerable influence upon the change of the stressed state of the medium near the small opening. For elastic deformation, this problem has been solved by A. S. Kosmodamianskiy. On the basis of the obtained solutions a plastic solution is constructed by the method of "elastic" stresses. In the first approximation, the elastic

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USSR

KULIYEV, K.M., Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Seriya Fiziko-Tekhnicheskikh i Matematicheskikh Nauk, Kibernetika, No 1, 1972, pp 30-35

solution of the concentration problem is computed on the basis of the formula for the stresses at the openings, the stresses being treated in dimensionless form. According to this method, a second approximation is usually sufficient to obtain the desired elastoplastic stresses (when the range of plastic deformations is small) with an error not in excess of 3-5%. A plastic solution was worked out for the cases:

$\frac{S}{r} = 5$; $R=2r$; $R=5r$; $R=10r$; $R=20r$; $R=30r$; $R=100r$.

3 Figures, 3 References.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--CHANGES IN THE INDICES OF PREVENTIVE PROPERTIES OF THE BLOOD SERUM IN PATIENTS WITH TYPHOID UNDER CONDITIONS OF IMMUNOANTIBIOTIC THERAPY

AUTHOR--KULIYEV, M.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 4, PP 105-110

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD SERUM, TYPHOID FEVER, TISSUE CULTURE, HEMAGGLUTINATION, ANTIBODY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1723 STEP NO--UR/0016/70/000/004/0105/0110

CIRC ACCESSION NO--AP0109686

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UNCLASSIFIED PROCESSING DATE--02OCT70

2/2 026

CIRC ACCESSION NO--AP0109686

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDIED THE PREVENTIVE PROPERTIES OF THE BLOOD SERA OF PATIENTS SUFFERING FROM TYPHOID FEVER BY THE METHOD OF TITRATION ON CHICK EMBRYOS. DETERMINATIONS WERE CARRIED OUT WITH CONSIDERATION TO THE EFFECTS ON THESE INDICES OF A COMPLEX METHOD OF IMMUNO ANTIBIOTIC THERAPY, AND ALSO OF THE EXTENT OF DEVELOPMENT OF PROTECTIVE PROPERTIES OF THE SERA DEPENDING ON THE CONTENT IN THEM OF O, AND VI, ANTIBODIES, DETECTED IN THE REACTION INDIRECT HEMAGGLUTINATION AND THE TITRE OF COMPLEMENT FIXING ANTIBODIES. BLOOD SERA WERE EXAMINED IN 72 PATIENTS SUFFERING FROM TYPHOID FEVER AGED FROM 16 TO 55 YEARS. IN 62 PATIENTS THE TREATMENT WAS COMPLEX, AND 10 PATIENTS WERE TREATED ONLY WITH LEVOMYCETIN. THE BLOOD SERA WERE EXAMINED BEFORE THE TREATMENT, AFTER THE END OF THE TREATMENT AND BEFORE DISCHARGE FROM THE HOSPITAL. THE RESULTS OF INVESTIGATIONS DEMONSTRATED THAT THE COMPLEX METHOD OF TREATMENT WITH THE APPLICATION OF VI,ANTIGEN, PENTOXYL AND LEVOMYCETIN AIDED IN CONSIDERABLE ELEVATION OF PROTECTIVE PROPERTIES OF THE SERA IN COMPARISON WITH THE PATIENS TREATED WITH LEVOMYCETIN ALONE. THE EXTENT OF DEVELOPMENT OF PROTECTIVE PROPERTIES WERE IN DIRECT RELATIONSHIP TO THE VI,ANTIBODY LEVEL. THERE WAS ALSO SOME DEPENDENCE UPON THE O, ANTIBODY TITRES. THE TITRES OF THE COMPLEMENT FIXING ANTIBODIES FAILED TO COINCIDE WITH THE EXTENT OF PROTECTIVE PROPERTIES OF THE SERA. CHICK EMBRYOS PROVED TO BE A VERY CONVENIENT EXPERIMENTAL MODEL FOR DETERMINATION OF THE PREVENTIVE PROPERTIES OF THE SERA IN TYPHOID PATIENTS.

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Construction

USSR

UDC 539.4:624

ODUZHEV, F. M., and KULIYEV, R. A.

"The Strength and Deformability of Stone, Vibrostone, and Expanded-Clay-Foam-Concrete Panels Under the Action of Static and Cylindrical Loads, Which Brings About Skewing in their Plane"

Moscow, Vses. Soveshch. "Proyektir. i Str-vo Seysmostoyk. Zdaniy i Sooruzh.," 1971 (All-Union Conference "Designing and Construction of Earthquake-Proof Building and Structures," 1971), 1971, pp 87-93 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V1050 by M. Kh. Leybur)

Translation: The procedure and results of experimental research are presented on determination of the calculation parameters of the piecewise and vibratory placement of sawable limestone and expanded-clay-foam-concrete panels. Research on the resistance of conventional and vibratory placement to skewing was conducted basically on samples with the side ratio $\beta = a/b = 0.63 - 1.6$ and the foam concrete panels had $\beta = 1$. The testing procedure was identical. The load was applied to the samples along one of their diagonals. Failure of all the samples started with the formation of cracks along the compressed diagonal. Loss of the carrying capacity of the placement samples occurred with the formation of cracks along the horizontal seams. Nonvibrated samples with $\beta = 0.63$ broke

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

Acc. Nr: AP0100578 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR0065

102360w Preparation of transformer oil from Sangachaly Sea petroleum by adsorption and hydrogenation methods. Kuliev, R. Sh.; Kevorkova, L. S.; Anisimova, A. M. (USSR). *Khim. Tekhnol. Topl. Masel* 1970, 15(3), 20-2 (Russ). By adsorption purification on the optimum amt. (25%) of an aluminosilicate catalyst at 35° and by hydrogenation on a WS_2 catalyst at a vol. input rate of 0.5 hr^{-1} at 300°/300 atm with 1000 l. H/l. distillate, viscosity at 50°, acid no., and f.p. of a dewaxed distillate transformer oil were changed from 7.08 cSt, 0.36 mg KOH/g and −47° to 7.09 and 7.27 cSt, 0.01 and 0.02 mg KOH/g and −45°, resp., color and transparency were improved, and stability toward oxidn. was raised to the level specified by GOST 981-55 and 11257-65. The resp. stabilized oils had flash points of 150° and tan angles of dielec. loss at 70° of 0.17 and 0.31. Process variable ranges explored were 25-150% adsorbent and hydrogenation temps., pressures, and H concns. of 300-425°, 50-300 atm, and 300-1000 l./l.

Lucile S. Davison

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REEL/FRAME
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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--PREPARATION OF SYNTHETIC OILS. NAPHTHENIC ACID ESTERS -U-

AUTHOR-(03)-KULIEV, R.SH., SADYKHOVA, B.A., ABDULLAYEVA, Z.A.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. MOSCOW, 1970, (2), 42

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--LUBRICATING OIL, FREEZING, FLUID VISCOSITY, FUEL FLASH POINT, ETHYLENE GLYCOL, ESTER, NAPHTHENIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0645 STEP NO--UR/0318/70/000/002/0042/0042

CIRC ACCESSION NO--AP0119557

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

2/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119557

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NAPHTHENIC ACIDS, ESTERIFIED WITH MONO AND DIHYDRIC ALCS., YIELDED ESTERS WITH FLASH POINT 156-94DEGREES AND VISCOSITY INDEX 110-20. GLYCOL ESTERS WITH MOL. WT. 400-600 HAD VISCOSITY AT 100DEGREES 7.8-6.1 CST. VISCOSITY INDEX 76-90, AND FREEZING TEMP. MINUS 32 TO MINUS 38DEGREES. TRIETHYLENE GLYCOL ESTERS HAD THE HIGHER LUBRICATING INDEXES. FACILITY: INKHP, BAKU, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF THE ANTIOXIDANT ADDITIVE IONOL ON THE PROPERTIES OF TRANSFORMER OILS -U-

AUTHOR-(03)-KULIYEV, R.SH., MAMEDOV, N.SH., MUSAYEV, G.T.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(4), 52-3

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PHYSICAL CHEMISTRY PROPERTY, ELECTRIC PROPERTY, TRANSFORMER OIL, DIELECTRIC PERMEABILITY, ANTIOXIDANT ADDITIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/2088 STEP NO--UR/0065/70/015/004/0052/0053

CIRC ACCESSION NO--AP0127461

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

2/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0127461

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDN. OF 0.1-0.1PERCENT IONOL (2,6,DI,TERT,BUTYL,4,METHYLPHENOL) TO FRESHLY REFINED TRANSFORMER OIL PRODUCED NO ALTERATION OF ITS ELEC. PHYS. PROPERTIES. AFTER OXIDN. OF THE OIL WITH ADDITIVE, ITS ELEC. RESISTIVITY INCREASED, BUT ITS DIELEC. PENETRABILITY CHANGED LITTLE. IONOL HAD ALSO LITTLE INFLUENCE ON THE DECREASE IN THE AMT. OF OXIDN. PRODUCTS AFTER OXIDN. FACILITY: INKHP, BAKU, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--THERMAL CONDUCTIVITY OF HYDROCARBON PRODUCTS OF SELECTIVE REFINING -U-

AUTHOR-(02)-KULIYEV, F.A., KULIYEV, R.SH.

COUNTRY OF INFO--USSR

SOURCE--AZERB. NEFT. KHOZ. 1970, (1), 38-9.

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PETROLEUM PRODUCT, THERMAL CONDUCTIVITY, AROMATIC HYDROCARBON, TRANSFORMER OIL, PETROLEUM REFINING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1799 STEP NO--UR/0487/70/000/001/0038/0039

CIRC ACCESSION NO--AP0135364

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

2/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125364

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FURFURAL EXTN. AT LEVELS OF 50, 100, AND 150PERCENT, BY REDUCING TAR CONTENT FROM 2.5 TO 2.1, 1.8, AND 1.5PERCENT AND HEAVY AND MEDIUM AROMATIC HYDROCARBON CONTENT FROM 15.7 TO 10.6, 7.7, AND 5.8PERCENT, REDUCED THERMAL COND. (LAMBDA SUB1 TIMES 10 PRIME6) FROM 309 FOR THE ORIGINAL DISTALLATE TO 306, 299, AND 293 CAL-CM,SEC,DEGREE FOR RAFFINATES OF TRANSFORMER OIL DISTILLATE AND RAISED LAMBDA SUB2 TIMES 10 PRIME6 TO 336,325, AND 314 CAL-CM,SEC,DEGREE FOR THE EXTS. WITH INCREASING REFINING DEPTH, MONOCYCLIC AROMATIC AND PARAFFINIC,NAPHTHENIC HYDROCARBONS WERE ENTRAINED BY THE TARS AND HEAVIER AROMATIC HYDROCARBONS EXTD. CLAY TREATMENT ALSO REDUCED TAR CONTENT AND LAMBDA SUB1. DEVIATIONS FROM THE ADDITIVITY RULE FOR LAMBDA SUB1 AND LAMBDA SUB2 VARIED FROM MINUS 2.9 TO PLUS 1.8PERCENT. AT 20-100DEGREES THE DEPENDENCE OF LAMBDA ON TEMP. WAS GIVEN BY LAMBDA EQUALS LAMBDA SUB20 (1 MINUS 0.0009(T MINUS 20DEGREES)).

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1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--SUPPLEMENTAL HYDROFINING OF VISCOUS AND HIGHLY VISCOUS OILS FROM BAKU PETROLEUMS -U-

AUTHOR-(03)-KULIYEV, R.SH., SAMEDOVA, F.I., SARKISYAN, V.M.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (5), 22-3

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--PETROLEUM DEPOSIT, GEOGRAPHIC LOCATION, FURFURAL, HYDROREFINING, CATALYST, ALUMINUM OXIDE, COBALT, MOLYBDENUM, PETROLEUM DEASPHALTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1948 STEP NO--UR/0318/70/000/005/0022/0023

CIRC ACCESSION NO--AP0133792

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

2/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133792

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OILS, DEASPHALTED AND REFINED WITH FURFURAL, WERE HYDROFINED ON COM. AL SUB2 O SUB3,CO,MO CATALYST AT SPACE VELOCITY 0.5 HR PRIME NEGATIVE1 AND 50 ATM. HYDROFINING AT 350DEGREES GAVE GOOD RESULTS, BUT AT 400DEGREES, A GREAT DECREASE OF VISCOSITY, D., AND FLASH TEMP. OF THE HYDROGENATE WAS PRODUCED. SUPPLEMENTAL TREATMENT BY HYDROFINING YIELDED OILS OF HIGHER QUALITY THAN BY CONTACT REFINING.

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USSR

HURWITZ, L. E., IOFFE, I. V., and KULIYEV, Sh. I. (Joffe Physics-Engineering Institute of the USSR Academy of Sciences, Leningrad)

"Perturbation, by a Strong Current, of Shortwave Surface Galvanomagnetic and Acoustical-Magnetic Waves"

Leningrad, Fizika Tverdogo Tela, February 1971, pp 569-572

Abstract: When a strong current is passed through a conducting medium, transverse oscillations of the electromagnetic field or related oscillations of the field and lattice occur. If the wave vector in the direction of the external current j_0 is much greater than the opposite transverse dimension of the crystal, then these waves are exponentially damped out in the depth of the crystal and can be considered as surface waves. The magnetic field of these oscillations is much greater than the electrical, and the frequency is equal to kv, where v is the drift rate and k is the wave vector; $k \parallel j_0$.

Conditions for the perturbation of such oscillations in the presence, and absence, of an external magnetic field are found.

The article includes 7 equations. There are 4 bibliographic references.

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KULIYEV

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TECHNICAL TRANSLATION

FTD-HT-23-2015-72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV, SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: I. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY IMENI T.G. SCHEVCHENKO

Translated for FSTC by AGSI

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- Title Page -

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USSR UDC 517.918

KULIYEV, T. K., Azerbaydzhan State University imeni S. M. Kirov

"On an Integral Operator With a Fixed Singularity"

Baku, Doklady Akademii Nauk Azerbaydzhanskoy SSR, Vol 28, No 4, 1972, pp 16-21

Abstract: The article considers the singular operator K of the form

$$(Ku)(x) = \int_a^b \frac{K(x,\xi)}{\xi - \alpha} u(\xi)d\xi, \text{ where } \alpha \in (a,b), K(x,s) \in C_{(a,b)\times(a,b)}, u(x) \in C_{(a,b)}.$$

The integral is understood in the sense of Cauchy's principal value. Complete, countably normable spaces are constructed which are invariant with respect to operator K. The author thanks V. V. BALAYEV for his part in the work and A. A. BABAYEV for formulating the problem.

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Vector Studies

USSR UDC 595.771.576.858

SOKOLOVA, E. I., MIRZOYEVA, N. M., KULIYEVA, N. M., GROMASHEVSKIY, V. L., and CHERVONSKIY, V. I., Institute of Virology, Microbiology, and Hygiene imeni G. M. Musabekov, Ministry of Health Azerbaydzhan SSR, Baku, and Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Experimental Transmission of Sindbis Virus by Aedes aegypti L. Mosquitoes"

Leningrad, Parazitologiya, No 5, 1971, pp 405-407

Abstract: Aedes aegypti is susceptible to Sindbis virus, strain A3-574. Twenty-four to forty-eight hours after the mosquitoes were allowed to feed on mouse tails filled with a viral suspension or on suckling mice, the virus titer in the insects was quite high, 10^{-5}, and 2 days later it rose to 10^{-6}. On the 7th day it fell to 10^{-4} but rose on the 10th day to 10^{-5}, reaching a peak on the 16th day, 10^{-6}. The high titers persisted until the 26th day when they began to fall to 10^{-3} (on day 29). Three to five days after suckling mice were exposed to the infected mosquitoes, the animals developed paralysis of the hind legs and died.

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1/3 025 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DIFFERENCE IN FRAUNHOFER LINES IN THE POLAR AND EQUATORIAL SPECTRA OF THE SOLAR DISK -U-

AUTHOR--KULIZADE, D.M.

COUNTRY OF INFO--USSR

SOURCE--BAKU, DOKLADY AKADEMII NAUK AZERBAYDZHANSKOY SSSR, VOL XXVI, NO 2, 1970, PP 17-21

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--SOLAR DISC, FRAUNHOFER LINE, TEMPERATURE, SOLAR TELESCOPE, SPECTROGRAPH, POLAR AREA, EQUATOR, SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0017 STEP NO--UR/0249/70/026/002/0017/0021

CIRC ACCESSION NO--AT0130807

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CIRC ACCESSION NO--AT0130807

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FRAUNHOFER LINES ARE THE BEST INDICATORS OF PHYSICAL CONDITIONS ON THE SUN, ESPECIALLY TEMPERATURE CHANGES. IF THERE ACTUALLY IS A TEMPERATURE DIFFERENCE BETWEEN THE POLE AND EQUATOR ALONG THE LIMB OF THE SOLAR DISK, IN SOME WAY IT SHOULD BE REFLECTED IN THE CONTOURS OF FRAUNHOFER LINES. THE CENTRAL INTENSITIES AND HALF WIDTHS OF FRAUNHOFER LINES ARE PARTICULARLY SENSITIVE INDICES. THIS STUDY REPRESENTS AN INVESTIGATION OF THE EQUATOR POLE DIFFERENCE IN EQUIVALENT WIDTHS AND CENTRAL INTENSITIES FOR ABOUT 170 SELECTED FRAUNHOFER LINES. THE OBSERVATIONAL DATA WERE OBTAINED IN THE SUMMER OF 1964 USING THE TOWER SOLAR TELESCOPE OF THE ASTRONOMICAL OBSERVATORY LENINGRAD STATE UNIVERSITY IN COMBINATION WITH A LARGE DIFFRACTION SPECTROGRAPH. THE OBSERVATIONS WERE MADE IN THE FOURTH ORDER OF THE SPECTRUM WHERE THE LINE DISPERSION IN THE D REGION OF THE NAI LINE WAS 2.88 MM-A. IN ORDER TO INCREASE OBJECTIVITY IN COMPARING THE CONTOURS OF FRAUNHOFER LINES, ON EACH PLATE SPECTRA OF THE CENTER, NORTH AND SOUTH POLES WERE PHOTOGRAPHED, AS WELL AS THE EASTERN AND WESTERN LIMBS OF THE SOLAR DISK. THE PHOTOGRAPHIC MEASUREMENTS WERE MADE WITH A MOLLE MICROPHOTOMETER. THE USUAL METHOD OF PHOTOGRAPHIC SPECTROPHOTOMETRY WAS USED IN COMPUTING THE EQUIVALENT WIDTHS AND CENTRAL INTENSITIES OF LINES IN SPECTRA OF THE INDICATED POINTS ON THE SOLAR DISK. THE CONTOUR OF EACH LINE IS DETERMINED FROM TWO OR THREE DIFFERENT SPECTROGRAMS. IN ADDITION, THE VALUES OF THE EQUIVALENT WIDTHS AND CENTRAL INTENSITIES FOR THE NORTH AND SOUTH POLES AND FOR THE EASTERN AND WESTERN LIMBS OF THE SOLAR DISK WERE AVERAGED.

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CIRC ACCESSION NO--AT0130807

ABSTRACT/EXTRACT--THE RESULTS SHOW THAT IN THE SPECTRUM OF THE SOLAR DISK POLE MOST OF THE CONSIDERED FRAUNHOFER LINES HAVE SYSTEMATICALLY GREATER EQUIVALENT WIDTHS THAN IN THE SPECTRUM OF THE DISK EQUATOR. IT IS SHOWN THAT WITH TRANSITION FROM THE POLE TO THE EQUATOR THE CENTRAL RESIDUAL INTENSITIES INCREASE APPRECIABLY. THE SAME PICTURE IS OBSERVED FOR LINES OF OTHER ATOMS. IT WAS ALSO POSSIBLE TO DETERMINE THE VELOCITY OF TURBULENT (MICRO PLUS MACRO) MOVEMENTS V SUBMM; V SUBMM EQUALS 1.70 KM-SEC FOR THE CENTER, 1.90 KM-SEC FOR THE POLE, 2.00 KM-SEC FOR THE EQUATOR. THUS, AT THE POLE AND EQUATOR THE VELOCITIES OF TURBULENT MOVEMENTS ARE VIRTUALLY THE SAME AND INCREASE SOMEWHAT FROM THE CENTER TO THE LIMB. THE EXCITATION TEMPERATURES FOR THE POLE AND EQUATOR WERE ALSO DETERMINED. T SUBEX EQUALS 5960DEGREESK FOR THE CENTER, 5310DEGREESK FOR THE POLE, 4960DEGREESK FOR THE EQUATOR. THE POLAR REGIONS ARE HOTTER THAN THE EQUATORIAL REGIONS. FACILITY: SHEMAKINSKAYA ASTROPHYSICAL OBSERVATORY.

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USSR UDC 539.12.01

KUL'KIN, A. G., and PAVLENKO, YU. G., Chair of Theoretical Physics

"Radiation of a Neutron Moving in a Magnetic Field in a Medium"

Moscow, Vestnik Moskovskogo Universiteta, Seriya III -- Fizika, Astronomiya, Vol 13, No 2, Mar-Apr 72, pp 135-141

Abstract: The article studies the radiation of a neutron which moves uniformly at velocity v in a transparent isotropic medium with the refractive index $n = \sqrt{\varepsilon(\omega)}$ in a constant magnetic field $\vec{\mathcal{H}} = \mathcal{H}\vec{e}$. A modified Dirac equation is used to describe the motion of the neutron. This equation considers the "anomalous" magnetic moment $\mu' = -g\mu_0$ ($g = 1.9$, μ_0 is the nuclear magneton). The authors study the influence of the spin orientation in the initial and final states on the character of the polarization and the spectral distribution and cutoff of Cerenkov radiation. The authors thank the participants in A. A. SOKOLOV's seminar for discussing the work.

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USSR

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UDC 621.373.421.13

BARZHIN, V. YA., KOSHKAREV, YE. A., KUL'KIN, G. A., SHKLYAR, A. N.

"Superhigh Frequency Quartz Oscillator"

Elektron. tekhnika. Nauchno-tekhn. sb. (Electronic Engineering. Scientific and Technical Collection), 1970, ser. 9, vyp. 2, pp 62-63 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D270)

Translation: This article contains a description of a quartz oscillator assembled from a transistor and elements with lumped parameters according to the "capacitive Hartley oscillator circuit."

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USSR

UDC 577.1:615.7/9

GAYDAMAKIN, N. A., KUL'KIN, S. G., DAVYDOV, B. I., and SHASHKOV, V. S.

"Effect of Pharmacological Agents on Reactivity of Organism to Combined Exposure to gamma-Irradiation and Transverse Overloads"

V sb. Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 14, Moscow, "Nauka" (Science), 1971, pp 336-350 (Russian) (from RZh-Biologicheskaya Khimiya, No 20, Oct 71, Abstract No 20F1714 from conclusions)

Translation: Male mice of the C57BL strain were subjected to gamma-ray irradiation with Co-60 in a dose of 350 or 700 roentgens (dose rate 18 roentgens/min), and a day later to overloads in the amount of 10 units for 30 min (centrifuge). The effect of these factors was studied in an experimental group of animals against a background of the combined injection, 15-30 min prior to irradiation, of 75 mg/kg each of cystamine and S,β-aminoethylisothiuronium (AET). It was established that the effect of the overloads one day prior to irradiation decreases radiation damage to the hematopoietic organs, while in the event of such exposure a day after irradiation there was observed an insignificant intensification of radiation depletion of the spleen and bone marrow and an increase of destructive lesions in the peripheral nervous system. Cystamine

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GAYDAMAKIN, N. A., et al., Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 14, Moscow, "Nauka" (Science), 1971, pp 336-350 (Russian) (from RZh-Biologicheskaya Khimiya, No 20, Oct 71, Abstract No 20F1714 from conclusions)

in conjunction with AET has an antiradiation protective effect both in case of irradiation without overloads and in case of their combined action. In the latter case nonuniform damage to various divisions of the peripheral nervous system is noted.

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USSR UDC 539.1.03

TRETYAKOV, Yu. P., KUL'KINA, L. P., KUZNETSOV, V. I., and PASYUK, A. S., Institute of Nuclear Research, Dubna

"An Economical Source of Multiply-Charged Ions of Calcium and Zinc"

Moscow, Pribory i Tekhnika Eksperimenta (Instruments and Experimental Technology), No. 5, Sept-Oct 1970, p 40-44

Abstract: An ion source, illustrated and described in detail, consists of a stainless steel discharge chamber and a molybdenum insert with an emission slit. The chamber, provided with titanium heat isolators, is temperature-controlled by a chrome-alumel thermocouple. The evaporating electrode is mounted on a water-cooled holder in a slender tube between a cathode and plate, just to the side of the discharge path. Adjustable screws move the evaporation surface into the discharge path. Xenon was used as the initiating gas for the calcium, and krypton for the zinc. Argon was also used. When the chamber is cold, a large proportion of the working substance is deposited on the walls, but when the chamber is heated, the substance readily sublimes. The evaporated substance is completely ionized and passes through the slit. A small portion is deposited on the cold parts of the source near the evaporating electrode. Heating the chamber makes it possible to economize on the consumption of the substance. The proposed

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TRETYAKOV, Yu. P., et al, Pribory i Tekhnika Eksperimenta, No 5, Sept-Oct 1970, p 40-44

cyclotron source is only one of several possible configurations of a hot discharge chamber with a cathode evaporator. The distribution of Ca atoms and ions along the discharge chamber was measured and found to be higher than the distribution in a cold chamber. The authors thank G. M. Solov'yeva for designing the source, Y Dude for technical assistance, and Ye. D. Vorob'yev for supporting the work. Orig. art. has 2 figs. and 4 refs.

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UDC 541.183.12

USSR

STAROBINETS, G. L., and KUL'KINA, S. D., Minsk State Medical Institute, Byelorussian State University ~~Imeni V. I.~~ Lenin

"Ionexchange Activity of Pharmacologically Active Substances"

Minsk, Izvestiya Akademii Nauk BSSR, No 2, 1971, pp 46-50

Abstract: The ability of several compounds, with anesthetic properties, to accept protons from hydrogenated thiopolystyrene was measured. It was determined that the exchange was occurring at the primary and secondary amine groups of the anesthetic. It was pointed out that the compounds which most readily accepted the proton were also those most pharmacologically active. The compounds investigated were: novocaine, Benkain, Dikain, Novokainamid, Sovkain, Trimekain, and Psevdokokain.

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UDC: 518.5:681.3.06

USSR

KUL'KO, V. F., KUL'KO, I. P.

"On Methods of Conventional Representation of the Solutions of Differential Equations Derived in Operator Form"

Otbor. i peredacha inform. Resp. mezhved. sb. (Selection and Transmission of Information. Republic Interdepartmental Collection), 1971, vyp. 27, pp 34-41 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V969)

Translation: Several methods are given for converting solutions of the Cauchy problem of partial differential equations obtained in operator form containing differential operators, into a form without operators. Examples are presented of use of the methods. Authors' abstract.

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USSR

UDC 518:517.944/.947

KUL'KO, V. F., KUL'KO, I. P.

"Practical Method of Solving Partial Differential Equations and Its Use in Solving Electrical Engineering Problems"

Otbor i Peredacha Inform. Resp. Meghved. Sb. (Information Analysis and Transmission, Republican Interdepartmental Collection), 1970, Vol. 24, pp 3-13 (from RZh-Matematika, No 9, Sep 70, Abstract No 9B605, Author's Abstract)

Translation: An operator method of solving systems of partial differential equations is presented. This method affords solution of electrostatic (or reducible to electrostatic) problems and certain electrodynamic problems. The method can be employed in solving electrical engineering problems that can be reduced to systems of partial differential equations of higher order than second, systems of inhomogeneous derivatives, and systems of partial differential equations with variable coefficients.

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UDC: 518.5:681.3.06

KUL'KO, V. F., KUL'KO, I. P.

"On Methods of Conventional Representation of the Solutions of Differential Equations Derived in Operator Form"

Otbor. i peredacha inform. Resp. mezhved. sb. (Selection and Transmission of Information. Republic Interdepartmental Collection), 1971, vyp. 27, pp 34-41 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V969)

Translation: Several methods are given for converting solutions of the Cauchy problem of partial differential equations obtained in operator form containing differential operators, into a form without operators. Examples are presented of use of the methods. Authors' abstract.

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USSR

UDC 51d:517.944/.947

KUL'KO, V. F., KUL'KO, I. P.

"Practical Method of Solving Partial Differential Equations and Its Use in Solving Electrical Engineering Problems"

Otbor i Peredacha Inform. Resp. Mezhved. Sb. (Information Analysis and Transmission, Republican Interdepartmental Collection), 1970, Vol. 24, pp 3-13 (from RZh-Matematika, No 9, Sep 70, Abstract No 9B605, Author's Abstract)

Translation: An operator method of solving systems of partial differential equations is presented. This method affords solution of electrostatic (or reducible to electrostatic) problems and certain electrodynamic problems. The method can be employed in solving electrical engineering problems that can be reduced to systems of partial differential equations of higher order than second, systems of inhomogeneous derivatives, and systems of partial differential equations with variable coefficients.

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UNCLASSIFIED PROCESSING DATE--30OCT70

1/2 018

TITLE--AUTOMATIC CONTROL OF THE PARAMETERS OF OXYGEN CONVERTER MELTING --U-

AUTHOR-(05)-BEYTELMAN, L.S., BELENKIY, YU.YA., IZMAYLOV, G.A., YERMOLAYEV, O.A., KULKOV, S.V.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(3), 225-8

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL OXYGEN CONVERTER, METAL MELTING, AUTOMATIC CONTROL SYSTEM, STEEL MANUFACTURE PROCESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0133/70/030/003/0225/0228

PROXY REEL/FRAME--1996/1993

CIRC ACCESSION NO--AP0118952

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 018

CIRC ACCESSION NO--AP0118952

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SCHEME OF AN AUTOMATIC CONTROL IS PRESENTED, IN WHICH ALL MAJOR PARAMETERS OF BLOWING ARE CONTROLLED AS A FUNCTION OF GAS VOL. AND ITS CO SUB2 CONTENT. INDUSTRIAL TRIALS SHOWED THE VELOCITY AND ACCURACY OF THE SYSTEM SUFFICIENT FOR THE PRODUCTION OF THE DESIRED BLOWN METAL.

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Physiology

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USSR

KUL'KOV, V., Master of Sport, Coach, and YEGOROV, I., Master of USSR Sport of International Class

"Physical Training for Pilots"

Moscow, Kryl'ya Rodiny, No 7, Jul 70, pp 30-31

Translation: Aviators and observers always watch with great interest a plane performing aerobatic figures in the air with ease and skill. But few know that months of intensive pilot training on the ground and in the air precede a masterful flight.

From year to year, the intricacy of obligatory and optional complexes is increasing. This requires continuous theoretical, tactical, psychological, physical, and technical training of sports pilots.

In this article, we want to describe one important aspect of the making of a sports pilot -- his physical training.

When preparing for a serious contest, the sports pilot usually makes three to four flights (or zones, as we call them) during one training period. In each

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KUL'KOV, V., Kryl'ya Rodiny, No 7, Jul 70, pp 30-31

zone, he makes 50 figures on the average. The total number of figures during one training period is 150-200. All maneuvers involve high G loads ranging from -6 to +9 units.

The great physical strain, the alternating positive and negative G loads, and the short periods of weightlessness require precision of movement and coordination of actions performed by the pilot in the air. In addition, the pilot must observe the proper sequence in which figures are to be performed, he must always have complete spatial orientation, and he must maintain the proper position, altitude, and speed, and keep the engine under control.

This permits only one conclusion: modern aerobatics requires great mental concentration, and an all-round physical development.

One can often see a sports pilot -- who has good mastery of the aerobatic technique but is not in perfect physical condition -- smoothly perform the first half of the complex, and then begin to make mistakes: he stretches the complex out, does not maintain proper altitude, and even misses some figures. It becomes

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KUL'KOV, V., Kryl'ya Rodiny, No 7, Jul 70, pp 30-31

obvious that there were certain shortcomings in his training on the ground. It is very important to take an individual approach to each flier, and to find the right physical exercise for him.

On the basis of our rich experience, it is possible to select sport activities which best promote the sports pilot's development. These are: exercises on training equipment (looping, stationary gymnastic wheel, and the centrifuge); various elements of sport gymnastics and sport acrobatics (exercises on the trampoline are especially important); morning hygienic gymnastics; cross-country runs and outdoor games; swimming; skiing trips; and so on.

While the first group of exercises (on training equipment) develops the vestibular apparatus, coordination of movement, and adaptation (the body's quick adjustment to stimuli) under conditions of changing gravitational force, the second group (morning gymnastics) improves overall physical fitness and maintains good health.

The particular setup of both types of exercises depends on individual circumstances. However, the first group of exercises is basic, especially during the meetings on method. As an example, we may recommend the following plan for a week: first

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KUL'KOV, V., Kryl'ya Rodiny, No 7, Jul 70, pp 30-31

day -- cross-country runs and skiing trips; second day -- elements of basic and sport gymnastics, acrobatics, trampoline, looping, and other training equipment; third day -- outdoor games or swimming; fourth day -- rest; fifth day -- the same as on the first day (elements of basic and sports gymnastics, acrobatics, trampoline, looping, training and equipment); sixth day -- gymnastics, acrobatics, training equipment; seventh day -- rest.

Depending on each individual's ability to accomplish his tasks, the weekly cycle may be modified with regard to the types of exercises and their number and intensity. If the training is interrupted even for a few days, the body's physical fitness deteriorates.

It is very important to perform, immediately prior to the flight, several special exercises which are called "warm-up." Unfortunately, most sports pilots disregard this useful final conditioning. A special set of 12-16 exercises improves the pilot's work capacity and his ability to withstand excessive G forces and to avoid traumas.

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KUL'KOV, V., Kryl'ya Rodiny, No 7, Jul 70, pp 30-31

Below, we cite one training version consisting of 14 exercises. At the same time, we should like to emphasize that categorical judgments must be avoided whenever exercises are being set up. Each exercise must be justified by skillfully performed tests.

1. Walking, running, walking (3-5 minutes).
2. Bending forward six to eight times at a slow rate with deep breathing.
3. Squatting two to three times at a moderate rate, with hands on the knees and the head lowered.
4. Lifting in alternation the right and the left extended leg and clapping hands under the leg.
5. Inclining forward with arms extended to the side; turning left and right 10-12 times at a fast rate.
6. Rotating the trunk left and right 8-10 times at a slow rate.
7. Performing 8-10 pushups at a moderate rate.
8. Walking in place for 20-30 seconds.
9. Raising legs in the sitting position and clapping hands under the legs; repeat 8-10 times at a fast speed.

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KUL'KOV, V., Kryl'ya Rodiny, No 7, Jul 70, pp 30-31

10. Head stand; repeat 4-6 times.
11. Somersaulting forward and ending in balance once on the left and once on the right leg during a count of three; repeat 4-6 times.
12. Jumps with 180° or 360° rotation; repeat 8-10 times.
13. Walking in place until respiration returns to normal.
14. Exercise for relaxation. Trunk bent slightly forward, arms hanging loosely.

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Space Physiology

KUL'KOV, Ye. N.

SO: JPRS 53448
24 Jan 1971

UDC 612.17-06:612.766.2

CHANGES IN CARDIAC ACTIVITY DURING PROLONGED RESTRICTION OF MOTOR ACTIVITY

[Article by T. N. Krupina, B. M. Fedorov, T. V. Benevolenskaya, O. I. Boykova, V. S. Nevstroyeva, Ye. N. Kul'kov, R. S. Morozov and L. S. Romanov; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 2, 1971, pp 76-81, submitted for publication 1 June 1970]

Abstract: This paper gives the results of clinical and experimental investigations of animals and human subjects conducted to study the mechanisms underlying the effect of hypodynamia on the cardiac function. Clinical investigations which involved a 120-day bedrest experiment indicated that lessened activity resulted in deterioration of the autonomic function and asthenization of the body at later stages. Cardiac changes were traced in the ECG, largely due to a reduced amplitude of the T waves in the first standard and left chest leads. Hypokinetic experiments on rabbits revealed a drastic reduction in noradrenaline content in the hypothalamus at early stages and an inhibition of the adrenal function at later times. Ultrastructural investigations of myocardial cells revealed focal changes in contractile elements (myofibrillar swelling), trophic formations (reduced number of cristae in mitochondria) and increased permeability of the capillary endothelium. Changes in ECG waves which are typical of hypokinetic exposure can be attributed to disturbances in cardiac regulation and trophic support of the myocardium.

Studies of the effect of hypokinesia on the human body have shown that a marked restriction of motor activity causes a number of shifts in cardiac activity and vascular tone, as well as reduced adaptability of the cardiovascular system and circulatory regulation apparatus (A. L. Myasnikov, et al.; Yu. V. Latova; G. P. Mikhaylovskiy and T. V. Benevolenskaya; V. S. Georgiyevskiy and V. M. Mikhaylov; L. I. Kakurin; A. V. Korobkov, et al.; N. K. Panferova, et al.; A. V. Beregovkin, et al.; A. D. Voskresenskiy, et al.; A. M. Genin, et al.; A. R. Kotovskaya; I. D. Pestov, et al.; P. A. Sorokin, et al.,

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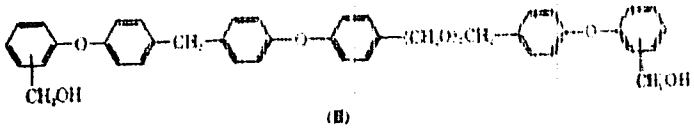
Acc. Nr. AP0045174 Abstracting Service: CHEMICAL ABST. 3290 Ref. Code UR0191

90896k **Oxygen-containing oligomers based on diphenyl oxide.** Novosel'tsev, P. Y.; Zasova, Y. A.; Kornbak, V. V.; Kul'kova, L. A.; Saiamatova, V. A.; Sergeev, V. A. (USSR). *Plast. Massy* 1970, (1), 9-11 (Russ). The polycondensation of Ph_2O with HCHO in glycerol (I), EtOH, AcOH, and AcOEt in the presence of H_2SO_4 was studied. Optimum reaction conditions were: Ph_2O-HCHO-H_2SO_4-solvent ratio = 1:2:0.1:0.2; reaction temp., 100°; reaction time, 10 hr. Best results were obtained in AcOH, EtOH, and I. The polycondensation gave a yellow viscous product, tentatively assigned the structure II. Thermogravimetric tests of II and Iditol (a thermoplastic novolak oligomer) indicated that II was more resistant to oxi-



(II)

dative thermal degradation, presumably due to inhibited oxidn. of the CH_2 bridge in II. CEJR

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USSR UDC 621.746.5:669.14.018.821

MANOKHIN, A. I., MATEVOSYAN, YE. P., KUL'KOVA, M. N., RUBENCHIK, A. YE., and BELYAKOVA, K. V., Central Scientific Research Institute of Ferrous Metallurgy and Krasnyy Oktyabr' Plant

"Nonmetallic Inclusions and Excess Phases in Steel Kh23N18 From Continuous and Conventional Pouring"

Moscow, Stal', No 10, Oct 73, pp 932-934

Abstract: The formation and distribution of nonmetallic inclusions (oxides, sulfides) and excess phases (carbides of the type $Me_{23}C_6$ and Me_7C_3) depend on crystallization conditions. It was established in a study of continuous (175 x 600-mm cross section) and conventional (4.1-ton) ingots of Kh12N18 steel, produced at the Krasnyy Oktybar' Plant and at the Central Scientific Research Institute of Ferrous Metallurgy, that, in the first case, the nonmetallic inclusions and excess phases were distributed along the cross section and height of an ingot in a more uniform manner and their number as a whole was less. A continuously cast steel is somewhat more contaminated with oxides than steel poured in the conventional manner (mainly coarse exogenic inclusions the entry of which can be prevented by better organization of the continuous casting process). Two figures, two tables, five bibliographic references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

USSR UDC 669.14.018.821

OKENKO, A. P., Candidate of Technical Sciences, KUL'KOVA, M. N., Engineer, and CHERNYSHOV, G. V., Krasnyy Oktyabr' Plant

"Investigation of the Causes of Reduced Ductility in Ingots of Steel 08Kh19N10B"

Moscow, Stal', No 10, Oct 73, pp 934-935

Abstract: A comparative study of the microstructure and phase composition of sound and defective metal showed that failure during rolling in the range 1060-1180° C occurs by the stratification of lamellar phases of niobium carbonitrides and niobium oxides. In a defect-free metal there is only niobium carbonitride, which is thinner with a smaller number. The presence of niobium oxides testifies to the inadequate deoxidation with aluminum. A large quantity of the carbonitride phase is precipitated also in the 800-600° C interval as a result of soaking the ingots prior to setting. Addition of powdered aluminum during the refining period and guaranteed setting at 800° C made it possible to increase the hot ductility of 08Kh19N10B steel during rolling. I. I. TETERIN and V. I. KONONENKOV, Engineers, participated in this work. One figure, three bibliographic references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

USSR UDC 669.14.018.584.001.6

BABAKOV, A. A., LEVIN, F. L., KONDRAT'YEV, A. I., GOLOVIN, A. I., KUL'KOVA, N. N., DANILYUK, YE. B., PEVZNER, A. YE., OPANEVICH, G. A., and KRAVCHENKO, I. D.

"Experience in Production of Sheet From 25Kh17N4G15AF2 Steel"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 124-131

Translation: The first experimental group of 40-mm sheets of type 25Kh17N4G15AF2 high-strength nonmagnetic steel has been manufactured. Based on studies of the specifics of the production of the steel during various stages of the technological process and study of the properties of the metal produced, practical recommendations are given for the production of sheet. 3 figures; 3 tables.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

UDC 629.78.044:614.[illegible]

INVESTIGATION OF THE SORPTION AND DESORPTION OF GASES BY POLYMERS DURING THE PROCESS OF THEIR GAS STERILIZATION

[Article by L. B. Chudnova, [illegible] and [illegible], Kosmicheskaya Biologiya i Meditsina, Russian, Vol 6, No 5, September-October 1972, pp 21-25, submitted for publication 21 February 19[illegible]]

Abstract: Experiments were carried out to study the sorption and desorption of ethylene oxide, methyl bromide, and a mixture of the two on different polymeric materials: foam plastic, porolone, plasticate, microporous rubber, polyamide, nitron and glass nitron. Heats of sorption were computed for ethylene oxide and methyl bromide and the specific surfaces of the materials were measured before and after gas sorption. Isotherms of ethylene oxide and methyl bromide sorption on plasticate and polyamide were constructed.

A gaseous mixture of ethylene oxide and methyl bromide, the mixture OB, whose ratio of components is 1:1.5, has been proposed for reducing the microbial occupation of different polymeric materials fabricated for use in manned pressurized chambers. Polymeric materials absorb a considerable quantity of gases which later are released from the materials (Wasch, et al.; Sobolev, et al.; Ackermann, et al.; A. A. Tager). Accordingly, the need has arisen for a quantitative determination of their absorption and elimination.

We investigated the sorption of ethylene oxide, methyl bromide and an OB mixture on the polymeric materials most commonly used in engineering: foam plastic PU-101, porolone, plasticate MSO, microporous rubber, polyamide-68, nitron and glass nitron.

The measurements were made by the volumetric method in a static glass apparatus.

KUL'KOVA, N.V.

JPRS 57517

15 Nov 72

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

1/1 019 UNCLASSIFIED PROCESSING DATE--30[illegible]70

TITLE--PERIPHERAL GENERATION OF PARTICLES AT HIGH ENERGY -U-

AUTHOR--KULKUNOV, V.A.

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COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(5), 260-4

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PARTICLE PRODUCTION, HIGH ENERGY PARTICLE, PARTICLE SPECTRUM, CALCULATION, PROTON BOMBARDMENT, ALUMINUM, PION, K MESON, PROTON SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1238 STEP NO--UR/0386/70/011/005/0260/0264

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1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--CATALYSIS OF THE SYNTHESIS OF NICKEL CARBONYL BY ELECTRONEGATIVE ELEMENTS -U-

AUTHOR--KIPNIS, A.YA, KULLOVA, N.V., MIKHAYLOVA, N.F.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 256-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYSIS, CARBONYL COMPOUND, NICKEL COMPOUND, ELECTRONEGATIVITY, CATALYST ACTIVITY, SELENIUM, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0203 STEP NO--UR/0195/70/011/001/0256/0258

CIRC ACCESSION NO--AP0106859

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002201630001-6

UNCLASSIFIED PROCESSING DATE--11SEP70

2/2 013

CIRC ACCESSION NO--AP0106859

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATE OF NI(CO) SUB4 FORMATION FROM NI AND CO INCREASED IN THE PRESENCE OF ELECTRONEG. ELEMENTS LIKE, N, P, AS, S, SE, TE, CL, BF, OR I. IN THE PRESENCE OF SE, THE RATE INCREASED SIMILAR TO 700 TIMES. EFFECT OF ADDITIVES ON THE RATE OF NI(CO) SUB4 FORMATION SHOWS A MAX. WHICH DEPENDS ON THE CONCN. AND ELECTRONEGATIVITY OF THE SPECIES. CATALYTIC ACTIVITY OF THESE ELEMENTS IS EXPLAINED BY A DECREASE OF ACTIVATION ENERGY OF THE REACTION DUE TO THE FORMATION OF INTERMEDIATE COMPDS. INVOLVING THESE ADDITIVES.

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USSR

KUL'MAN, N. K.

"Optimal Separation of Binary Signals with Arbitrary Distribution of Duration of States at the Output of a Markov Binary Symmetrical Channel"

Izbr. Tr. Vses. Mezhvuz. Simpoz. po Prikl. Mat. i Kibernet., Gor'kiy, 1967 [Selected Works of All-Union Interuniversity Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967], Moscow, Nauka Press, 1973, pp 172-176 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V461, by the author).

Translation: Models with arbitrary distribution of duration of states are used to describe a useful signal and noise. Based on the theory of conditional Markov processes, an optimal receiver is synthesized, formulating the likelihood ratio.

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UNCLASSIFIED PROCESSING DATE--30OCT70

1/2 017

TITLE--ON THE SURFACE PROPERTIES OF POLYVINYLPYRROLIDONE -U-

AUTHOR--KULMAN, R.A.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 465-467

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SURFACE TENSION, AQUEOUS SOLUTION, ETHYLENE, ADSORPTION, PYRROLIDINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0069/70/032/003/0465/0467

PROXY REEL/FRAME--2000/2151

CIRC ACCESSION NO--AP0125734

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UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 017

CIRC ACCESSION NO--AP0125734

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SURFACE TENSION OF AN AQUEOUS POLYVINYLPYRROLIDONE SOLUTION DECREASES APPRECIABLY DURING A LONG PERIOD OF TIME AND A STRONG TWO DIMENSIONAL COMPRESSION OF ADSORPTION LAYERS DOES NOT FAVOR THE ATTAINMENT OF THE LIMITING VALUES. SLOW DECREASE OF THE SURFACE TENSION IS SUPPOSED TO BE DUE TO ESSENTIAL REORGANIZATION OF THE ADSORBED LINKS CONFORMATION. THE SURFACE TENSION MEASUREMENTS UNDER STATIC DESORPTION CONDITIONS HAVE REVEALED THE ADSORPTION OF THIS POLYMER AT THE LIQUID GAS INTERFACE TO BE IRREVERSIBLE.

FACILITY: TSENTRAL'NYY INST. GEMATOLOGII I PERELIVANIYA KROVI, MOSCOW, MOSCOW UNIVERSITET.

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UNCLASSIFIED PROCESSING DATE--04DEC70

1/2 025

TITLE--SHORT RANGE ORDER AND ORDERING ENERGY IN ALPHA SOLID SOLUTIONS OF A COPPER ALUMINUM SYSTEM -U-

AUTHOR-(02)-KULMANEN, E.V., SHIVRIN, O.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH, UCHEB. ZAVED., FIZ. 1970, 13(3), 35-40

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ORDERED ALLOY, STATISTICAL ANALYSIS, METAL QUENCHING, SOLID SOLUTION, METAL CRYSTAL STRUCTURE, COPPER ALLOY, ALUMINUM ALLOY, X RAY SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0139/70/013/003/0035/0040

PROXY REEL/FRAME--3003/1494

CIRC ACCESSION NO--AT0130423

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