

USSR

UDC 547.448'558.1

KHALATURNIK, M. V., SHEVCHUK, M. I., and DOMBROVSKIY, A. V.

"Aroylcarboalkylenyl-gamma-oximetriphenylphosphorans"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 5, May 72, pp 992-995

Abstract: The reaction of aroylcarboalkylenyltriphenylphosphorans with hydroxylamine and 2,4-dinitrophenylhydrazine forms aroylcarboalkylenyl-gamma-oximetriphenylphosphorans and aroylcarboalkylenyl-gamma-(2,4-dinitrophenylhydrazone)triphenylphosphorans, respectively. It was found that aroylcarboalkylenyl-gamma-oximetriphenylphosphorans [ArC(=NOH)COC(R)-PPh₃] are capable of entering into the Wittig reaction with aldehydes. With hydrogen bromide they form bromides of aroylcarboalkylenyl-gamma-oximetriphenylphosphonium. The results are summarized in a table. Ultraviolet spectra are given.

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USSR

UDC 612.017.1.014.2

PERSHIN, S. B., ~~KHALATYAN, N. A.~~, PINEGIN, B. V., and UTESHEV, B. S., Second
Moscow Medical Institute imeni Pirogov

"Kinetics of Rosette-Forming Cells in Primary and Secondary Immunological
Responses"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971,
pp 83-88

Abstract: The kinetics of rosette-forming spleen cells was studied in mice inoculated and 5 weeks later reinoculated with sheep erythrocytes. The number of these cells increased slightly during the first two days and exponentially during the next four days, after which they decreased slowly only to increase again on day 11. In the secondary immunological response, the peak occurring cells increased more rapidly than in the primary response, the peak occurring on day 4 after the second injection of the antigen. A statistically significant relationship was noted between the number of rosette-forming cells and the size of the primary sensitizing dose of antigen in the secondary immunological response. These findings are discussed in the light of Sercarz and Coons' hypothesis on the development of immunocompetent cells.

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USSR

UDC 615.272.7.015.46

PERSHIN, S. B., PINEGIN, B. V., UTESHEV, B. S., and KHALATYAN, N. A., Chairs
of Microbiology and Pharmacology, Second Moscow Medical Institute imeni
N. I. Pirogov

"The Effect of Nucleic Acid Metabolism Inhibitors on the Population of
Antibody-Forming Cells in Secondary Immunological Response"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 15,
No 4, Jul/Aug 71, pp 46-52

Abstract: Experiments with mice have revealed that during the secondary immunological response, nucleic acid inhibitors (aurantin and mitomycin C) depress the growth of antibody-forming cells, especially in the early stages of immunogenesis. Populations of indirect plaque-forming cells are depressed to a greater degree than populations of direct plaque-forming and rosette-forming cells. This is a specific characteristic of the secondary immunological response, which is absent in the primary response. 5-Fluorouracil depresses populations of both direct and indirect plaque-forming cells. However, direct plaque-forming cells are more sensitive to this immunodepressant than indirect plaque-forming and rosette-forming cells. The rosette-forming cells are most sensitive to aurantine and least sensitive to 5-fluorouracil and mitomycin C.

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USSR

KHALAUNBRENNER, Ya., KMAYSIK, M. V.

"The Phenomenon of Resonance in Contact of Elastic Bodies"

Kontakt. Vzaimodeystviye Tverd. Tel i Raschet Sil Treniya i Iznosa [Contact Interactions of Solids and Calculation of the Forces of Friction and Wear -- Collection of Works], Moscow, Nauka Press, 1971, pp 38-48. (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1972, Abstract No. 1V322 by V. M. Kulakov).

Translation: Following a brief review of theoretical works in the area of the contact of elastic bodies, a description is presented of an experiment. A spherical glass lens was compressed by a perpendicular force to the plane of a horizontally placed elastic plate and subjected to the influence of the moment of forces rotating around its vertical axis. Resonance curves were produced with various values of amplitude M_0 of loading moment $M=M_0 \sin \omega t$ by changing the pulsating frequency ω . The curves indicate that the elastic forces at the contact point are "soft" and nonlinear in nature. Curves were then measured of the static hysteresis for various amplitudes M_0 and the free and forced contact oscillations of the lens were recorded on an optical oscillogram. In the second portion, based on analysis of the hysteresis loops and resonance curves measured, the elastic and friction characteristics of the contact point are studied. 8 biblio refs.

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USSR

UDC: 621.317.755(088.8)

GRITSAK, D. I., GUDYK, V. I., KHALAVKA, I. I., SHTOYKO, L. V.

"A Device for Intensifying the Beam of a Cathode Ray Tube"

USSR Author's Certificate No 278798, filed 29 Apr 69, published 8 Dec 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A312 P)

Translation: This Author's Certificate introduces a device for intensifying the beam of a CRT tube. The device contains a tunnel diode flip-flop, transistorized amplifier and emitter follower with a diode shunting the base-emitter junction. As a distinguishing feature of the patent, delay of the positive front of the output pulse is reduced by connecting the output of the tunnel diode flip-flop to the base of an additional transistor with common emitter, the collector of this transistor being connected to the base of the amplification transistor. The base of the amplification transistor is also connected to the collector of a second additional transistor of opposite conductivity type. The base of this transistor is connected through diodes, resistors and capacitors to the input of the device and to the collector of the amplification transistor.

1/1

KHALAYDZHI V.N.

JPRS 59266
12 June 1973

UCC: 621.313.22:538.4:533.35

THE THERMODYNAMIC CYCLES OF ATOMIC POWER PLANTS WITH MHD-GENERATORS
Article by V. I. BUKHAYEV, V. N. KHALAYDZHI, V. V. KALININ
and I. Z. KOPETZKO, INSTITUTE FOR SCIENTIFIC RESEARCH, SOVIET
ATOM, VOL 11, NO 2, 1973, PP 388-395

The possibility in principle of achieving high temperatures of the coolant in high-temperature gas-cooled reactors leads to a need for investigation of the prospects of using a gas-turbine MHD-generator at atomic power plants. The first step in solving this task is the selection of very rational thermodynamic cycles.

Usually considered are temperature levels insufficient to obtain the thermal ionization needed to assure sufficient conductivity of the working medium. Therefore MHD-generators based on non-equilibrium plasma are primarily investigated. To create the necessary electric conductivity the coolant pressure at the reactor outlet must be lower than the optimal from the point of view of the planning of the reactor, the compressor and the heat exchangers.

In the present work helium with an ionized additive at a pressure of 1.0 ma/m² and temperature of 2500°K and 2500°K was taken as the working medium of the MHD-generator. When argon is used its pressure in the reactor can be increased to 3.0-5.0 ma/m² [1]. However, because of heat-transfer properties much worse than those of helium, the increase of pressure does not lead to reduction of the heat-exchange surfaces.

A thermodynamically very simple cycle with an MHD-generator can be organized much like the cycle of a gas-turbine gas-turbine power plant, in which an MHD-generator is included in place of the gas turbine. In such a cycle the power generation factor $\theta = \eta_{gen}$ has high values. Therefore to

USSR

UDC: 681.3

KHALCHEV, V. F. [Automation and Telemetering Institute (Cybernetics Techniques)]

"Device for Testing Verification of Combination Systems"

Avt. sv. SSSR, kl. G 06 f 15/46, No 341039, zayavl. 29.07.69, opubl. 5.06.72
(Author's Certificate, USSR, class G 06 f 15/46, No 341039, claimed 29 July
1969, published 5 June 1972) (from RZh--Avtomatika, telemekhanika i vychis-
litel'naya tekhnika, No 2, 1973, Abstract No 2A478P)

Translation: A device is proposed for testing for verification of combination systems; it contains a model of the structure to be verified, each cell of which contains a model of the functional element, a generator of input units of the system, and a printing module. Two illustrations.

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USSR

UDC 614.712.003.12

BALATSKIY, O. F., and KHALDEYEV, V. T., Sumy Branch of the Khar'kov Polytechnical Institute

"Effectiveness of the Constructions of Gas Purification Units on the Chemical Industry Plants"

Kiev, Khimicheskaya Tekhnologiya, No 4 (70), Jul/Aug 73, pp 17-18

Abstract: Sumy Branch of the Khar'kov Polytechnical Institute carried out studies on the loss from air contamination due to chemical industry and metallurgy. For example, the harvest on control plots was 2-3 times as high as in the contaminated zones. A direct relationship was determined between the growth of the plants and air contamination. After air purification measures were introduced, the air pollution dropped significantly, and so did various diseases, both human animal and agricultural. Various formulas for economical calculation of losses have been proposed.

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NUCLEAR SCI. ABST

1/70 UR 0000

(3801 (LA-tr-69-23(Draft)) DESIGN OF THE ISOCHRO-
NOUS CYCLOTRON LABORATORY OF THE I. V. KURCHATOV
INSTITUTE OF ATOMIC ENERGY. Venkov, N. I.; Ogloblin,
A. A.; Khaldin, N. N.; Kondrashev, L. F. Translated by Helen
J. Dahlby (Los Alamos Scientific Lab., N. Mex.), from report
IAE-1888. 13p. Dep. CFSTI.

The laboratory is based on the U-240 isochronous cyclotron designed at the D. V. Efremov Scientific Research Institute of Electrophysical Apparatus. To expand the possibilities of the accelerator, an axial injector of ions from external sources (polarized protons, tritium, lithium, heavy ions) and a device for obtaining intensive pulsed neutron beams are planned. To improve the energy discontinuity of the beam ± 0.025 without loss of intensity, a special system of external monochromatization will be used. Obtaining heavy ions preliminarily accelerated in a tandem (an electrostatic electron-stripping) generator and injected into the U-240 with stripping of the electrons inside the latter is specified for the future. (auth)

19730503

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USSR

UDC: 669.15-194:621.753.58

SHATAGIN, O. A., BESEDINA, E. B., SLADKOSHTEYEV, V. T., KHALEMSKIY, S. F., Ukrainian
Scientific-Research Institute of Metals, Kharkov
"Gas Porosity with Horizontal Continuous Casting of Carbon Steels"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 12,
1973, pp 39-41.

Abstract: Gas porosity is widely developed in horizontal continuous ingots. The reasons for the development of elevated porosity of the axial and upper zones of square ingots are studied. The method of vacuum melting is used to determine the composition of the gas in the pores. Strong deoxidation and degassing of metal during pouring is used to produce billets which, following rolling with various degrees of compression, fully satisfy the requirements of the state standards. The studies showed that the primary reason for the development of porosity during continuous horizontal casting of steel is hydrogen. It is recommended that the metal be degassed during pouring by bubbling an inert gas through the liquid metal in the receiver.

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USSR

UDC 51

ZARETSKIY, L. S., KARPILOVSKIY, Ye. B., ~~KHALEPSKIY, L. D.~~

"Planning of the Production Activity of Enterprises of the Dairy Industry Using Methods of Mathematical Economics"

Tr. VNII moloch. prom-sti. (Works of the All-Union Scientific Research Institute of the Dairy Industry), 1972, No. 28, pp 17-23 (from RZh-Matematika, No 11, Nov 72, Abstract No 11V495)

Translation: A technique for constructing a mathematical model of a dairy plant is discussed. The problem of operational control of the plant using dynamic programming is formulated. The necessary recurrence relationships are derived. Authors abstract.

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USSR

UDC: 51

ZARETSKIY, L. S., KARPILOVSKIY, Ye. B., KHIALEPSKIY, L. D.

"Planning of Production Activity of Milk Industry Enterprises Using Mathematical Economics Methods"

Tr. VNI Moloch. Prom-sti [Works of All-union Scientific Research Institute of the Milk Industry], No 28, pp 17-23 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V495, by the authors)

Translation: A method is studied for construction of a mathematical model of a milk plant. The task of operative planning of the plant using dynamic programming is stated. The necessary recurrent relationships are produced.

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1/2 015

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--DETERMINATION OF BETA SITOSTEROL IN VEGETABLE RAW MATERIAL -U-

AUTHOR--(05)-KSENOFONTOVA, YE.V., MUKHINA, M.V., KHALETSKIY, A.M.,
KAGANOVICH, F.L., BELKEVICH, P.I.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSSR, SER. KHIM. NAVUK 1970, (1),
103-5

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STEROL, PROCESSED PLANT PRODUCT, SOLVENT EXTRACTION, CHEMICAL
PURIFICATION, SPECTROPHOTOMETRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1997/0190

STEP NO--UR/0419/70/000/001/0103/0105

CIRC ACCESSION NO--AP0119186

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0119186

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISSOLVE PHYTOSTEROL (0.03 G) IN CH SUB2 CL SUB2 AND APPLY ON THE STARTING LINE OF A LAYER OF UNBOUND AL SUB2 O SUB3. DEVELOP WITH ETO SUB2 AND LOCATE THE BETA SITOSTEROL IN UV LIGHT. ELUTE IT FROM THE POWDER WITH HOT ME SUB2 CO. EVAPORATE ME SUB2 CO AND DISSOLVE RESIDUE IN 25 ML ACOH. TO 5 ML ADD 2 ML 0.5PERCENT BENZOYL PEROXIDE AND BOIL 3-5 MIN. AFTER COOLING, CAREFULLY ADD 0.5 ML CONCD. H SUB2 SO SUB4 AND DIL. TO 25 ML WITH ACOH. MEASURE ABSORBANCE AT 690 MMU OR WITH A RED FILTER. THE LINEAR RANGE IS 0-280 MUG PER ML. THE METHOD IS USED TO ANALYZE UNSAPONIFIABLE ROSINS FROM PEAT WAXES.

FACILITY: LENINGRAD. KHIM.-FARM. INST., LENINGRAD, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--A CHANGE OF SYNDROMES IN THE DEVELOPMENT OF PERIODICAL PSYCHOSES
-U-
AUTHOR--KHALETSKIY, A.M. *K*
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,
VOL 70, NR 4, PP 556-560
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PSYCHOSIS, SCHIZOPHRENIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1670

STEP NO--UR/0246/70/070/004/0556/0560

CIRC ACCESSION NO--AP0106416

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106416

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTERMEDIATE FORMS OF SCHIZOPHRENIA AND MANIC DEPRESSIVE PSYCHOSIS USUALLY HAVE A PERIODICAL COURSE. IN SUCH PERIODICAL PSYCHOSES THE SAME PATIENT MAY HAVE DIFFERENT SYNDROMES, WHERE ON ONE STAGE THE DISEASE ACQUIRES SYMPTOMS OF SCHIZOPHRENIA, WHILE AS ON THE SUBSEQUENT STAGES, CLEARCUT SYMPTOMS OF MANIC DEPRESSIVE PSYCHOSIS AND VICE VERSA. THERE MAY BE THEREFORE A NECESSITY TO CHANGE THE DIAGNOSIS, WHICH DOES NOT, HOWEVER, IMPLICATE AN ERRONEOUS PREVIOUS DIAGNOSIS. NEVERTHELESS, THESE OBSERVATIONS HAVE NOT SUFFICIENT REASONS SPEAKING IN FAVOR OF A COMMON PSYCHOSIS. THE DESCRIBED CHANGES IN THE STRUCTURE OF THE PSYCHOSIS MAY TO CERTAIN EXTENT BE RELATED TO THE INTENSIVITY OF THE PATHOLOGICAL PROCESS.

UNCLASSIFIED

Instrumentation and Equipment

USSR

UDC 669.24.053.4(088.8)

TSVETKOV, V. S., ~~KHALESZOV, B. D.~~, and GOLUBKOV, K. N.

"Device of Extraction of Metals from Solutions"

USSR Author's Certificate No 313882, filed 4/05/70, published 18/11/71,
(from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G391 P
by G. Svodtseva).

Translation: A device is described for extraction of metals from solutions containing a reactor, stator winding, and doser. In order to stabilize the electromagnetic field and assure continuity of the process, a rotor is fastened to the stator winding, mechanically connected to the doser. A drawing of the device is presented, plus a description of its operating principle.

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USSR

UDC: 8.74

KHALFEN, E. Sh., YATSENKO, K. S., ZAFERMAN, D. M.

"Predicting the Results of Myocardial Infarct Using Formulas Derived by a Dynamic Programming Method"

Moscow, Izbr. tr. Vses. mezhvuz. simpoz. po prikl. mat. i kibernet., Gor'kiy, 1967 (Selected Works of the All-Union Intercollegiate Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967), "Nauka", 1973, pp 279-282 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V704 by the authors)

Translation: As a generalized index for prediction, the paper introduces the sum of products of numerical estimates of symptom severity by coefficients. Finding these coefficients is reduced to a problem in finding an optimum trajectory by a dynamic programming method; the criterion of optimality is the minimum percentage of erroneous predictions. The results of clinical verification of the derived formulas show that the formulas are suitable for practical use.

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UDC: 518.5:681.3.06

USSR

KHALFEN, E. Sh., ZAFERMAN, D. M.

"Prognosis of the Outcome of a Myocardial Infarct"

Tr. Saratov. med. in-ta (Works of the Saratov Medical Institute), 1971,
74, 91, pp 3-10 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V987)

Translation: The purpose of the paper is to derive mathematical "resolving rules" which could be used as a basis to judge the outcome of a myocardial infarct from data obtained in the first days of the illness. The method of deriving the resolving rules belongs to the category of recognition methods based on the principle of the "dividing hyperplane".

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USSR

UDC: 518.5:681.3.06

KHALFEN, E. Sh., ZAFERMAN, D. M.

"On a Method of Deriving Formulas for Calculating Optimum Doses of Medicines"

Tr. Saratov med. in-ta (Works of the Saratov Medical Institute), 1971,
74, 91, pp 37-50 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V988)

[No abstract]

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USSR

UDC: 621.397(002)

KHALFIN, A. M.

"Television Technology. (Principles and Application)"

Televizionnaya tekhnika. (Osnovy i primeneniye) (cf. English above),
Leningrad, "Energiya", 1971, 231 pp, ill. 89 k. (from RZh-Radiotekhnika,
No 6, Jun 71, Abstract No 6G166 K)

Translation: The book contains a popularized explanation of the fundamentals and principles of construction of TV equipment. Consideration is also given to important uses of television technology in radio broadcasting, industrial production, the merchant marine, civil aviation, transportation, teaching, scientific research, automation and space. The book is written for radio amateurs and students of technical schools. Annotation.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CAUSALITY AND SCATTERING OF WAVE PACKETS -U-
AUTHOR--KHALFIN, L.A. *K*
COUNTRY OF INFO--USSR
SOURCE--JETP LETTERS (USA), VOL. 11, NO. 1, P. 46-9 (JAN. 1970)
DATE PUBLISHED----JAN70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--S MATRIX, ELECTROMAGNETIC WAVE SCATTERING, INELASTIC
SCATTERING, HAMILTONIAN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/1793 STEP NO--US/0000/70/011/001/0046/0049
CIRC ACCESSION NO--AP0133698
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133698

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS SHOWN THAT VIOLATION OF CAUSALITY MAY OCCUR IN THE USUAL S MATRIX THEORY WITH A HERMITIAN HAMILTONIAN PROVIDED ACCOUNT IT TAKED OF THE EXISTENCE OF INELASTIC PROCESSES.

FACILITY: STEKLOV MATHS. INST. USSR.

UNCLASSIFIED

UDC 621.382.3

USSR

ALFEROV, ZH. I., ANDREYEV, V. M., GARBUZOV, D. Z., MOROZOV, YE. P., PORTNOY,
YE. L., TROFIM, V. G., ~~KHALFIN, Y. E.~~

"Current Flow Mechanisms in the Presence of Electroluminescence of p-GaAs-n-
Al_xGa_{1-x}As Heterojunctions"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 366-375

Abstract: A study was made of the electroluminescent properties of p-GaAs-n-
Al_xGa_{1-x}As heterojunctions with a different level of alloying of the p and n-
regions. The electroluminescence spectra and the dependencies of the radiation
intensity on the voltage applied to the heterojunction were investigated in the
temperature range of 77-400° K. In heterojunctions with an acceptor concentra-
tion in the p-region of $\approx 10^{19} \text{ cm}^{-3}$ and a donor concentration in the n-region
 $> 3 \cdot 10^{17} \text{ cm}^{-3}$ in the temperature range of 77-200° K, the radiation in the
gallium arsenide band is caused by tunneling of the electrons in the p-GaAs
through the barrier in the conduction band. The experimental results obtained
are compared with the theoretical calculation made within the framework of the
model usually used when investigating tunneling in Schottky barriers.
In heterojunctions with weakly alloyed n-region ($N_D \leq 3 \cdot 10^{17} \text{ cm}^{-3}$)

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ALFEROV, ZH. I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 366-375

there is two-way injection of the carriers. The electron and hole current components responsible for emission in the gallium arsenide and red bands of the electroluminescent spectrum are caused by thermal injection of the carriers. With an increase in the alloying level of the n-region ($3 \cdot 10^{17} < N_D < 10^{18} \text{ cm}^{-3}$),

the electron component of the current increases quickly and the relative radiation intensity in the gallium arsenide band builds up correspondingly. At reduced temperatures the electron component of the current in such heterojunctions is caused by tunneling of the carriers through the barrier in the conduction band. The thermal injection mechanism of the current responsible for recombination in the gallium arsenide band is retained after 300° K in heterojunctions with $N_D < 7 \cdot 10^{17} \text{ cm}^{-3}$. In heterojunctions with strongly alloyed n-region ($N_D \geq 2 \cdot 10^{18} \text{ cm}^{-3}$), the transparency of the barrier in the conduction

band is so great that its presence has no noticeable effect on the dependence of the electron component of the current on voltage. At low voltages $eV_n < E_g$

(GaAs) the radiation in these heterojunctions is caused by diagonal tunnel junctions of the n-Al_{1-x}Ga_xAs conduction band and the p-GaAs valence band.

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Acc. Nr: AP047162

Ref. Code: UR 0246

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhatrii, 1970,
Vol 70, Nr 2, pp 182-186
CHANGES IN THE VISUAL SUCCESSIVE IMAGES
IN THE CLINICAL PICTURE OF TRANSIENT DISORDERS
OF CIRCULATION IN THE VERTEBRO-BASILLAR SYSTEM

F. A. Khalifina

The author reports of a study concerning the development of visual successive reactions in 50 patients with disorders of circulation in the vertebro-basillar system. The applied technique was elaborated by A. Ye. Kaplan and modified by the author. Except the black standard object, the technique included a combination and coloured object, which permitted to study not only the successive images, but the successive contrasts. It was demonstrated that in disorders of circulation in the vertebro-basillar system in all cases there are some deviations in the development of visual successive images which are not seen in the normals. In almost all cases there was a change in the character of successive images in an exposition of coloured and multicoloured objects, a disturbance in the capability of differentiating supplementary details in the successive objects. In almost half of the cases there was either a total absence of visual successive images in an exposure of a black object or all objects, or an appearance and an instant disappearance of successive objects. A frequent disorder of visual successive reactions in disturbances of circulation in the vertebro-basillar system indicates that this test may disclose the fine changes of neurodynamics in the cortical end of a visual analyzer.

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UDC: 519.281

KHALFINA, N. M.

"On the Minimax Nature of a Complex Analog of the R^2 -Test"

Tr. mat. in-ta AN SSSR (Works of the Mathematics Institute, Academy of Sciences of the USSR), 1970, 111, pp 12-22 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V230)

Translation: Let there be N independent, p -dimensional complex random quantities X_i ($i = 1, \dots, N$) distributed according to a normal law with the same average $MX_i = \sigma$, and common matrix of covariances Σ (Σ is a positively defined Hermitian form). In this paper, the author studies the minimax property of R_C^2 , the complex analog of the R^2 -test. The minimax property of the R_C^2 -test is proved in the case where $p = 3$, $N = 3$.
B. Granovskiy.

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1/1

ACC. NO.

0049916

Abstracting Service:
GEOPHYSICAL ABST.

5/70

Ref. Code:

UR0492

K

9174w Analysis of the technological scheme of two-stage absorption. Tyrevskii, E. N.; Aleksandrov, I. A.; Khalif, A. L. (USSR). *Gasor. Prom.* 1970, 15(1), 35-7 (Russ). A comparison of 2-stage and single-stage absorption sepn. of multi-component gas mixts. was made based on straight equil. and operating lines. An example is given for the calcn. of the sepn. of a mixt. consisting of N₂ and C₁₋₄ hydrocarbons. The economic advantage of the 2-stage system over the single-stage one was proved. Relations are given enabling the detn. of the amt. of solvent decrease in the 2-stage system. The calcn. of the amt. of solvent for the 2-stage absorption must be done for lower sections of the app. Z. Sterbacek

1/1

G. 7

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KHALIKOV, A.

SOJARS 54131
27 SEP 71
9/5

DEVELOPMENT OF FODDER FOR UZBEK ANIMAL HUSBANDRY CONSIDERED

Article by Sh. Akmal'ichanov and A. Khalikov, Director of the Uzbek Scientific Research Institute for Animal Husbandry and candidate of the agricultural sciences, respectively; "What a Fodder Hectare Must Do", Moscow, Pravda, Russia, 30 August 1971, p 27

Lucerne crops in Uzbekistan will by the end of the five-year plan period occupy an area of over 600,000 hectares. The value of this crop is generally known. Over a season -- from early spring to late fall -- it produces under our conditions 5-6 cuts and ensures the uniform supply of animals with green fodder.

Until just recently lucerne was sown in pure form. Although its harvests were worthy of note, the results were even better when it was planted with other plants. The experiments of scientists and the experience of advanced farms have shown that corn is a worthy ally of lucerne. With their joint sowing, a hectare of watered land produces 300-350 centners of corn for ensilage and 25-30 centners of lucerne hay.

Corn and sorghum grown for ensilage and grain occupy a substantial niche in the structure of sown areas. Corn produces a good harvest on non-salty soils and upon sufficient water. In soils subjected to salting and having proximate ground water and in regions having inadequate water, the advantages are with sorghum -- a salt-tolerant and drought-resistant crop. It is a pity that the specialists and heads of some collective and state farms do not always take these biological features of the crops into consideration.

There is also another crop that strikes root alongside lucerne, successfully supplementing it. This is Sudan grass, every hectare of which produces as much as 300 centners of green mass.

There are times when land sections stand empty during early spring or late fall, after the harvest. These so-called "vacuums" have been to be used successfully by many farms in Uzbekistan to grow intermediate

USSR

UDC: 51:155.001.57:681.3.06

VORONIN, Yu. A., MARASULOV, A. F., UMAROV, R. D., KHALIKOV, A. K.

"Introducing Measures of Similarity and Relation for Solving Geological and Geophysical Problems"

V sb. Mat. probl. geofiz. (Mathematical Problems of Geophysics--collection of works), vyp. 2, Novosibirsk, 1971, pp 305-310 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V1029)

Translation: The paper presents an axiomatic approach to introducing measures of similarity on a set of objects, and measures of relation on a set of properties, and also measures of similarity between sets of objects for solving geological and geophysical problems. V. Mikheyev.

1/1

c. Nr. AT0100197 Abstracting Service:
 - CHEMICAL ABST. *14-20*

Ref. Code
4R0020

- 111989k Highly elastic deformation of 1,4-butanediol dimethacrylate-hexyl methacrylate copolymer. Kargin, V. A.; Khalikov, D. Kh.; Shibaev, V. P.; Plate, N. A.; Lemanovskaya, A. F. (Mosk. Gos. Univ. im. Lomonosova, Moscow, USSR). Dokl. Akad. Nauk SSSR 1970, 190(2), 376-9 [Phys Chem (Russ)]. An attempt was made to det. the values of the individual terms of the elastic stretching force $f = (\partial H/\partial \lambda)_{P,T} - T(\partial S/\partial \lambda)_{P,T} = (\partial H/\partial \lambda)_{P,T} + T(\partial f/\partial T)_{P,\lambda}$ where λ = (the degree of stretching, H = enthalpy, S = entropy, P = stress, and T = abs temp.; as well as f_e/f , where f_e = the energy component of f , for 1,4-butanediol dimethacrylate-hexyl methacrylate copolymer (I). The stress relaxation and thermoelastic properties of I films ($30 \times 5 \times 1$ mm) were measured with a special dynamometer (M. E. Misyurevich, 1969). The f was almost identical at high and low temps. This, together with the absence of residual deformation, indicated the complete reversibility of the highly elastic deformation. However, despite the fact that $(\partial f/\partial T)_{P,\lambda}$ for I at $\lambda > 1.10$ was pos., f was not directly proportional to T . DBJR -

REEL/FRA
 19841579

CB 7

USSR

UDC 519.2

MAMATOV, M., ~~KHALIKOV, M. K.~~

"Multidimensional Limit Theorems for Sums of a Random Number of Random Vectors"

Nauch. tr. Tashkent. un-t (Scientific Works of Tashkent University), 1972, vyp. 402, pp 71-81 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V12)

Translation: Let $\xi_i, i = 1, 2, \dots$, be the sequence of independent, identically distributed random vectors having the density of the distribution function and such that $M|\xi_1|^2 < \infty$ and $M\xi_1 = \bar{0}$; ν_λ for each $\lambda > 0$ is a random variable which is independent of the sequence $\xi_i, i = 1, 2, \dots$ and assumes integral nonnegative values such that $M\nu_\lambda^2 < \infty$; $\nu_\lambda \xrightarrow{P} \infty$ for $\lambda \rightarrow \infty$ and $\gamma^2 = O(\alpha)$ where $\alpha = M\nu_\lambda, \gamma^2 = D\nu_\lambda, \eta_\lambda = \xi_1 + \dots + \xi_{\nu_\lambda}$. The asymptotic expansions of the density of the distribution function of the random vector $\eta_\lambda/\sqrt{\alpha}$ are found under certain conditional assumptions for $\lambda \rightarrow \infty$ with respect to degrees $1/\sqrt{\alpha}$ (the density of a multidimensional normal law is used as the zero term of the expansion).

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SIMULTANEOUS REDUCTION OF MOLYBDENUM TRIOXIDE AND CHROMIC OXIDE BY
SILICON -U-
AUTHOR-(03)-KHALIKOV, R.S., UMRIKHIN, P.V., SUCHILNIKOV, S.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(3), 5-8
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--SMELTING FURNACE, SYNTHETIC SLAG, MOLYBDENUM OXIDE, CHROMIUM
OXIDE, SILICON, METAL REDUCTION, PHASE COMPOSITION, CHEMICAL COMPOSITION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0837 STEP NO--UR/0148/70/013/003/0005/0008
CIRC ACCESSION NO--AT0132927
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132927

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MOO SUBO AND CR SUB2 O SUB3 WERE SMELTED WITH FE-SI (STOICHIOMETRIC RATIO) IN AN ELEC. RESISTANCE FURNACE IN A N ATM. AT 1890-1900DEGREESK. THE SYNTHETIC SLAG HAD A BASICITY OF 0.4-1.6. EQUIL. BETWEEN MOO SUB3 AND SI WAS REACYHED AFTER 30 MIN HOLDING AT 1890-1900DEGREESK. THE C HAD A DOUBLE EFFECT DURING SMELTING: IT CAN ACT AS A CARBIDE FORMING ELEMENT AND ALSO AS A REDUCTANT. WITH MOO SUB3, AN INCREASE IN C CONTENT RESULTES IN HIGHER EXTN. OF MO. WITH CR SUB2 O SUB3, AN INCREASE IN C CONCN. UP TO 0.6-0.8PERCENT RESULTED IN HIGHER CR EXTN. AT HIGHER C CONCNS., THE CR EXTN. DECREASED, PROBABLY BECAUSE OF THE FORMATION OF SIC. WITH INCREASED BASICITY OF THE SLAG, THE MO EXTN. INCREASED, WHILE EXTN. OF CR INCREASED ONLY UP TO (CR):(MO) EQUALS 0.4, WHILE AT (CR):(MO) EQUALS 0.75, THE EXTN. OF CR DECREASED SLIGHTLY. FACILITY: URAL. POLITEKH. INST., SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--STRUCTURE OF GRAIN BOUNDARIES AND IMPACT STRENGTH OF ALUMINUM
ALLOYS AK6 AND V93 AFTER HIGH TEMPERATURE DEFORMATION WITH TEMPERING -U-
AUTHOR--TVOROGOV, I.M., KHALIKOV, R.S.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2) 33-6

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--IMPACT STRENGTH, ALUMINUM ALLOY, TEMPERING, ALLOY DESIGNATION,
METAL MICROSTRUCTURE, GRAIN BOUNDARY/(U)AK6 ALUMINUM ALLOY, (U)V93 HIGH
STRENGTH ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1311

STEP NO--UR/0129/70/000/002/0033/0036

CIRC ACCESSION NO--AP0106088

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC-ACCESSION NO--APO106088

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AK6 AND V93 AL ALLOYS (ALL VALUES FOR THE V93 ALLOY ARE GIVEN IN PARENTHESES), CONTG. CU 2.8 (1.02), MG 0.65 (2.16), MN 0.60 (0.06), SI 0.80 (0.06), ZN 0.04 (7.08), NI 0.01 (0.02), TI 0.01 (0.015), AND FE 0.12PERCENT (0.28PERCENT) WERE HEATED TO 510 PLUS OR MINUS 5 (470 PLUS OR MINUS 5)DEGREES FOR 1.5 (1.25) HR, HOT DEFORMED AT THIS TEMP. WITH 30PERCENT DEFORMATION, BY USING A FRICTION PRESS (100 TONS), QUENCHED IN WATER, AND AGED AT 160 PLUS OR MINUS 5DEGREES FOR 16 HR (120-3 PLUS 165 PLUS OR MINUS 5DEGREES-4 HR). THE MICROSTRUCTURES OBTAINED WERE COMPARED WITH THOSE AFTER USUAL TREATMENT (DEFORMING AT 420DEGREES (BOTH ALLOYS), QUENCHING FROM 510 PLUS OR MINUS 5 (470)DEGREES AND AGING AS ABOVE). THE MECH. PROPERTIES OF ALLOYS AFTER BOTH KINDS OF TREATMENT WERE PRACTICALLY THE SAME, EXCEPT THE IMPACT STRENGTH THAT INCREASED FROM 2.7 (0.6) TO 3.5 (1.2) KG-M-CM-PRIME2 AFTER THE HOT DEFORMING TREATMENT. UNDER THE USUAL TREATMENT THE MICROSTURCTURES OF BOTH ALLOYS SHOW GRAINS WITH STRAIGHT, THICKENED BOUNDARIES. AFTER HOT DEFORMATION THE BOUNDARIES HAVE A WAVY TOOTHED NATURE WITH MARKEDLY LESS AMT. OF PPTS. THE FEATURE OF THESE STURCTURES IS A GREATER UNIFORMITY OF DISTRIBUTION OF THE DECOMP. PRODUCTS FORMED DURING AGING, WHICH IMPROVES THE DYNAMIC STRENGTH OF ALLOYS.

UNCLASSIFIED

1/3 008 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SYNTHESIS OF POLYPEPTIDES OF REGULAR STRUCTURE CONTAINING SERINE
AND GLUTAMIC ACID, AND MODELING NONPOLAR REGIONS OF THE COLLAGEN PROTEIN
AUTHOR--(04)-SHIBNEV, V.A., KHALIKOV, SH.KH., FINGENOVA, M.P., POROSHIN,
K.T.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAO. NAUK SSSR. SER. KHIM. 1970, (4), 880-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PEPTIDE, CHEMICAL SYNTHESIS, AMINO ACID, COLLAGEN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/0482 STEP NO--UR/0062/70/000/004/0880/0885
CIRC ACCESSION NO--AP0131119
UNCLASSIFIED

2/3 008

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131119

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATING 5 G HYDROXYPROLINE IN 83PERCENT HCO SUB2 H WITH 20 ML AC SUB2 O AT 10DEGREES AND KEEPING THE MIXT. 1.2 HR, FINALLY AT 30DEGREES, GAVE 96PERCENT FORMOXYPROLINE (IA), M. 127DEGREES. ADDING 2 G POCL SUB3 IN CH SUB2 CL SUB2 TO 2.1 G CARBOBENZOXYGLYCINE AND 12 ML PYRIDINE, FOLLOWED BY 2.17 G 2,4,6 CL SUB3 C SUB6 H SUB2 OH (I) AT 0DEGREES, AND KEEPING THE MIXT. 1 HR GAVE 91PERCENT CARBOBENZOXYGLYCINE 2,4,6 TRICHLOROPHENYL ESTER, M. 109DEGREES, WHICH WITH 40PERCENT HBR IN ACOH GAVE IN 25 MIN GLYCINE 2,4,6 TRICHLOROPHENYL ESTER HBR (II), DECOMP. 215DEGREES. FORMYGLYCINE (4.5 G) AND 8.5 G I IN MEON H SUB2 O AT MINUS 4DEGREES TREATED WITH 9 G DICYCLOHEXYLCARBODIIMIDE (DCC) OVERNIGHT GAVE FORMYGLYCINE 2,4,6 TRICHLOROPHENYL ESTER, M. 105-70DEGREES, WHICH WITH ETOH AQ. HCL 2.5 DAYS GAVE 62PERCENT GLYCINE 2,4,6 TRICHLOROPHENYL ESTER HCL, DECOMP. 210DEGREES. TREATING FORMYLGLUTAMIC ACID GAMMA BENZYL ESTER WITH DMF AND, AT MINUS 4DEGREES, WITH DCC, THEN II AND ET SUB3 N, AND KEEPING THE MIXT. 2 DAYS, GAVE 85PERCENT FORMYLGLUTAMYL (GAMMA BENZYLESTER) GLYCINE 2,4,6 TRICHLOROPHENYL ESTER, M. 110-12DEGREES, WHICH WITH AQ. ALC. HCL SEVERAL DAYS GAVE 61.5PERCENT 2,4,6 TRICHLOROPHENYL ESTER OF GLUTAMYL (GAMMA BENZYL ESTER) GLYCINE HCL (III), M. 134-70DEGREES. IA (3.22 G) IN DMF TREATED WITH 4.5 G DCC, AND AT MINUS 5DEGREES WITH 6.4 G III AND 1.8 ML ET SUB3 N GAVE IN 2 DAYS 40PERCENT 2,4,6 TRICHLOROPHENYL ESTER OF FORMYLHYDROXYPROLYL GLUTAMYL (GAMMA BENZYL ESTER) GLYCINE, AN OIL, WHICH WITH HCL IN AQ. MEON 2 DAYS GAVE 70PERCENT 2,4,6 TRICHLOROPHENYL ESTER OF HYDROXY PROLYLGLUTAMYL (GAMMA BENZYL ESTER) GLYCINE HCL, AN OIL.

UNCLASSIFIED

3/3 008 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0131119
ABSTRACT/EXTRACT--THIS IN ME SUB2 SO WITH ET SUB3 N 10 DAYS GAVE 90PERCENT
POLY(TRIPEPTIDE) (OF HYDROXYPROLYLGLUTAMYL (GAMMA BENZYL ESTER) GLYCINE),
A DARK SOLID, (ALPHA) SUBD PRIME27 MINUS 20.5DEGREES, MOL. WT. SIMILAR
TO 85000. THIS HYDROGENATED OVER PD IN MEOH TO POLY(HYP GLU GLY), WHOSE
IR SPECTRUM INDICATED THE COLLAGEN TYPE STRUCTURE. TREATING
CARBOBENZOXYSERINE WITH DCC IN DMF, FOLLOWED BY GLYCINE 2,4,6
TRICHLOROPHENYL ESTER HBR AND ET SUB3 N GAVE IN 24 HR IN THE COLD
80.5PERCENT 2,4,6 TRICHLOROPHENYL ESTER OF CARBOBENZOXYSERYLGLYCINE, M.
124-6DEGREES, WHICH IN MEOH WAS HYDROGENATED OVER PD TO THE 2,4,6
TRICHLOROPHENYL ESTER OF SERYLGLYCINE, ISOLATED AS HCL SALT, DECOMPD.
165-7DEGREES. SIMILARLY WERE OBTAINED: 80PERCENT 2,4,6 TRICHLOROPHENYL
ESTER OF CARBOBENZOXY HYDROXYPROLYLSERYLGLYCINE, M. 153-4DEGREES; 2,4,6
TRICHLOROPHENYL ESTER OF HYDROXYPROLYLSERYLGLYCINE HCL, M. 180DEGREES;
AND POLY (HYP SER-GLY) (ALPHA) SUBD PRIME27 MINUS 19.4DEGREES, WITH MOL.
WT. 5500. FACILITY: INST. MOL. BIOL., MOSCOW, USSR.

UNCLASSIFIED

1/3 018 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--SYNTHESIS OF POLY, GLYCL, SEPYL, HYDROXYPROLINE AND
POLY, GLYCYL, SERYL, PROLINE POLYPEPTIDES USING PENTACHLOROPHENYL ESTERS
AUTHOR--(04)-SHIBNEV, V.A., KHALIKOV, SH.KH.; FINGENOVA, M.P., POROSHIN,
K.T.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 399-404
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CHEMICAL SYNTHESIS, PEPTIDE, POLYMER, PROLINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0816 STEP NO--UR/0062/70/000/002/0399/0404
CIRC ACCESSION NO--AP0119722
UNCLASSIFIED

2/3 018

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119722

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. Z EQUALS CARBOBENZOXY THROUGHOUT. TO 5 G SERINE IN 25 ML SN NAOH WAS ADDED AT NEGATIVE 5 DEGREES OVER 1 HR 22.5 ML 2N NAOH AND 11.5 G Z, GLY, CL AT PH 8-9, AND THE MIXT. WARMED TO 5 DEGREES AND KEPT 40 MIN TO YIELD 48.5 PERCENT Z, GLY, SER (I), M. 98-101 DEGREES. Z, PRO IN ETOAC AT NEGATIVE 6 DEGREES WAS TREATED WITH DICYCLOHEXYLCARBODIIMIDE (DCC) AND C SUB6 CL SUB5 OH TO YIELD AFTER 1 DAY, FINALLY AT ROOM TEMP., Z, PRO, OC SUB6, CL SUB5, OIL, (ALPHA) PRIME 22 D NEGATIVE 40.3 DEGREES, WHICH IN ACOH TREATED WITH 40 PERCENT HBR IN ACOH AT NEGATIVE 20 DEGREES 0.5 HR GAVE PRO, OC SUB6 CL SUB5, M. 112-14 DEGREES, WHICH WITH DCC IN DMF CONVERTED I IN 1 DAY, FINALLY AT ROOM TEMP., INTO 67.5 PERCENT Z, GLY, SER, PRO, OC SUB6 CL SUB5, M. 112-14 DEGREES, WHICH WAS HYDROGENATED OVER PD IN MEQH, ETOH, HCL TO GLY, SER, PRO, OC SUB6 CL SUB5.HCL, M. 170 DEGREES; HBR IN MEND SUB2 IN 20 MIN SIMILARLY GAVE THE CORRESPONDING HBR SALT, M. 187-8 DEGREES. THE LATTER IN ME SUB2 SD WITH ET SUB3 N IN 7 DAYS IN A SEALED TUBE GAVE SOL. AND INSOL. PRODUCTS, IDENTIFIED AS POLY(GLY, SER, PRO), MOL. WT. UP TO 2500. Z, HYP IN THF WITH ISD, BUD SUB2 CCL AND ET SUB3 N, FOLLOWED BY C SUB6 CH SUB5 OH GAVE 89 PERCENT PENTACHLOROPHENYL ESTER, M. 162-4 DEGREES, WHICH WITH HBR IN MEND SUB2 AT NEGATIVE 5 DEGREES 20 MIN GAVE HYP, OC SUB6 CL SUB5.HBR (II.HBR), DECOMP. 210 DEGREES.

UNCLASSIFIED

Glass and Ceramics

USSR

K UDC 546.185:16:666.1

GOLUBTSOV, L. A., ~~KHALILEV, V. D.~~, YEVSTROP'YEV, K. S.,
DOLADUGINA, V. S., Leningrad Technological Institute Imeni
Lensovet

"Light Transmission of Fluorophosphate Glasses as a Function
of Synthesis Conditions"

Moscow, Neorganicheskiye Materialy, Vol 6, No 5, May 70,
pp 924-927

Abstract: The authors studied the effect of the digestion con-
ditions on the transparency and homogeneity of fluorophosphate
glasses of the following composition (wt%): $Al(PO_3)_3$ --30;
 BaF_2 --60; CaF_2 --10. This glass shows very high chemical sta-
bility and comparatively low crystallization ability. It was
determined that the presence of oxygen and water vapors in the
gaseous medium above the alloy during digestion of fluorophos-
phate glasses leads to considerably poorer transparency in the
ultraviolet and infrared spectral regions, and to poorer hemo-
geneity. Homogeneous glasses with high transparency may only be
l/l obtained in an inert atmosphere.

1/2 021
TITLE--OPTICAL GLASS -U-

UNCLASSIFIED

PROCESSING DATE--13NOV70

AUTHOR--(05)-NIKOLINA, G.P., KHALILEV, V.D., IVANOV, V.N., PETROVSKIY,
G.T., TYLEVICH, F.G.
COUNTRY OF INFO--USSR

K

SOURCE--U.S.S.R. 267,030
REFERENCE--OTKRYTIYA, IZOBRET., PRGM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL-PATENT, GLASS COMPOSITION, OPTIC GLASS, CALCIUM
FLUORIDE, ALUMINUM FLUORIDE, BERYLIUM FLUORIDE, YTTRIUM, STRONTIUM
COMPOUND, POTASSIUM COMPOUND, LANTHANUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/1803

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132069

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AA0132069
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO INCREASE MOISTURE RESISTANCE
AND TRANSPARENCY IN THE 165-5000 MMU LONG WAVE RANGE, AS WELL AS TO
DECREASE THE CRYSTN. TENDENCY AND THE M.P., YF SUB3 5-12 MOLE PERCENT
WAS ADDED TO OPTICAL GLASS CONSISTING OF: BEF SUB2 49-54, AIF SUB3
10-15, CAF SUB2 LESS THAN 12, SRF SUB2 LESS THAN 9, LAF SUB3 LESS THAN
3, AND KF 12-24 MOLE PERCENT. FACILITY: LENSIVET TECHNOLOGICAL
INSTITUTE, LENINGRAD.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--MOISTURE RESISTANCE AND CRYSTALLIZATION OF FLUOROBERYLLATE GLASSES
-U-
AUTHOR--(03)-NIKOLINA, G.P., KHALILEV, V.D., YESTROPYEV, K.S.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 582-4
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
TOPIC TAGS--CRYSTALLIZATION, FLUOROBERYLLATE GLASS, GLASS COMPOSITION,
GLASS PROPERTY, FLUORIDE, MOISTURE MEASUREMENT

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0631 STEP NO--UR/0363/70/006/003/0582/0584
CIRC ACCESSION NO--AP0119543
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0119543
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF MUTUAL EXCHANGES OF FLUORIDES OF BE, K, AL, AND ALKALI EARTH ELEMENTS ON THE STABILITY TO CRYSTN, AND ON HYDROLYTIC STABILITY OF FLUORBERYLLATE GLASSES CONTG. 54-49 MOLE PERCENT BEF SUB2 WAS STUDIED. THE SAMPLES WERE PREPD. BY CONVENTIONAL METHODS, AND SEVERAL SERIES OF THE EXPTS. WERE PERFORMED. THE SUBSTITUTION OF KF BY NDF SUB2 OR SRF SUB2 SIGNIFICANTLY INCREASES THE MOISTURE RESISTANCE OF THE INITIAL GLASS, BUT DECREASES ITS STABILITY TO CRYSTN. THE SIGNIFICANT DIFFERENCE IN THE SOLY. OF THE CRYST. FLUORIDES DOES NOT MANIFEST ITSELF IN THE SOLY. OF THE GLASSES. IN ORDER TO INCREASE THE MOISTURE RESISTANCE IT IS EXPEDIENT TO DECREASE THE CONTENT OF BEF SUB2 AND KF IN THE GLASS. GLASSES BE54, BE54M, BE54MB, BE48L4, AND B4 WERE STUDIED. ON THE INTRODUCTION INTO THE GLASS OF YF SUB3 AND LAF SUB3, THE MOISTURE RESISTANCE INCREASES. HOWEVER, CRYSTN. THEREBY ALWAYS INTENSIFIES. AN ATTEMPT WAS MADE TO EXPLAIN THIS BEHAVIOR. FROM THE EXPTL. DATA OBTAINED IT IS SHOWN THAT COMPLICATING THE COMPN. OF FLUORBERYLLATE GLASSES BASED ON THE BEF SUB2-ALF SUB3-CAF SUB2-KF SYSTEM BY THE INTRODUCTION OF FLUORIDES OF ALKALI EARTH AND OTHER CATIONS INSTEAD OF BEF SUB2 AND KF RESULTS IN OBTAINING GLASSES WITH MOISTURE RESISTANCE WHICH IS HIGHER THAN THAT OF THE LATTER HYDROLYTIC GROUP. ADDNS. OF NDF SUB3 INCREASE THE MOISTURE RESISTANCE TO A HIGHER DEGREE THAN ADDNS. OF CEF SUB3. FACILITY:
LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--LIGHT TRANSMISSION OF FLUOROPHOSPHATE GLASSES AS A FUNCTION OF
SYNTHESIS CONDITIONS -U-
AUTHOR-(04)-GOLUBTSOV, L.A., ~~KHALILEV, V.D.~~, YEVSTROPYEV, K.S.,
DOLADUGINA, V.S.
COUNTRY OF INFO--USSR
SOURCE--IZV. SSSR. MOSCOW, NEORGANICHESKIYE MATERIALY, VOL 6, NO 5, MAY
70, PP 924-927
DATE PUBLISHED----MAY70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--LIGHT TRANSMISSION, CHEMICAL STABILITY, GLASS CRYSTALLIZATION,
PHOSPHATE GLASS, FLUORIDE, GLASS COMPOSITION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1044 STEP NO--UR/0363/70/005/005/0924/0927
CIRC ACCESSION NO--AP0134746
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134746

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, THE AUTHORS STUDIED THE EFFECT OF THE DIGESTION CONDITIONS ON THE TRANSPARENCY AND HOMOGENEITY OF FLUOROPHOSPHATE GLASSES OF THE FOLLOWING COMPOSITION (WT PERCENT): AL(PO SUB3) SUB3, 30; BAF SUB2, 60; CAF SUB2, 10. THIS GLASS SHOWS VERY HIGH CHEMICAL STABILITY AND COMPARATIVELY LOW CRYSTALLIZATION ABILITY. IT WAS DETERMINED THAT THE PRESENCE OF OXYGEN AND WATER VAPORS IN THE GASEOUS MEDIUM ABOVE THE ALLOY DURING DIGESTION OF FLUOROPHOSPHATE GLASSES LEADS TO CONSIDERABLY POORER TRANSPARENCY IN THE ULTRAVIOLET AND INFRARED SPECTRAL REGIONS, AND TO POORER HOMOGENEITY. HOMOGENEOUS GLASSES WITH HIGH TRANSPARENCY MAY ONLY BE 1-1 OBTAINED IN AN INERT ATMOSPHERE. FACILITY: LENINGRAD TECHNOLOGICAL INSTITUTE IMENI LENSGET.

UNCLASSIFIED

USSR

UDC 8.74

KHALILOV, A. I.

"Automation of Paralleling of Programs on the Level of the Procedure-Oriented Language"

V sb. Teoriya yazykov i metody postroyeniya sistem programmir (Language Theory and Methods of Constructing Programming Systems--collection of works), Kiev-Alushta, 1972, pp 60-70 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V455)

Translation: A study was made of some transformations designed for automation of paralleling of successive programs on the level of a procedural-oriented language of the ALGOL-60 type and optimizing the parallel programs obtained. The transformations are based on the properties of dependence and independence of the operators. A program module for automatic paralleling of successive programs is constructed on the basis of equivalent transformation systems. This module also is used for operation with respect to optimizing programs considering the characteristics of a specific multiprocessor computation system.

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USSR

UDC: 547.944/945

KHALILOV, D. S., TELEZHENETSKAYA, M. V., Azerbaydzhan State Medical Institute;
"Order of the Red Banner of Labor" Institute of the Chemistry of Plant
Materials, Uzbek SSR Academy of Sciences

"Senecio Alkaloids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1973, pp 128 129

Abstract: A study was made of the alkaloid content of two species of Senecio from Azerbaydzhan: *S. rhombifolius* (Willd) Sch. Bip. and *S. kubensis* Grossh. Among the bases isolated from the alkaloid sum of the first species were a bitartrate with melting point of 193°C: $[\alpha]_D^{20} 40.1^\circ\text{C}$ (c 5.4, H₂O) identified as platyphilline bitartrate, a base with melting point of 217°C identified by IR spectroscopy as seneciphilline, and a third base identified by UV and IR spectra as neoplatyphilline bitartrate. The alkaloid sum of *S. kubensis* yielded seneciphilline.

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- 5 -

Titanium

USSR

UDC 669.295.31

REZNICHENKO, V. A., MENYAYLOVA, G. A., KARYAZIN, I. A., KHALIMOV, F. B.,
VOROBAYCHIK, A. I., and KIPRICH, N. A., Moscow

"Phase Transformations in the Process of Oxidation of High-Titanium Slag"

Moscow, Izvestiya Akademii Nauk SSSR, *Metally*, No 5, 1973, pp 48-54

Abstract: The crystallo-optical method was used in a study of the processes taking place in the oxidation of a solid solution of anosovite, the principal phase of high-titanium slags. During the oxidation of high-titanium slags, crystallo-chemical transformations occur, during heating, in the anosovite lattice: below 400°C, oxidation reactions take place in titanium of lowest valencies in Ti^{4+} with TiO_2 -separation in form of an independent phase; above 500°C, Fe^{2+} oxidizes to Fe^{3+} and the products of the reaction form with a part of free rutile a solid solution on the base of pseudobrookite ($Fe_2O_3 \cdot TiO_2$)

lattice. The phase transformations in the case of maximum oxidation of anosovite by the oxygen of air and water vapors at 700°C and higher temperatures show a similar character: the reactions take place topochemically with the final formation of rutile and the solid solution on the base of pseudobrookite lattice. Three figures, three tables, 19 bibliographic references.

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1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EFFECT OF TEMPERATURE ON THE ADSORPTION AND DESORPTION OF OIL
SOLUBLE SURFACE ACTIVE AGENTS IN QUARTZ SAND UNDER DYNAMIC CONDITIONS
AUTHOR--(04)--MUSAYEV, R.A., TAIROV, N.D., KHALILOV, E.G., ABUTALYBOVA, R.N.

COUNTRY OF INFO--USSR

SOURCE--AZERB. NEFT. KHOZ. 1970, (1), 28-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TEMPERATURE DEPENDENCE, ADSORPTION, DESORPTION, SURFACE ACTIVE
AGENT, SAND, KEROSENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3003/0139

STEP NO--UR/0487/70/000/001/0028/0029

CIRC ACCESSION NO--AP0129395

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--A0129395

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NONIONIC AND CATIONIC COMPS. OF UNSTATED STRUCTURE WERE STUDIED IN KEROSENE SOLN. FROM 25 TO 100DEGREES.

THE LATTER TYPE WAS MORE READILY ADSORBED AND LESS READILY DESORBED. THE DEGREE OF ADSORPTION OF THE COMPS. SHOWED A VARYING RESPONSE TO INCREASE IN TEMP.; DESORPTION INCREASED. IN THE PRESENCE O H SUB2 O, ADSORPTION DECREASED AND DESORPTION INCREASED.

UNCLASSIFIED

Acc. Nr.

AP0048448

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code

UR0449

K +

105592j Optical and luminescent properties of single crystals of $In_xGa_{1-x}As$ solid solutions. Burdakov, Yu. M.; Zolova, N. V.; Khalilov, Kh. A. (Fiz.-Tekh. Inst. im. Ioffe, Leningrad, USSR). *Fiz. Tekh. Priborov*, 1970, 4(1), 174-8 (Russ). The electrophys., optical, and luminescent properties of good-quality single crystals of the solid solns. $In_xGa_{1-x}As$, contg. small admns. of the 2nd component and grown by the Czochralski method, were investigated. The width of the energy gaps was detd. from the optical-absorption curves. The intensity of the luminescence of the solid solns., which is as strong as that of the starting InAs and GaAs, reveals the possibility of using the crystals in the prepn. of effective light sources.

Alexandre Fucs

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REEL/FRAME
19800156

18 nt

USSR

UDC 541.124.1.123.2

GUSEYNOV, G. D., SEIDOV, F. M., KHALILOV, KH. YA., and ISMAYLOV, M. Z.
Physics Institute, Academy of Sciences AzerbSSR, Baku

"Pseudobinary System TlSe-CaSe"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 3, Mar 72, p 803

Abstract: The TlSe-CaSe system was studied; both components of that system melt without peritectic decomposition, undergoing no phase conversion. With the component ratio at 1:1 a semiconducting compound $TlCaSe_2$ is formed with a congruent melting point at $810^\circ C$. It crystallizes in a tetragonal lattice with $a = 7.644$, $c = 39.832$ Å; pycnometric density = 6.19 and x-ray diffraction $d = 6.21$ g/cm³. This compound has no homogeneity zone. Solid solutions of the V type form on the basis of TlSe with up to 10 mole-% of CaSe. The $TlCaSe_2$ crystals are more anisotropic than those of TlSe, while the CaSe crystals are less anisotropic

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USSR

UDC 621.315.592

SALAYEV, E. YU., GASHIMZADE, F. M., KHALILOV, V. KH.

"Interband Faraday Effect in GaSe"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 261-266

Abstract: A study was made of the Faraday effect near the absorption edge of hexagonal GaSe. The effect of indirect forbidden transitions on the dispersion curves of the Faraday rotation was considered, and this contribution to the total rotation of the polarization plane for $E \perp C$ caused basically by direct allowed transitions was quantitatively taken into account. The value of $|p_{cv}^x|^2$ in the case of direct allowed transitions was estimated on the basis of the paper by J. M. Boswarva, et al. [Proc. Roy. Soc., London, No A269, 125, 1962] ($|p_{cv}^x|^2$ is the square of the matrix element of the pulse operator \hat{P}).

The dispersion curves of the Faraday rotation have a complex nature and can be explained under the assumption that the Faraday rotation is caused both by direct allowed transitions and indirect forbidden transitions. The formula for the Faraday rotation in the case of indirect forbidden transitions is presented first, and from analysis of the Faraday rotation, the width of the forbidden band and the magnitude of the matrix element in the case of direct allowed transitions are determined. The dispersion curves of the rotation of the polarization plane were measured in the 1.4-2.1 electron volt range at temperatures 1/2

USSR

SALAYEV, E. YU., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 261-266

of 300 and 120° K for various thicknesses of the samples. Curves are presented for samples 0.0047 and 0.0580 cm thick. The measurements were performed with orientation of the samples E | C in a magnetic field of ≈ 14 kilogauss. The curves for the different thicknesses of the samples are shifted relative to each other. The mechanism of this effect is explained.

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USSR

UDC 621.315.592

SALAYEV, YU. E., KHALILOV, V. KH., ANTONOV, V. B., NANI, R. KH.

"Faraday Effect in the Exciton Absorption Region in GaSe"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 267-270

Abstract: A study was made of Faraday rotation in the exciton absorption region for weak fields (13.5 kilogauss) and at temperatures of 300 and 120° K. Comparison of the results with the data obtained from magneto-optical measurements in strong fields [K. Aoyagi, et al., J. Phys. Soc. Japan, No 21 (supplement), 1966] shows good agreement of the results. This agreement confirms the applicability of the mathematical model used and the results obtained by the different methods.

The result from investigating the Faraday effect in the absorption region of the exciton line $n = 0$ were processed on the basis of the Halpern theory [J. Halpern, Phys. Rev., Vol 134, No A140, 1964] and the Zwara approximation [M. Zwara, Phys. St. Sol., No 36, 785, 1969]. Relaxation times of $\tau = 0.443 \cdot 10^{-13}$ for 300° K and $\tau = 0.845 \cdot 10^{-13}$ sec for 120° K were obtained. The effective values of the g-factors were $g^* = 3.88$ for 300° K and $g^* = 3.46$ for 120° K. The estimated concentrations of the exciton states were $N = 1.59 \cdot 10^{16} \text{ cm}^{-3}$ for 300° K and $N = 0.89 \cdot 10^{16} \text{ cm}^{-3}$ for 120° K.

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USSR

UDC 539.126

TERNOV, I. M., KHALILOV, V. R., ZHURAVLEV, A. F., and CHIZHOV, G. A., Moscow State University imeni M. V. Lomonosov

"On the Effect of a Strong Radiation Field on an Electron Moving in a Plane Electromagnetic Wave"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 1, 1973, pp 7-17

Abstract: Let there be a charged particle (electron) which is simultaneously acted on by the field of a monochromatic plane electromagnetic wave (first wave) and a second wave of arbitrary spectral composition (external radiation field). The first wave is considered to be more intense, and hence the motion of the electron is mainly due to interaction with it. The article considers the action of the second wave on the electron, as well as the question of variations in the mean energy of the electron during its interaction with the radiation field. Conditions are found whereby the acceleration of the electron by the external field compensates for intrinsic electronic energy losses.

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USSR

UDC 621.357.1.035.2.:661.418(088.6)

KHALILOV, V. R., ABUBAKIROVA, F. S., GELIYEVA, T. N., GARIFZYANOV, A. G.,
VALITOV, R. B., Sterlimakov Chemical Factory

"A Process for Impregnating Graphite Objects"

USSR Author's Certificate No 345093, Filed 24 Mar 70, published 10 Aug 72
(from Referativnyy Zhurnal -- Khimiya, No 8(III), 1973, Abstract No 8L256P)

Translation: A process is patented for the impregnation of graphite articles (rods used during the electrolysis of NaCl and the production of chlorine and sodium hydroxide) by polymerized flax oil in the presence of a catalyst. It is improved in that in order to increase strength and chemical stability of the articles, a peroxide compound, for example H_2O_2 , was used as a catalyst.

The process was carried out in the normal manner. The flax oil was first polymerized in the presence of an initiator - 1 to 3 weight % H_2O_2 (30%) at 80° for 10-20 hours. The graphite rod was impregnated with a newly prepared polymer at 80° for 3 hours. After which, it was dried at the same temperature for 4 hours. Drying of the oil resulted in its uniformity in the graphite rod, chlorine and acid at high temperatures. The rod, impregnated with wax, was destroyed after 6 months in the vat at a temperature of 90°. The rods

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KHALILOV, V. R., et al., USSR Author's Certificate No 345093, filed 24 Mar 70, published 10 Aug 72

impregnated with the polymerized flax under the same conditions did not show signs of destruction.

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USSR

UDC: 539.1.01

KHALILOV, V. R. and KHOLOMAY, B. V., Theoretical Physics Department, Moscow University

"Effect of Radiation Friction on the Motion of a Charge in a Uniform Magnetic Field and in the Field of a Plane Electromagnetic Wave"

Moscow, Vestnik Moskovskogo Universiteta -- Fizika, Astronomiya, No 5, 1972, pp 558-565

Abstract: The problem discussed in this paper, the motion of a charged particle in external fields, is an important one in connection with astrophysics, accelerators in intense laser beams, and other applications. The equations of motion of the charged particle are derived on the assumption that the intensity of the magnetic field is constant and uniform, and the radiation pumping of an electron's energy is investigated on the basis of the Dirac-Lorentz equation for a point electron in the field of a plane wave and a constant magnetic field. An expression is found for the change in the average energy of the electron with the attenuation taken into account. At the end of the attenuation time, the average electron energy increases due to the radiation friction. The

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USSR

UDC: 539.1.01

KHALILOV, V. R., et al, Vestnik Moskovskogo Universiteta --
Fizika, Astronomiya, No 5, 1972, pp 558-565

authors express their thanks to Professor I. M. Ternov for his
useful comments.

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USSR

KLIMENKO, Yu. I. and KHALILOV, V. R.

UDC: 539.12.01

"Induced Radiation of Polarized Electrons in Ions in the Field of a Plane Electromagnetic Wave"

Moscow, Vestnik Moskovskogo Universitet--Fizika, Astronomiya,
No 1, 1972, pp 73-80

Abstract: The problem dealt with in this paper is connected with the development of laser technology in the direction of the interaction of the laser beam with matter, a subject in which there is growing interest. Particularly, the paper is concerned with the scattering of electrons with vacuum magnetic moment at the Coulomb center, in the presence of a strong radiation field. In connection with the anomalous magnetic moment of the electron and the magnetic moment of the center, polarization effects arise which may turn out to be substantial under certain conditions. Exact solutions of the Dirac equation in the field of a plane electromagnetic wave are brought to bear on the problem. The

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USSR

KLIMENKO, Yu. I. et al, Vestnik Moskovskogo Universitet --
Fizika, Astronomiya, No 1, 1972, pp 73-80

induced effect can then be described as a process of electron scattering, in the first Born approximation, at the center in the presence of a strong electromagnetic wave. The work was done in the Department of Theoretical Physics.

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UNCLASSIFIED

PROCESSING DATE--30OCT70

172 017
TITLE--INDIVIDUAL HYDROCARBON COMPOSITIONS OF THE BENZENE, TOLUENE, XYLENE
FRACTION OF LIGHT PYROLYSIS TAR -U-
AUTHOR--(03)-BOGDANOVA, T.A., KHALILOVA, SH.A., KAMBAROV, YU.G.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 28-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROCARBON, BENZENE, TOLUENE, XYLENE, KEROSENE, GAS OIL,
PETROLEUM FRACTION, STYRENE, PYROLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0790

STEP NO--UR/0318/70/000/002/0028/0029

CIRC ACCESSION NO--AP0119697

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119697

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MIXT. OF CRACKING KEROSENE AND STRAIGHT RUN GAS OIL WAS SUBJECTED TO PYROLYSIS AT 740DEGREES AND 3 SEC CONTACT TIME WITH 11PERCENT STEAM, GIVING 20PERCENT LIGHT TAR. THE LATTER YIELDED 38.08PERCENT FRACTION B. SMALLER THAN OR EQUAL TO 145DEGREES AND CONTG. C SUB6 4 SUB6 37.12, PHME 32.05, XYLENES 11.26, PHET 3.39, STYRENE 1.31, AND 14.87 WT. PERCENT NONAROMATIC HYDROCARBONS. IN THE FRACTION, 68 COMPONENTS WERE DETD., 48 OF WHICH WERE IDENTIFIED.

UNCLASSIFIED

USSR

UDC 62..233.4

GABASHVILI, N. V., corresponding member of the Georgian Academy of Sciences,
GULIZADE, M. P., corresponding member of the Georgian Academy of Sciences,
KARTVELISHVILI, O. M., and KHALIMBEKOV, B. N.

"One Problem in the Optimization of the Process of Drilling Slanted Holes"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 61, No 1, 1971,
pp 33-36

Abstract: A system of differential equations describing the process of drilling slanted holes with a turbine drill is derived in this article. These equations allow one to obtain the optimal parameters of the drilling operation and of the contour of the hole. The drilling parameters taken into consideration are: axial load on the bit of the turbine drill, number of revolutions of the drill, and the type of deflecting equipment needed to obtain the correct slope of the shaft. Minimum drilling time was selected as the overall criterion of optimality.

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USSR

UDC 669.295.31

KARYAZIN, I. A., REZNICHENKO, V. A., KHALIMOV, F. B., VOROBAYCHIK, A. I.,
MENYAYLOVA, G. A., KIPRICH, N. A., and GORDEUCHIK, R. A., Moscow

"Oxidation of High-Titanium Slag on Heating in Atmospheres of Air and Water
Vapors"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 2, Mar-Apr 73, pp 37-43

Abstract: An experimental study was made of the oxidation of high-titanium slag of various fractional compositions and containing 10-12% FeO on heating up to 1000°C in air and in water vapor atmospheres. The oxidation dependences of titanium slag on the type of the oxidizing medium (oxygen of air, water vapor) and the temperature and size of slag comminution are discussed by reference to diagrams. The oxidation rate of slag in air was found to be considerably higher (twice as high at 700°C) than in water vapors. Under conditions of complete oxidation at temperatures from 300 to 1000°C, the highest oxidation degree is attained at 700°C, yielding in both oxidizing media products of similar chemical composition. On heating up to 700°C, the oxidation process of slag proceeds in two stages; the first is determined by a selective oxidation of titanium of lower valencies (below 400°C), and the second stage begins at temperatures over 500°C and depends on intensive oxidation of bivalent iron. Three figures, one table, ten bibliographic references.

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USSR

UDC 669.295.472

REZNICHENKO, V. A., KHALIMOV, F. B.

"Electrode Potential of Titanium in a Sodium Chloride Melt"

Elektroodnyy potentsial titana v rasplave khloristogo natriya (Electrode Potential of Titanium in a Sodium Chloride Melt), Metallurgy Institute of the USSR Academy of Science, Moscow, 1971, 14 pp, ill., 9-entry bibliography, No 3665-71Dep. (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4C217DEP)

Translation: A study was made of the Ti and Ti²⁺ and Ti³⁺ ion equilibrium in a NaCl melt by the equilibrium potential method. The electrode was made of Ti iodide, and a chloride electrode was the comparison electrode. The total Ti concentration in the melt was 0.14, 0.31, 0.46, and 0.83%. The measurements were taken in the 950-1,100° range. According to the data obtained, the proportion of Ti²⁺ ions is within the limits of 0.89-0.97. With a decrease in temperature and dilution of the melt, the proportion of Ti²⁺ ions increases. The temperature dependence of the standard electrode potentials is as follows:

$$E_{TiTi_3}^{\circ} = -2,180 + 3.70 \cdot 10^{-4} T \text{ and } E_{Ti/Ti_2}^{\circ} = -2.390 + 5.25 \cdot 10^{-4} T.$$

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USSR

UDC 632.95

TALIPOV, Sh. T., DZHIYANBAYEVA, R. Kh., KHALIMOVA, U. Kh., BELOBORODOVA,
N. F., SHEYNINA, R. I.

"Analysis of Butyphos in Cotton Seed and Products of Refining Raw Cotton"

Maslo-zhir. prom-st' (Oil and Fats Industry), 1972, No 10, pp 33-34 (from
RZh-Khimiya, No 2 (II), Feb 73, Abstract No 2N478)

Translation: In order to determine the butyphos residue in raw cotton, fiber, shells and the refined cotton seed oil, extraction by an organic solvent (for cotton seed oil, MeCN and for the other samples, CCl₄) and purification of the extract in a column filled with Al₂O₃ with SG KSK [expansion unknown] (3:1) [the sorbent was first treated with HCl (acid)] were carried out. Thin layer chromatography was performed using a fixed layer of SG in the n-hexane-acetone system (4:1). It was developed with a solution of Ac-OH. The sensitivity of the method when analyzing butyphos in raw cotton and fiber is 0.1 mg/kg; in the hulls it is 0.6 mg/kg and in the refined cotton seed oil, 1 mg/kg.

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USSR

UDC 543.8

SHEYNINA, R. I., DZHIYANBAYEVA, R. Kh., KHALIMOVA, U. Kh., TALIPOV, Sh. T.,
and IBRAIMOV, Ch. I., Tashkent State University imeni V. I. Lenin and the
Middle Asia Branch of the All-Union Scientific Research Institute of Fats,
Tashkent

"Kinetic Method for Determining Microgram Quantities of the Organophosphorus
Compound Butifos"

Moscow, Zhurnal Analiticheskoy Khimii, Vol 27, Vyp 8, 1972, pp 1643-1647

Abstract: Microgram quantities of butifos can be determined from its
catalytic properties on the oxidation of benzidine, o-dimethoxybenzidine,
and dimethylbenzidine by H_2O_2 . The reaction is following photometrically.
The dimethylbenzidine reaction is the most sensitive of the indicators as
the methyl groups are stronger electron donors than the methoxy group.
Conditions optimizing the reaction are examined. Trace amounts of butifos
in the fibers and husks of cotton seeds were determined by this method.

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USSR

UDC 632.95

SHEYNIINA, R. I., TALIPOV, SH. T., DZHIYANBAYEVA, R. KH., KHALIMOVA, U. KH.

"Methods of Analyzing Microgram Amounts of Butyphos in Some Products of Industrial Processing of Cotton"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagrvazneniya imi produktov pitaniya, kornov i vnesn. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Feeds and Environment), Tallin, 1971, pp 376-380 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12K500)

Translation: For analysis of butyphos (I) in raw cotton and cotton fiber, the property of I to accelerate the oxidation of o-dianisidine by H_2O_2 and retard the oxidation of hydroquinone by H_2O_2 in the presence of Cu^{2+} is used. The concentration of I in the $1.25-6.25 \cdot 10^{-2} \gamma/m\ell$ range is determined by measuring the rate of one reaction, and the concentration of I to $10^{-4} \gamma/m\ell$ by measuring the rate of the second reaction. The reaction rate is determined by the fixed time method, measuring the optical density of these solutions 20 minutes after mixing the solutions in the first case and 5 minutes after in the second case.

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USSR

UDC 632.95

DZHIYANBAYEVA, R. KH., TALPOV, SH. T., KHALIMOVA, U. KH., and BELOBORCDOVA,
N. F.

"Qualitative and Quantitative Measurement of Magnesium Chlorate in Cottonseed
Oil"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryaz-
neniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-
Union Conference on the Study of Pesticide Residues, and the Prevention of
Contamination by Them of Food Products, Fodders and the Environment), Tallinn,
1971, p 280 (from Referativnyy Zhurnal -- Khimiya, No 10 (II), 1972, Abstract
No 10H584 by T. A. Belyayeva)

Translation: The cotton plant defoliant $Mg(ClO_3)_2$ (I) is extracted from
cotton seed oil with 0.05 N HCl and the extract is passed through anion
exchange AB-17 (in OH form) and washed with 2N H_2SO_4 . I is determined in
in an eluant photometrically with benzidine hydrochloride. Sensitivity of the
measurement is 0.05-1 mg/kg.

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USSR

UDC 543.544

TALIPOV, SH. T., DZHAYANBAYEVA, R. KH., KHALIMOVA, U. KH., BELOBORODOVA, N. F.,
and SHEYNINA, R. I., Tashkent State University imeni V. I. Lenin

"Thin-Layer-Chromatographic Determination of Butyphos in Cottonseed Oil"

Moscow, Khimiya v Sel'skom Khozyaystvo, Vol 9, No 4 (90), 1971, p 20

Abstract: KSX silica gel was used for determination of butyphos in cottonseed oil, it is more selective than alumina. Butyphos was extracted from cottonseed oil with acetonitrile, passed through a 3:1 column of alumina:silica gel and chromatographed in the system n-hexane-acetone (4:1). The spots were developed with 0.05% bromphenol blue; impurities do not show up in this system.

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KHALIPOV, I.

(Col. Gen.)

M:1

GREAT TRUST, GREAT RESPONSIBILITY

by Col. Gen. I. Khalipov, Member, Military Council, and Chief, Political Directorate of the IVV Forces

The armed defenders of the Soviet People stand tall and proud over their peaceful, comprehensive labor. At the 24th CPSU Congress, their service and the combat capability and readiness of the Armed Forces as a whole received a high evaluation. It was, as the Army Chief, a remarkable testimony to our military men and women, who are constantly contributing their knowledge and energy to increasing the defensive might of the Soviet State.

The 24th CPSU Congress devoted a great deal of attention to questions of further improving troop training and education, and its stressed their increased role in the contemporary stage of development of our society. That is conditioned by the special complexity and expansion of the economic and sociopolitical tasks of communist building and the current scientific-technical revolution, as was indicated in the resolutions of the Congress. The tasks facing the Party and the country persistently demand that leaders have a perfect mastery of modern methods of control, possess a feeling for the new, new prospects for development, and be able to find the most efficient ways of solving problems which arise and using the knowledge and experience of others.

These high demands by the Party refer primarily and completely to our military cadres as well, including the generals and officers of the country's PVO forces.

Thanks to the attention and concern of the Communist Party and the Soviet Government, the country's PVO forces now have highly skilled command, political, and engineering-technical cadres who are boundlessly devoted to the ideals

of communism, well-trained in all respects, and capable of leading troops knowledgeably in peace or war. Many of our officers have higher military or specialist education, and half of them are engineers and technicians. Nearly percent of our officers are communists and Komsomol members, and during peacetime thousands of them have been awarded high government prizes for successes in training and educating subordinates and for skillfully mastering combat machinery and weapons.

Commanders, political workers, and other leaders are constantly demonstrating their ability of control troops and train and educate their subordinates during everyday combat training, during combat watch, and during the numerous drills, tactical training periods, and exercises. The South troop exercises, which were held last summer, were a major test for commanders, political workers, and personnel in a large number of units and organizations. All the PW troops who participated in the exercises showed increased combat skill and, at the same time, they demonstrated their knowledge, improved their habits in tactically intelligent operations and skillful application of weapons and machinery, and moved forward in mastering the science of defeating a powerful, well-equipped enemy.

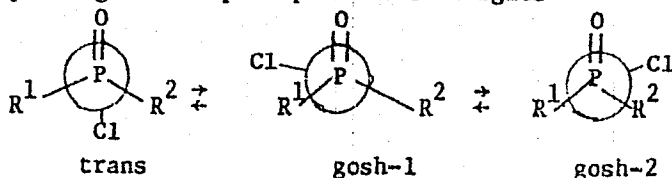
At the present time, the results of the past training year have been summarized. The number of outstanding soldiers and highly rated specialists in the cash has risen. Soldiers, sergeants, and officers have successfully fulfilled their socialist obligations in the competition which was held under the slogan "The Year of the 24th Party Congress -- a Year of Outstanding Training and Service".

The combat skill of missile, aviation, radar, and other special types of troops was raised to a new, higher level. But life does not stand still. During the past training year, personnel of our country's PW forces have resolved even more complex tasks of combat improvement, further raising the quality of combat watch, attaching for new reserves to decrease combat readiness periods, and strengthening discipline and regulation Order. Successful accomplishment of these major and responsible missions is directly dependent on the level of training, work capacity, initiative, and organizational skill of leadership personnel. And this, in its turn, requires constant improvement of work with leadership personnel by military councils, political agencies, and party organizations. In recent years, military councils, political agencies, and party organizations have notably improved their activity in this area. Questions related to training and educating leadership personnel are now discussed regularly at meetings of military councils, party committees, and party bureaus, at gatherings of party activists, and at party conferences.

USSR

RAYEVSKIY, O. A., et al., Izvestiya Akademii Nauk SSR -- Seriya Khimicheskaya, No 11, 1972, pp 2446-2450

On rotation around the P-C bond three positions of the C-Cl bond are possible corresponding to the peak potential energies



The infrared spectral data, the dipole moments and the Kerr constant were used to investigate the spatial structure of the compounds containing the $P(O)CH_2Cl$ group. Equilibrium of the goshand trans-conformers the position of which depends on the nature of the substitutions on the phosphorus atom is characteristic of all the investigated compounds in solution. The factors causing the energy stability of the conformers were evaluated quantitatively. In the absence of bulky substitutions the electrostatic interactions play the defining role. The frequency of the valence oscillations of the phosphoryl group depends on the spatial orientation of the irregular group.

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USSR

UDC 539.183.4+541.6,547.1'118

RAYEVSKIY, O. A., AKAMIN, V. D., KHALITOV, E. G., DONSKAYA, YU. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov of the USSR Academy of Sciences

"Dipole Moments and Conformations of Some Phosphorus Thioacid Derivatives"

Moscow, Izvestiya Akademii Nauk SSR -- Seriya Khimicheskaya, No 11, 1972, pp 2451-2454

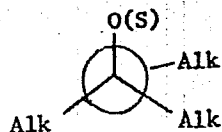
Abstract: Results have been presented previously from conformational investigation of systems containing the P-O bond (O. A. Ratevskiy, et al., Izv. AN SSSSR, Ser. khim., 1725, 1970; O. A. Ratevskiy, et al., Izv. AN SSSR. Ser. khim, 2177, 1971; O. A. Rayevskiy, et al., Izv. AN SSSSR. Ser. khim., 348 1972). Identification of the conformers and analysis of the factors causing energy stability of the conformers made it possible to evaluate the role of such interactions as the van der Waal's and Coulomb forces and the mutual orientation of the bonds. An analogous study has now been made of systems containing the P-S bond and the results are compared with the previous studies of the P-O bond. The dipole moments were measured for the propyl ester of diethylthiophosphonic acid (I), the propyl ester of diethyldithiophosphonic acid (II), the dichloranhydride of methylthiophosphoric acid (III) and the dichloranhydride of methylthiophosphoric acid (IV). A version of gosh-trans

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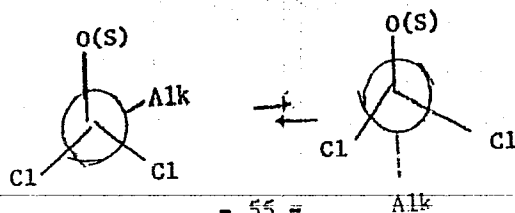
RAYEVSKIY, O. A., et al., Izvestiya Akademii Nauk SSR-- Seriya Khimicheskaya, No 11, 1972, pp 2451-2454

equilibrium was established for compounds (III) and (IV). The population of conformers in the nonpolar environment is 0.8 gosh and 0.2 trans. No clear spectral signs of isomer equilibrium were observed for compounds (I) and (II). The similarity of the experimental values of the dipole moments of these compounds calculated for the gosh-form indicates that this form is stabilized. These data indicate the energy advantage of the gosh-conformer in the case of alkyl



substitutions on phosphorus and realization of the thermodynamic equilibrium of the gosh and trans-form for the dichloroanhydrides. With respect to the

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types of conformations there is a defined analogy with the systems containing the P-O bond. The difference in position of the conformational equilibria for the compounds with the alkoxy and alkthiol groups is explained by the variations and intermolecular interactions. A quantitative evaluation of the factors affecting the stabilization of the transformers indicates a decrease in the resonance component in the alkthiol group by comparison with the alkoxy group.

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Organophosphorus Compounds

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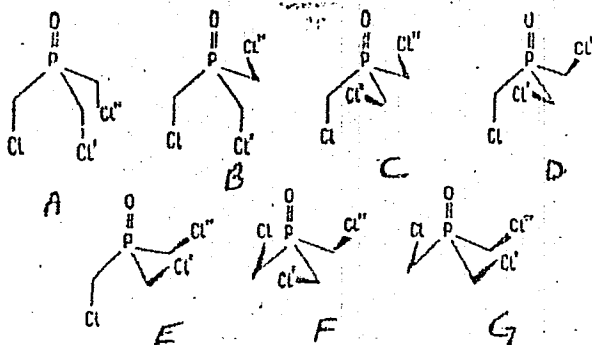
UDC 541.6:541.127.4:547.1'118

RAYEVSKIY, O. A., VERESHCHAGIN, A. N., KHALIT'OV, F. G., and DOMSKAYA, YU. A.,
Institute for Organic and Physical Chemistry imeni A. YE. Arbuzov, Academy
of Sciences USSR

"Analysis of Conformational Equilibrium of Tris(chloromethyl)-phosphine Oxide"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, 1972,
pp 710-712

Abstract: The following conformations are possible:



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RAYEVSKIY, O. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, 1972, pp 710-712

The IR spectra, dipole moments (D.M.) and Kerr constants (K.C.) can provide information on the conformational equilibria and the actual forms present. The D. M., in μ , and K.C., in $K \times 10^{12}$, values for the above forms from thermodynamic calculations are as follows: A, 1.19 and 45; B, 2.23 and 58; C, 4.16 and 63; D, 4.12 and 38; E, 5.07 and 375; F, 6.07 and -528; and G, 6.59 and -206. The measured values are 2.34 and -55, indicating a mixture of conformers. The forms C, D, and E may be eliminated due to their D.M. and K.C. values. The probable equilibria are $A \rightleftharpoons B$ and $F \rightleftharpoons G$. The equilibria $A, B \rightleftharpoons F, G$ are unlikely on the basis not only of the closest fit to experimental and calculated parameters but also of theoretical calculations. Form F, in which all the C-Cl bonds are directed toward one side has the least steric hindrance. The considerable influence of the electrostatic interaction is indicated in that A is the most stable form. In A, the $P = O$ and C - Cl dipoles are oriented antiparallel.

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Organophosphorus Compounds

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UDC 541.6:547.1'118

RAYEVSKIY, O. A., DONSKAYA, Yu. A., KHALITOV, F. G., and ANTOKHINA, L. A.,
Institute of Organic and Physical Chemistry Imeni A. Ye. Arbusov Academy
of Sciences USSR

"Conformation of Dialkyl(aryl)cyanomethylphosphine Oxides"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 73,
pp 1339-1341

Abstract: IR spectra of diethylcyanomethylphosphine oxide and diphenylcy-
anomethylphosphine oxide show that in solutions these compounds exist in
an equilibrium of two conformers. Under conditions of higher concentrations,
considerable association of molecules is noted. The dipole moments of these
compounds in gauche conformation, exhibiting the polar grouping P:O and C:N,
are considerably below the calculated values obtained from the vector
analysis, because of Coulom interaction.

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UIC 541.6:547.1'118

RAYEVSKIY, O. A., KHALITOV, F. G., DONSKAYA, YU. A., and SHERMERGORN, I. M.,
Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov Acad. Sc. USSR

"On the Conformations of Certain Chloromethylthiophosphinic Acid Chlorides"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 73, pp 795-800

Abstract: Results are reported on the study of spacial structures of the compounds with the general formula $RCIP(S)CH_2Cl$ where $R = Cl, C_2H_5, C_6H_5, p-ClC_6H_4,$ and CH_2Cl using IR spectroscopical and dipole moment methods. In solutions these compounds exist in an equilibrium of two conformers, one of which has the trans orientation of the P:S and C-Cl bonds. Analysis of intramolecular interactions has been carried out and related to the stabilization of the resulting spacial structures. It has been noted that replacement of a phosphoryl oxygen atom by an atom of sulfur has practically no effect on intramolecular interactions.

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UDC 541.61547.1'118

RAYEVSKIY, O. A., KHALITOV, F. G., and PUDOVIK, M. A., Institute of Organic and Physical Chemistry ineni A. Ye. Arbuzov, USSR Academy of Sciences

"Conformation of O-Methyl(Phenyl)-Methylchlorophosphonates"

Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72, pp 173-175

Abstract: As a continuation of their earlier study of the effect of the nature of substitutes on the conformation position of the ester group in compounds of the general formula $R_1R_2P(O)OR$, the authors take up the problem of the identification of conformers in the O-methyl(phenyl)-methylphosphonates.

Infrared spectra show that for these compounds, stabilization of one conformer is a characteristic feature. The dipole-moment method is used to establish that such conformation can occur either with a form having the cis-position of the bonds P=O and O-CH₃, or one having the gauche-position (projection of OC coming between PO and PCl.).

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UDC 541.6:547.1'118

RAYEVSKIY, O. A., VERESHCHAGIN, A. N., and KHALITOV, F. G., Institute of Organic and Physical Chemistry imeni A. Ye. Aruzov, Academy of Sciences USSR

"Conformations of Trimethylphosphate and Trimethylthiophosphate"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, Feb 72, pp 353-358

Abstract: There are 16 possible conformations of trimethylphosphate, six of which can be excluded from equilibrium considerations due to steric hinderance. To determine the predominant conformation among the remaining ones, the IR spectra and dipole moments of trimethylphosphate and the Kerr constants of trimethylthiophosphate were determined. The isomeric composition was determined on the basis of the integral band intensities of $\nu_{P=O}$ ($1250-1350\text{ cm}^{-1}$) and $\nu_{P=S}$ ($570-670\text{ cm}^{-1}$) in relationship to the temperature and the dielectric constant of the medium. The band at 1180 cm^{-1} (for trimethylphosphate) and at 2840 cm^{-1} (for trimethylthiophosphate) were used for comparative purposes. The conformational composition under various conditions was determined. The most stable conformation is the one with cis-orientation of one and gosh-orientation of two alkoxy groups in relationship to (thio)-phosphoryl group; one of the forms in which the alkoxy group is in the trans-position is in equilibrium with the predominant conformer. 1/1

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USSR

UDC 541.62:547.1'118

RAYEVSKIY, O. A., ~~KHALITOV, F. G.~~ and ZYABLIKOVA, T. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Isomeric Equilibrium of Dimethylmethylphosphonate and Diethylchlorophosphate"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, Feb 72, pp 348-352

Abstract: IR spectra of liquid dimethylmethylphosphonate and diethylchlorophosphate studied in temperature range 150-300°K showed the existence of definite reversible spectral changes. Characteristic changes were observed in the range 400-700 cm^{-1} corresponding to the valence vibrations of P-C and P-Cl bonds, indicating existence of an equilibrium of two isomeric forms. Internal energies (ΔH) were found to be 0.75 Kcal/M for diethylchlorophosphate and 0.40 Kcal/M for the dimethylmethylphosphonate. The relationship of absolute integral intensities of the absorption bands of $\nu_{\text{P-Cl}}$ and $\nu_{\text{P-C}}$ made it possible to determine the composition of the isomeric forms for given molecular dipole moments to be 60:40 of the more polar:less polar isomer in case of diethylchlorophosphate, and 65:35 of the less polar:more polar isomer in case of dimethylmethylphosphonate. The isomers were identified by means of the IR spectra and dipole moments. A dynamic equilibrium of the isomeric forms was pointed out by means of PMR spectroscopy.

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UDC 541.6,547.1'118

RAYEVSKIY, O. A., KHALITOV, F. G., and PUDOVIK, M. A., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Conformation of Some Methylphenylphosphinic Acid Esters"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71, pp 2595-2598

Abstract: The authors used the methods of IR spectroscopy and dipole moments to study the conformation of the methyl, phenyl and para-nitrophenyl esters of methylphosphinic acid. These compounds are characterized by stabilization of the gauche position of the ether group relative to the phosphoryl group. A choice between two different gauche forms cannot be made in this series of compounds because of the closeness of the moments of the P-CH₃ and P-Ph bonds. It is suggested that one of the causes of gauche form stability is the possibility of competition between mobile electrons of the benzene ring and ether oxygen to fill vacant 3d orbitals of the phosphorus atom.

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USSR

UDC 541.6.661.718.1

RAYEVSKIY, O. A., and KHALITOV, F. G., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Conformational Analysis in a Series of Acyl Dichlorides of Substituted Phenylphosphoric Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2177-2181

Abstract: In continuation of their studies on isomeric conversions or organophosphorus compounds, an investigation was carried out of the effect of replacement of a methyl group by a substituted or unsubstituted phenyl group, using IR spectroscopy and dipole moment determinations. Four acid dichlorides were studied, derived from phenylphosphoric acid (I), 2,4-dichlorophenylphosphoric acid (II), 4-tertbutylphenylphosphoric acid (III) and 4-nitrophenylphosphoric acid (IV). IR spectroscopy showed that in the liquid state or in solution all of these compounds are an equilibrium mixture of isomeric forms. Dipole moments were determined in CCl_4 : (I) -- 3.38; (II) -- 2.50; (III) -- 3.60; and (IV) -- 3.70 D. It was determined that the trans-form is more stable than the skew form. Consequently the conjugation energy of 2p- electrons of the ester oxygen with phosphorus 3d-orbitals is $1/2$

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RAYEVSKIY, O. A., and KHALITOV, F. G., Izvestiya Akademii Nauk SSSR,
Seriya Khimicheskaya, No 10, Oct 71, pp 2177-2181

small. It could be assumed that this is due to the chlorine atom competing for the 3d orbitals, i.e. the 3-d orbitals of phosphorus resonate with 3p orbitals of chlorine, decreasing considerably the 2p-3d orbital interaction. This in turn leads to the trans-skew equilibrium rather than cis-skew, when the methyl group at phosphorus atom is replaced by chlorine atom.

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UDC 541.6+661.718.1

USSR

RAYEVSKIY, O. A., and ~~KHALITOV, E. G.~~, Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR Academy of Sciences

"The Conformations of Certain Derivatives of Phosphorous Acid"

Moscow, Izvestiya Akademii Nauk SSR, Seriya Khimicheskaya, No 4, 71, pp 843-845

Abstract: In view of earlier studies of tetracoordinated phosphorus derivatives, indicating a characteristic dynamic equilibrium of isomers, it was of interest to investigate trivalent phosphorus derivatives in this connection, for which purpose methyldichlorophosphite was studied in media of different polarity, in the temperature range from 150° to 380°K.

The dipole moment was determined experimentally, and comparison with the computed value for possible conformations led to choice of the cisoid form. Analysis of the interactions of unbound atoms supported the conclusion that this form is justified both for methyldichlorophosphite and for other derivatives of phosphorous acid.

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USSR

UDC 536.46:533.6

GABIDOVSKIY, A. G., GAFAROV, A. S., REPIN, V. B., KHALITOV, N. Kh.

"Area of Existence as a Function of Diameter of Injection Pipe"

Sb. Aspirantsk. Rabot. Kazan. Un-t. Tochn. Nauki. Mekh. Fiz. [Collected Post Graduate Writings of Kazan' University, Precision Mechanics, Mechanical Physics], No 2, 1972, pp 91-94, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 B776 by G. M. Makhviladze).

Translation: An experimental study is performed into the influence of the diameter of an injection pipe on the area of existence of relaxation vibration combustion. The fuel mixture used is city gas and air. The experiments were performed at room temperature and atmospheric pressure. The area of existence of relaxation vibration combustion was determined in the coordinates gas mixture consumption vs. mixture concentration. The boundaries of flame-out and breakthrough are determined for various diameters of injection tubes. The area of existence of relaxation vibration combustion is displaced in the direction of higher consumptions and higher concentrations as the diameter of the injection tube is increased.

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USSR

UDC 541.67

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ISHMAYEVA, E. A., RAYEVSKIY, O. A., CHERKASOV, R. A., KHALITOV, V. V., and PUDOVIK, A. N., Kazan' State University imeni V. I. Ulyanov-Lenin, Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR Academy of Sciences, Kazan'

"Estimating the Dipole Moment of the P-S Bond"

Moscow, Doklady Akademii Nauk SSSR, 1971, Vol 197, No 4, pp 862-864

Abstract: Successful use of the dipole-moment method in structural studies depends largely upon a rational choice of the moments of the individual bonds. In addition, special difficulties arise in connection with calculating the dipole moments of ordinary bonds in which rotation is possible. There is no published information on the dipole moment of the P-S bond, which, apart from being of interest in itself, would make possible extension of use of the dipole-moment method to the structure of organophosphorus compounds.

The authors studied experimentally the dipole moment of 2-thiono-2-methyl-1,3,2-dithiaphosphorine, and applied infrared spectroscopy to determine the dipole moment of the P-S bond.

It was found that the negative end of an ordinary P-S bond is the phosphorus, just as it is in the case of the P-O bond. Various graphic data on the infrared spectra of the above-noted compounds accompany the paper.

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USSR

UDC: 519.2

KHALITOVA, G. A.

"Approximating Sums of a Random Number of Terms Distributed in Accordance With a Binomial Law by Infinitely Divisible Laws"

Uch. zap. Tashkent. gos. ped. in-t (Scientific Notes. Tashkent State Pedagogical Institute), 1972, 100, pp 90-95 (from RZh-Kibernetika, No 5, May 73, abstract No 5V35 by the author)

Translation: A theorem is proved on approximating sums of a random number of terms distributed according to a binomial law by infinitely divisible laws. An estimate of this approximation is given.

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USSR

UDC 534-8

VAL'KOV, Yu. V., ACHILOV, M. F., KHODZHAYEV, S. A., KHALIULIN, M. G.,
ZABIBULLAYEV, P. K.

"Concerning the Application of Diffraction Methods to the Study of Acoustical Properties of Liquids"

Uch. zap. Tashkent. gos. ped. in-t (Scientific Notes of Tashkent State Pedagogical Institute), 1971, Vol. 90, pp 24-28 (from RZh-Fizika, No 10, Oct 72, Abstract No 10Zh608)

Translation: Using the phenomenon of Bragg diffraction of light on acoustical waves, the authors conducted experimental studies on the rate of propagation v and absorption α of acoustical waves in distilled water over a wide frequency range (10-800 MHz). Acoustical waves were excited in the range 10-700 MHz using a quartz plate oscillating at odd harmonics and in the range 200-1000 MHz using a LiNbO_3 crystal in a coaxial resonator. The light source was a He-Ne gas laser. The following relationships were studied: $v = \phi(t^\circ\text{C})$ in the temperature range 10-90°C, $v = \phi(f)$ and $\alpha = \phi(f)$ in the frequency range 10-800 MHz at a temperature of 22°C. V. Semenov.

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USSR

UDC 534-8

MAHKAMOV, S., SHARIPOV, Sh., IVANOV, A. A., DAVIDOVICH, L. A.,
KHALIULIN, M. G., KHABIBULLAYEV, P. K.

"Concerning the Acoustical Relaxation Mechanism in Certain Pure Fluids and Their Solutions"

Uch. zap. Tashkent. gos. ped. in-t (Scientific Notes of Tashkent State Pedagogical Institute), 1970, Vol. 90, pp 35-45 (from RZh-Fizika, No 10, Oct 72, Abstract No 10Zh609)

Translation: The acoustical properties of the following low-viscous liquids were investigated: carbon sulfide, carbon tetrachloride, chloroform, methylene chloride, methylene boride, benzene, pyridine, thiophene, cyclohexane, acetic acid and its solutions in pyridine. The amplitude coefficient of the absorption was measured at frequencies from 285 kHz to 5 MHz by the substitution method with an accuracy of 7-10% and in the range from 5 MHz to 3 GHz by the pulse method with an accuracy of 3-5% at low frequencies and 7-10% at high frequencies. The speed of sound was measured by the phase method with an accuracy up to 0.1%. The results are discussed from the aspect of vibrational and structural relaxation and their mutual effect. V. Ye. Gordeyev.

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USSR

UDC: 8.74

KHALIULINA, N. M.

"Program for Realization of a 29-Sector Dynamic Model of a National Economy
(in the Alpha Language for the BESM-6)"

V sb. Algoritmy i programmy realizatsii narodnokhoz. modeley (Algorithms
and Programs for Realization of National Economic Models--collection of
works), Novosibirsk, 1971, pp 10-30 (from RZh-Kibernetika, No 5, May 72,
Abstract No 5V530)

[No abstract]

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USSR

UDC 542.61:543.544:546.794

RAYCHEV, KH., and KHALKIN, V.

"Extraction-Chromatographic Method for Isolation of Polonium From Bismuth Oxide Irradiated With Target Protons"

Leningrad, Radiokhimiya, Vol 12, No 5, 1970, pp 778-779

Abstract: Model experiments on the sorption of polonium on tributylphosphate [TBP]-fluoroplast column from 6 M HCl supported the contention that the extraction chromatography is suitable for a rapid separation of polonium from macroquantities of bismuth. Eluates containing bismuth showed no traces of polonium, all of it being adsorbed by the column. Reextraction of polonium from TBP was achieved by means of diluted HF, from which polonium could be electrodeposited on platinum. Optimal conditions for electrodeposition were: current -- 160 ma, duration of the electrolysis -- 5 min, temperature -- 80°C.

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1/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--REACTIONS OF BENZENE WITH IODINE-125 AND ASTATINE-211 FORMED IN
NOBLE GASES AS A RESULT OF K CAPTURE -U-
AUTHOR-(05)-NEFEDOV, V.D., TOROPOVA, M.A., KHALKIN, V.A., NORSEYEV, YU.V.,
KUZIN, V.I.
COUNTRY OF INFO--USSR
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DATE PUBLISHED-----70

K

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