USSR   UDC 536.722:536.63

SHEYNDLIN, A. Ye., BELEVICH, I. S., KOZHEVNIKOV, I. G.

"Study of the Enthalpy and Heat Capacity of Materials Based on Niobium Carbide at High Temperatures"

Abstract: Results are presented from studies of the enthalpy and heat conductivity of niobium carbide with various relationships of Nb and C. Measurements were performed by the method of mixing in the 300-3500° K temperature interval. Equations are given for description of the dependence of enthalpy and heat capacity on temperature. The error in measurement of enthalpy is ±1.5%. The authors explain the divergence of their data with the data of earlier authors primarily as a result of differences in free-carbon content of the specimens tested.

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UDC 535.63:536.722

SHEYNDLIN, A. YE., BELEVICH, I. S., and KOZHEVNIKOV, I. G., Institute of High Temperatures, Academy of Sciences USSR

"Enthalpy and Specific Heat of Boron Carbide in the 273-2600° K Temperature Range"

Moscow, Teplofizika Vysokikh Temperatur, No 2, 1972, pp 421-423

Abstract: The article describes results of a study of the enthalpy and specific heat of boron carbide by the mixing method. The initial composition of the boron carbide samples was 76.4 percent $B_{comb.}$, 21.26 percent $C_{tot.}$, 3.32 percent C_{free} and 2.29 percent impurities (0.71 percent Ca + 0.39 percent Mg + 0.28 Si + 0.91 percent R_2O_3). An analysis of experimental data shows that boron carbide is characterized by a complex temperature dependence of specific heat and enthalpy. The mean specific heat increases rapidly with a temperature change from room temperature to ~1100° K, and its dependence on T in the 1300-1900° K range is close to linear. At T > 2100° K the variation of these properties can be described by an exponent. An additional series of experiments performed to reduce the effect of random measurement errors at

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SHEYNDLIN, A. YE., et al., Teplofizika Vysokikh Temperatur, No 2, 1972, pp 421-423

temperatures above 2100° K, where a significant increase in the specific heat of boron carbide is observed, confirmed the character of the temperature dependence of calorific properties.

Experiments were also staged to determine the melting temperature of boron carbide in a furnace with a graphite heater in a pure argon atmosphere. At temperatures above 2650° K it was found that the samples lost mass, and a change of composition took place in the material. Boron carbide melt thrown into a cold calorimeter congealed in the form of spherules with a smooth surface and a large number of internal pores. Chemical analysis showed that samples heated to 2675° K contain 29.05 percent $C_{tot.}$ and 66.43 percent B; completely fused drops of a sample, 49.61 percent $C_{tot.}$, and 45.26 percent B. The greater part of the impurities is iron, which apparently appeared during the preparation of samples from this very hard carbide. The melting temperature of boron carbide obtained under these conditions is $2713\pm20°$ K. In some experiments where direct contact of a sample with the graphite was permitted,

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SHEYNDLIN, A. YE., et al., Teplofizika Vysokikh Temperatur, No 2, 1972, pp 421-423

samples melted at a lower temperature equal to $2620°$ K. Results of chemical analysis and visual observations indicate that dissociation of the material and evaporation of boron take place in boron carbide samples near the melting point, as a result of which the congealed melt represents an extremely porous mass with a significant boron deficiency as compared to the initial composition.

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85

Abstract: A theoretical analysis is made of the characteristics of
traveling-wave lasers, including a linear computation of the aniso-
tropic resonator. The effect of nonlinear interactions of polarized
waves on the oscillation mode of the lasers is determined. For the
computations, the Jones method involving a special matrix is used.
An equation is derived for the characteristic vectors of the reso-
nator at some arbitrary point, and from it is found an expression
for the eigenvalues characterizing the change in absolute value and
phase of the characteristic vector for a single excursion of the
resonator. Plots of the characteristics for these characteristic
polarization vectors are shown for three- and four-mirror resonator
systems. The interaction of polarized waves in the traveling-wave
laser is theoretically investigated. The authors thank K. A.
Yesepkina, V. Yu. Petrun'kin, and L. N. Pakhomov for their comments
on the paper. They are associated with the M. I. Kalinin Polytech-
nical Institute of Leningrad.
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USSR

UDC 534.134

KOZHEVNIKOV, S. N. and DOLGOV, N. M.

"The Elastic Interaction of Colliding Rods With Damped Mountings"

Kiev, Prikladnay Mekhanika, Vol 9, No 7, 1973, pp 91-97

Abstract: The paper deals with the problem of the symmetrical impact of an elastic prismatic rod, moving at the moment of collision at an initial velocity of v_0, against the supports of another prismatic rod installed on elastic mountings. The solution is conducted by the method of successive approximations, with account taken of the elastic characteristics of the rods, and of the mountings and supports of the second rod, it being assumed that the latter are nonlinear. A frequency equation is provided for the case under consideration, as well as a solution of the relatively dynamic deformations and contact loads. The results of the solution of this problem permit the elasticity and mass characteristics of the system under consideration to be selected in such a manner as to reduce the dynamic loads to a minimum and, when necessary, to eliminate rebounds and repeated collisions. 3 figures, 6 references.

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USSR   UDC 532.5:621.22

KOVAL', V. P., KOZHEVNIKOV, S. N., MANZIY, V. S., PANCHISHIN, V. I.

"Derivation of the Equations for Non-Steady-State Motion of an Aircraft Turbo-
starter With a Hydrodynamic Clutch"

V sb. Nekotor. vopr. prikl. mat. Vyp. 5 (Certain Problems of Applied Mathematics.
No. 5 -- Collection of Works), Kiev, 1971, pp 288-297 (from RZh-Mekhanika, No 12,
Dec 71, Abstract No 12B998)

Translation: It is noted that in transfer processes in a drive with a hydraulic
clutch there occur oscillations in the moment and velocity of the drive shaft
which make the process of acceleration of the machine difficult. The equations
of motion of the drive with a hydraulic clutch and transfer regimes are derived
on the basis of Bernoulli's equation for non-steady-state motion of a liquid.
This equation is convenient in the analysis of the rise of unstable operation
of the drive. In solving this equation the circulation component of the moment
transmitted by the clutch is determined by the Euler equation for a turbine
wheel. It is emphasized that one can find the laws for the change in angular
velocities of the rotation of the driving and driven shafts of the hydraulic
clutch in non-steady-state motion. The startup of a turbojet engine is con-
sidered as an example of the analysis. B. N. Chumachenko.

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USSR

UDC 621.01

KOZHEVNIKOV, S.N.

"General Problems of Machine Dynamics"

Moscow, Mashinovedeniye, No 3, May-Jun 71, pp 3-10

Abstract: Current conditions of research in machine dynamics in the USSR are tabulated: 1. Problems of heavy machine dynamics must be solved by studying their separate physical properties of elasticity, mass distribution, and motor systems. 2. There must be a wider introduction of continuous technological processes, increase in material supply and multimotor systems. 3. Many problems in machine theory cannot be solved by traditional approaches in the various sciences. The areas of electromechanics, hydraulics, pneumatics, and others must be studied deeper and interrelated to a greater degree. 4. There is insufficient effort in problems of optimalization by use of synthetic machine systems. Interrelation of various areas is required. 5. The USSR is behind the United States, England, and others in hydraulic systems for aviation, machine tools, metallurgy, and mining machines because there is insufficient development in pumps, actuators, control systems, and the study of physical dynamics in hydraulics. 6. Improvement is needed in methods of machine construction, machine maintenance, and the general logistics of machine deployment in the field.
1/1

USSR   UDC: 629.7.06

MIL', M. L., KOZHEVNIKOV, V. A., TERLSHTEYN, D. M.

"Method of Control of a Helicopter"

USSR Authors' Certificate, No 253894, filed 4/07/67, published 12/03/70 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika I Vychislitel'naya Tekhnika, No 3, 1971, Abstract No 3 A688 P)

Translation: A method is suggested for controlling a helicopter transporting an externally suspended cargo by acting on the lifting rotor, using the autopilot. In order to speed up damping of swinging of the cargo, a signal is formed which is proportional to the angular velocity of deflection of the line relative to the terrestrial vertical and, by feeding the signal produced to the autopilot, the helicopter is moved in space in the direction of deflection of the line from the terrestrial vertical.

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KOZHEVNIKOV, V.A.

JPRS 57914
5 Jan 73

UDC 51...

JPRS 57914
5 January 1...

STUDY OF PERIPHERAL AUDITORY ADAPTATION
IN A PSYCHOACOUSTICAL EXPERIMENT

[Article by L. A. Chistovich, director of the laboratory of speech physiology, V. A. Kozhevnikov, director of the laboratory of speech biophysics, ... Institute of Physiology... Academy of Sciences, Leningrad; Leningrad, Fiziologicheskiy Zhurnal SSSR, Russian, No 10, 1972, pp 15...].

The methods of a psychoacoustical experiment that satisfies the requirements for measuring peripheral auditory adaptation are described. The relations of the test stimulus detection threshold to the duration of the masking sound are determined. The results show that distinction should be made between fast and slow components in the adaptation effect. The processes related to the fast component are established during the first 50-70 msec of stimulation; the slow component is clearly expressed only at high sound intensities. The data agree with the results of electrophysiological studies of peripheral auditory adaptation.

Peripheral auditory adaptation is manifested in ... decline of the pulse frequency in auditory nerve fibers ... a signal of constant amplitude [14, 16] and in the inhibition of the reaction to the test stimulus, which is manifested ... after the completion of the influencing sound -- the ... (the amplitude of the first component of the auditory response, read from the round window usually curves ... index of the reaction [5, 9-11, 15]. The degree to which inhibition is expressed increases with an increase in ... ration of the masker [9] and decreases with an increasing ... the interval between the masker and the test stimulus [1], ... 15].

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[I - USSR - ...]

USSR   UDC 621.81.001.4:539.4

KOZHEVNIKOV, V. F.

"Effect of the Geometric Parameters of a Seamless Forged Turbine Rotor on Its State of Stress"

Translation: Results are given of an investigation, by the polarization-optical method, of the state of stress dependence of seamless forged turbine rotors on their main geometric parameters. The degree and character of the effect of either parameters of the rotor on the stresses developing in the rotor when running are estimated. The effect of the rotor geometry on the concentration of stresses in fillets of the shaft-disk coupling is investigated and graphs are plotted for determining the stress concentration coefficient in the fillet. Five illustrations, four bibliographic references.

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USSR

UDC: 621.762:669.018.5(088.8)

DAVIDOVICH, Ya. G., GLUSKIN, A. Ya., TEMKIN, I. V., AVROROVA, G. V.,
PETROSYAN, L. S., KOZHEVNIKOV, V. I.

"Method of Manufacture of Metal-Graphite Brushes"

Translation: A method is suggested for the manufacture of metal-graphite
brushes, for example copper-graphite brushes, by mixing of graphite and pitch
in the solid state with the addition of Cu powder and subsequent pressing of
the mixture. In order to improve the characteristics of the brushes, the Cu
powder is mixed with the prepared mixture of graphite and pitch.

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UDC 669.35'295'6'26:621.315.5(088.8)

USSR

FEDOROV, V. N., ROZENBERG, V. M., MUKHIN, N. I., GAS'KOVA, V. I., KOZHEVNIKOV, V. I., MATVEYEV, Yu. A., and POKROVSKAYA, G. N., State Scientific Research and Planning Institute of Alloys and Treatment of Nonferrous Metals

"Copper Base Alloy"

Translation: An alloy is suggested which differs from known alloys in its lowered Ti and Sn content and which is characterized by the following composition (in %): Ti 0.03-0.15, Sn 0.1-0.25, Cr 0.05-0.6 and the remainder Cu. After hardening, cold deformation due to drawing, and tempering, the alloy has σ_B 60 kg/sq mm, δ 4%, and conductivity 70% that of Cu. The alloy can be successfully employed as a current-carrying conductor.

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Acc. Nr: AP0102961 — Abstracting Service: 6-7a   Ref. Code: UR 0188
INTERNAT. AEROSPACE ABST.

A70-25391 #   Contribution to the nonlinear problem of the flow past an unevenness of the earth of arbitrary profile (K nelineinoi zadache obtekaniia nerovnosti Zemli proizvol'nogo profilia). M. N. Kozhevnikov and V. V. Kozadirov (Moskovskii Gosudarstvennyi Universitet, Moscow, USSR). Moskovskii Universitet, Vestnik, Seriia III—Fizika, Astronomiia, vol. 11, Jan.-Feb. 1970, p. 11-14. In Russian.

Development of a method of solving the Helmholtz equation for perturbations of the stream function, to which reduces the two-dimensional nonlinear problem of lee waves in the troposphere (assuming that the velocity and temperature gradient in the unperturbed oncoming flow are constants and that the particle motion is adiabatic). Particular attention is given to the influence of the earth's profile on the form of the solution. A stream function field is obtained in dimensionless form for a closely simulated mountaineous profile.   V.P.

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USSR

UDC 621.515

BEKNEV, V. S., Doctor of Technical Sciences, Professor, and KOZHEVNIKOV, V. Yu., Engineer (Moscow Higher Technical School imeni N. E. Bauman)

"Calculation of the Distribution of Losses Along the Blade Height of an Axial Compressor"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Mashinostroyeniye, No 2, 1971, pp 109-113

Abstract: On the basis of experimental data, relationships are obtained which make it possible to calculate the losses at each cross section with respect to the height of an axial-compressor blade. The obtained results permit a judgment to be made concerning the influence of various cascade parameters upon the distribution of losses with respect to blade height. 3 figures, 3 bibliographic entries.

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USSR

UDC 613.165:612.843.32

KOZHEVNIKOV, Ye. P., Military Medical Academy imeni S. M. Kirov, Peningrad

"Human Work Capacity During Adaptation to a Bright Light Source of Varying Spectral Composition"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 9, Sep 70, pp 12-16

Abstract: The dynamics of work capacity of healthy human subjects during adaptation to colored lights was evaluated from the rate and quality of sensorimotor reactions of varying complexity. The subjects, seated at a specially designed control board, were required to press buttons to switch off the lights at appropriate signals during a 2 hour adaptation period. Adaptation resulted in changes in the rate and quality of the reactions in relation to the color of the light source and the adaptation time. An increase in wavelength increased reaction speed but impaired quality, while a decrease in wavelength had the opposite effects. Red light produced tension and irritability. Yellow light induced a good mood characterized by "increased motor readiness" and sustained attentiveness. Sluggishness and sleepiness were the characteristic reactions to blue light. Green light did not seem to produce any emotional reaction.

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USSR   UDC 534

KOZHEVNIKOV, YU. V., BIKCHANTAYEV, M. KH.

"Boundary Damping of Oscillations"

Tr. Kazan. aviats. in-ta (Works of the Kazan' Aircraft Institute), 1971, vyp. 130, pp 20-27 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11A149)

Translation: A study was made of the problem of damping the oscillatory process of a distributed system described by the wave equation by operating on the system boundaries. The control functions are found from the condition of the minimum of the energy functional of the system with limited variation of the energy of displacement of the ends. The problem of finding the law of motion of the ends is reduced to the boundary problem for a system of differential-difference equations. A method of solving the obtained problem is given.

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USSR   UDC 629.7.015

KOZHEVNIKOV, YU. V., TALYZIN, V. A., BOYKO, A. N.

"Craft Optimization in an Independent Test Program"

Kazan', Izvestiya Vysshykh Uchebnykh Zavedeniy, Aviatsionnaya
Tekhnika, No 3, 1970, pp 14-21

Abstract: The article deals with the problem of optimization of
the program of motion of a two-stage craft that is being delivered
to a given flight-range segment /I', I"/ in accordance with the
following criteria: a) maximization of the probability of a suc-
cessful outcome of not less than m craft launchings in a series of
n (n $\geqslant$ m) launchings; b) maximization of the probability of
exactly m successful arrivals of the craft in a series of n
(n $\geqslant$ m) launchings. The necessary optimality conditions in the
problems are obtained by methods of the theory of optimal averaging
of the controls. An algorithm for numerical solution of the problem
is compiled. The results of optimization of the movement program
of a single-stage craft in accordance with criteria a) and b) are
presented as an example. 2 tables, 2 figures, 4 bibliographic
entries.
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USSR   UDC 539.4

LEBEDEV, A. A., SHKANOV, I. N., KOZHEVNIKOV, Yu. L., Karan'

"Criteria for Endurance of Steels Under Variable Loads Under Conditions of Monaxial and Biaxial Static Extension"

Abstract: A comparative analysis is presented of the existing criteria for fatigue strength under the combined influence of static and variable stresses and the criterion suggested for the case when the static stresses are a result of biaxial extension. The analysis is well argued with new, as well as known, experimental data and references to the literature.

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USSR

KOZHEVNIKOVA, G. P.

"Forms of Representation of Analytic Expressions and their Applications in
Formula Transform Programming Systems"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Tech-
nology -- Collection of Works], No 3, Khar'kov, 1972, pp 45-48 (Translated
from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V651, by
the author).

Translation: Various types of linear forms of onscription of trees are
studied as machine representations of analytic expressions.

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USSR

KOZHEVNIKOVA, G. P.

"Computational Complexity of the Procedures 'Compare' and 'Differentiate' as Applicable to the Languages of Lukashevich and Kantorovich"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Technology], No 3, Khar'kov, 1972, pp 64-65 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V616, by the author).

Translation: Estimates are presented of the computational complexity of various modifications of the procedures COMPARE (considering commutativeness of the operations + and x) and DIFFERENTIATE as applicable to the languages of Lukashevich and Kantorovich.

UDC 8.74

USSR

KOZHEVNIKOVA, G. P.

"Efficient Implementation of Algorithmic Languages for Analytical Transformations"

V sb. Teoriya yazykov i metody postroyeniya sistem programmir. (Language Theory and Methods of Constructing Programming Systems--collection of works), Kiev-Alushta, 1972, pp 338-345 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V426)

Translation: The mathematical apparatus for obtaining estimates of the complexity of formula transformations is described, and estimates are presented for the procedures of a series of analytical operators. The parameters of the abstract M-machine oriented toward execution of the operators of the algorithmic languages of formula transformations and developed specially for obtaining the estimates of them are used as the criterion. The relation between the complexity of the calculations on the M-machines and the Turing machines is established. This offers the possibility of beginning with evaluations of the transformations executed on the M-machines and characterizing their complexity also by the Turing machine parameters. For experimental confirmation of the theoretical estimates, the M-machine simulation system was developed on the Minsk-22 digital computer. The multitape Turing machine was used as the M-machine prototype. The machine comprises three basic components for memory, index module and functional mechanism. The memory is divided into two types: tape storage and working field.

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The tape storage contains an infinite set of linear tapes divided into individual
numbered positions. The working field is formed from the tapes contained in the
tape storage. For each tape of the working field one register is allocated which
is considered rigidly connected to the tape and has no effect on the size of the
working field. The tapes in the tape storage are empty. On reaching the working
field they are filled during the process of operation of the H-machine by the
symbols of the formulas. Each tape is designed to record one of the formulas.
Each symbol of the formula is placed in one position. The numbers of the posi-
tions can be written on the tape; in this case they are considered as hiero-
glyphs and are placed in one position. The index module is used for indexing
defined positions on the tapes of the working field and also for performing the
operation of algebraic addition of natural numbers with one. The indexing of
the positions on the tapes of the working field is done by means of heads which
can be moved along the tape to the right and left. The functional mechanism
which controls the operation of the machine contains a set of admissible elemen-
tary operations, the algorithm program and also the set of priorities of the
arithmetic operations.

2/2

USSR

LOPATINA, Zh. M., BEREZNITSKAYA, L. M., DEGTYAREV, Yu. N., and KOZHEVNIKOVA, L. V., Semipalatinsk Medical Institute

"Prognostic Value of Dysproteinemia and Increased Vascular Permeability in Brucellosis Patients"

Abstract: Observation of 531 brucellosis patients showed a relationship between the dynamics of vascular permeability, serum proteins, and the response to therapy. Dysproteinemia and increasing vascular permeability were characteristic of those refractory to therapy. Follow-up examinations of patients after discharge from the hospital revealed that recurrences were most likely among those with continuing dysproteinemia and increased vascular permeability. In most persons examined in a period of clinical remission, serum proteins and vascular permeability were within normal limits. A few exhibited pathological changes -- decrease in albumins, increase in alpha and gamma globulins, and slightly increased vascular permeability -- and it was this group that was mostly likely to have relapses. Thus, dysproteinemia and increased vascular permeability are unfavorable prognostic signs. However, a normal blood picture in a period of remission is not a reliable indicator of complete
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USSR

LOPATINA, Zh. M., et al., Zdravookhraneniye Kazakhstana, No 1, 1972, pp 28-30

recovery, for it was observed at this time even in persons who subsequently suffered relapses.

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USSR   UDC (546.824.41/43+546/831/4'41/43)5541.452

FEDOROV, N. F., KOZHEVNIKOVA, L. V., and LUNINA, N. M., Leningrad Technological Institute imeni Lensovet

"Synthesis and Properties of Materials Based on Titanates and Zirconates of Ca, Sr, Ba and Aqueous Acid Solutions"

Abstract: Titanates and zirconates of alkaline-earth metals were synthesized in an attempt to produce binders of materials which possessed dielectric properties. It was shown that there is an advantage in using semi-dry pressing of powders of Ca, Sr, and Ba titanates and zirconates to produce materials with a good combination of high strength and good electrophysical properties. Materials were synthesized which had a compressive strength of 3600 and bend strength of 500 kG/cm^2. Electrical properties of the investigated composites were within the following limits: resistance -- 10^7-10^{11} ohm-cm; tg δ = 0.05-0.1, ε = 15-800. Zirconates of alkaline-earth elements were stable to temperature effects up to 1000°C. A new and highly effective compound for producing parts of oxide compounds was a mixture of sulfuric and phosphoric acids where the best results were achieved at a content of the initial acids of 40-60% H_3PO_4 and 60-40% H_2SO_4. Three figures, two tables, five bibliographic references.
1/1

Pathology

USSR   UDC 616.981.42-07:[616.153.96+616.13-008.6]-:

LOPATINA, ZH. MO., BEREZNITSKAYA, A. M., DEGTYAREV, YU. N., and KOZHEVNIKOVA, L. Y.

"Dynamics of Protein Fractions in the Blood Serum and Vascular Permeability in Patients With Brucellosis"

Abstract: Clinical and laboratory studies of patients with brucellosis were conducted to determine shifts in protein content and vascular permeability as supplementary criteria indicating the activity of brucellosis infection. Total protein content was studied with the use of a refractometer. The serum content of protein fractions by the method of paper electrophoresis and vascular permeability by the rate of semiabsorption of 5 millicuries of I131 from intracutaneous deposits. A total of 531 patients with brucellosis and 50 healthy people in the control group were investigated. An analysis of the data obtained revealed dysproteinemia, hypoalbuminemia, an increase in the blood content of alpha- and gamma-globulins, and increased vascular permeability in the overwhelming majority of patients during the most active periods of brucellosis, especially when on high allergic reactivity and inflammation were also present. A tendency toward normalization of the above
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USSR

LOPATINA, ZH. HO., et al., Terapevticheskiy Arkhiv, Vol 43, No 2, Feb 71, pp 62-67

criteria was observed with abatement of clinical manifestations of brucei... and the remission of the disease. Therapy consisted of the administratio: of antibiotics -- tetracycline + streptomycin, vaccine in combination wit... trasylol, prednisolone, aspirin or pyrazolone preparations. All produce: positive results. Some of the preparations apparently affected the dyr.:: of protein shifts and vascular permeability changes; no precise parallel... however, has been established. After being discharged from the hospital. the patients were kept under observation for periods of 3-4 years. Ret::. tion of the normalization of the protein picture and vascular permeabili:: was noted in a number of patients, indicating the persistence of brucell: process. The recurrence of the disease occurred most frequently among t: patients.

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UDC 669.71:472:621.035

USSR

DEMIN, A. V., POPOV, V. L., SVOBODA, R. V., LAVROVA, T. V., KOZHEVNIKOVA, N. A., and SHIPKOV, N. N.

"Manufacture of Roasted Anodes for Aluminum Electrolyzers by the Method of Combined Pressing and Roasting"

V sb. Konstrukts. materialv na osnove grafita (Graphite-Base Construction Materials -- Collection of Works), No 6, Moscow, "Metallurgiya" (Metallurgy), 1971, pp 10-13 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G131 by G. Svodtseva)

Translation of Abstract: The results of tests with experimental specimens showed that the method of combined pressing and roasting makes it possible to obtain roasted anodes with elevated physicomechanical and operational characteristics from various raw materials.

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USSR   UDC 621.357.1:669.715.72

DEMIN, A. V., POPOV, V. L., SVOBODA, R. V., LAVROVA, T. V., KOZHEVNIKOVA,
N. A., SHIPKOV, N. N.

"Manufacture of Annealed Anodes for Aluminum Electrolyzers by Combined
Pressing and Annealing"

Konstrukts. Materialy na Osnove Grapfita [Graphite-Based Structural Materials
-- Collection of Works], Moscow, Metallurgiya Press, No 6, 1971, pp 10-13
(Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No
2 L309 from the Resume).

Translation: The possibility is demonstrated of using the method of combined
pressing and sintering for the preparation of prismatic specimens of sintered
anodes based on various raw materials: type KNPE petroleum coke mixed with
pitch, shale, and also individually of non-roasted pitch coke. The properties
of the anodes produced are compared with those of anodes type DEZ, anodes
from companies in the GDR, FRG and Switzerland, tested under similar condi-
tions. The results indicate that manufacture of anodes by combined pressing
and sintering produces anodes with lower oxidizability, subject to consider-
ably less damage upon interaction with CO_2, with compact structure.

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Stress Analysis and Stability Studies

USSR   UDC 621.438-251:539.4

SVETLAKOV, Ch. L., MAKHNEV, A. G., KOZHEVNIKOV, V. F., (Kaluga, Moscow)

"One Case of Rupture of Turbine Disks in a Gas-Turbine Engine"

Kiev, Problemy Prochnosti, No 12, Dec. 1972, pp 106-110.

Abstract: Results are presented from studies of the strength of a gas
turbine disk in a low power gas turbine engine, performed in relationship
to cases of disk rupture which have occurred. Results are presented from
calculation and experimental analysis (by the polarization-optical method)
of the stress state, as well as the values of concentration factors at
points of contact of circular projections with the body of the disk. It is
noted that the reason for rupture was high concentration of stresses under
three-dimensional stress-state conditions, the nature of which does not
allow redistribution of stresses.

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USSR   UDC 535.322.4.05

ALMASHIN, A. S., ISKHAKOV, B. O., KOZHEVNIKOVA, N. V.

"Photoelectric Sighting Device in the IRF-452 Refractometer and Analysis of
Its Operating Accuracy"

Dokl. Vses. soveshch. Optich. i titrometrich, analizaarr chid., t.l. 1971, G.
2 (Reports of the All-Union Conference on Optical and Titrometric Analysis of
Liquid Media, 1971, Part 2), Tbilisi, 1971, pp 73-79 (from Khar-Spektroloriv. i
Izmeritel'naya Tekhnika, No 3, Mar 72, Abstract No 3.34.104)

Translation: The optical schematic of the IRF-452 laboratory refractometer
based on the U-prism method and equipped with a special photoelectric device
which insures objective sighting and broadening of the spectral measurement
range to 2.5 microns is presented. The refractometer is designed to determine
the index of refraction and dispersion of solid and liquid states with an ac-
curacy to $2 \cdot 10^{-5}$. The results of experimental testing demonstrated satisfac-
tory reproducibility of the readings in the spectral range from 4.36.7 to 2.50 nm
with complete insurance of the accuracy requirements for measuring the index
of refraction to $2 \cdot 10^{-5}$. The bibliography has 3 entries.

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SAMSONOV, G. V., ROZHANSKAYA, T. I., MOSKVICHEV, B. V., MARGOLINA, N. A.,
SELEKHOVA, G. B., KOZHEVNIKOVA, P. YE.

"Study of the Permeability of Ultrafiltration Diaphragms"

Abstract: The results are presented from a study of the physical-chemical
properties of Soviet anisotropic diaphragms based on cellulose acetate: the
permeability and filtration rates as functions of the concentration and pres-
sure gradients and the composition of the solution. The degree of trapping of
the material by a given diaphragm depends primarily on the molecular weight of
the material. The filtration rate depends on the type of diaphragm, the
magnitude of the pressure gradient, the concentration and composition of the
filtered solution. The dimensions of the ultrafilter pores are estimated.
Integral pore distribution curves with respect to dimensions in the active
layer of the membrane are plotted and interpreted. The active layer of the
tested diaphragm is characterized predominantly by pores corresponding with
respect to permeability to materials with a macromolecule diameter of 20-40 Å.
The performed studies make it possible efficiently to select ultrafilters
suitable for the concentration of biological preparations of defined molecular
weight.
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IMMUNOGENIC AND ALLERGENIC ANTIGENS OF MYCOBACTERIA TUBERCULOSIS

Report 1

A Study of Laboratory Models for Assessment of the Immunizing Capacity of Tuberculosis Vaccines

T. B. Yablokova, T. P. Kozhevnikova, D. T. Levi

This report is a part of combined work intended to be carried out according to the WHO program together with specialized laboratories of a number of countries. The principal task of these investigations is elaboration of a standard test of protection against tuberculosis on animals.

The first comparative study of live vaccines and of immunogenic substances of mycobacteria in various test-systems pointed to the difference ebetween individual preparations in some of the experiments, and similarity in others. A higher immunological activity of live BCG vaccine was regularly noted. Analogous resu   swere obtained by other participants of this work.

Further combined investigations are deemed expedient, but the number of test-vaccines and test-systems should be limited so as the materials obtained were more accessible for comparative analysis.

REEL/FRAME
19770363

UNCLASSIFIED   PROCESSING DATE--11

1/2   015
TITLE--ACCELERATED METHOD OF DETERMINING COPPER AND NICKEL IN CYANIDE
ELECTROLYTES -U-
AUTHOR-(02)-USHAKOV, V.N., KOZHEVNIKOVA, V.V.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB., 1970, 36, (3), 278-279

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL ANALYSIS, COPPER, NICKEL, ELECTROLYTE, CYANIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0942   STEP NO--UR/0032/70/036/003/0278/0279

CIRC ACCESSION NO--AP0131627
UNCLASSIFIED

CIRC ACCESSION NO--AP0131527
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PHOTOMETRIC METHOD OF
DETERMINING CU AND NI IN CYANIDE ELECTROLYTES WITHOUT PRELIMINARY
EVAPORATION OF THE ELECTROLYTE IS PROPOSED. THE CYANIDES ARE
DECOMPOSED WITH SMALL QUANTITIES OF PERHYDROL IN AN AMMONIACAL MEDIUM.
THE CU IS SUBSEQUENTLY DETERMINED BY REF. TO THE COLOUR OF A CU-NH3 SUB3
COMPLES, AND THE NI IN THE FORM OF A COMPOUND WITH DIMETHYLGLYOXIME.

USSR

KOZHIMETOV, G. Kh.

"Influence of Interruption, Frequency and 'Scaling Factor' on Strength of Tubing with Repeated Loading"

Prochnost' i Seysmostoykost' Sooruzh. [Strength and Earthquake Resistance of Structures -- Collection of Works], Tashkent Foreign Press, 1971, pp 157-160. (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1972, Abstract No. 1V1199, by A. I. Makarov).

Translation: Results are presented from an experimental study of the influence of interruption in repeated loadings, loading frequency and the "scaling factor" on the strength of thin steel tubing. It is established in the testing process that the strength of thin tubes of steel increases when repeated loading is interrupted. As the frequency of repeated loadings increases, the strength increases only to a certain level. Increasing the diameter of the steel tubes with otherwise equivalent conditions causes a decrease in strength.

1/1

TITLE--SYNTHESIS OF GLUCOSE AMINIDES OF MENTHOL AND THYMOL -U-

AUTHOR-(02)-KOZHIN, S.A., TITKOVA, YE.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(1), 248-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SYNTHESIS, GLUCOSE, AMIDE, GLUCOSIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1503   STEP NO--UR/0079/70/040/001/0248/0249

CIRC ACCESSION NO--AP0135164
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135164
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. 2 ACETAMIDO 3,4,6 TRI O ACETYL 2
  DEOXY ALPHA D GLUCOPYRANOSYL BROMIDE WAS TREATED WITH SHOWN ON
  MICROFICHE.   FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

172   020   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--MARKING PRODUCTS BY THE ELECTROCHEMICAL METHOD -U-

AUTHOR-(03)-ZASTAVNYY, YE.A., KOZHIN, S.V., KUROCHKIN, P.YE.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, STANKI I INSTRUMENT, NO 2, 1970, PP 26-27

DATE PUBLISHED--------70

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

TOPIC TAGS--ELECTROCHEMISTRY, TECHNICAL STANDARD, ELECTROLYTE, PATENT,
   CHEMICAL MARKING AGENT, MACHINE TOOL INDUSTRY, ELECTROLYSIS/(U)EKHM2
   ELECTROCHEMICAL MARKER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0383   STEP NO--UR/0121/70/000/002/0026/0027

CIRC ACCESSION NO--AP0113729
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0113729
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTROCHEMICAL METHOD MAKES
IT POSSIBLE, BY MEANS OF INEXPENSIVE AND HARMLESS ELECTROLYTES, TO MARK
VARIOUS PRODUCST, INCLUDING THIN WALLED PRODUCTS, MADE OF MATERIALS OF
ANY DEGREE OF HARDNESS. HOWEVER THE COMPLEXITY, AND SOMETIMES EVEN THE
IMPOSSIBILITY OF PRODUCING STENCILS, AND THEIR LACK OF LONGEVITY,
RESTRICT THE APPLICATION OF THIS PROMISING METHOD IN INDUSTRY. THIS
DRAWBACK IS ELIMINATED VIA USE OF THE STENCILLES ELECTROCHEMICAL METHOD
OF MARKING (AUTHOR'S CERTIFICATE NO 224240), WHICH CONSTITUTES A SPECIAL
CASE OF ELECTROLYSIS WITH A SOLUBLE ANODE. THE COMPACE, TABLETOP EKHM-2
INSTALLATION FOR STENCILLESS ELECTROCHEMICAL MARKING HAS BEEN DEVELOPED,
TESTED, AND PUT INTO PRODUCTION AT THE LABORATORY OF THE SPECIAL DESIGN
OFFICE OF THE MINISTRY OF THE MACHINE TOOL AND TOOL INDUSTRY, USSR. THE
TECHNICAL SPECIFICATIONS OF THIS INSTALLATION ARE PRESENTED, ITS
OPERATION IS DESCRIBED, AND EXAMPLES OF ITS APPLICATION ARE GIVEN.

UNCLASSIFIED

USSR

UDC 669.14.018.23

KOZHIN, V. M., KARPOV, A. G., OPANASENKO, T. V., GRISHINA, N. A., and YEROFEYEV, V. I.

"EP378 High-Strength Automatic Stainless Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1970, pp 25-27

Abstract: A new high-strength automatic stainless steel, type EP378 (0.35-0.45% C; 0.6-1.0% Mn; 1.7-2.2% Ni; 0.6-0.9% Mo; 16.5-18.5% Cr; 0.15-0.25% S; 0.08-0.15% P), is desribed. The new steel has superior physical and mechanical properties to types Kh14, 1Kh18N10Ye, and EI474. The steel is designed for parts of instruments working in friction which must have hardness $HRC > 48$. The critical points for EP378 steel, determined dilatometrically, are: $Ac_1 = 750°C$; $Ac_3 = 820°C$; $M_n = 220°C$. The steel has maximum hardness when hardened from 1040-1060°C. The influence of tempering on mechanical properties is studied. The mechanical properties of the steel are: tensile strength 168-175 kg/cm^2, $\sigma_{0.2} = 140-145$ kg/mm^2, $\delta = 8-10\%$, $\psi = 15-17\%$, $a_n = 1.0-1.8$ kgm/cm^2, HRC = 48-52. Heat treatment modes are discussed.

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1/2   019   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--DENSITY JUMP VALUE AND THE RATE OF PHASE TRANSITION IN
   OCTAHYDROANTHRACENE, HEXACHLOROETHANE, AND GLUTARIC ACID -U-
AUTHOR-(02)-TSENEVA, M.A., KOZHIN, V.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(6), 1556-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ANTHRACENE, CHLOROETHANE, PHASE TRANSITION, SPECIFIC DENSITY,
   SUPERCOOLING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/F03 STEP NO--UR/0076/70/044/006/1556/1557

CIRC ACCESSION NO--AP0140330
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0140330
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE D. OF POWDERS OF THE 3 TITLE
SUBSTANCES WAS MEASURED AT TEMP. INTERVALS NEAR THE PHASE TRANSITION
POINT. THE D. JUMPS OF THE TITLE COMPDS., WHICH ARISE FROM THE PHASE
TRANSITION, OCCURRED BETWEEN 64-6DEGREES FOR H SUB2 C(CH SUB2 CO SUB2 H)
SUB2, BETWEEN 45-7DEGREES FOR C SUB2 CL SUB6, AND BETWEEN 63-5DEGREES
FOR OCTAHYDROANTHRACENE. THE RATE OF THE PHASE TRANSITION IN THE TITLE
COMPDS. WAS MEASURED AS A FUNCTION OF SUPERCOOLING.   FACILITY:
INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 541.49:546.791

VDOVENKO, V. M., KOZHINA, I. I., SUGLOBOVA, I. G., and CHIRKST, D. E.

"Formation of Complexes in the Systems Uranium Halide - Alkali Metal Halide. Preparation and Structure of Rb_2UBr_6 and Cs_2UBr_6"

Leningrad, Radiokhimiya, Vol 15, No 1, 1973, pp 54-57

Abstract: Rb_2UBr_6 (I; m. 722°, d_4^{20} 4.45±0.02) and Cs_2UBr_6 (II; m. 736°, d_4^{20} 4.74 ± 0.01) were prepared by melting RbBr and CsBr, respectively, with a stoichiometric amount of UBr_4 in a sealed, evacuated quartz tube. I and II were green compounds. Just like UBr_4, they hydrolized readily in the air with the formation of HBr, so that all operations with them had to be carried out in an Ar atmosphere. X-ray diffraction measurements showed that I and II crystallized in the cubic system within the spatial group $Fm3m-O_h^5$ and with a structure of the K_2PtCl_6 type. The elementary cell contained 4 formula units. The densities of I and II that followed from X-ray measurements corresponded to the picnometrically determined values of d_4^{20}.

1/1

Inorganic Compounds

BLINOVA, N. I., KOZHINA, I. I., RODIONOVA, L. P., and SOLNTSEV, V. M.

"Solution of Some Uranium Oxides in Sulfuric Acid"

Abstract: Changes in the composition and structure of tetragonal and cubic
uranium oxides during solution at 90° in 2.0, 10.0, and 15.0 N H_2SO_4 were
studied. Solution was carried out in an Ar atmosphere. Solution of U_4O_9 and
beta-U_3O_7 proceeded with an insignificant change in the chemical composition.
Other oxide phases did not form in the process. The concentration of H_2SO_4 had
no effect on the limiting composition of the two oxides. The lower limit of
the existence of the U_4O_9 phase was at a composition in the vicinity of
$UO_{2.231\pm0.005}$ and that of the beta-U_3O_7 phase at a composition in the vicinity
of $UO_{2.287\pm0.005}$. For gamma-U_3O_7 and tetragonal and pseudocubic oxides with the
compositions $UO_{2.37}$ to $UO_{2.40}$, the limiting compositions varied with the con-
centration of H_2SO_4 and with the method by which the initial oxide had been

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USSR

prepared. As shown by the compositions on solution first in 2 N H_2SO_4 and then in 10 N H_2SO_4, the changes in composition were reversible for these oxides. The lower limit of existence of the gamma-U_3O_7 phase at 90° was at a composition in the vicinity of $UO_{2.346 \pm 0.005}$. In the case of the oxides the behavior of which varied with the method of preparation, one could assume a lack of uniformity in the phase composition of the samples, which were apparently inhomogeneous in that respect. The authors thank Prof. U. M. Tolmachev for his help in the investigation.

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USSR

UDC 541.49:546.791

VDOVENKO, V. M., KOZHINA, I. I., SUGLOBOVA, I. G., and CHIRKST, D. E.

"Complex Formation in the Systems Uranium Halide -- Alkali Metal Halide. Forms of the Compounds in the Systems Uranium Tetrabromide -- Alkali Metal Bromide and Their Structural Characteristics"

Leningrad, Radiokhimiya, Vol 15, No 2, 1973, pp 172-177

Abstract: Fisibility diagrams are reported for the system UBr_4-MBr and conclusions reached from roentgenographic and thermographic studies concerning the forms of the coordination compounds obtained in these systems. It has been established that the salt systems UBr_4-MBr (M = Na, K, Rb, Cs) form complexes with only a single composition M_2UBr_6, which appears to be melting congruently, the melting points of individual complexes increasing with the increasing atomic number of the alkali metal. With decreasing atomic number of the alkali metal the cubic face-centered lattice shown by Cs_2UBr_6 and Rb_2UBr_6 undergoes deformation, changing to the tetragonal lattice of K_2UBr_6.

Na_2UBr_6 has a hexagonal structure.

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Ion Exchange

USSR

UDC 541.183.12

KAZAKOV, YE. V., KOZHINA, I. I., KARPOVA, I. F. (Deceased)

"Ion-Exchange Capacity of Copper Ferrocyanides"

Abstract: The purpose of this investigation was to determine the theoretical total ion-exchange capacity of various copper ferrocyanide compounds as a function of composition and structure and to compare the theoretically rated total exchange capacity with the experimental values derived for each individual compound. Chemical and X-ray phase analyses indicate that both the composition and structure closely depend on the method and conditions of synthesis. Copper ferrocyanides are semi-functional weakly acid cationites with a rather low exchange capacity. The theoretical total exchange capacity of the experimental compounds was calculated on the basis of the chemical analytical data and the equivalent weights of ferrocyanide sorbents. The comparison of the theoretical total exchange capacity with the experimental

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USSR

KAZAKOV, YE. V., et al, Vestnik Leningradskogo universiteta, No 10, Fizika i khimiya, No 2, May 71, pp 131-137

results indicate that the experimental values are much lower than the theoretically rated capacities and cannot be approximated to the upper limit without significant structural changes in the ferrocyanide compounds.

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TITLE--EFFECT OF THE CONDITIONS OF ALUMINUM OXIDE PREPARATION ON ITS
   POLYMORPHOUS TRANSFORMATIONS -U-

AUTHOR-(03)-RYABOV, A.N., KUZMINA, L.I., KOZLOV, I.L.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 602-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--OXIDE, ALUMINUM OXIDE, HYDROXIDE, X RAY DIFFRACTION STUDY,
   CHEMICAL SYNTHESIS, PHASE TRANSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0557   STEP NO--UR/0073/70/015/003/0602/0606

CIRC ACCESSION NO--AP0113448
                            UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113448
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM AN X RAY DIFFRACTION STUDY,
THE NATURE OF THE STARTING MATERIALS AFFECTS THE POLYMORPHOUS
TRANSITIONS OF THE RESULTING Al SUB2 O SUB3 (ALPHA GAMMA OR THETA
MODIFICATION). WHEN PREPD. FROM Al HYDROXIDE, THE PHASE TRANSITION FROM
GAMMA TO ALPHA Al SUB2 O SUB3 PROCEEDS VIA THE INTERMEDIATE THETA
MODIFICATION, WHICH IS MORE ORDERED THAN THE GAMMA MODIFICATION. THIS
TRANSITION INTERMEDIATE WAS NOT OBSD. WHEN THE GAMMA YIELDS ALPHA
TRANSITION OCCURRED IN Al SUB2 O SUB3 PREPD. FROM ALUMS.

UNCLASSIFIED

URGENT PROBLEMS OF SOIL HYGIENE

G. I. Sidorenko, L. A. Kozhinova, A. A. Dinerman

The paper carries information concerned with sanitary protection of soil. Its historical development in the USSR is expounded and in conclusion main trends of scientific research in this field are outlined.

REEL/FRAME
19770457

UDC 621.383.292

USSR

AYNBUND, M. R., GUSAKOVA, N. G., KOZHINSKAYA, E. V., SEMENOVA, V. B.

"Production Technology and Linearity of the Characteristics of Miniature Channel Emitters"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektronnoluch. i Fotoelektr. pribory (Electronic Technology. Scientific-Technical Collection. Electron Beam and Photoelectric Devices), 1970, Issue 2(16), pp 11-15 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5A194)

Translation: The paper describes an improvement of the production technology for spiral channel emitters of lead glass. The production process consists of winding of the spirals in an electrical furnace, orientation of the spiral ends on an axial line, polishing of the ends of the capillaries, frosting, washing, annealing in hydrogen, and deposition of the conductive contacts. The technology developed makes it possible to increase the output of suitable channels with an internal diameter of 1 mm (with an amplification > 10^5) from 20 to 40 percent. The magnitudes of the channel resistances, and the permissible power dissipation are presented, and also the dependence of the output channels on the input, linear to 10^{-8} - 10^{-6} amp. 5 ill. 6 ref. N. S.

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USSR

KOZHOKARU, N. YA., VEREZHENSKIY, A. R.

"Program of the Four-Factor Function and Set Correlation Coefficient"

Translation: A program is proposed for the Nairi computer when determining the coefficient of the coupling equation for a four-factor function and the set correlation coefficient by the model developed by A. A. Matuarin. The program is allocated with 600 ready-access memory cells and takes 347 cells.

Standard routines are used in the program to solve the system of algebraic equations and calculate the determinant. The program is self-restoring, and the initial data are not retained.

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USSR

UDC 8.74

VEREZHENSKIY, A. R., DZERO, O. I., KOZHOKARU, N. YA.

"Some Experimental Data Processing Programs on the Nairi Computer"

Tr. Kishinev. s.-kh. in-ta (Works of the Kishinev Agricultural Institute), 1972, No 86, pp 57-68, 75 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V495)

Translation: A study was made of the programs and their block diagrams for certain problems frequently encountered for processing on the Nairi computer: 1) the equation for a straight line of the type $y = ax + b$; 2) the equation of a hyperbola of the type $y = a + b/x$; 3) the equation of a parabola of the type $y = a_0 + a_1x + a_2x^2$; 4) the correlation coefficient for two variables; 5) the method of variation series; 6) the solution of polynomials.
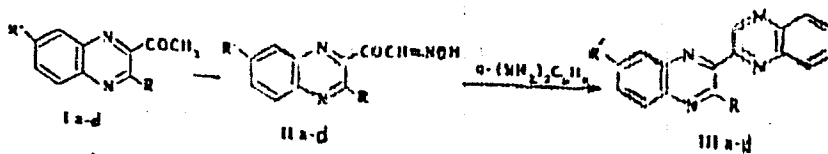
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Nitrogen Compounds

USSR

UDC 547.863.15.07:542.953

TITCV, V. V., KOCHCKINA, Scientific Research Institute of Organic Intermediate Products and Pigments, Moscow

"Acylquinoxalines. II. Synthesis of 2-phenyl and 3-methyl-2,2'-biquinoxalines"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, 1972, pp 1289-1290

Abstract: In order to synthesize asymmetric biquinoxalines, derivatives of 22-acetylquinoxaline were used which on nitrosation give monooximes of quinoxalyl-2-glyoxals (IIa-d). By the reaction with o-phenylenediamine the latter were reduced to 3-R-7-R'-2,2',-diquinoxalines (IIIa-d).

I a-d   II a-d   III a-d

I, II, III a P=C₆H₅, R'=H; 6 R=CH₃, R'=H; e R=R'=CH₃; d R=CH₃, R'=NHCOCH₃

The initial Ic,d were described previously (V. V. Titov, et al., KhGS, 1423, 1971), and the Ia,b were synthesized by a previously described method

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USSR

TITOV, V. V., KOZHOKINA, Khimiya Geterotsiklicheskikh Soyudineniy, No 9, 1972, pp 1289-1290

(F. Sachs, Ber., No 34, 3047, 1901; No 35, 3307, 1902) where the reaction of 1-phenylbutanetrione-1,2,3 with o-phenylenediamine leads to the formation of a mixture of two isomers -- 3-phenyl-2-acetylquinoxaline (Ia) and 3-benzoyl--2methylquinoxaline (IV). The isomers were separated chromatographically. In their infrared spectra 1,670 cm^{-1} and 1,716 cm^{-1} bands were detected respectively which correspond to the oscillations of the carbonyl group of the benzoyl and acetyl substitutions. According to the paramagnetic resonance spectral data the product formed in the reaction comprises a mixture of Ia and IV (2:3). The synthesis procedures and results are outlined for the indicated compounds.

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Hydrobiology

UDC 577.472(28)

USSR

KOZHOVA, O. M., Irkutsk State University imeni A. A. Zhdanov

"Gross and Net Production of Periphyton and Plankton Algae"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 4, Dec 70, pp 965-968

Abstract: In an attempt to obtain solid data on total production and des-
truction of phytoplankton, observations were conducted at the Bratskiy water
reservoir for several years. In those years the phytoplankton consisted of
Melosira islandica, Stephanodiscus hantzschii, Asterionella formosa, Crypto-
monadacea, Aphanizomenon flos-aquae, and Ceratium hirundinella. Phyto-
plankton production was determined by the oxygen method and related to the
weight of the biomass. Average production of 1 g of crude periphyton varies
in the above species and is due to their specific photosynthesis. When re-
calculated to dry weight of algae, the variation is decreased but still sub-
stantial. Net daily production of periphyton algae is about 78% of gross
production. Average net production of phytoplankton is larger by an order
of magnitude thant that of periphyton, which may be due to the fact that
because of a larger specific surface area, the plankton algae are capable
of more intensive production.
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AA0040711

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UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

243217 INTENSIFICATION OF HEAT EXCHANGE where the heat carrier used is on emulsion of non-conducting (dielectric) liquids with a conducting dispersed phase. The unequal conductivity increases the forces arising by passing a current, which in its turn leads to a greater heat exchange. 19.6.67 as 1169857/26-25. M. BOLOGA & OTHERS. APPLIED PHYSICS INST. ACAD. SCIENCES MOLDAVIAN SSR. (18.9.69) Bul 16/5.5.69. Class 421. Int.Cl.G 01k.

LD

AUTHORS: Bologa, M. K.; Kozhukhar', I. A.; and Grosu, F. P. Institut Prikladnoy Fiziki AN Moldavskoy SSR

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19750348

UDC 576.851.48.083.3:615.33

USSR

CHERNOMORDIK, A. B., and KOZHUKHAR', I. G., Kiev Institute of Infectious Diseases

"Media With Antibiotics for Isolating the Agents of Collenteritis"

Moscow, Laboratornoye Delo, No 9, 1971, pp 555-557

Abstract: Three elective nutrient media with various combinations of anti-biotics (A - streptomycin and penicillin; B - neomycin and penicillin; C - neomycin, streptomycin, and penicillin) were added to lactose agar with eosin and methylene blue in order to isolate the agents of colienteritis. The ordinary agar medium and the three media with antibiotics were compared by simultaneously incoulating them with stools from children with colien-teritis or suspected of having it. Enteropathogenic microbes were isolated in 90 of 243 specimens examined. All 90 bacteria carriers were detected on the media with antibiotics compared with only 41 on the agar medium. The greater effectiveness of the media with antibiotics is due to the fact that the drugs suppress foreign intestinal microflora, including nonpathogenic intestinal bacilli which are generally sensitive to streptomycin and neomycin.

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ZAVADOVSKIY, A. Z., KOZHUKHAR', S. V., and RYZHOV, V. P.

"Optimal Bandwidth for FM Pulse Reception on a Reverbera-
tional Noise Background"

Abstract: Since the realization of optimal filters is technically
difficult, nonoptimal systems for processing complex signals in
the form of a "band filter, detector, and low-frequency filter"
strip are often used. The width of the band filter is then usual-
ly chosen equal to the width of the signal spectrum. This article,
however, demonstrates that in this type of receiver, the optimal
bandwidth should be less than the signal spectrum width. The au-
thors take, as the index of the noise immunity, the improvement in
signal-to-noise ratio with the passage of signal and noise through
the band filter. The signal at the receiver input is taken to be

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a pulse of rectangular envelope with a definite amplitude, dura-
tion, and a linearly varying filling frequency having a specified
deviation. For a signal in which the product of the pulse dura-
tion and the frequency deviation is greater than one, it may be
assumed that the envelope of the signal spectrum is square-shaped
and the spectral width is equal to the frequency deviation. It
is assumed also that the band filter is in the form of a single
oscillatory circuit. The authors derive an expression for the
change in the ratio of the maximum signal amplitude to the effec-
tive noise value when the signal and noise pass through the filter
circuit. Since this expression is also the value of the improve-
ment in the signal-to-noise ratio noted above, it is investigated
for an extremum and found to have a maximum. The optimum band
width is thus derived. This result was experimentally verified
using an FM pulse oscillator with a pulse duration of about 1 to
20 microseconds and a frequency deviation of up to 10 kHz for an
average filling frequency of 50 kHz. The FM nonlinearity was no
more than 5%, and the band filter oscillatory circuit had a re-
sonant frequency of 50 kHz and a Q of 120.

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Receivers and Transmitters

USSR

ZAVADOVSKIY, A. Z., KOZHUKHAR', S. V., RYZHOV, V. P.

"Optimal Passband of a Linear-FM Pulse Receiver in the Presence of Reverberation Noise"

Kiev, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp 1156-1158

Translation: The use of complex signals not only improves the resolution capacity of a system but also increases its immunity to reverberation noise [1]. However, great technical difficulties are involved in the use of optimal filters for complex signals. Nonoptimal systems, in the form of a band-filter--detector--LF-filter channel, are hence often used for processing complex signals. The passband of the band filter is then selected usually equal to the width of the signal spectrum [2]. We will show that with this receiver structure and with the use of linear-FM pulses, the optimal passband must be narrower than the width of the signal spectrum.

We will take an improved signal-to-noise ratio as the means of noise suppression in the passage of a signal and noise through a band filter.

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USSR

ZAVADOVSKIY, A. Z., et al, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp
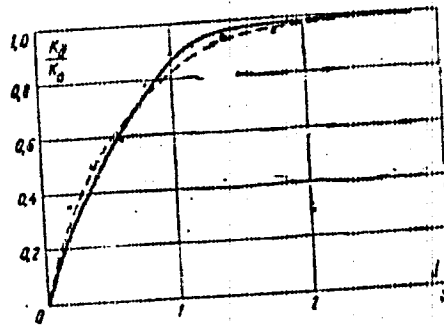1156-1158

Fig.1

We will examine the signal at the receiver output in the form of a pulse with
a rectangular envelope with an amplitude U_c, duration T, and a linearly varying
occupant frequency with deviation F. With a signal base $n = FT \gg 1$; we may
consider that the signal spectrum envelope is rectangular and that the width
of the spectrum is equal to the frequency deviation.

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USSR

ZAVADOVSKIY, A. Z., et al, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp
1156-1158

We will assume that the band filter is in the form of a single oscillation net-
work with an energy bandpass Δf. To determine the maximum amplitude value of
the signal at the filter output, we will use the dependency of the maximum of
the network dynamic transfer factor K_{π} on the value $\gamma = \frac{2}{\sqrt{\pi}} \frac{tJ}{f} \sqrt{m}$.
cited in [3].

Because the function $K_{\pi}(\gamma)$ is very complex, we will approximate it with the
following expression:

$$K_{\pi} = K_{0}(1 - e^{-1.7\gamma}).\tag{1}$$

The function $K_{\pi}(\gamma)$ computed with precise formulas [3] and its approximate curve
are given in figure 1.

If we regard reverberation interference as the result of superimposition of
signals reflected from a multitude of diffusers, we can consider [1] its random
process with a distribution close to the normal and with a power spectral den-
sity of practically rectangular shape (with $m \gg 1$) and equal to:

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USSR

ZAVADOVSKIY, A. Z., et al, <u>Izvestiya VUZ Radioelektronika</u>, No 9, Sep 70, pp 1156-1158

$$S = \frac{p U_c^2}{F},$$

(2)

where p - const.

Problems connected with the instability of reverberation noise are not discussed in this article.

We will use the following formula to determine the noise voltage at the network output:

$$U_{u} = K_4 \sqrt{S \cdot T} = K_4 U_c \sqrt{p \frac{\Delta f}{F}}.$$

(3)

Using (1), (2), and (3), we will find the change in the relationship of the maximum signal amplitude to the effective value of the noise during the passage of the signal and the noise through the circuit (bettering of the signal-to-noise ratio)

$$n = \sqrt{\frac{F}{\Delta f}} \left(1 - e^{-1.9 \frac{\Delta f}{F} \sqrt{m}} \right).$$

(4)

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USSR

ZAVADOVSKIY, A. Z., et al, _Izvestiya VUZ Radioelektronika_, No 9, Sep 70, pp
1156-1158

The results of calculation with formula (4) are shown in figure 2 for $n = 50$,
100, and 200.

Investigating expression (4) at the extremum reveals that n has a maximum in
the region

$$\Delta f_{onr} = \frac{0.66\, F}{\sqrt{m}},\qquad (5)$$

$$n_{\text{макс}} = 0.88\, \sqrt[4]{m}.\qquad (6)$$

equal to

Let us compare the signal-to-noise ratio at the circuit output with the cor-
responding ratio at the output of the optimal filter

$$\frac{n}{n_{onr}} = \frac{n}{\sqrt{m}} = \left(1 - e^{-1.9\,\frac{\Delta f}{F}\,\sqrt{m}}\right)\sqrt{\frac{F}{\Delta f\,m}}\qquad (7)$$

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USSR

ZAVADOVSKIY, A. Z., et al, <u>Izvestiya VUZ Radioelektronika</u>, No 9, Sep 70, pp 1156-1158

We will now determine the relation between the duration of the signal at the input of the circuit using the principle of frequency equivalency and the time changes in the signal as it passes through the linear circuit [4]

$$t_u = T \frac{\Delta f_{\text{A}}}{F}, \tag{8}$$

where Δf_{A} is the dynamic passband of the circuit; t_{a} is the output pulse duration determined at the same level (0.707) as the passband.

In determining Δf_{A} we will use the dependencies $\frac{\Delta f_{\text{A}}}{\Delta f_{\text{A max}}} = \varphi(\gamma)$ adduced in [3],

where $$\Delta f_{\text{A max}} = 0.8 \frac{\sqrt{m}}{T}, \tag{9}$$

Calculated with formulas (8) and (9), the dependency of $\frac{F}{\Delta f}$ on $\frac{t_u}{T}$ is demonstrated in figure 3 for m = 50, 100, and 200. The minimum value for the duration of the output pulse is equal to $t_{\text{umin}} = \frac{T}{k\sqrt{m}}$, and is located in the

region of the maximum of the curves $n\left(\frac{F}{\Delta f}\right)$.
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USSR

ZAVADOVSKIY, A. Z., et al, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp
1156-1158

For an experimental check of the derived relation, a linear-FM pulse generator
was used with controlled pulse duration (from one to 20 msec) and with a fre-
quency deviation of up to 10 kHz, with the center frequency occupying 50 kHz,
and with FM nonlinearity not exceeding 5%. The investigated oscillating circuit
had a resonance frequency of 50 kHz and a Q factor of 120. The dynamic transfer
factor of the network and the duration of the pulse at the output with a constant
passband (for m = 100) was investigated. An oscilloscope was used to do the
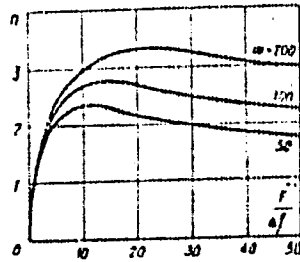measurements. The experimental values are shown in figures 1 and 3 with crosses.
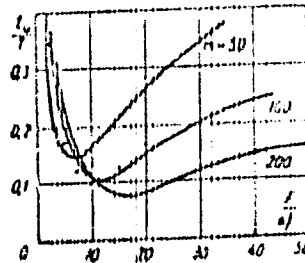

Fig. 2

Fig. 3

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USSR

ZAVADOVSKIY, A. Z., et al, Izvestiya VUZ Radioelektronika, No 9, Sep 70, pp 1156-1158

Thus, using formula (5) to select the circuit passband, minimal duration of the output pulse and a maximum signal-to-noise ratio are provided. In this case, the signal-to-noise ratio and the duration of the output pulse are worse than when using the optimal filter approximating the factor $\sqrt{m}$. However, the discussed system is designed considerably simpler than the optimal.

Bibliography:

1. Ol'shevskiy, V. V., Statistical Properties of Sea Reverberation. Izd-vo "Nauka," 1966.

2. Malyarevskiy, N. M., Krukovskiy-Sinevich, K. B., Comparative Noise Immunity of a Nonoptimal Detection System in the Presence of Signals with Noise and FM Content, Izvestiya VUZ SSSR Radioelektronika, 1969, Vol 12, No 1, p 51

3. Martynov, V. A., Selikhov, Yu. I., Panoramic Receivers and Spectrum Analyzers, Izd-vo, "Sovetskoye radio," 1964.

4. Tikhonov, V. I., Statistical Radio Engineering, Izd-vo "Sovetskoye radio," 1966.

8/8

TITLE--SYSTEM FOR BASE LINE CORRECTIONS DURING THE RECORDING OF
   DIFFERENTIAL SPECTRA -U-

AUTHOR-(03)-AKSENOV, S.I., VERKHOTUROV, V.N., KOZHUKHAR, YU.N.

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, 1, 184-5

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SPECTROPHOTOMETER, SPECTRAL LINE, ERROR CORRECTION, ABSORPTION
   SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1478   STEP NO--UR/0120/70/001/000/0184/0185

CIRC ACCESSION NO--AP0106234
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0106234
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SYSTEM IS DESCRIBED FOR
  CORRECTION FO THE BASE LINE WITH AN ACCURACY OF PLUS OR MINUS 2 TIMES 10
  PRIME NEGATIVE4 FOR HIGH SENSITIVITY DIFFERENTIAL DUAL BEAM
  SPECTROPHOTOMETER. THE SYSTEM USES THE RECORD OF THE BASE LINE ON AN
  AUXILIARY RECORDER, ITS REPRODUCTION WITH THE AID OF A FOLLOW UP SYSTEM
  LEASED ON PHOTODIODES, AND THE RECORD OF THE DIFFERENTIAL CURVE WITH
  SEQUENTUAL SWITCHING ON OF SLIDE WIRES OF 2 TAPE RECORDERS, ONE
  REPRODUCING THE BASE LINE, THE OTHER RECORDING THE DIFFERENCE SPECTRUM.
  THE INITIAL BASE LINE IN THE 500-600 NM SPECTRUM SECTOR IS SHOWN DURING
  RECORDING OF THE ABSORPTION SPECTRUM FROM A 2.6 TIMES 10 PRIME NEGATIVE7
  M SOLN. OF CYTOCHROME C. THE SENSITIVITY OF THE APP. EQUALA 1.7 TIMES
  10 PRIME NEGATIVE3 UNITS OF ABSORBANCE PER ONE SCALE DIVISION.
  FACILITY: BIOL.-POCHV. FAK., MOSK. GOS. UNIV., MOSCOW, USSR.

UNCLASSIFIED

USSR   UDC 621.221.2

YEVREMOV, V. A., KOZHUKHOV, I. V., NICHIPORENKO, N. T., and
KHULAP, G. D., Leningrad Higher Engineering Nautical School
imeni Admiral S. O. Makarov, Ventspils Commercial Seaport Admi-
nistration

"Experience in Determination of Sea Wave Elements by the Radar
Method"

Kiev, Gidromekhanika, No 18, 1971, pp 22—25

Abstract : Observational opportunities of the radar method of
measuring horizontal parameters of a developed swell in the
coastal zone are discussed and the experience in determining
some swell parameters in the Ventspils port zone with the help
of a radar station of single-wire transmission line in the mi-
-band is described. The radar pictures of steady sea swell ob-
served by wind velocities of 16—23 m/sec show a sufficiently
clear plane swell pattern from which some parameters of wave
motion could be determined. Calculated average values of plane

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USSR

YEVMENOV, V. F., et al., Gidromekhanika, No 18, 1971, pp 82-86

velocity, wave length, and angle of approach of wave crests are
tabulated. The radar method is considered to be sufficiently
exact, simple, and reliable by working under unfavorable meteo-
rological conditions. Two illustr., one table, five formulas,
three biblio. refs.

2/2

USSR   ⁎ UDC: 378.1:681.31

KOZHUKHOV, V. D., Candidate of the Technical Sciences, FROLOV, S.D.,
and MYSHKO, Ye. I., Engineer

"Automatic Subsystem for Controlling Attendance and Grading of
Students in the Technical VUZ Schools"

Kiev, Mekhanizatsiya i Avtomatizatsiya Upravleniya, No 6, 1973,
pp 36-39

Abstract: A description is given of an automated system for con-
trolling study processes in a VUZ subsystem. This system has been
in operation since 10 November 1970 in the Kharkov Aviation Insti-
tute and since 20 December 1971 in the Kharkov Automobile Highway
Institute. The purpose of the subsystem is to acquire and store
information regarding the application of the educational process
to, and the performance of, each student individually; to process
and systematize it; and distribute it to the various departments,
deans, directors, and societies in the form of special blanks.
Samples of the blanks used are given. The electronic computer
BESM-4 is the central equipment of the institution's control equip-
ment. A description of the various cards and blanks and their
functions is provided.
1/1

USSR   UDC: 542.91 + 547.42 +661.718.1

MOLOTKOVSKIY, Yu. G., KOZHUKHOV, V. I., and BERGEL'SON, L. D., Institute of
Natural Products Chemistry, Academy of Sciences USSR

"Synthesis of Phosphatidic Diols"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71,
pp 194-196

Abstract: The synthesis of phosphatidic diols (I) is based on the condensa-
tion of the silver salt of benzyl-(1-lauroyl-2-oleoyl-snglyceryl) phosphate
with trityl ethers of glycol iodohydrines. Removal of the benzyl group from
the thiophosphates with sodium iodide in acetone followed by removal of the
trityl group by acid hydrolysis yielded 1-lauroyl-2-oleoyl-sn-glycero-3-phos-
phorylethylene glycol, 1-lauroyl-2-oleoyl-sn-glycero-3-phosphorylpropanediol,
and 1-lauroyl-2-oleoyl-sn-glycero-3-phosphorylbutanediol. The phosphatidic
diols obtained are soluble in most common organic solvents and can be stored
in the form of calcium salts.

1/1

TITLE--INFRARED SPECTROSCOPIC STUDY OF THE HYDROGEN BONDING OF SOME
  CARBINOLS -U-
AUTHOR-(04)-USMANOV, A., KOZHUKHOVA, A.N., HARUPOV, R., KALONTAROV, I.YA.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK TADZH. SSR 1970, 13(3), 31-4

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, HYDROGEN BONDING, HYDROXYL RADICAL, HETEROCYCLIC
  NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1086   STEP NO--UR/0425/70/013/003/0031/0034

CIRC ACCESSION NO--AT0124743
                    UNCLASSIFIED

CIRC ACCESSION NO--AT0124743
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IR SPECTRA (3000-3800 CM PRIME
  NEGATIVE1) OF I (AS SOLID AND 1 AND 2PERCENT SOLNS. IN CCL SUB4) AND H
  SUB2 C:CHC TRIPLE BOND CCME SUB2 OH (AS LIQ. AND 0.5, 1, 2, AND 5PERCENT
  SOLNS. IN CCL SUB4) INDICATE THE ABSENCE OF INTRAMOL. H BONDS. A BAND
  AT 3600 CM PRIME NEGATIVE1 WAS ASCRIBED TO FREE OH GROUPS.
  FACILITY: FIZ.-TEKH. INST. IM. UMAROVA, DUSHANBE, USSR.

UNCLASSIFIED

1/2   019   UNCLASSIFIED   PROCESSING DATE--30OCT7(
TITLE--COPOLYMERIZATION OF ALLYTRIMETHYL OR ALLYLDIMETHYLPHENYLSILANES
   WITH ACRYLCNITRILES -U-
AUTHOR-(04)-NAMETKIN, N.S., KOZHUKHOVA, I.N., FILIPPOVA, V.G., DURGARYAN,
   S.G.
COUNTRY OF INFO--USSR

SOURCE--VYSOKOMCL. SOEDIN., SER. B 1970, 12(3), 180-2

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COPOLYMERIZATION, ORGANIC SILANE, ACRYLONITRILE, CHEMICAL
   KINETICS, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0671   STEP NO--UR/0460/70/012/003/0180/0182

CIRC ACCESSICN NO--AP0124343
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0124343

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COPOLYMN. KINETICS OF h SUB2 C:CHCH (I) WITH ME SUB3 SICH SUB2 CH: CH SUB2 (II) OR ME SUB2 PH SICH SUB2 CH:CH SUB2 (III) WAS STUDIED IN BULK OR KCONME SUB2 SOLN. IN THE PRESENCE OF BZ SUB2 O SUB2. THE DEPENDENCE OF THE COPOLYMER COMPN. ON THE COMPN. OF THE STARTING MONOMER MIXTS. WAS ESTABLISHED.   THE REACTIVITY RATIOS (R) IN THE THE I-II COPOLYMN. WERE 3.98 FOR I AND 0.1 FOR II AND IN THE I-III COPOLYMN. 2.24 FOR I AND 0.20 FOR III. THE REACTIVITY FACTORS (Q) AND POLARITY FACTORS (E) WERE 0.036 AND 02.7 FOR II, AND 0.070 AND 0.30 FOR III, RESP.   FACILITY: INST. NEFTEKHIM. SIN. IM. TOPCHIEVA, MOSCOW, USSR.

1/2   010   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--CONDITIONS FOR THE USE OF CARBOXYL CONTAINING LATEX SKD-1 DURING
   THE PREPARATION OF SYNTHETIC LEATHER -U-
AUTHOR-(05)-YERKOVA, L.N., BERESNEV, V.N., MARTINSON, J.K., KOZHUROVA,
   T.S., KHIMICH, O.S.
COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 418-22

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CARBOXYLATE RUBBER, LEATHER, RUBBER ADHESIVE, HYDROGEN
   BONDING/(U)SKD1 SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0337   STEP NO--UR/0080/70/043/002/0418/0422

CIRC ACCESSION NO--AP0111531
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0111531
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CAUSES FOR INCREASED RIGIDITY
   OF ARTIFICIAL LEATHER (I) BONDED WITH SKD-1 LATEX (II) WERE STUDIED.
   THE RIGIDITY OF I INCREASED WITH THE CHARGE CARRIED BY THE CATION OF THE
   COAGULATING ELECTROLYTE (MOST RIGID I WAS OBTAINED WHEN II WAS
   COAGULATED WITH AL SUB2(SO SUB4)SUB3), AND AT HIGH PH (AT PH 4.5 THE
   RIGIDITY WAS 10,000-5,000 G)., PRESUMABLY DUE TO THE COPPTN. OF II WITH
   AL(OH)SUB3. RIGID POLYMERS RESULTED FOLLOWING COAGULATION WITH NACL (AT
   HIGH PH), APPARENTLY DUE TO THE FORMATION OF H BONDS BETWEEN THE OH AND
   THE CO SUB2 H GROUPS OF II. LEAST RIGID I WERE OBTAINED AT PH IS LESS
   THAN 4.5 AND WITH NACL COAGULANT.

UNCLASSIFIED

USSR

UDC 612.123.015.3:615-092

BITS', YU. V., and KOZHURA, I. M., Chair of Pathological Physiology, Kiev Medical Institute and Laboratory of Pathological Physiology Institute of Geronotology, Academy of Sciences, Ukrainian SSR, Kiev

"Some Disturbances in Lipid Metabolism Resulting From Exposure to Some Toxic Agents"

Kiev, Fiziologichesky Zhurnal, No 6, 1970, pp 745-749

Abstract: Some indices of lipid metabolism were studied in the blood serum of adult rabbits after subacute, acute, and chronic poisoning with propyl gallate, sodium fluoride, monoiodoacetic acid, and gramosan. Changes in cholesterol and cholesterol fractions, total lipids, and beta lipoproteins tended to increase, the extent varying both with the particular compound administered and with the dose and duration of the poisoning. The mechanism of the resulting changes in lipid metabolism are considered in relation to the accompanying disturbances in carbohydrate metabolism. There is also a brief discussion of the part played by intoxication in the origin of degenerative vascular changes.

1/1

USSR   UDC: 8.74

KOZHURIN, F. D., ANTONENKO, M. G., and SHVETS, N. Ya.

"Organization of Memory for Searching by Signs"

Moscow, V sb. Tsifr. vychisl. tekhnika i programmir. (Digital
Computer Techniques and Programming--collection of works) "Sov.
Radio," No 7, 1972, pp 68-75 (from RZh--Matematika, No 8, 1972,
Abstract No 8V622)

Translation: This article is devoted to problems in the organiza-
tion of memory with a subsequent beginning in searching for an ob-
ject from signs.

    A method of "segments" is found through which the search can be made
from a maximum possible group of signs. It is shown that the proposed
method is quite convenient; an evaluation of the method is made through
the use of a redundancy factor proposed by the author. The method of
segments is advantageously used in cases in which the volume of data regarding
the object that can be preserved is much greater than the volume of sign
information regarding the object. Authors' abstract.

1/1

USSR   UDC: 8.74

KOZHURIN, F. D., ANTONENKO, M. G., SHVETS, N. Ya.

"Organization of a Memory for Access by Distinctive Features"

Translation: The article deals with problems of organizing a
memory with sequential access for retrieving an object by dis-
tinctive features.
    The method of "segments" is proposed which enables re-
trieval in accordance with the most possible group of features.
It is shown that the proposed method is quite convenient; an
evaluation of this method is given by means of a coefficient
of redundancy proposed by the author. It is advisable to use
the method of segments in cases where the volume of the stored
data on objects appreciably exceeds the volume of distinctive
feature information on these objects. Authors' abstract.

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USSR   UDC 681.3.06:51

ANTONENKO, M. G., KOZHURIN, F. D., SHVETS, N. Ya., ZATINATSKIY, P. A.,
BALANDINA, Zh. I.

"One Method for Input of Information Files to Data Processing Systems"

Translation: Problems are analyzed, related to the organization and input of
information files to modern data processing systems. One method of external
sorting is presented -- the method of characteristic phrases. Two algorithms
are presented, based on the utilization of the ideas of the method of charac-
teristic phrases. Formulas are produced for calculation of the number of runs
through a file being sorted. The area of effective utilization of the algorithms
is defined.

1/1

USSR

KOZHURIN, V. M., and RYZHILOV, M. M.

"Dynamics of Mineral, Protein and Carbohydrate Metabolism in Chickens
Exposed to Varying Doses of Short-wave Ultraviolet Irradiation"

Sb. rabot molodykh uchenykh. Vses. n.-i. i tekhnol. in-t ptits vodstva
(Collection of Works of Young Scientists, All-Union Scientific Research
and Technological Institute of Poultry Farming), 1970, vyp. 11, pp 201-202
(from RZh-Biologicheskaya Khimiya, No 2, 25 Jan 71, Abstract No 2F1312 from
summary)

Translation: With daily exposure of chickens to UV rays (3100 microwatts
per minute per sq cm) there was an increase in the concentration of P_{inorg},
Ca, total protein and HB, and a decline in the activity of alkaline phos-
phatase. A dose of 4500 microwatts inhibits protein and carbohydrate
metabolism.

1/1

USSR   UDC 547.26'118

SHOKOL, V. A. KOZHUSHKO, B. N., DOROSHENKO, V. V., and KIRSANOV, A. V.

"Reaction of Dichloromethyl Isocyanate with Triethylphosphite"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 12-15

Abstract: It was found previously that on interaction of chloromethyl isocyanate with trialkyl phosphites, dialkoxyphosphonil methylisocyanates are obtained /V. A. Shokol, et al., ZhOKh, No 40, 1458, 1970/. In the current experiment on interaction of dichloromethylisocyanate with triethylphosphite, depending on the ratio of the reagents, diethoxy phosphonyl chloromethyl isocyanate or bis(diethoxyphosphonyl)methylisocyanate is formed. The reactions and views described for five or these compounds: 1) diethoxy phosphonylchloromethyl isocyanate, 2) bis(diethoxyphosphonyl)methyl isocyanate, 3) N-diethoxyphosphonylmethylene- ρ'- β-chlorophenyl urea, 4) N-bis(die-thoxyphosphonylmethyl- ρ'-phenyl urea, 5) N-bis(diethoxyphosphonyl)methyl-N'-n-chlorophenyl urea.

1/1

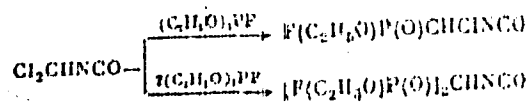USSR   •   UDC 547.26'118

SHOKOL, V. A., and KOZHUSHKO, B. N., Institute of Organic Chemistry of the
Academy of Sciences Ukrainian SSR

"Ethoxyfluorophosphonylchlormethyl- and Bis(ethoxyfluorophosohonyl)methyl
Isocyanates"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), Vyp 10, 1972, pp 2346-2347

Abstract: The reaction of diethyl fluorophosphite with dichlormethyl iso-
cyanate without a catalyst yielded either ethoxyfluorophosophonylchloro-
methyl isocyanate (I) or bis(ethoxyfluorophosphonyl)methyl isocyanate (II)
depending of the ratio of reagents:

$$Cl_2CHNCO \begin{cases} \xrightarrow{(C_2H_5O)_3PF} F(C_2H_5O)P(O)CHClNCO \\ \xrightarrow{2(C_2H_5O)_3PF} [F(C_2H_5O)P(O)]_2CHNCO \end{cases}$$

The yield of (I) was 27%, b.p. 46-48°C (0.05 mm), d_4^{20} 1.3955, n_D^{20} 1.4328.
The yield of (II) was 30%, b.p. 81-83°C (0.05 mm), d_4^{20} 1.3813, n_D^{20} 1.4250.
Empirical formulas for (I) and (II) are: $C_4H_6ClFNO_3P$ and $C_6H_{11}F_2NO_5P$,
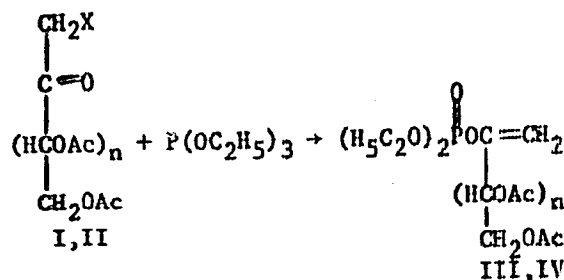respectively.

1/1

· USSR·

DOROSHENKO, V. V., KOZHUSHKO, B. N., STUKALO, Ye. A., and SHOKOL, V. A.,
Institute of Organic Chemistry, Academy of Sciences of the UkrSSR

"Dihalophosphonylchloromethylisocyanates"

Abstract: Dichloromethyl isocyanate reacts with alkyl difluoro- and dichlorophosphites to form difluorophosphonylchloromethyl isocyanate (I) and dichlorophosphonylchloromethyl isocyanate (II).

$$\begin{array}{c} CH_2X \\ | \\ C=0 \\ | \\ (HCOAc)_n \\ | \\ CH_2OAc \\ I,II \end{array} + P(OC_2H_5)_3 \rightarrow \begin{array}{c} O \\ || \\ (H_5C_2O)_2POC=CH_2 \\ | \\ (HCOAc)_n \\ | \\ CH_2OAc \\ III,IV \end{array}$$
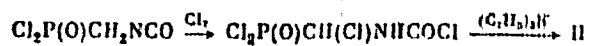
(I) X=Cl, n=4, D-galacto; (II) X=Br, n=3, L-arabino.

1/2

- 56 -

USSR

DOROSHENKO, V. V., et al., Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 484-485

Isocyanate (II) is synthesized by chlorination of dichlorophosphonylmethyl isocyanate (III) in the presence of UV-radiation.

$$Cl_2P(O)CH_2NCO \xrightarrow{Cl_2} Cl_2P(O)CH(Cl)NHCOCl \xrightarrow{(C_2H_5)_3N} II$$

The structure of compounds (I, II, IV) was confirmed by IR-spectroscopy.

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1/2   026   UNCLASSIFIED   PROCESSING DATE--27NOV70
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AUTHOR-(02)-GURARI, M.L., KOZIIUSHNER, M.A.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBABILITY FOR TRANSFER OF
   ELECTRON EXCITATION BETWEEN IMPURITIES IN A SOLID BODY VIA THE FIELD OF
   VIRTUAL PHONONS IS CALCULATED. THE CALCULATION IS CARRIED OUT WITHIN
   THE FRAMEWORK OF PERTURBATION THEORY. IT IS SHOWN THAT THE TRANSITION
   PROBABILITY W SIMILAR TO (DELTA-DELTA) PRIME2N-N PRIME2 WHERE N IS THE
   NUMBER OF LATTICE CONSTANTS BETWEEN THE IMPURITIES, DELTA IS THE PHONON
   ZONE WIDTH AND DELTA THE ENERGY DIFFERENCE BETWEEN THE ELECTRON AND
   PHONON LEVELS. THE MECHANISM MAY BE IMPORTANT FOR TRANSFER OF LOW LYING
   ELECTRON AND ELECTRON VIBRATIONAL EXCITATIONS.   FACILITY:
   INSTITUT KHIMICHESKOY FIZIKI AN SSSR.

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MARTIROSOV, I.M., KOZIDUBOV, V.P.

"Effect Of Higher Harmonics On The Power Of A Generator Using An IMPATT Diode"

Translation: The dependence is considered of the power of a generator using an
IMPATT diode at the fundamental frequency,on the parameters of the circuit of a
mesh [kontur] at the n-th harmonic. The analysis is conducted without taking into
account the leading parameters. It is shown that at a certain range close to
resonance of a circuit at the n-th harmonic, the amplitude and phase of the volt-
age of the first harmonic (and consequently also the power at the basic frequency)
are abruptly changed. Distant from the resonance, the effect of the n-th harmonic
is negligibly small. The conclusions are confirmed by experiment. 7 ill. 1 ref.
Summary.

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USSR

RUSINOVA, V. N., SHUSHKEVICH, YU. I., KOZIK, T. A., and SUVOROV, N. N.,
Moscow Chemical Technological Institute Imeni D. I. Mendeleyev

"Indole Derivatives. LXXX. Novel Oxidative Rearrangement in the Indole Series"

Abstract: A new oxidative rearrangement was studied in the indole series on the example of the reaction of 3-(α-methylaminobenzyl)indole with KCN in presence of atmospheric oxygen. 2-Cyano-3-benzoyl-indole, 3-benzoylindole and indolyl-3-phenylacetonitrile were obtained as reaction products. The rearrangement to 2-cyano-3-benzoylindole does not occur in an inert atmosphere. It is an inter-molecular rearrangement. It has been shown that indolyl-3-phenylacetonitrile reacts with various nucleophilic reagents forming 2-substituted 3-benzoyl-indoles.

KOZIK, V.V.

SPRS 57268
6-73

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VIII-5a. FINE STRUCTURE OF SINGLE GALLIUM ARSENIDE CRYSTALS GROWN FROM A MELT

[Article by V. A. Selivanova, M. V. Serbov, V. V. Kozik, Tomski Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov; Plzen, Russia, 11-17 June 1972, p 103]

A study was made of the structure of single crystals of gallium arsenide using metallographic, chemical and electron microscopic methods. The presence of the fine structure of several types was demonstrated. A comparison of the structure with the morphology of the crystallization front surface and the growth conditions permits judgment of the kinetics and mechanism of crystallization. The disturbances of the united periodicity of the single crystal is caused, in our opinion, by the peculiarities of growth from a melt.

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USSR   UDC: 519.21

KOZIN, F.

"Stability of Stochastic Systems With Randomly Varying Coefficients"

V sb. Nelineyn. i optimal'n. sistemy (Nonlinear and Optimum Systems--
collection of works), Moscow, "Nauka", 1971, pp 326-335, discussion p 335
(from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V116)

Translation: The author considers the system

$$\dot{x} = \left[A + \sum_{i=1}^{N} f_i(t) G_i \right] x,$$

where x is a vector from n-dimensional Euclidean space E_n. A, G_i are constant
matrices, A being stable, $f_i(t)$ are stationary and ergodic process. Proofs
are given for theorems on the asymptotic stability as a whole with proba-
bility 1 for a trivial solution of this system. In addition, sufficient
conditions are presented under which the inequality

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KOZIN, F., Nelineyn. i optimal'n. sistemy, Moscow, "Nauka", 1971, pp 326-335

$$Me^{\theta \int_{t_0}^{t} |f(\tau)| d\tau} < k_1 e^{k_2(\theta)t}, \qquad \theta > 0, \qquad k_1, k_1 > 0,$$

is satisfied, where $f(\tau)$ is a Gaussian process. In conclusion, the author discusses the problem of the relation between stability with probability 1 and stability of moments. M. Nevel'son.

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