

USSR

Piskulov, Ye. A., Shimbirev, P. N., Sobkin, B. L., [Tr.] Mosk. Aviats. In-ta, 1972, No 249, pp 130-136.

this algorithm, the process of formation of the CLF is made somewhat simpler than in the article mentioned above. Concerning CLF, see the book of S. A. Ginzburg and Yu. Ya, Lyubarskiy, Funktsional'nyye Preobrazovateli s Analo-
Tsifrovym Predstavleniyem Informatsii [Functional Converters with Analog-
Digital Representation of Information] in the series "Automation Library," No 481, Energiya Press, Moscow, 1973. 5 biblio. refs.

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1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--SWELLING OF HIGH TEMPERATURE OXIDE FUEL -U-
AUTHOR--(03)-LEBEDEV, I.G., KUZMIN, V.I., PISKUN, A.S.
COUNTRY OF INFO--USSR
SOURCE--AT. ENERG. 1970, 18(4), 351-2
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--NUCLEAR FISSION, URANIUM OXIDE, PLUTONIUM, SWELL, NUCLEAR FUEL
ELEMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0592 STEP NO--UR/0089/70/028/004/0351/0352
CIRC ACCESSION NO--AP0137677
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137677

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ESTN. OF THE CONTRIBUTION OF VARIOUS TYPES OF FISSION FRAGMENTS IN UO SUB2 AND PUD SUB2 WITH FUEL ELEMENT SURFACE TEMP. AT 800-1300DEGREES TO THE TOTAL VOL. CHANGE AT BURN UP TO 9.2PERCENT REVEALED THAT THE MAX. CONTRIBUTION OF SOLID FISSION FRAGMENTS WAS 0.4PERCENT OF THE VOL. PER EACH 1PERCENT OF BURNUP, THE MAIN CONTRIBUTION TO THE TOTAL VOL. CHANGE BEING THAT OF THE GASEDUS FISSION FRAGMENTS.

UNCLASSIFIED

1/2 016

TITLE--EFFECT OF QUENCHING FROM ROLLING HEAT ON THE MECHANICAL AND TECHNOLOGICAL PROPERTIES OF STRUCTURAL STEELS -U-
AUTHOR--(05)-PISKUN, V.T., ULEYNIKOV, N.P., KAPLIY, N.I., IVASHCHENKO, V.M., STYCHINSKIY, L.P.
COUNTRY OF INFO--USSR

UNCLASSIFIED

PROCESSING DATE--30OCT70

SOURCE--STAL' 1970, 30(2), 161-3

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DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--STRUCTURAL STEEL, STEEL QUENCHING, MECHANICAL PROPERTY, MANGANESE STEEL, SILICON STEEL, STEEL TEMPERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1867

STEP NO--UR/0133/70/030/002/0161/0163

CIRC ACCESSION NO--AP0115686

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0115686

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STEEL BARS (14-22 MM DIAM.) CONTG. C 0.16-0.35, MN 0.48-1.35, AND SI TRACE-1.05PERCENT WERE QUENCHED IN WATER FROM THE ROLLING HEAT FOR 10-14 SEC AND TEMPERED BY RESIDUAL HEAT. THE TREATMENT GENERALLY IMPROVED MECH. PROPERTIES, AS COMPARED WITH THOSE OF THE HOT ROLLED STOCK. FACILITY: DONETS. POLITEKH. INST., DONETSK, USSR.

UNCLASSIFIED

USSR

UDC 582.263.095.3

PISKUNKOVA, N. P., PIMENOVA, M. N., and BAKLASHOVA, T. G., Biology Faculty,
Moscow State University

"Some Data on the Role of Photosynthesis in the Utilization of Acetate and
Pyruvate by *Scenedesmus quadricauda*"

Moscow, Mikrobiologiya, Vol 40, No 3, May/Jun 71, pp 386-388

Abstract: Diuron added to algae cultures exposed to light reduces the incorporation of C^{14} from bicarbonate by 90% and that from acetate and pyruvate by 80%, thus bringing it down to the level observed in darkness without diuron. This indicates that when the second photosystem is inhibited, algae cells are unable to assimilate CO_2 formed through oxidation of acetate and pyruvate. The presence of acetate and pyruvate in the culture medium increases the concentration of chlorophyll in the algae by 40%, but does not increase the concentration of proteins and carbohydrates. It is concluded that *Scenedesmus quadricauda* develops mainly on the basis of photoautotrophic growth.

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USSR

UDC: 577.4

KORNEV, Yu. N., PISKUNOV, S. V., and SERGEYEV, S. N.

"Problems of Constructing Algorithms for Generalized Substitutions With Context Separation"

Novosibirsk, V sb. Vychisl. sistemy (Computer Systems--collection of works) No 47, 1971, pp 117-130 (from RZh--Matematika, No 8, 1972, Abstract No 8V431)

Translation: The investigation of algorithms of generalized substitution is continued (see RZhMat, 1972, 5V318). Generalized substitutions are considered as representations defined in a set of cellular sets. An investigation is made of the problems of constructing more complex algorithms from simple data: the composition and conditional branching of algorithms of generalized substitutions.

1/1

Computers: Applications & Programming

USSR

UDC 8.74

KORNEV, YU. N., PISKUNOV, S. V., and SERGEYEV, S. N.

"JP-1 Programming Language for Problems of Processing Arbitrary-Alphabet Words"

V sb. Vychisl. sistemy (Computational Systems -- Collection of Works), vyp. 41, Novosibirsk, 1971, pp 93-112 (from RZh-Matematika, No 5, May 72, Abstract No 5V506 by V. MIKHEYEV)

Translation: The article describes the basic features of the JP-1 algorithmic programming language, intended for converting arbitrary-alphabet words. As far as the carrier is concerned, the language is oriented towards machines with homogeneous structure and towards homogeneous networks of finite automata; iterative networks, computer media, etc. Single-symbol names have been adopted in the language in order to make interpretation and syntax-checking simple and fast. Language operators are the following: reset statement, conditional statement, read statement, transcribe statement, clear statement, end statement. Numerous examples are given of the working of these operators. It is noted that in order to check the basic properties and performance of the principal aids of the language, a mathematical model was constructed for realization of the language by a homogeneous chain of automata. This model takes the form of a program in BESM-6 codes and is the interpreter of the JP-1 language.

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USSR

UDC: 8.74

KORNEV, Yu. N., PISKUNOV, S. V., SERGEYEV, S. N.

"The JP-I Language for Programming Problems of Word Processing in an Arbitrary Alphabet"

V sb. Vychisl. sistemy (Computer Systems--collection of works), vyp. 41, Novosibirsk, 1971, pp 98-112 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V506)

Translation: The paper describes the principal features of the JP-1 algorithmic programming language for word transformation in an arbitrary alphabet. With respect to the medium, the language is oriented for computers with homogeneous structure and for homogeneous networks of finite automata: iteration networks, computer media, etc. Single-symbol nouns are used in the language to make interpretation and syntactic check quick and simple. The operators of the language are: substitution operator, condition operator, read operator, rewrite operator, clear operator and end operator. Numerous examples are given of the operation of these operators. It is noted that a mathematical model of realization of the language by a homogeneous chain of automata has been constructed for checking the principal properties and working out the basic media of the language. This model takes the form of a program in BESM-6 codes and is an interpreter of the JP-1 language. V. Mikheyev.

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USSR

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UDC 681.322.06.01

PISKUNOV, S. V., SERGEYEV, S. N., SIDRISTYY, N. A.

"Language for Describing the Operating Algorithms of Digital Computers"

Vychisl. sistemy (Computation Systems), Vyp. 34, Novosibirsk, Nauka Press.
1969, pp 5-18 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya
Tekhnika, No 3, Mar 70, Abstract No 3B38)

Translation: This article contains a study of part of the complete language of description of digital computers (\mathcal{D} - language), which includes means of describing the algorithms of operation of the units of digital computers in order to plan and design them. An effort is made to discuss the structure of the \mathcal{D} - language more clearly than was done in preceding descriptions of it.

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D. Programming and Mathematical Machine Theory

USSR

KORNEV, Yu. N., PISKUNOV, S. V., SERGEYEV, S. N.

"Microprogrammed Homogeneous Processor Oriented to Linear Algebra Problems"

Sb. Tr. In-t Mat. Sib. Otd. AN SSSR [Collected Works of Institute of Mathematics, Siberian Division, Academy of Sciences, USSR], 1972, No 6(23), pp 34-64 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V612, by the authors).

Translation: The logical plan of a processor for solution of linear algebra problems is described. The plan of the processor is a practical example of construction of a homogeneous computer device which operates algorithms of generalized permutation. The operation of the processor is illustrated on the example of an algorithm for solution of a problem of linear programming. Analysis of the example showed the effectiveness of generalized permutation algorithms as an algorithmic language: the programs produced are short and rather effective (as to number of cycles), requiring almost no restructuring of files.

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USSR

UDC 8.74

KORNEV, YU. N., PISKUNOV, S. V., SERGEYEV, S. N.

"IP-I Language (Complete Description)"

V sb. Vychisl. sistemy (Computation Systems -- collection of works), vyp. 47, Novosibirsk, 1971, pp 131-159 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V593)

Translation: The IP-I language is a programming language designed for word conversion in an arbitrary alphabet.

With respect to the carrier, the language is oriented toward computers with homogeneous structure and homogeneous networks of finite automata: iterative circuits, computation media, and so on.

The dynamic structure of the program is characteristic of the language. The belonging of a word in the program to one syntactic formation or another (and, consequently, its interpretation) is determined by what subword of the program is being examined by the executive program at the given point in time, and it depends on the states of the program at the preceding points in time.

Just as in COMMIT, SNOBOL, (SNOBOL-3), in IP-I the basic means of word transformation is the substitution operation.

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USSR

UDC: 577.4

KORNEV, Yu. N., ~~PISKUNOV, S. V.~~, SERGEYEV, S. N.

"Problems of Constructing Algorithms of Generalized Substitutions With an Isolated Context"

V sb. Vychisl. sistemy (Computer Systems--collection of works), vyp. 47, Novosibirsk, 1971, pp 117-130 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V431)

Translation: The paper continues further investigation of algorithms of generalized substitutions (see RZhMat 1972, 5V318). Generalized substitutions are treated as mappings defined on a set of cellular sets. An investigation is made into questions of constructing more complex algorithms from given simple ones: compositions and conditional branchings of algorithms of generalized substitutions.

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USSR

BOOK

355

K. K. PAFOK, V. A. FISKUNOV, P.G. YURENYA UDC 629.7.621.43.019.7.004(021.4)

NAGARY V REAKTIVNYKH DVIGATELYAKH (Scale Formations In Jet Engines), Moscow, "Transport", 1971, 112 pp, illus, biblio, 2,000 copies printed

Considers the formation of scale and its influence on the reliability, efficiency and service life of aviation jet engines. Soviet and foreign materials are generalized for the properties of scale, conditions necessary for its formation, the influence of various factors on its formation. Also considers the formation of scale in relation to the use of fuels of various chemical compositions and fractions, and of various additives. General methods are given for estimating the scale-formation effects of aviation fuels and oils, and practical suggestions are made for reducing scale formation in aviation engines.

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Chapter II.	Role of Various Factors in the Process of Scale Formation. . .	19
Chapter III.	Scale Formations in Jet Engines	37
Chapter IV.	Methods of Estimating the ScaleFormation Factors of Fuels . .	53
Chapter V.	Estimating the Scale Formation Factor of Fuels by the FFYu (Pafok-Fiskunov-Yurenya) Method	67
Chapter VI.	Scale-Formation Properties of Soviet and Foreign Fuels	84
Chapter VII.	Means and Methods of Reducing Scale Formation in Engines and the Removal of Scale From Engines	91

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USSR

UDC 621.3.035.2

PEREVEZENTSEV, V. P., ZOLKIN, P. I., PISKUNOV, V. A., and BEREZIN, I. A.

"Construction Graphites With a Metallic Bond"

Moscow, Tsvetnyye Metally, No 10, Oct 70, pp 45-46

Abstract: Three new experimental construction graphites, V-2S, V-2, and LG-1, were produced recently by thermomechanical processing of a mixture consisting of coke and additions of carbide forming metals such as silicon and zirconium. The metallic additions, which serve as a bond, at the same time substantially affect the quality (heat and electric conductivity, strength) of the graphite obtained. The process is accomplished in a single 3-hour operation. The size of the billets depends on the electric and mechanical power of the press and also on the mold strength. The basic physico-mechanical properties of the graphites are presented in a table.

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Acc. Nr:

AP0046166

Abstracting Service: 5/70
INTERNAT. AEROSPACE ABST.

Ref. Code:

UR0065

P

A70-22472 # Dynamics of a carbon-deposit formation in gas turbine engines (O dinamike formirovaniia nagara v gazoturbinnnykh dvigateliakh). V. A. ~~Pisukov~~ and P. G. Iurenia. *Khimiia i Tekhnologiia Topliv i Masel*, vol. 15, no. 1, 1970, p. 47-49. In Russian.

Study of the properties of thermal insulation due to carbon deposits on fire tubes, formed during the operation of a gas turbine, using different fuels. Special attention is given to the fuels T-1 and T-5 specified by GOST 10227-62. It is found that the carbon deposits form at a very high rate, and exhibit a low thermal conductivity. As a result, their occurrence on the walls of the fire tubes essentially affects the thermal state of these tubes. Z.W.

V

ALS

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REEL/FRAME
19781243

18

USSR

UDC 539.3/.5

PISKUNOV, YU. A., NEVSKIY, V. A., DUDIN, V. F.

"On the Question of the Breakdown of Concrete Under Cyclic Shock Loads"

Tr. Groznen. nef. in-t (Works of Groznenskiy Petroleum Institute), 1971, Collection 33, pp 216-217 (from RZh-Mekhaniki, No 12, Dec 71, Abstract No 12V1615)

Translation: The authors emphasize that analysis of rheological models of concrete and their equations describing cases of shock effects leads one to conclude that the inelastic properties of concrete have a considerable effect on the behavior of concrete under shock in addition to the elastic properties ordinarily taken into account. Experimental data are presented and discussed concerning a study of the effect of inelastic properties characterized by the coefficient of internal friction on the strength properties and the process of breakdown of concretes under shock loads. Samples of concrete with dimensions $7 \times 7 \times 7$ cm having the same static strength but differing in the type and strength (600 and 1200 kg/cm²) of the coarse filler were investigated. The samples were made with two flows of cement. The coefficient of internal

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PISKUNOV, YU. A., et al, Tr. Groznen. neft. in-t, 1971, Collection 33, pp 216-217

friction was determined with the IKVT-2 device by transmitting longitudinal oscillations to the sample. The pulsed loads were supplied on a standard pile driver by applying a series of shocks up to breakdown. The experiments showed that the work necessary for breakdown of the samples rises with an increase in the coefficient of internal friction. The work of breakdown also rises with an increase in the expenditure of cement per m^3 of concrete with a fixed coefficient of internal friction. The authors indicate that for the breakdown of concrete with a stronger coarse filler under shock effects but with a lower coefficient of internal friction, less work is expended than in the case of concrete with a less strong filler (crushed stone or gravel) but with a greater coefficient of internal friction. It is thus more favorable with the same static strength of the concrete for structures subject to the action of shock loads to use concrete with a higher coefficient of internal friction, since greater work is required for the breakdown of this concrete. It is noted that one can increase the inelasticity of the concrete through selection of the components and not by using a higher mark of cement. A. I. Platov.

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USSR

UDC 621.039.538:539.125.5

VASIL'YEV, G. A., VESELKIN, A. P., YEGOROV, Yu. A., ORLOV, Yu. V.,
PANKRAT'YEV, Yu. V., PISKUNOV, V. I.

"Space-Energy Distribution of Reactor Neutrons in Metal Hydrides"

V sb. Vopr. fiz. zashchity reaktorov (Problems in Reactor Safety Physics --
Collection of Works), No. 5, Moscow, Atomizdat, 1972, pp 91-105 (from
RZh-50. Yadernyye reaktory, No 5, May 72, Abstract No 5.50.58)

Translation: Current designs of the shielding of nuclear reactors include
hydrogen-containing materials, the presence of which in the shield makes it
possible to shorten the size of the shielding and reduce the contribution
to the power of the dose from neutrons of intermediate energies. Various
hydrogen-containing materials are used in the shield: water, polyethylene,
paraffin, concretes with an increased concentration of hydrogen such as
Serpentinite concrete, etc. Metal hydrides may also be included in such
materials. Metal hydrides have a high nuclear density of hydrogen, in some
cases exceeding the nuclear density of hydrogen water. In studying the
passage of neutrons through metal hydrides, one can show the perturbing

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USSR

VASIL'YEV, G. A., et al, Vopr. fiz. zashchity reaktorov, No. 5, Moscow, Atomizdat, 1972, pp 91-105

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effect of the metal nuclei on the form of the attenuation function or the form of the energy distribution of neutrons, and he can also show the role of the metal in the accumulation of moderating neutrons. The problem of the passage of neutrons through lithium, magnesium, titanium, and zirconium hydrides was investigated. The experiments were conducted on a water cooled - water moderated research reactor. 8 ill., 8 tables, 37 ref.

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USSR

UDC 669.71.053.4.065

PISMAREVA, V. A., ANTONTSEVA, A. Z., FATEYEVA, Z. T.

"Glass Enamel Facilitates Autoclave Sulfuric Acid Leaching of High-Silica Alumina-containing Materials"

Nauch. tr. Kazakhsk. Politekhn. In-t. [Scientific Writings of Kazakh Polytechnical Institute], Alma-Ata, 1971, pp 566-569, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G213 by G. Svodtseva).

Translation: A study was made of the process of sulfuric acid leaching of high-silica alumina-containing materials in autoclaves covered with enamel. These autoclaves showed advantages over lead-covered autoclaves; they are more compact and lighter, and withstand high temperatures (up to 500°); the solutions and sediments produced were pure, without Fe admixtures from the autoclaves; they are safer to use. A technology is described for coating of laboratory autoclaves with glass enamel and its compositions. Two coats of enamel are used: a base coat and the cover enamel. The enamels are baked at 900°. 2 Tables; 5 Biblio. Refs.

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Electrochemistry

USSR

UDC 541.13

PIS'MEN, L. M., KUCHANOV, S. I., VOL'FKOVICH, Yu. M., GORYACHEV, R. G., and BOGOTSKIY, V. S., Institute of Electrochemistry, Academy of Sciences USSR, Moscow

"Large Scale Macrokinetics of a Hydrogen-Oxygen Fuel Cell With a Capillary Membrane"

Moscow, Elektrokimiya, Vol 9, No 9, Sep 73, pp 1262-1271

Abstract: Mass exchange calculations are reported for a hydrogen-oxygen fuel cell with a capillary membrane, considering the diffusion of ions and water in the liquid state, diffusion of gasses and vapor, filtration stream of the solution, convectional stream of the gaseous mixture, ion migration, stoichiometry and microkinetics of the anode and cathode reactions. The functions of the cell in respect to the basic construction and regimen parameters have been calculated.

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USSR

UDC: 621.317.757.3

ZAVERTANNYY, V. V., PIS'MENETSKIY, V. A., KHORUNZHIY, V. A., Khar'kov Poly-
technical Institute imeni V. I. Lenin

"Concerning a Method of Spectral Analysis of Isolated Radio Signals"

Leningrad, Izvestiya VUZov, Priborostroyeniye, -Vol 16, No 1, 1973, pp 94-96

Abstract: A method is described for forming the spectral density of iso-
lated radio signals by using a device for preprocessing the signal. This
signal processor provides for storage of the signal, reproduction, and
frequency displacement of duplicates of the signal by steps. It is shown
that the frequency band of a spectrum analyzer can be expanded by a factor
of $N+1$ when N circulations are made in the processor. In a spectrum ana-
lyzer with 30-50 filters, a coefficient of panoramism of 900-1500 can be
achieved by using preprocessing.

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USSR

UDC 621.317.757

PIS'MENETSKIY, V. A. and KHORUNZHIY, V. A.

"Combination System for the Frequency Analysis of Radio Signals"

Tr. Taganrog. radiotekhn. in-ta (Works of the Taganrog Radio-Engineering Institute), 1972, vyp.26, pp 65-73 (from RZh-Radiotekhnika. No 11, Nov 72, Abstract No 11 A285)

Translation: The authors describe combination type block-diagrams of spectral analyzers in which the number of frequency channel selections reaches several hundred thousand. The authors consider the circuits of spectra analyzers with increased duration of the remembered realization of the signal and spectra analyzer circuits with widened bands of the analyzed frequencies. A significant improvement is shown in the metrological characteristics of the unit used for frequency analysis during utilization of known spectra analyzers. This is due to the preliminary processing of the signal with the aid of the following: 1) preliminary time compression, 2) summation of instantaneous spectra, and 3) storage of signals. The possibility is indicated of realizing practically any value parameters for systems of formation with respect to the fixed values of the parameters of the utilized analyzers. A.K.

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USSR

UDC: 621.317.757

PIS'NEVETSKIY, V. A., KHORUNZHIY, V. A., "Order of Lenin" Polytechnical Institute imeni V. I. Lenin, Khar'kov

"A Spectrum Analyzer for Narrow-Band Radio Signals"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 32, Nov 71, Author's Certificate No 318881, Division G, filed 15 Jan 70, published 28 Oct 71, p 130

Translation: This Author's Certificate introduces: 1. A narrow-band radio signal spectrum analyzer which contains an input filter, delay-line recirculator, reference signal generator and display unit. As a distinguishing feature of the patent, provision is made for expanding the analyzable frequency band when using a common delay line and recirculator amplifiers, and also for relaxing the stability requirements of the delay line parameters with respect to time. A multichannel input signal frequency converter is connected between the input filter and the adder inputs, and a multichannel recirculator frequency converter is connected between the second recirculator amplifier and the other adder inputs through a group filter. The outputs of this second converter are connected through de-

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USSR

EIS'MENETSKIY, V. A., KHORUNZHIY, V. A., Soviet Patent No 318881

tectors and a commutator to the adder. In addition, an auxiliary output of the second recirculator amplifier is connected to the input of a circuit for controlling the frequency of the reference oscillator and the signal level. The outputs of the control circuit are connected respectively to the controlling input of the reference frequency oscillator, and to the controlling input of the second recirculator amplifier. 2. A modification of this spectrum analyzer distinguished by the fact that a detector to the input of a video signal generator is connected to the input of the automatic control circuit through the input filter and a compensating delay line, and through an integrating circuit to the input of a comparison device whose second input is connected through a second detector to the output of the reference signal oscillator, while the output of this circuit is connected to the output of the signal level control channel. In addition, one output of the video signal generator is connected to the input of a modulator whose second input is connected to the output of the reference signal oscillator, while the modulator output is connected through a filter to an auxiliary adder input. The second output of the video pulse generator is connected to the output of the automatic frequency control channel of the reference oscillator.

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Electrochemistry

USSR

UDC 66.094.1:546.791

VLASOV, V. G., PIS'MENKO, V. T., ULYASHEV, S. P., SHALAGINOV, V. N., and BEKETOV, A. R.

"Electroconductivity of Uranium β -Dioxide Modified With Admixtures of MgO, SrO, and Nb₂O₅"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 46, No 1, Jan 73, pp 36-40

Abstract: Specific electroconductivity expressed as a function of temperature for the pure uranium β -dioxide as well as one with admixtures of MgO, SrO, and Nb₂O₅ show three discrete segments: low temperature straight line segment of contaminated conductivity, the middle segment of proper conductivity and a high temperature segment with probably complete conductivity. Presence of impurities alters not only the absolute values of electroconductivity of uranium β -dioxide, but also the transition temperatures of the above three segments. This is due to concentration changes and mobility of basic current carriers. The experimentally established functions of electroconductivity are explained by the defects generated by the admixtures when they are dissolved in the lattice of U₄O₉.

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USSR

UDC 632.95

PIS'MENNAYA, M. V., KLISENKO, M. A.

"Thin-Layer Chromatography of Residual Quantities of New Organophosphorus Pesticides"

Probl. analit. khimii [Problems of Analytic Chemistry -- Collection of Works], Vol 2, Moscow, Nauka Press, 1972, pp 111-115 (Translated from Referativnyy Zhurnal Khimiya, No 24(II), 1972, Abstract No 24N584, by T. A. Belyayeva)

Translation: Optimal conditions are found for chromatography for the pesticides khlorofos, rogor, kil'bal', sayfos, trikhlorometafos-3, fenkapton, tsidial, fozalon, karbofos, butifos, ftalofos. The adsorbent is type KSK or ShSK silica gel, the mobile solvent is CHCl_3 , the developer is bromophinol reagent. The conditions were used for analysis of residual quantities of insecticides in air, water and vegetable products. The preparations were extracted from the specimens analyzed with ether, n-hexane, CHCl_3 . Adsorption chromatography on columns with Al_2O_3 , MgO , silica gel, bentonite and freezing were tested as methods for removal of waxes from the extracts. The most satisfactory results were produced by freezing the waxes from an acetone solution (-70°) or a water-acetone solution (0°). The sensitivity of the determination is 5-10 μg preparation in a specimen or 0.1-0.2 mg/kg.

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PISMENNY, V.D.

JPRS 60244
10 October 1973

NUCLEAR PUMPING IN MOLECULAR GAS LASERS

Article by V. M. Andriyevkin, V. V. Vasil'itsov, S. S. Kravtsov, and V. D. Pismenny of the Institute of Nuclear Physics, Zhurnal Eksperimental'noy i teoreticheskoy Fiziki, Russian, vol. 67, no. 5 (11), 1972, submitted June 1972, pp 1635-1644

The mechanism of the populating of vibrational levels of molecules by electrons produced during the ionization of a gas by the products of nuclear reactions or by a beam of charged particles is examined. It is demonstrated, that the mode, which contains the lowest excited level of a molecule, is highly populated by a diffuse stream of electrons, arising in the energy space due to the large negative gradient in the distribution of electrons by energies at the excitation threshold of this level. Criteria for accomplishing population inversion during nuclear pumping are established and it is shown, that mixtures based on CO₂ do not satisfy these criteria.

USSR

UDC 632.95

BERNATSKAYA, L. S., PIS'MENNAYA, N. V.

"Analysis of Microamounts of Some Derivatives of Phthalimide and Urea by Reaction with o-Tolidine After Thin-Layer Chromatography"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh. 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 131-132 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N506)

Translation: In analyzing herbane, it is extracted from water with CHCl_3 , from soil and the products of plant origin with hexane, and it is analyzed, chromatographically on a plate with silica gel KSK in the CHCl_3 acetone system (8:1). It is irradiated for 20-30 minutes with ultraviolet light and placed in a chamber with Cl_2 vapor where it is processed by an o-tolidine solution. Thin-layer chromatography of phthalophos, phthalane, captane and other derivatives of phthalimide is carried out in the C_6H_6 -acetone system (9:1); chromatographic analysis of derivatives of urea is carried out in the $\text{MeOH} + \text{CHCl}_3$ system (5:1).

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1/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--REDUCTION OF A MGFE SUB2 O SUB4, MG V SUB2 O SUB4 SOLID SOLUTION -U-

AUTHOR--(04)-PISMENSKAYA, G.M., BALAKIREV, V.F., POPOV, G.P., CHUFAROV, G.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(3), 9-12

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--IRON OXIDE, MAGNESIUM COMPOUND, VANADATE, VANADIUM COMPOUND, METAL REDUCTION, SOLID SOLUTION, X RAY DIFFRACTION, HYDROGEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/0722

STEP NO--UR/0148/70/013/003/0009/0013

CIRC ACCESSION NO--AT0121381

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0121381

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REDN. BY H OF THE MG_V SUB_{0.25} FE SUB_{1.75} O SUB₄ SOLID SOLN. OBTAINED FROM THE OXIDES WAS STUDIED BY X RAY DIFFRACTION AT 1000DEGREES. THE PLOT OF THE PARTIAL EQUIL. O SUB₂ PRESSURE VS. THE PERCENT REDN. SHOWED 2 BRANCHES CORRESPONDING TO SPINEL AND OXIDE PHASES AT SMALLER THAN OR EQUAL TO 33.4PERCENT OF REDN., AND TO MG_V SUB₂ O SUB₄, FE, AND MG SUB_X FE SUB_{1-X} O PHASES AT HIGHER STAGES OF REDN. THE AMT. OF FE SUB₃ O SUB₄, FORMED AS AN INTERMEDIATE PHASE IN THE 1ST REGION, WAS MAX AT 14PERCENT REDN. FACILITY: VOLGOGRAD. POLITEKH. INST., VOLGOGRAD, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--1153P70
TITLE--AN INVESTIGATION OF PERTURBING FORCES AND DISTRIBUTION OF
NONSTATIONARY PRESSURES OVER THE PROFILE IN TURBINE STAGES -U-
AUTHOR--SAMOYLOVICH, G.S., PISMIN, I.N., YABLOKOV, L.D. P
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, TEPLOENERGETIKA, NR 3, 1970, PP 79-82
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ENERGY CONVERSION
(NON-PROPULSIVE)
TOPIC TAGS--TURBINE BLADE, VIBRATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1417 STEP NO--UR/0096/70/000/003/0079/0092
CIRC ACCESSION NO--AP0104731
UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0104731

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL DATA ARE QUOTED
CONCERNING DISTRIBUTION OF NONSTATIONARY PRESSURES ON WORKING VANES OF A
TURBINE STAGE AT SUBSONIC VELOCITIES. THE PERTURBING FORCES CAUSING
VIBRATIONS OF VANES WERE DETERMINED.

UNCLASSIFIED

USSR

UDC 621.382.002

2

GARBER, R.I., GMAP, A.K., KOZLOV, V.F., PISTRYAK, V.M., FORAL', Ya.M.,
FEDORENKO, A.I.

"Mass Spectrometric Determination Of Impurity Profile Of Boron In Ion-Doped
Single Crystals Of Silicon"

V sb. Radiats. fiz. nemet.kristallov. (Radiations Physics Of Nonmetallic
Crystals--Collection Of Works), Vol 3, Part 2, Kiev, "Nauk.dumka," 1971, pp
143-148 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971,
Abstract No 10B438)

Translation: The impurity profile of atoms of boron implanted in mono-
crystalline silicon with various orientations was determined by the method of
secondary ion-ionic emission. The scheme of the mass spectrometric arrange-
ment is presented, as well as typical impurity profiles of barium in Si
specimens. 3 ill. 7 ref. I.M.

1/1

1/2 035
UNCLASSIFIED
PROCESSING DATE--27NOV70
TITLE--PROFILE OF THE DISTRIBUTION OF 30-100 KEV BORON IONS PENETRATING
INTO SILICON -U-
AUTHOR--PISTRYAK, V.M. P
COUNTRY OF INFO--USSR
SOURCE--FIZIKA TVERDOGO TELA, APR. 1970, 12, (4), 1281-1283
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ION BOMBARDMENT, BORON, ION BEAM DOPING, CRYSTALLINE SILICON,
ION EMISSION, CRYSTAL ORIENTATION, ION DISTRIBUTION, SECONDARY EMISSION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1795 STEP NO--UR/0181/70/012/004/1281/1283
CIRC ACCESSION NO--AP0129163
UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129163

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISTRIBUTION OF B IONS (INITIALLY HAVING ENERGIES OF 30-100 KEV) AFTER PENETRATING INTO ION DOPED SI CRYSTALS WAS STUDIED. IN VIEW OF THE DIFFICULTIES OF THE TRADITIONAL LAYER BY LAYER ANALYSIS OF THIS MATERIAL, THE B ION PROFILE WAS DETERMINED BY A TECHNIQUE BASED ON SECONDARY ION ION EMISSION. THE PROFILE HAD SHARP MAX. LYING AT DEPTHS OF 0.3-0.4 MU M FOR THE (111) PLANE AND 0.3-0.3 MU M FOR THE (110) PLANE, THE PRECISE POSITION DEPENDING ON THE INCIDENT ENERGY. MOST OF THE PARTICLES PENETRATED MORE DEEPLY THAN INTO AMORPHOUS MATERIAL, PRESUMABLY AS A RESULT OF CHANNELLING.

UNCLASSIFIED

USSR

D
PISTRYAK, V. M., GNAP, A. K., KOZLOV, V. F., GARBER, R. I., FEDORENKO, A. I.,
FOGEL', Ya. M., Physico-Technical Institute, Academy of Sciences, Ukr SSSR,
Kar'kov.

"Distribution Profile of 30 and 100 KEV Boron Ions Intersticed in Silicon"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 4, April 1970, pp 1281-1283

Abstract: Monocrystalline specimens of n-type silicon with (111) and (110) crystallographic orientations were investigated after alloying with ions of boron with energies of 30 and 100 kev in an accelerating unit with mass separations. Determination of the distribution profile of the boron ions intersticed in silicon during ion alloying was performed by a method of secondary ion-ionic emission on a mass--spectrometric device. Laminar sputtering of the specimens of ion-alloyed silicon (speed of sputtering ~ 0.0015 micron/sec) was produced by a beam of primary ions with energies of 14 kev and a current density of 0.1 ma/cm^2 . The secondary ions B_{11}^+ isolated by the magnetic analyzer were registered by an ion counter. The distribution profiles have satisfactorily narrow maxima embedded at depths of 0.3 micron (30 kev) and 0.43 micron (100 kev) for the (111) plane, and 0.33 micron (30 kev) and 0.49 micron (100 kev) for the (110) plane. The difference in the depths of the maxima of the distribution profile of the impurity at 1/2

USSR

PISTRYAK, V. M., et al, Fizika Tverdogo Tela, Vol 12, No 4, April 1970,
pp 1281-1283

the same energies of the incident ions, but different crystallographic orientations of the targets, is explained by the better conditions of channeling of the incident particles in crystals with (111) orientations as compared with those of (111) orientations. The authors thank I. G. Gverdtsital and A. I. Guldramshvil for the specimens submitted and for useful discussions. 1 fig. 6 ref. Received by editors 19 December 1969.

2/2

Metrology, Surveying, Graphics, Mapping

USSR

UDC 533.27

FABRY, L. P., PISTUN, Ye. P.

"Calculation of Static Characteristics of Pneumatic Choke Convertors of Physical and Chemical Parameters of Gases"

Kontrol'no-izmerit. Tekhnika. Resp. Mezhved. Nauch.-Tekhn. sb. [Testing and Measuring Equipment, Republic Interdepartmental Scientific and Technical Collection], 1971, No 11, pp 129-135, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 7, 1972, Abstract No 7.32.685).

Translation: A method is studied for designing pneumatic turbulent-laminar, laminar-turbulent and turbulent choke convertor-receivers for measurement of the physical and chemical parameters of gases. The tabulated function

$$\phi(\beta) = \sqrt{\frac{2}{x-1} (\beta^{\frac{2}{x}} - \beta^{\frac{x-1}{x}})}$$

is calculated by computer for various values of x with an interval of 0.05. 1 Table; 3 Biblio. Refs.

1/1

USSR

KARTASHEV, K. B., ~~PISTUNOVICH, V. I.~~ PLATONOV, V. V., RYUTOV, V. D.,
FILIMONOVA, YE. A.

"Detection of Fast Electrons in Plasmoid Injection into a Transverse Magnetic Field"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 15,
No. 1, 5 Jan 72, pp 7-9

Abstract: Fast electrons observed in the injection of a plasmoid into a transverse magnetic field are described. The experiments were conducted on the INYeS device described by Golovin, et al, at the IV International Conference on Plasma Physics and Thermonuclear Research at Madison in June 1971. It is noted that when a plasmoid enters a transverse magnetic field, there should occur a redistribution of energy between the ion and electron components, as has been discussed theoretically by many authors using a one-dimensional model of an equilibrium boundary layer between the plasma and the magnetic field. In this model the plasma flow incident on the magnetic field is reflected as a whole from the "magnetic wall" and acceleration of electrons and slowing down of ions occurs in the transition layer formed due to separation of the

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USSR

KARTASHEV, K. B., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 15, No. 1, 5 Jan 72, pp 7-9

charges. Upon injection of the plasmoid into the magnetic field there was recorded x-radiation with an energy of the order of the energy of the incident protons. The radiation was recorded by a scintillation detector from the central region of the trap. Oscillograms of the x-radiation are shown for different magnetic field strengths. The intensity of the radiation increased with an increase in the field strength from 1 to 2.5 koe. In the absence of a magnetic field the radiation was never observed. A first narrow radiation peak on the time scale corresponds to the time of input of the plasmoid into the magnetic field. A second, wider peak arises simultaneously with the beginning of radiation of the spectral line of copper CuI,-- i.e., at the time of entry of the plasmoid into the trap from the plasma gun -- for a plasmoid moving with a velocity of $3 \cdot 10^6$ cm/sec and containing a large number of impurities. Electromagnetic radiation in the range 4.6-0.8 cm was recorded simultaneously with the x-radiation; as in the case of radiation, it was never observed in the absence of a transverse magnetic field, and its intensity increased with an increase in the field strength. The intensive radiation in the range of characteristic plasma frequencies and their harmonics indicates

2/3

USSR

KARTASHEV, K. B., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 15, No 1, 5 Jan 72, pp 7-9

the existence of a plasma with a high level of oscillations in the trap. A second pulse of x-radiation indicates the presence of high-energy electrons held in the trap. The study indicates that a considerable number of electrons acquire energy and are captured in the trap upon the entry of a fast plasma into a transverse magnetic field. The authors conclude that it remains unclear as to what serves as the target for the slowing down of fast electrons responsible for the appearance of the first x-radiation peak and that the experimental results cannot be fully explained within the framework of the aforementioned one-dimensional model.

2/2

3/3

Refractory Materials

USSR

UDC:666.764.32:621.78.062.2

PITAK, N. V. and ANSIMOVA, T. A., Ukrainian Scientific Research Institute for Refractories

"Mechanism of Rupture of Mullite-Corundum Lining Products Exposed to Different Media"

Moscow, Ogneupory, No 1, 1974, pp 35-38

Abstract: Mullite-corundum products containing 80% Al_2O_3 , 18% SiO_2 , porosity 17%, apparent density 2.67 g/cm^3 , compressive strength over 900 kg/cm^2 , temperature of beginning of deformation under load of 2 kg/cm^2 1670° C were tested in a variable oxidizing-reducing medium in an industrial installation consisting of two shafts approximately 10 m high and 3.6 m in diameter filled with the liner. The installation operates by the countercurrent principle with the liner heated in an oxidizing medium to 1500° C for 20 minutes, followed by pyrolysis with natural gas at $1200\text{-}1500^\circ \text{ C}$ for 20 minutes. Under these conditions, the mullite-corundum refractory breaks down as a result of reduction of the silica of the mullite to silicon monoxide during the period of pyrolysis and partial oxidation of SiO to SiO_2 during the heating period. Repeated changes in the gas medium cause a significant increase in porosity and volume of the products due to softening of their structure under the influence of cristobalite formed between the grains upon oxidation of gaseous SiO during the transition from pyrolysis to heating.

USSR

UDC 666.764.32.041.9

ANTONOV, S. A., PITAK, N. V., and ZHUKOVA, Z. D., Ukrainian Scientific
Research Institute of Refractory Materials

"Sintering of a Mullite-Corundum Briquette in Oxidizing and Reducing Media"
Moscow, Ogneupory, No 3, 1973, pp 24-27

Abstract: Investigation results are presented of the sintering of a mullite-corundum briquette in oxidizing and reducing media. Crude technical GA85 alumina and PLKO kaolin were used as initial materials for specimens 20 mm in diameter and 24 mm high, subjected to heat treatment with 2 hrs aging at 200-1700°C at 100-200°C intervals. The weight loss, change in volume, water absorption, and compressive strength, determined after each experiment in both media, are discussed. An intensive sintering was found to proceed in the 1400-1600°C temperature interval. The sintering rate at 1200-1400°C is higher in a reducing medium than in an oxidizing medium, due to the formation of a significant amount of liquid phase. At temperatures higher than 1400°C, the SiO₂ reduction process increases and volatile silicon monoxide develops, which prevents a sintering of the briquette. Five figures, one table, four bibliographic references.

1/1

1/2 012

UNCLASSIFIED

PROCESSING DATE--20NDV70

TITLE--PACKING COMPOUND FOR THE HEARTHS OF HEATING FURNACES -U-

AUTHOR--(02)-PITAK, N.V., ANSIMOVA, T.A.

COUNTRY OF INFO--USSR

SOURCE--OGNEUPRY 1970, 35(5), 32-6

DATE PUBLISHED-----70

P

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

TOPIC TAGS--INDUSTRIAL FURNACE, CORUNDUM, REFRACTORY MATERIAL, PHOSPHORIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0630

STEP NO--UR/0131/70/035/005/0032/0036

CIRC ACCESSION NO--AP0134392

UNCLASSIFIED

272 012

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134392

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USE OF SINTERED CORUNDUM AND
ELEC. CORUNDUM, COMPS. WERE WORKED OUT FOR THE PACKING COMPD. BASED ON
ORTHOPHOSPHORIC ACID, WHICH ARE RECOMMENDED FOR THE FILLING OF THE
BOTTOMS OF HEATING FURNACES. THE SAMPLES AND THE ARTICLES PREPD. FROM
THESE PACKING COMPOS. BY PRESSING AND BY PNEUMORAMMING ARE CHARACTERIZED
BY GOOD PROPERTIES. FACILITY: UKR. NAUCH. ISSLED. INST.
OGNEUPGR., KHARKOV, USSR.

UNCLASSIFIED

Refractory Materials

USSR

UDC 546.623'21+546.74'21):541.123.2

GAVRISH, A. M., ZOZ, YE. I., ANSIMOVA, T. A., PITAK, N. V., and KARYAKIN, L. I., Ukrainian Scientific Research Institute of Refractory Materials

"Processes Taking Place in the Al_2O_3 -NiO System During Heating in Oxidizing and Reducing Media"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 8, No 6, Jun 72, pp 1175-1177

Abstract: An investigation was made of the change of phase composition of the carrier during heating in oxidizing and reducing media in the presence of a nickel catalyst. The specimens were prepared from the principal components of the carrier, electrocorundum (with 98.8% Al_2O_3 , grain size $< 50 \mu$), technical alumina (98.6% Al_2O_3 , grain size $< 50 \mu$), and nickel nitrate ($Ni(NO_3)_2 \cdot 6H_2O$). The corundum and alumina specimens had additions of 1, 10, 25, and 50% nickel nitrate. With an increasing concentration of nickel nitrate, there are only weak lines of spinel at $1500^\circ C$; at 10% the spinel develops at $1200^\circ C$, and at 25% it develops at $900^\circ C$. According to findings of other authors, the development of spinel was observed at $700^\circ C$ and up to $1500^\circ C$. The behavior of corundum and alumina specimens in the process of

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USSR

GAVRISH, A. M., et al., Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 8, No 6, Jun 72, pp 1175-1177.

temperature increase up to 1500°C and during holding in air is discussed and compared with data of other authors. One table, eight bibliographic references.

2/2

- 42 -

Acoustical and Ultrasonic

USSR

UDC: 541.113

PITAYEVSKAYA, I. I. and BILEVICH, A. V.

"Velocity of Ultrasonic Propagation in Compressed Methane"

Moscow, Doklady Akademii nauk SSSR, vol 204, No 6, 1972, pp 1346-1348

Abstract: In earlier papers, the authors measured the velocity of ultrasonic waves in monatomic He and Ar, in N₂, and in CO₂. In the present paper, they describe the results of experiments they performed in the measurement of ultrasonic propagation through the multiatomic gas of methane. This gas was chosen because it is known that there are large accumulations of it in the depths of the earth and because the data derived from such experimentation can be useful for geochemical computations. The particular specimens used were obtained from the Experimental Plant for Reduction of Natural Gas and had a purity of 99.95%. Velocity measurements were made by the pulse method at pressures of 4.5 kbar in a temperature interval of 25-200° C, and in the frequency range of 0.1 to 4 MHz. No variation of the velocity with variations in frequency was detected, but curves are given for the velocity as a function of pressure at various temperatures, for the computed thermal capacity as a function of the density at various

1/2

USSR

UDC: 541.113

PITAYEVSKAYA, L. L., et al, Doklady Akademii nauk SSSR, vol 204,
No 6, 1972, pp 1346-1348

temperatures, and for the adiabatic compressibility as a function
of the density at various temperatures in the 25-200° C range.
Members of the M. V. Lomonosov Moscow State University, the au-
thors express their gratitude to Academician L. F. Vereshchagin
for his assistance.

2/2

- 110 -

1/2 017

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--ELECTROMAGNETIC WAVE ECHO IN A PLASMA -U-

AUTHOR--(02)-KEMOKLIDZE, M.P., PITAYEVSKIY, L.P.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 5, PP 1853-1856

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELCTROMAGNETIC WAVE REFLECTION, ECHO, PLASM OSCILLATION,
PERTURBATION THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0014

STEP NO--UR/0056/70/058/005/1853/1856

CIRC ACCESSION NO--AP0127664

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127664

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EFFECT OF THE SPATIAL PLASMA ECHO TYPE FOR TRANSVERSE ELECTROMAGNETIC WAVES IN THE ABSENCE OF AN EXTERNAL MAGNETIC FIELD IS CONSIDERED IN THE THIRD ORDER OF PERTURBATION THEORY. THE WAVE FREQUENCY IS ASSUMED LOWER THAN THE LANGMUIR PLASMA FREQUENCY AND THE EFFECT LEADS TO NONLINEAR PENETRATION OF THE WAVES INTO THE PLASMA. THE AMPLITUDE INCREASES WITH GROWTH OF THE DISTANCE BETWEEN THE GRIDS PRODUCING THE FIELD. FACILITY: INSTITUT FIZICHESKIKH PROBLEM, AN SSSR.

UNCLASSIFIED

USSR

UDC: 51

PUGACHEV, V. F., MARTYNOV, G. V., MEDNITSKIY, V. G., PITELIN, A. K.

"Multistage Optimization With Specific Forms of Local Criterion"

Ekonomika i mat. metody, 1973, 2, No 2, pp 204-217 (from *RZh-Kibernetika*, No 7, Jul 73, abstract No 7V534 [authors' introduction])

Translation: In *RZhMat*, 1973, 1V737 a scheme of multistage optimization with local criterion of general form is considered. Using specific forms W, corresponding modifications of the general scheme can be made, computational experiments can be formulated, a comparative analysis can be made, and conclusions of a mathematical and economic nature can be drawn. The paper deals with just this class of problems.

1/1

USSR

PITERBARG, V. I.

"Concerning the Work of D. Pikands, "Probability of Intersection for a Stable Gaussian Process"

Vestn. Mosk. Un-ta. Mat., Mekh. [Moscow University Herald, Mathematics, Mechanics], 1972, No 5, pp 25-30 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V148 by the author).

Translation: Suppose the correlation function of r(t) of a Gaussian stable process x(t) is such that 1 - r(t) changes properly to zero with nonzero exponent alpha. It is said that at point t_0, a -exit beyond level u has occurred, if x(t_0) = u where t_0 in (t_0 - tau, t_0). N(tau, u, t) is the number of tau-exits beyond the level u in sector [0, t]. Suppose phi(s) is such that lim_{s to 0} (1-r(phi(s))/s^2) = 1. Then lim_{s to 0} (1-r(t phi(s))/s^2) = C |t|^alpha. Suppose

inf_{0 < t < 1} inf_{0 < s < t} (1-r(t phi(s))/|t|^alpha s^2) > 0. Then lim_{n to infinity} V 2 pi n u e^{-u^2/2} phi(1/u) MN(tau, u, t) = t C^{1/alpha} H'_alpha.

where 0 < H'_alpha = lim_{T to infinity} 1/T integral_0^T e^{sP} {max_{[0, T]} Y(t) > s} ds and Y(t) is a Gaussian process.

USSR

PITERBARG, V. I., Vestn. Mosk. Un-ta. Mat., Mekh., 1972, No 5, pp 25-30.

$$MY(t) = -|t|^\alpha, \text{Cov}(Y(t_1), Y(t_2)) = -|t_1 - t_2|^\alpha + |t_1|^\alpha + |t_2|^\alpha.$$

If, furthermore, either $\lim_{t \rightarrow \infty} r(t) \log t = 0$, or $\int_{-\infty}^{+\infty} r^2(t) dt < \infty$,

then for any $0 < \lambda < \infty, k = 0, 1, 2, \dots$, $\lim_{n \rightarrow \infty} P\{N(\tau, u, \lambda(\mu) = k)\} = \frac{e^{-\lambda/\mu} \lambda^k}{k!}, \mu = MN(\tau, u, 1).$

In the work of Pikands (RZhMat, 1970, 12V95) in the proof of similar theorems for $r(t) = 1 - C|t|^\alpha + o(|t|^\alpha), t \rightarrow 0$, an error is made (lemma 2.8). An essential alteration of the proof of the theorem of Pikands is presented.

P
Physical Properties:

USSR

UDC 609.617:539.87

PITERIMOV, V. A., and MAL'TSEVA, G. N., Mordovian State University

"On the Temperature Relaxation in Metals"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 30, No 1, Jul 70, pp 175-180

Abstract: The problem of the frequency dependence of the thermal coefficient of electric resistance at periodic temperature variations is discussed on the basis of a formal analogy with the theory of internal friction. A dynamic method is described for measuring the thermal coefficient of electric resistance in the temperature interval of 1400-2100° C at a frequency of 50 Hz. The results of measuring the thermal coefficient of electric resistance of 2a-3 tungsten wire are discussed by reference to a diagram. The diagram shows an anomaly in the interval of 1780-1900° C. It is probable that the anomaly is determined, at least to a certain degree, by the same structural variation which takes place at recrystallization.

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1/2 024
UNCLASSIFIED
PROCESSING DATE--30OCT70
TITLE--DETERMINATION OF THE COMPOSITION OF THREE COMPONENT COPOLYMERS
CONTAINING HALO SUBSTITUTED STYRENE, STYRENE, AND DIENE -U-
AUTHOR--(03)-GORSHKOVA, I.A., PITERKIN, B.D., DOKUKINA, A.F.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1), 106-9
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--COPOLYMER, STYRENE, DIENE, BUTADIENE, FLUORINATED ORGANIC
COMPOUND, ISOPRENE, UV SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0976
STEP NO--UR/0153/70/013/001/0106/0109
CIRC ACCESSION NO--AP0124635
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124635

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPN. OF SEVERAL TERNARY
COMPOLYMERS, E.G., STYRENE (I), BUTADIENE
(II), ALPHA, BETA, BETA, TRIFLUOROSTYRENE (III), I, ISOPRENE, III,
ALPHA, BETA, DIFLUORO, BETA, CHLOROSTYRENE, I, II, AND
P, PHENYL, ALPHA, BETA, BETA, TRIFLUOROSTYRENE, I, II, WAS DETD. BY UV
SPECTROSCOPY AT 240-80 NM. THE ANAL. WAS RAPID AND ACCURATE.
FACILITY: LENINGRAD. POLITEKH. INST. IM. KALININA, LENINGRAD, USSR.

UNCLASSIFIED

UDC 535.37 + 539.196

USSR

ARISTOV, A. V., BAKHSHIYEV, N. G., KUZIN, V. A., and PITERSKAYA, L. V.

"Effect of Orientational Intermolecular Relaxation on Stimulated Emission Spectra of Organic Phosphors"

Leningrad, Optika i Spektroskopiya, Vol 30, No 1, Jan 71, pp 143-147

Abstract: The article suggests a method for a controlled decrease in the mean time spent by molecules in an excited state (t_f) by intensification of stimulated radiative deactivation of excited molecules in a generation mode. The value of t_f is a direct functional of the pump level. This opens up the possibility of reducing the lifetime of excited molecules by intensification of radiative transitions, which differs fundamentally from the method of increasing the probability of radiationless deactivation, and opens up new avenues for the interpretation of

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USSR

ARISTOV, A. V., et al., Optika i Spektroskopiya, Vol 30, No 1, Jan 71, pp 143-147

certain spectroscopic and generational phenomena as well as for obtaining new information on the properties of molecules and molecular systems. The new method was used by the authors to study the relationship between the position of the generation spectrum maximum and the extent to which the pump power of the second harmonic of a neodymium giant pulse exceeds the threshold power in glycerol solutions of 3-dimethylamino-6-monomethylamino-N-methylphthalimide in a -65 to $+35^{\circ}$ C temperature range. The results confirm the fact that orientational intermolecular relaxation in relaxation times commensurable with the mean time spent by phosphor molecules in an excited state has the same effect on the character of luminescence spectra variation both in a spontaneous and in a stimulated regime. In a subsequent article the authors

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USSR

ARISTOV, A. V., et.al., Optika i Spektroskopiya, Vol 30, No 1,
Jan 71, pp 143-147

intend to consider the effect of translational intermolecular re-
laxation on generation spectra.

The authors thank V. I. SHIROKOV and T. V. VESELOVA for
fluorometric measurements of τ_f (mean lifetime of molecules in
excited singlet state in a spontaneous emission mode).

3/3

USSR

UDC 8.74

KANEVETS, G. YE., PITERTSEV, A. G., KHUSNULLIN, M. KH.

"Complex Optimization of Heat Exchange Equipment"

Kompleksnaya optimizatsiya teploobmennykh apparatov (cf. English above), Republic Library of Algorithms and Programs, Kiev, 1972, 259 pp, ill., 75 k (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V511K)

Translation: The structure, equations and programs suitable for performing any optimizing calculations in practice for industrial heat exchangers including calculations with respect to optimal replacement of obsolete equipment are presented.

1/1

- 101 -

Acc. Nr.: AT0046520

Ref. Code: UR0146

USSR

UDC 621.316.761.2

MELIK-SHAKHNAZAROV, A.M., PITERYAKOV, V.V., SHAYN, I.L.

"Use of the Scanning Conversion Principle in Constructing Alternating Current Compensators"

K voprosu o primeneni printsiipa razvertywayushchego pre-obrazovaniya pri postroyeni kompensatorov peremennogo toka (cf. English above), Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy, Priborostroyeniye, 1970, No 1, pp 15-19

Translation:

The article examines the use of scanning conversion methods in alternating current automatic control systems. The possibility is demonstrated of increasing the speed of response for a low carrier frequency of the signal being measured.

Reel/Frame

19701777

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USSR

UDC 546.185:661.:630

SHVETSOV-SHILOVSKII, N. I. and PITINA, M. R.

"Synthesis of Monochloro-, Monoalkylamido-, and Monoalkoxypentaamidocyclotriphosphazines"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 1025-1028

Abstract: In the search for new pesticides among the cyclotriphosphazines, monochloropentaamidocyclotriphosphazine and the monoalkylamido- and monoalkoxy-pentaamido- derivatives were formed by successive substitutions on a base of hexachlorocyclotriphosphazine using amides of dissimilar alkalinity. One group of these compounds, 2-monoalkylamido-2,4,4,6-tetroxy(N-dimethylamido)-6-chlorocyclotriphosphazines, form the corresponding alkoxy derivatives when treated with various alcoholates.

1/1

1/2 016
 TITLE--CONDITIONS FOR SOIL NUTRITION OF PLANTS IN M SUB1 AND VARIATIONS IN
 M SUB2 DURING THE TREATMENT OF BARLEY SEEDS WITH GAMMA RAYS AND SOME
 AUTHOR--(02)-BATYGIN, N.F., PITIRIMOVA, M.A.

PROCESSING DATE--30OCT70

P

COUNTRY OF INFO--USSR

SOURCE--GENETIKA 1970, 6(2), 34-9

DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PLANT PHYSIOLOGY, NUTRITION, CEREAL CROP, SOIL, GAMMA
IRRADIATION, MUTAGEN, PLANT MUTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0639

STEP NO--UR/0473/70/006/002/0034/0039

CIRC ACCESSION NO--AP0121306

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121306
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. BARLEY SEEDS WERE TREATED WITH MUTAGENS OR IRRADIATED WITH GAMMA RAYS AND GROWN ON A FIELD FERTILIZED WITH N PLUS P PLUS K (50, 65, AND 62 OR 250-300, 190, AND 185 KG-HA, RESP.). CHLOROPHYLL, PHYSIOL., STERILE, AND MORPHOL. MUTATIONS WERE COUNTED IN PLANTS OF 2 GENERATIONS. THE VIABILITY OF THE SEEDS AND THE NO. OF STERILE PLANTS WERE LESS UNDER EXCESSIVE NUTRITION. EXCESSIVE NUTRITION ATTENUATED THE EFFECT OF CHEM. MUTAGENS AND GAMMA IRRADIATION IN THE YEAR OF TREATMENT AND DECREASE THE NO. OF MUTATIONS IN THE SUBSEQUENT GENERATION. FACILITY: AGROPHYS. RES. INST., LENINGRAD, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70
 TITLE--RAPID AMPEROMETRIC DETERMINATION OF PALLADIUM IN PALLADIUM PLATING
 BATHS -U-
 AUTHOR--(04)-ARISHKEVICH, A.M., PITSYK, O.I., ZAMORSKAYA, T.V., USATENKO,
 YU.I. P
 COUNTRY OF INFO--USSR
 SOURCE--ZAVOD. LAB. 1970, 36(3), 265-7
 DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY
 TOPIC TAGS--PALLADIUM, METAL CHEMICAL ANALYSIS, AMPEROMETRIC TITRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3008/1215 STEP NO--UR/0032/70/036/003/0265/0267

CIRC ACCESSION NO--AP0138230
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 013

CIRC ACCESSION NO--AP0138230

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITH A SOLN. OF
3, METHYLDIMERCAPTOTHIOPYRONE (I) IN 0.4M ALKALI AS REAGENT AND GRAPHITE
INDICATOR ANODE, 20 MUG TO 1.5 MG OF PD WERE TITRATED IN ACID MEDIUM
(FROM PH 4 TO 20N H SUB2 SO SUB4 OF 10N HCL) AT 0.4-0.6 V (VS. SCE).
THE MOLAR RATIO IS SHOWN ON MICROFICHE. AMPEROMETRIC RESULTS WERE
DESCRIBED. COMPARED WITH GRAVIMETRIC DIMETHYLGLYOXIME VALUES. THE PREPN. OF I IS
DNEPROPETROVSK, USSR. FACILITY: DNEPROPETROVSK. KHIM.-TEKHNOL. INST.,

UNCLASSIFIED

USSR

UDC: 51

KORBUT, A. A., OVSIYEVICH, B. L., OGANESYAN, L. A., ~~PIPIEL, B. G.~~ Leningrad Department of the Central Mathematical Economics Institute, Academy of Sciences of the USSR

"Concerning V. V. Kolbin's Survey 'Stochastic Programming'"

Po povodu obzora V. V. Kolbina "Stokhasticheskoye programmirovaniye" (cf. English above), Leningrad, 1971, 12 pp, ill. (No 4000-72 Dep.) (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V443 Dep.)

Translation: It is shown that V. V. Kolbin's survey "Stochastic Programming" (RZh-Mat, 1970, 6V529) is mostly plagiarized from Zellmer's papers (G. Zellmer, "On Formulating Problems in Linear Stochastic Optimization", Math. und Wirtsch., Band 6, Berlin, 1969, pp 11-44; Wiss. Z. Hochsch. Oekonomie, Berlin, 1968, No 2, pp 163-169; No 4). The numerous inaccuracies and errors of the survey are analyzed. In particular, mention is made of gross errors in lemma 1.1, in the corollary of lemma 1.2, in lemmas 5.1, 5.2 and 5.4, and in theorems 5.1, 6.1 and 8.1. Authors' abstract.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--THERMOPHYSICAL PROPERTIES OF UNPLASTICIZED POLY(VINYL CHLORIDE)
PVKHS-5 -U-
AUTHOR--(03)-CHERNOBYLSKIY, I.I., PIVEN, A.N., GRECHANAYA, N.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. PROM. UKR. 1970, (1) 27-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--HEAT CONDUCTIVITY, SPECIFIC HEAT, ENTHALPY, POLYVINYL
CHLORIDE, LEAD COMPOUND, TEMPERATURE DEPENDENCE, POLYMER PHYSICAL
PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FILE/FNAME--1992/1511 STEP NO--UR/0435/70/000/001/0027/0029
CIRC ACCESSION NO--AP0112505
UNCLASSIFIED

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2/2 025

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112505

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGES OF HEAT COND. COEFF. (LAMBDA), TEMP. TRANSFER COEFF. (A), D., SP. HEAT (C SUBP) AND ENTHALPY WITH TEMP. IN 0-200DEGREES INTERVAL WERE DETD. FOR THE UNPLASTICIZED POLY(VINYL CHLORIDE) (I) CONTG. PBCO SUB3 5, PB STEARATE 3, AND STEARIN 0.5 PARTS IN 100 PARTS I. THE RESULTS ARE PRESENTED IN GRAPHS. THE INCREASE IN THE DETN. PRESSURE FROM 5 TIMES 10 PRIMES TO 50 TIMES 10 PRIMES N-M PRIME2 INCREASED LAMBDA BY 6PERCENT, A BY 5-6PERCENT, D. BY 2-3PERCENT, AND C SUBP BY 2-3PERCENT WITHOUT ALTERING THE CHARACTER OF THE PROPERTY TEMP. DEPENDANCE.

UNCLASSIFIED

USSR

UDC 621.317.77

MISYURA, V. A., PIVEN', L. A., SURKOV, K. K., SOMOV, V. G.,
KARATEYEV, N. G., ZAGVOZDKIN, B. V., NABOKA, A. M., LITVINENKO,
O. A., and KAPANIN, I. I.

"Systems of Phase and Doppler Measurements in a Mobile Radio
Ionosphere Complex"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
Sekts. 3 (Tenth All-Union Conference on the Propagation of Radio
Waves; Report Theses; Section 3--collection of works) "Nauka,"
1972, pp 109-113 (from RZh--Radiotekhnika, No 10, 1972, Abstract
No 10A426)

Translation: A device for phase probing and a system for recording
the Faraday and Doppler effects in artificial earth satellite sig-
nals and rockets, including a series of multichannel receiver and
recorder devices operating at two, three, and four coherent fre-
quencies (20, 40; 24, 48, 144; 20, 30, 90, 180; 150 and 400 MHz,
and others), are described. The difference between the phase
probing system and those now known is the separation of the mea-
sured phase differences with a heterodyne frequency and consequent
narrow-band filtration. Resume
1/1

USSR

UDC 621.317.08

MISYURA, V. A., PIVEN, L. A., LITVINENKO, O. A., SOMOV, V. G.,
HABOKA, A. M., SURKOV, A. K., and KARATEYEV, N. G.

"Mobile Radio Ionosphere Complex for Investigating the Ionosphere
and Radio Wave Propagation"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
Sekts. 3 (Tenth All-Union Conference on the Propagation of Radio
Waves; Report Theses; Section 3--collection of works) "Nauka,"
1972, pp 104-108 (from RZh--Radiotekhnika, No 10, 1972, Abstract
No 10A427)

Translation: A mobile radio ionosphere complex, developed in the
Khar'kov University for complex investigations of the ionosphere
and the propagation of radio waves by the method of vertical prob-
ing and the method of single-frequency and multifrequency differen-
tial Doppler and Faraday effects in satellite and rocket signals,
is described. The mobility of the complex permits, in addition to
conducting independent measurements, combination measurements with
devices for noncoherent scattering and with experiments using geo-
physical and meteorological rockets, as well as various shortwave
ranges and the like. Resume

1/1

USSR

UDC 612.58:612.8.015

PIVEN', N. V., Laboratory of General Physiology, Institute of Cytology and Genetics, Siberian Department of the Academy of Sciences of the USSR, Novosibirsk

"Volume Changes in the Cytoplasm of Neurons from Different Regions of the Central Nervous System During and After Hypothermia"

Leningrad, Tsitologiya, Vol 15, No 7, Jul 73, pp 828-832

Abstract: N. V. Piven's results show the extreme cooling of rats produces a reduction of cytoplasmic volume in neurons in the cerebral cortex while the volume of neurons in the subcortical formations do not change. During subsequent natural warming, the volume of neurons of the different sections of the central nervous system change in various diversities. After 16 hours of natural warming the volume of all studied types of neurons increased and the RNA content in the neurons also surpassed the content of the control levels. The dynamics of the change of cellular volume of neuroglia have their own unique characteristics considerably distinct from the dynamics of volume changes in neurons.

1/1

USSR

UDC 612.826+612.58

PIVEN', N. V., and PEVZNER, L. Z., Laboratory of Functional Neurochemistry,
Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Leningrad

"The Effect of Acute Hypothermia on RNA Concentration in Neurons and Neuroglia
of the Hypothalamic Supraoptic Nucleus"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 2,
1973, pp 237-241

Abstract: By means of cytospectrophotometry, the neuronal RNA concentration was estimated in three regions of the brain of white rats cooled for 1 hr at an ambient temperature of 0-1°C until their body temperature fell to 24°C, and during subsequent spontaneous recovery. The results indicate that during hypothermia, cytoplasmic RNA concentration does not change significantly in the neurons of the hypothalamic supraoptic nucleus, decreases in the neuroglia of that nucleus, and increases in the neurons of the inferior colliculi. During recovery, supraoptic neuronal RNA decreases at the 2d hr, rapidly increases, returns to normal at the 7th hr, and increases again to 30% above normal at the 17th hr. RNA concentration in supraoptic neuroglia remains reduced, while that in the inferior colliculi rises 100% at the 7th hr and then falls again, but is still 60% above normal at the 17th hr. Considering the fact that the balance is a function of synthesis and destruction and that the secretory
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USSR

PIVEN', N. V. and PEVZNER, L. Z., Fiziologicheskij Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 2, 1973, pp 237-241

supraoptic neurons are active periodically, it is suggested that the changes are determined not only by hypothermia but also by the cellular metabolic rate. The residual increase in RNA concentration may represent adaptation to cold.

2/2

USSR

UDC 612.822.1+612.822.4

PIVEN*, N. V., Laboratory of General Physiology, Institute of Cytology and Genetics, Siberian Department of the Academy of Sciences USSR, Novosibirsk

"RNA Content in Cortical Neurons in Relation to Changes in Their Function During Recovery from Hypothermia"

Leningrad, Fisiologicheskij Zhurnal SSSR, Vol 58, No 4, 1972, pp 493-497

Abstract: In rats cooled to a body temperature of 24°C, RNA concentration and the volume of cytoplasm decrease in cortical neurons of the second layer in frontal association areas. During spontaneous recovery from hypothermia at a room temperature of 22°C, the cytoplasm volume increases in proportion to the increasing body temperature. However, RNA concentration falls even more at a body temperature of 30°C (38 mins) and continues to fall at 35°C (1.5 hr). During a transient fall in body temperature to 34°C when the rats fall asleep (6 hrs), RNA concentration begins to rise and finally exceeds the normal level when body temperature returns to normal (16 hrs). It is concluded that during the initial stage of recovery RNA utilization exceeds utilization, creating an RNA reserve and raising the nerve cells' resistance to stress.

1/1

AA0047091

P

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

241061 AERODYNAMIC CHARACTERISTICS OF A MODEL can be determined in a wind tunnel when the model (1) has holes (2) penetrating to its internal cavity (3). Coloured water (5) under pressure (6) is forced into the cavity (3) through the pipe (4). 30.10.67 as 1193436/40-23. G.A.CHEREMUKHIN et al. (12.9.69.) Bul 13/1.4.69. Class 42k. Int.Cl.G 01m.

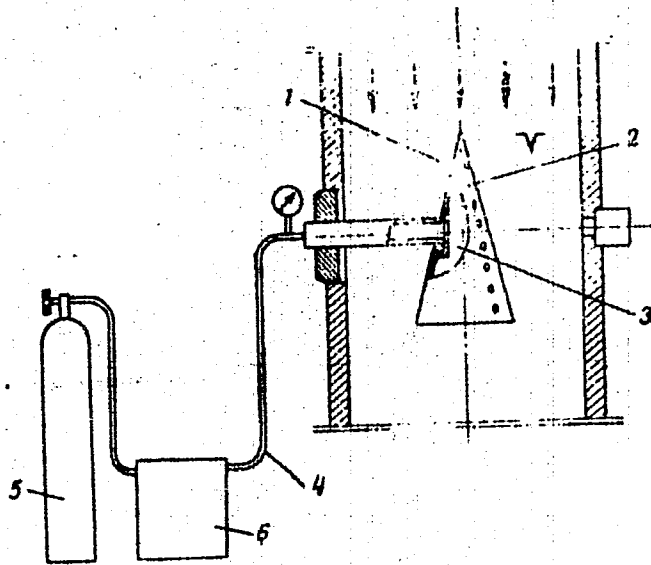
AUTHORS: Cheremukhin, G. A.; Pivkin, Ye. Ya.; Kuz'min, S. K.

21

1/2

19790575

AA0047091



1/2

19790576

jc

AA0044817

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243224 SURFACE PRESSURE ON AN AERODYNAMIC MODEL in a wind tunnel is complicated to ascertain, and the moderate accuracy obtained limits the usefulness of various methods. The proposal improves accuracy by providing data of higher quality, and also reduces the cost of experiment. The essence of the method is to fill the cavity inside the model with for example, a (coloured) liquid; on the application of some level of internal pressure the liquid arrives through seepage channels at the surface being studied. By this means the pressure exerted over a surface can be ascertained.

30.10.67 as 1193437/40-23.G.A.CHEREMUKHIN et al. (18.9.69) Bul 16/5.5.69. Class 42k. Int.Cl.G Olm.

21

AUTHORS: Cheremukhin, G. A.; Pivkin, Ye. Ya.; Kuz'min, S. K.

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4/1

19771667

USSR

PETROVA, L. T., PIVKINA, N. N.

"Large Block Programming Language"

Sb. tr. In-t mat. Sib. otd. AN SSSR [Collected Works of Institute of Mathematics, Siberian Division, Acad. Sci. USSR], 1972, No 7(24), pp 71-104
(Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V602 by the authors)

Translation: A specialized programming language is described, designed for mathematical-economic problems with block data structure. The language has a large-block structure, special organization of files into "trees" and a system of indirect references to information already accumulated; certain means for associative information retrieval are included; it is possible to access individual elements of reference information concerning files; statistical and dynamic distribution of memory are allowed. The syntax of the language is described in the form of Becus formulas. An example of inscription of a linear-programming algorithm for problems with hierarchaical matrix structure is presented.

1/1

Acc. Nr. **AP0048802**

Abstracting Service:
CHEMICAL ABST.

5-70

Ref. Code
UR0080

P

91523y Synthesis of the vinyl ether of diacetone alcohol (4-hydroxy-4-methyl-2-pentanone, dimethylacetonylcarbinol). Pispenko, V. P. (USSR). *Zh. Prikl. Khim. (Leningrad)* 1970, 43(1), 208-10 (Russ). $Me_2C(OCH:CH_2)CH_2COMe$ (I), b. 134°, n_D^{20} 1.506, was obtained in 92% yield by heating 80 g CaC_2 , 93 g $Me_2C(OH)CH_2COMe$, 150 ml C_6H_6 , and 14 g KOH in 400 ml H_2O in an autoclave 4-5 hr at 150-80°/20-5 atm. I had high adhesion to metals, glass, and some plastics. I polymd. on Cu foil at 130-50° or 180-200° to give a strong coating with exceptional flexural strength. The polymer (VEDS) had good thermal stability, moisture resistance, and resistance to chems. VEDS was useful as a dielec. and as an electronic anticorrosive lacquer. DBJR

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19800565

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USSR

UDC: 661.143

PIVNEVA, S. P., KRONGAUZ, V. G., PAN'KOVA, L. T., GUGEL, B. M.

"Formation of (Zn·Cd)S Solid Solutions During Sintering"

Sb. Nauch. tr. VNII luminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Very Pure Substances), 1971, vyp. 6, pp 36-41 (from RZh-Khimiya, No 15, Aug 72, Abstract No 15L184)

Translation: The high sensitivity of the method of diffusion reflection spectra to analysis of the composition and degree of homogeneity in the ZnS·CdS system is used for studying the peculiarities of the formation of a solid solution as a function of preparative conditions and the quality of the raw material. The authors reveal the degree to which the rate of sintering is affected by the quality of the initial zinc- and cadmium sulfides, treatment of ZnS with various "washing agents" (NH₄OH, NH₄Cl and KOH), conditions of heating the charge, and the gas atmosphere (vacuum, hydrogen, argon, hydrogen sulfide). Existing methods for charge preparation and equipment for calcining do not ensure complete reproducibility of the product even in the presence of fluxes.

1/1

- 27 -

UDC 661.143.046.41

USSR

ZAPLESHKO, N. N., PIVNEVA S. P., and PODKOLZINA, T. M.

"Growth of Zinc-Sulfide Phosphor Grains During Firing"

Sb. nauch. tr. VNIИ lyuminoforov i osobo chist. veshchestv (Collection of Scientific Works of All-Union Scientific Research Institute for Phosphors and Ultrapure Substances), 1971, vyp. 6, pp 42-49 (English summary) (from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14L131 from summary)

Translation: A detailed electron-microscopic investigation was made of the growth process of zinc-sulfide phosphor grains during firing. Industrial ZnS of a brand "for phosphors" was taken as starting raw material to make the phosphor. The charge was fired at 950°. Firing time varied from 1 minute to 4 hours. Pv [expansion unknown] of the luminescent materials was studied by means of carbon copies shaded with platinum. It was shown that the processes of particle enlargement of the initial ZnS and grain formation of the luminescent material take place in accordance with the basic principles of the physics of sintering.

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ALCOHOLATE CATALYZED DECONJUGATION OF ESTRA,4,9,DIEN,3,ONES -U-

AUTHOR--(03)-SHISHKINA, A.A.; RZHEZNIKOV, V.M.; PIVNITSKIY, K.K.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PRIR. SOEDIN. 1970, 6(1), 138-9

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--ANDROGEN, ALCOHOLYSIS, CHROMATOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0552

STEP NO--UR/0393/70/006/001/0138/0139

CIRC ACCESSION NO--AP0131175

UNCLASSIFIED

272 016
CIRC ACCESSION NO--A0131175

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DECONJUGATION OF I AND II BY TERT-BUOK IN TERT-BUOH (0.9M, 16 HR, 20DEGREES) WAS OBSD. FROM THE CRUDE PRODUCTS, III OR IV WERE OBTAINED BY CHROMATOG. ON SIG SUB2 (82PERCENT); IV IS RAPIDLY OXIDIZED TO V FROM WHICH VI WAS OBTAINED (59PERCENT) BY CHROMATOG. ON AL SUB2 O SUB3. ANABOLIC ACTIVITY IN THE HERSCHBERGER TEST (1953) OF THE HYDROXY DIKETONES (VI) AND DIHYDROXY KETONES (VII) WAS FOUND TO BE 20PERCENT OF THE ANABOLIC AND ANDROGEN EFFECT OF TESTOSTERONE PROPIONATE. FACILITY: INST. EKSP. ENDOKRINOL. KHIM. GORMONOV, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 669.14.018.821

MEL'KUMOV, I. N., KLYUYEV, M. M., PRYANISHNIKOV, I. S., PIVOBAROVA, L. I.,
and SHCHEGLOVA, R. I., Elektrostal' Plant

"Properties of Steels Alloyed with an Excess of Nitrogen"

Moscow, Stal', No 8, Aug 73, pp 749-752

Abstract: The properties of some standard steels were investigated in which nitrogen was added in amounts which exceeded the theoretical limits of its solubility under ordinary conditions. The specific steels studied were: EP222 (Kh21G7AN5), EP618 (Kh25N12AR), EP731 (OOKh19G10N7AM2), EI835 (Kh25N16G7AR), and EP310 (1Kh15N5AM2). The chemical composition of these steels is given. It was shown that in the process of plasma-arc remelting from the gas phase a greater saturation of the metal with nitrogen is achieved than under conditions of using nitrided ferroalloys. Steel from ingots weighing 400 kg had satisfactory properties, especially increased strength with acceptable ductility. The quantitative effect of nitrogen was investigated and its mechanism refined. Four figures, two tables.

1/1

USSR

UDO 621.382.002 6

GAYSINSKIY, V.B., GAL'CHINETSKIY, L.P., GRIGOR'YEV, A.N., KOSEKIN, V.M., KULIK, V.N., NIKOLAYCHUK, L.I., PIVOVAR, L.I., RAYSKIN, E.K., SYSOYEV, L.A., FAYNER, M.SH.

"Ion Implantation Of Single Crystals Of Cadmium Sulfide"

V sb. Monokristally i tekhnika (Single Crystals And Technology--Collection Of Works), Issue 6, Khar'kov, 1972, pp 109-112 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11B459)

Translation: The effect was studied of the dose and energy of irradiation by lithium ions in the temperature range from minus 70 to plus 180° C on the conductivity of cadmium sulfide. A divergence is found between the theoretically calculated value of the depth of penetration of lithium ions and the experimental results. These divergences are accounted for by the marked differences of the structures of the surface layer and the volume of the crystal. With the aid of ion implantation piezosemiconductor transducers were produced based on a high-resistance layer in CdS. Summary.

1/1

L/2 027 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ELECTRON EMISSION FOR FAST LI PRIME POSITIVE IONS PASSING THROUGH
FINE CARBON FILMS -U-
AUTHOR--(02)-DOLGOV, A.S., PIVOVAR, L.I. P
COUNTRY OF INFO--USSR
SOURCE--UKRAYIN. FIZ. ZH. (USSR), VOL. 15, NO. 5, P. 739-41 (MAY 1970)
DATE PUBLISHED----MAY70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ELECTRON EMISSION, ION BOMBARDMENT, LITHIUM, POLYCRYSTALLINE
FILM, CARBON, ANGULAR DISTRIBUTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1809 STEP NO--UR/0185/70/015/005/0739/0741
CIRC ACCESSION NO--AP0133714
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 027

CIRC ACCESSION NO--AP0133714

ABSTRACT/EXTRACT--(U) GP-0-

ION ELECTRON EMISSION FROM

DURING THE BOMBARDMENT OF IT BY LI PRIME POSITIVE IONS WITHIN THE ENERGY

RANGE FROM 50 TO 250 KEV. THE ASYMMETRY OF ELECTRONS EXIT WITH RESPECT

TO THE ION BEAM DIRECTION IS DETERMINED.

ABSTRACT. THE COEFFICIENTS ARE COMPARED OF
OPPOSITE SIDES OF FREE CARBON FILM ARISING
DURING THE BOMBARDMENT OF IT BY LI PRIME POSITIVE IONS WITHIN THE ENERGY
RANGE FROM 50 TO 250 KEV. THE ASYMMETRY OF ELECTRONS EXIT WITH RESPECT
TO THE ION BEAM DIRECTION IS DETERMINED.

UNCLASSIFIED

Acc. Nr: **AF0037844**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 1, pp **97-103**

**COLLISIONS OF FAST Li, Na AND K ATOMS AND IONS WITH
ALKALI METAL AND NOBLE GAS ATOMS (20-155 keV)**

Pivovar, L. I.; Nikolaychuk, L. I.

The cross sections for electron loss and the equilibrium charge distribution in Li^+ , Na^+ and K^+ ion beams traversing Na or K vapor or He, Ne and Ar gases are measured. The cross sections for electron loss by fast Li, Na and K atoms are determined on basis of data on equilibrium charge distributions and the data from paper [1]. The cross sections for electron capture by doubly charged Li^{2+} , Na^{2+} and K^{2+} ions are presented. The largest values of the ionization cross sections of fast atoms are observed in collisions between identical alkali metal atoms.

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USSR

UDC: 621.316

GORDIYENKO, A. G., GUBERNATOROV, O. I., PIVOVAR, V. T., and
PIVOVAR, R. M.

"Broad-Band Nuclear Magnetometer With Limited Accuracy of Magnetic Field Intensity Measurement"

Leningrad, Priborostroveniye, No 2, 1972, pp 21-25

Abstract: The broad-band magnetometer, which uses the phenomenon of nuclear magnetic resonance as its basic operating principle, is widely used in modern particle accelerators and in nuclear-magnetic and electron-paramagnetic resonance spectrometers for measuring the intensity of the magnetic field. This article describes a highly sensitive nuclear magnetometer with proton sensors and a self-oscillator in the form of a digital frequency synthesizer with automatic phase-frequency control and a highly stable reference oscillator. The device has been designed for continuous measurement of magnetic field intensities ranging from 1.2 to 6.5 kiloersteds. Block diagram of the self-oscillator, which has a frequency range of 5-28 MHz tunable with minimum steps of 10 Hz in five channels, is given and its operation described. The authors are connected with the Kharkov Institute of Radio Engineering.

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USSR

UDC 621.396.62:621.396.97

GUBERNATOROV, O. I., PIVOVAR, V. T., PIVOVAR, R. M., GORDIYENKO, A. G.,
TSYBUL'KO, V. I.

"A Medium-Band Radio Receiver With Digital Frequency Synthesizer"

Radiotekhnika. Resp. mezhved. nauch.-tekhn. sb. (Radio Engineering.
Republic Interdepartmental Scientific and Technical Collection), 1971,
vyp. 12, pp 16-21 (from RZh-Radiotekhnika, No 7, Jul 71, Abstract No
7D11)

Translation: The paper describes a transistorized socket-powered relay receiver with fixed tuning and double frequency conversion designed for huntless and adjustment-free reception of one hundred radio stations in the medium-wave band. Rapid and accurate tuning of the receiver is achieved by using a digital frequency synthesizer as the heterodyne. Tuning precision is ensured by the high stability of the heterodyne, which is determined by the stability of a quartz-crystal reference oscillator. Resumé.

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USSR

UDC 621.373

GUBERNATOROV, O. V., PIVOVAR, R. M., PIVOVAR, V. T., GORDIYENKO, A. G.

"Code Control of a Digital Frequency Synthesizer"

Pribory i sistemy avtomatiki. Resp. mezhd. nauchno-tekhn. sb. (Devices and Systems for Automation. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 13, pp 102-105 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D398)

Translation: The article describes the control circuit for a digital frequency synthesizer which operates in the 30 MHz range with discrete intervals of 50 kHz. Control is by five-digit parallel binary code. A block diagram of a frequency divider is given with division coefficient variable from 38 to 62 and programmed setting of this coefficient. The maximum frequency of the divider is 3.5 MHz. An advantage of the described digital synthesizer control circuit is absence of the mechanical inertia of switches which would increase the time for switching of the synthesizer channels. One illustration, bibliography of three titles. Resumé.

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USSR

UDC: 621.374.322:62-752.6

YELISEYEV, V. G., PIVOVAROV, A. N., AKIMOV, V. F.

"Stabilization of the Load of a Binary-Decimal Counter"

Mekhaniz. i Avtomatiz. Upr. Nauch-Proizv. Sb. [Mechanization and Automation of Control, Scientific-Production Collection], No 5, 1971, pp47-50 (translated from Referativnyy Zhurnal Aytomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 3 A365 from the resume)

Translation: The distribution of load between the outputs of a counter connected to the inputs of a decoder is analyzed. Using a binary-decimal counter as an example, the authors show the influence of the sequence of code states of distribution of load and the possibility of improvement of the evenness of distribution of load by optimization of the connections between the counter and decoder, considering the code characteristics of each state (number) written in the counter. 2 figures; 2 references.

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