

USSR

UDC 539.3

KOPERNIK, G. R. , PETROV, V. V.

"On One Method for Solving Problems in the Theory of Flexible Hollow Shells"

V sb. Raschet. prostranstv. sistem stroit. mekh. (Calculation of Three-Dimensional Systems in Structural Mechanics -- Collection of Works), Saratov, Saratov University, 1972, pp 12-17 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V144)

Translation: A method is given for calculating flexible hollow shells that is based on the simultaneous application of the Bubnov-Vlasov and Bubnov methods. The Bubnov-Vlasov method is applied to find the force function and the Bubnov method is used to find the displacement function. The initial system of partial differential equations, as a result of applying the proposed technique, reduces to a system of ordinary differential equations and to a system of nonlinear algebraic equations for which methods of the solution are sufficiently well developed. A shell that is square in plan and loaded uniformly by a distributed pressure is used as an example. From an analysis of the solutions and a comparison of the results with the data of other authors, it was possible to conclude that a computational accuracy applicable for quantitative evaluations is achieved under a single-term approximation of the displacement function. 5 ref. V. B. Silkin.

USSR

PETROV, B. N., PETROV, V. V., ULANOV, G. M., AGEYEV, V. M., ZAPOROZHETS, A. V., USKOV, A. S., KOCHUBIEVSKIY, I. D.

"Origin of the Information Theory of Control"

Tr. IV Vses. Soveshch. po Avtomat. upr., 1968. Teoriya Avtomat. upr. [Works of Fourth All-Union Conference on Automatic Control, 1968. The Theory of Automatic Control], Moscow, Nauka Press, 1972, pp 145-154, Discussion 256-262 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V277 by the authors).

Translation: This work studies the information characteristics of control processes of general form. The conclusion of information characteristics is based on thresholds of differentiability of states of an object of control at a given level of organization, introduced by the authors. The information conditions of basic modes of control and regulation are studied, including stabilization of the states of a control object, reproduction of required states and information conditions of invariance (absolute and with accuracy to ϵ). General equations are produced for the balance of enthalpy, corresponding to the basic modes of control. A general analogy is discovered between problems in statistical physics and information processes in control. Examples are presented of the design of control systems by the methods suggested. 12 Biblio. Refs.

1/1

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UDC 519.2

PETROV, V. V."Sums of Independent Random Variables"

Summy nezavisimyykh sluchaynykh velichin (Sums of Independent Random Variables), Nauka Press, 1972, 416 pp, ill., lr. 65 k. (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V9K)

Translation: In this book a study was made of limit theorems for the sums of independent random variables. It is adjacent to the widely known monographs by B. V. Gnedenko and A. N. Kolmogorov entitled Predel'nyye raspredeleniya dlya summ nezavisimyykh sluchaynykh velichin (Limit Distributions for Sums of Independent Random Variables), Gostekhizdat Press, Moscow-Leningrad, 1949 and I. A. Ibragimov and Yu. V. Linnik entitled Nezavisimyye i statsionarno svyazannyye velichiny (Independent and Stationarily Related Variables), RZh-Matematika, 1966, 6V14K. Along with the classical results of summation theory it contains a discussion of many of the research works in recent years. A large part of the book contains material not discussed previously in monographs.

The book comprises 10 chapters. Chapter 1 is auxiliary. It contains information about the general nature of probability theory used in the following chapters.

Chapter 2 contains the theory of infinitely divisible distributions. In it some of the simplest properties and the canonical representation of

1/5

USSR

PETROV, V. V., Summy nezavisimyykh sluchaynykh velichin, Nauka Press, 1972, 416 pp, ill., lr. 65 k.

infinitely divisible characteristic functions are established. One auxiliary Asseen lemma is presented.

Chapter 3 contains a number of inequalities for sums of independent random variables. From the beginning using the lemma from Chapter 2, the upper and lower estimates are proved for the concentration function of an infinitely divisible distribution in terms of spectral functions (Lekam). From this result, the necessary and sufficient conditions of continuity of the infinitely divisible distribution function are derived. Inequalities are then presented for the concentration function of the sum of the independent random variables: Kolmogorov-Rogozin inequality, generalizations of these inequalities found by Asseen and a number of results of the author. Chapter 3 also contains the proofs of the Levy, Kolmogorov and the Khayyck-Ren'ya inequalities for the maximum of successive sums. The exponential inequalities of S. N. Bernshteyn are presented for sums of random variables and generalizations of the Bernstein inequalities obtained by the author.

Chapter 4 contains a discussion of the classical theorems of summation theory in the scheme of sequences of series of independent random variables. This chapter contains a discussion of the A. Ya. Khinchine theorem regarding the class of limit laws for sums of independent random variables, the B. V. Gnedenko theorems on the conditions of convergence to a given infinitely

2/5

USSR

PETROV, V. V., Summy nezavisimykh sluchaynykh velichin, Nauka Press, 1972, 416 pp, 111., 1 r. 65 k.

divisible law, the Levy and Khinchine theorem of limit laws of class L and stable limit laws. In Chapter 4 the conditions of convergence to a normal law (the Lindeberg theorem, the Feller theorem, and so on) are derived from the general limit theorems.

In Chapter 5 a study was made of the rate of convergence of the distribution function $F_n(x)$ of a normalized sum of independent random variables to the normal distribution function $\phi(x)$. The theorems of Asseen, A. S. Feinleib and the author on estimating the difference of the functions of limited variation in terms of the difference of their Fourier-Stieltjes transformations are proved in it. The evaluations of Lyapunov, Asseen and Berry-Asseen are presented for $R_n(x) = F_n(x) - \phi(x)$ and the generalization of these estimates (the Kats results, those of the author, and so on) and also the estimate for $R_n(x)$ considering the dependence on x and n (Asseen, S. V. Nagayev, and so on).

Chapter 6 is devoted to asymptotic expansions of the distribution function $F_n(x)$. The explicit formulas for an arbitrary term of the asymptotic expansion are presented in it, and the expressions are written out for the first four terms of the expansion. In Chapter 6 we have the results of the author regarding the asymptotic expansions of the function $F_n(x)$ and its derivatives pertaining to

3/5

USSR

PETROV, V. V., Summy nezavisimyykh sluchaynykh velichin, Nauka Press, 1972, 416 pp, ill., 1 r. 65 k.

the case of sums of difference-distributed random variables. The results of the reviewer [L. Osipov] regarding the asymptotic expansions of $F_n(x)$ with evaluations of the remainder which depend on x and n in the special case of identical distributions are also presented.

Chapter 7 contains local limit theorems. A study was made of two classical versions of the local limit theorem for latticed distributions and for densities. The known Gnedenko theorems for the summation of identically distributed variables are presented. The results of the author generalizing the Gnedenko theorem to the case where among the distributions of terms there are only a finite number of different ones are discussed. The local theorems of Yu. V. Prokhorov are discussed for the more general case of differently distributed terms. Estimates of the convergence rate and the asymptotic expansions in local theorems (the theorems of V. V. Gnedenko, Asseen and the author) are also presented.

Chapter 8 contains some results of the theory of large deviations. The theorem of the author generalizing the known Kramer theorem to the case of non-identical distributions and the results of the reviewer regarding the conditions of normal convergence in step zones are discussed in it.

Chapter 9 is devoted to the laws of large numbers. At first the theorems

4/5

USSR:

PETROV, V. V., Summy nezavisimyykh sluchaynykh velichin, Nauka Press, 1972, 416 pp, ill., 1 4. 65 k.

of B. V. Gnedenko regarding the weak law of large numbers is discussed in the general scheme of sequences of series of random variables. Then a study is made of the convergence of series of independent random variables. The proofs are presented for the A. N. Kolmogorov theorem of 3 series and the one theorem of Chzhun-Petrov. A study was also made of the law of large numbers in an expanded form; the theorems of Yu. V. Prokhorov, A. N. Kolmogorov, and Feller and the recent results of the author and Kheydyia are discussed. Some results of the convergence rate in the laws of large numbers are presented.

In Chapter 10 a study is made of the law of the recurrent logarithm. It contains a discussion of the classical theorem of A. N. Kolmogorov regarding the repeated logarithm law and generalizations of the Kolmogorov theorem obtained by the author. The results of the author and V. A. Yegorov are presented on the relation between the repeated logarithm law and the central limit theorem. Rich material on the limit theorems is included in the appendices to the chapters of the book including formulations of many results adjacent to the basic text.

The book includes bibliographic notes and broad bibliography (339 entries).

5/5

USSR

PETROV, A. V., ~~PETROV, V. Ya.~~ SHKATOV, T. N.

"Determination of Probability of Losses of Information in a Buffer Memory Unit"

Moscow, Raboty po Tekhicheskoy Kibernetike, No 4, 71, pp 24-29

Abstract: A method is suggested for determination of the probability of losses of information in buffer memory, allowing accurate estimation of losses in the system resulting from limited memory volume and limited waiting time. The formulas produced are rather simple and can be used for direct calculation if the probability characteristics of message arrival are known.

1/1

- 11 -

USSR

UDC 681.326.35

DOROSHENKO, A. V., MANDRICH, V. G., PETROV, V. Ye., RIRAKHOVSKIY, Yu. V.,
BALASHOV, L. L.

"A Very-Low-Frequency Sinusoidal Voltage Generator"

USSR Author's Certificate No 315259, filed 15 Dec 69, published 9 Feb 72
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 9,
Sep 72, Abstract No 9A68 P)

Translation: This Author's Certificate introduces a very-low-frequency sinusoidal voltage generator equipped with a master oscillator, a digital-analog converter, and a DC output amplifier. To simplify the circuit of the generator and improve its operational reliability, the digital-analog converter contains a stepped voltage shaper and a shaper for the beginning and end of linear sections. These shaper circuits are interconnected by logic nets and a voltage divider and are connected to the DC output amplifier. Two illustrations.

1/1

USSR

UDC 581.132.035:582.263

PETROV, V. YE. and LOSEVA, N. L., Kazan University imeni V. I. Ulyanov-Lenin

"Change in the Energy Balance of *Chlorella pyrenoidosa* Photosynthetic in Relation to Its Functional State and Light Conditions"

Moscow, Fiziologiya Rasteniy, No 1, 1971, pp 28-34

Abstract: Changes in the intracellular balance were studied in *Chlorella pyrenoidosa* grown in a thermostat-controlled chamber and exposed to about 10,000 lux from daylight lamps. When the functional activity of the plants decreased for one reason or another and the intensity of light was low, the exoergic processes (e.g., respiration) tended to predominate over the endoergic (photosynthesis). This did not occur at higher light intensities.

1/1

USSR

UDC 621.314.56

PETROK, YA. V., KOMALTILOV, M.S., LYSENKO, S.N.

"Investigation With The Help Of An Analogue Machine Of Transients During Short-Circuit In The Circuit Of A Compensated Ferromagnetic Frequency Tripler"

Izv. Tomsk. politekhn. in-ta (Bulletin Of The Tomsk Polytechnical Institute), 1970, 211, pp 43-47 (From RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B561)

Translation: Danger of a short circuit in a ferromagnetic frequency tripler involves overvoltages of the capacitors and windings of the converters. Consequently, for computation of the insulating strength of the windings and choice of the magnitude of the working voltage of the capacitors, it is necessary to know the potential limiting currents for a short circuit of the tripler. For analysis of a short-circuit regime, expressions are obtained for currents of transient and steady regimes. A block diagram of the device is shown. Results of analysis show that currents of a 3-phase short circuit exceed the currents of a 2-phase short circuit by 1.1--1.5 times. 3 ill. 2 ref. V.Sh.

1/1

USSR

UDC: 8.74

PETROV, Ye. A.

"Analysis of Some Methods of Abbreviated Recording in Information Matrix Computer Memories"

V sb. Teoriya i praktika sbora, peredachi i obrabotki ekon. inform. (Theory and Practice in the Collection, Transmission and Processing of Economic Information—collection of works), Moscow, 1971, pp 104-112 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V546)

Translation: The following methods of abbreviated recording in information matrix computer memories: the method of logic scales, the method of intervals, the method of comparison of the indices of the matrix elements. For each method, formulas are derived for determining the expenditure of machine time on sampling an individual element of the matrices and the memory volume taken up. The conditions of using each method are considered. It is noted that the time expended on sampling an individual matrix element and the memory volume occupied in the method of logic scales are less than the corresponding time in the method of comparison of indices since access to the matrix element is direct, and only the matrix elements are recorded in the memory and not their coordinates.

V. Mikheyev.

1/1

USSR

UDC: 533.9.07:541.196.138

BLINOV, L. M., LYSOV, G. V., PETROV, Ye. A.

"A High-Frequency Plasmatron"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 11, 1970, Author's Certificate No 266106, filed 26 Feb 68, pp 74-75

Abstract: This author's certificate introduces: A high-frequency plasmatron which contains a quartz tube with a fitting for tangential or axial gas supply, and a system for excitation of an electromagnetic field. As a distinguishing feature of the patent, the device is designed for producing a continuous ionized flow of nonequilibrium plasma with a gas temperature of 200-500°C. Coaxial with the quartz tube is a circular waveguide to the outside of which a rectangular waveguide is connected through a lead-in aperture in such a way that its wide wall is perpendicular to the axis of the circular waveguide for excitation of the E₀₁ mode from an SHF pulse oscillator. A second rectangular waveguide is similarly connected with its wide wall parallel to the axis of the circular waveguide for excitation of the H₁₁ mode from a continuous SHF oscillator. 2. A modification of this plasmatron in which the distinguishing features are channel matching and wave reduction. Both rectangular waveguides are located a certain distance from

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USSR

BLINOV, L. M., et al. Otkrytiya, Izobreteniya, Promyslennyye Obratzsy, Tovarnyye Znaki, No 11, 1970,

one another lengthwise on the same side of the circular waveguide, the input apertures are covered by metal wires to prevent cross influence of the waves, and identical waveguide sections with matched water loads [sic] are symmetrically connected to the opposite side of the circular waveguide.

2/2

- 318 -

USSR

UDC 669.71:621.035

PETROV, YE. M.

"Basic Areas of Development of a Raw Material Base for Producing the Anode Mass at Aluminum Plants"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrod. prom-sti
(Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 71, pp 5-9 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G216)

Translation: A generalization of the first results of economic study of new low-ash carbon materials suitable for anode mass production is presented. The technical and economic prerequisites and basic economic indexes of producing petroleum coke from retarded coking, shale coke, coal pitch, and petroleum pitch and also the addition of a number of unconditioned materials are investigated. Arguments are presented regarding the most effective means of forming the carbon raw material base for the aluminum production on the basis of comparing the economic production indexes and consumer qualities of the new materials.

1/1

USSR

UDC: 619:616.986.7*036.2:636

SOLOSHENKO, I. Z., PETROV, Ye. M., SHOROKHOV, V. V., DROGUN, A. G., REYCHUK, Ye. A., and OBOLONKOVA, L. K., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Sciences USSR, and Moscow Technological Institute of Meat and Dairy Industry

"Problems of Leptospirosis Epizootiology"

Moscow, Veterinariya, No 12, Dec 70, pp 41-43

Abstract: Cattle, hogs, horses, and sheep in several regions of the Soviet Union were subjected to serological studies (microagglutination), culturing kidney suspensions, and microscopic examination of urine, with subsequent infection of guinea pigs. *Leptospira tarassovi* and *pomona* were agents in hogs. The possibility of infection in the Ulyanovsk region by *L. grippotyphosa* is not excluded. Cattle appear to be infected by *L. pomona*, *hebdomadis*, and *tarassovi*. Antibodies for *tarassovi*, *icterohaemorrhagiae*, and *australis* were most frequently observed in the blood sera of horses. The *L. ballum* group was found in the sera of sheep and goats. Antibody titers in all serological groups were low. Acute infections did not exist among test animals.

1/1

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--THE PATHOMORPHOLOGY OF SWINE LEPTOSPIROSIS UPON SPONTANEOUS
INFECTION -U-
AUTHOR-(04)-DROGUN, A.G., SHOROKHOV, V.V., SOLOSHENKO, I.Z., PETROV, YE.M.
COUNTRY OF INFO--USSR
SOURCE--VETERINARIYA, 1970, NR 2, PP 47-49
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--LEPTOSPIROSIS, HOG, LYMPHOID TISSUE, LIVER, KIDNEY, HISTOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1216 STEP NO--UR/0346/70/000/002/0047/0049
CIRC ACCESSION NO--AP0130226
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 021

CIRC ACCESSION NO--AP0130226
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. STUDIES SHOWED THAT LEPTOSPIROSIS OF ADULT SWINE SPONTANEOUSLY INFECTED WITH L. POMONA OR L. TARASSOVI PROCEEDS WITHOUT ANY PRONOUNCED PATHOLOGICAL CHANGES. THE DISEASE IS MORE APPARENT IN ANIMALS INFECTED SIMULTANEOUSLY WITH BOTH L. POMONA AND L. TARASSOVI. HISTOLOGICAL STUDIES SHOWED MOSTLY DYSTROPHIC CHANGES AND PROLIFERATION ON LYMPHOID CELLS IN LIVER AND KIDNEYS. GRANULAR DYSTROPHY AND LYMPHOID CELL PROLIFERATION IN KIDNEY INTERSTITIAL TISSUE WERE FOUND IN ALL CASES, AND ARE CONSIDERED THE FIRST STAGE OF INTERSTITIAL NEPHRITIS AND A SPECIFIC SIGN OF SWINE LEPTOSPIROSIS.

FACILITY: MOSCOW TECHNOLOGICAL INSTITUTE OF THE MEAT AND DAIRY INDUSTRY.
FACILITY: INSTITUTE OF EPIDEMIOLOGY AND MICROBIOLOGY
IHENI N. F. GAMALEYA.

UNCLASSIFIED

USSR

UDC 621.385.832.032.269.1.001

~~PETROV, Ye. N.~~

"Some Approximation of an Electron-Optical System Forming a Straight-Line Electron Stream With a Temperature Distribution Normal to the Cathode of the Components of the Initial Velocities"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 12, pp 50-55 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5A216)

Translation: The problem is considered of the synthesis of an electrostatic gun with a straight-line electron stream. Approximate solutions are presented of the corresponding Cauchy problem for Laplace's equation, obtained by means of analog simulation and analytically on the basis of some approximation of the Langmuir solution. Analytical approximations are explained, permissible from the point of view of the practical realization of an approximate solution of the problem of synthesis. Summary.

1/1

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--A TENSIMETRIC STUDY OF THE SYSTEM GALLIUM BROMINE -U-
AUTHOR-(02)-KULYUKIN, V.N., PETROV, YE.S. P
COUNTRY OF INFO--USSR
SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 4, SERIYA
KHIMICHESKIKH NAUK, 1970, NR 2, PP 43-50
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--GALLIUM, BROMINE, VAPOR PRESSURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/0578 STEP NO--UR/0289/70/000/000/0043/0050
CIRC ACCESSION NO--AP0113469
UNCLASSIFIED

272 010 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0113469
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VAPOR PRESSURE DETERMINATIONS FOR
COMPOSITIONS FROM 100 TO 0.18 ATOMIC PERCENT OF BROMINE IN THE
GALLIUM-BROMINE SYSTEM WERE EXAMINED WITH A STATICAL METHOD AND USE A
PYREX GAUGES OF SPOON TYPE. THE LIQUIDUS CURVES WERE OBTAINED IN THE
REGION OF THE COMPOSITIONS BETWEEN 100 AND 70.0 ATOMIC PERCENT OF
BROMINE WHICH ARE WITH A GOOD AGREEMENT OF THE DTA DATE. IN THE REGION
OF COMPOSITIONS BETWEEN 65.0 AND 0.18 ATOMIC PERCENT OF BROMINE WERE
DETERMINED BOUNDARY OF EXFOLIATION UP TO 780DEGREESK. FACILITY:
INSTITUT FIZIKO-KHIMICHESKIKH OSNOV PERERABOTKI MENERALNOGO SYR'YA SO
AN SSSR, NOVOSIBIRSK.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--THE PHASE DIAGRAM AND SATURATED VAPOR PRESSURES IN THE SYSTEM Sb, J

-U-
AUTHOR--(02)-OSTINOV, A.I., PETROV, YE.S.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 4, SERIYA
KHIMICHESKIKH NAUK, 1970, NR 2, PP 30-36

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--VAPOR PRESSURE, THERMAL ANALYSIS, ANTIMONY, IODINE, PHASE
DIAGRAM, ENTROPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0566

STEP NO--UR/0289/70/000/000/0030/0030

CIRC ACCESSION NO--AP0113457

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113457

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS STUDIED THE PHASE DIAGRAM OF THE SYSTEM SB MINUS J BY TWO METHOD BY THE STATIC MEMBRAN METHOD AND METHOD OF DTA. IT WAS FOUND ONLY ONE COMPOUND SBJ SUB3 WITH MELTING POINT 170DEGREESC. SBJ SUB3 AND J SUB2 ARE FORM EUTECTIC. THE EUTECTIC LINE LIE AT 80DEGREESC; THE EUTECTIC POINT COMPOSITIONS AT ABOUT 87.5 AT.PERCENT J. METALL AND ITS SALT ARE NOT MUTUALLY SOLUBLE IN THE SOLID STATE. THE VAPOR PRESSURES OBTAINED FOR LIQUID SBJ SUB3 ARE DESCRIBED BY THE EQUATION: $\log P_{\text{SUBMM}} = \text{EQUAL MINUS } 3445 \text{ DIVIDED BY } T \text{ PLUS } 7,989$. THE HEAT OF VAPORIZATION AND ENTROPY OF VAPORIZATION ARE 15,7 PLUS OR MINUS 0,1 KCAL-MOLE AND 23,3 E.U. THE DATE OF THE VAPOR PRESSURE ARE INDICATED THAT METALL IS SOLUBLE IN ITS FUSED SALT TO A LIMITED EXTENT.
FACILITY: INSTITUT FIZIKO-KHIMICHESKIKH OSNOV PERERABOTKI MINERAL'NOGO SYR'YA SO AN SSR, NOVOSIBIRSK.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--020CT70
TITLE--THE PHASE DIAGRAM AND SATURATED VAPOUR PRESSURES IN THE SYSTEM Sb,
BR -U-
AUTHOR--(02)-USTINOV, A.I., PETROV, YE.S.
COUNTRY OF INFO--USSR
SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 4, SERIYA
KHIMICHESKIKH NAUK, 1970, NR 2, PP 36-43
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--ANTIMONY, BROMINE, THERMAL ANALYSIS, BROMIDE, ENTHALPY,
VAPORIZATION, ENTROPY, EUTECTIC, PHASE DIAGRAM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/0563

STEP NO--UR/0289/70/000/000/0036/0043

CIRC ACCESSION NO--AP0113454

UNCLASSIFIED

PROCESSING DATE--02OCT70

UNCLASSIFIED

2/2 026

CIRC ACCESSION NO--AP0113454

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

ABSTRACT. IT WAS STUDIED THE PHASE DIAGRAM OF SYSTEM SB, BR BY TWO METHODS. THE STATIC MEMBRAN METHOD AND METHOD OF DTA WAS USED. IT IS FOUND ONLY ONE COMPOUND SBR SUB3 WITH MELTING POINT 97DEGREESC. SBR SUB3 AND BR SUB2 ARE FORM EUTECTIC. THE EUTECTIC LINE LIE AT MINUS 14DEGREESC, AND THE EUTECTIC POINT COMPOSITIONS AT ABOUT 95.3 AT.PERCENT. BR, METALL AND ITS SALT ARE NOT MUTUALLY SOLUBLE IN THE SOLID AND LIQUID STATE. THE VAPOR PRESSURES OBTAINED FOR LIQUID SBR SUB3 ARE DESCRIBED BY THE EQUATION: $\log P$ EQUAL MINUS 2881 DIVIDED BY T PLUS 8.016. THE ENTHALPY OF VAPORIZATION AND ENTROPY OF VAPORIZATION ARE 13,2 PLUS OR MINUS 0,2 Kkal-MOLE AND 23,5 E. U.

FACILITY: INSTITUT FIZIKO-KHIMICHESKIKH OSNOV PERERABOTKI MINERAL'NOGO SYR'YA SO AN SSSR, NOVOSIBIRSK.

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USSR

UDC 621.311.25:(621.362:538.41.001.2

KUGUSHEV, N. M., ZLATIN, D. A., PETROV, Yu. A., MAKIN, S. A.

"Design and Construction of Electric Power Plants With Magnetohydrodynamic Generators"

Tr. Vses. proyekt. in-ta "Teploelektroproyekt" (Works of the All-Union State Institute for the Design and Planning of Electrical Equipment for Heat Engineering Installations), 1970, vyp. 9, pp 95-110 (from RZh-Elektrotehnika i energetika, No 9, Sep 70, Abstract No 9A119)

Translation: A brief exposition is given of the characteristics of practical utilization of the MHD method of energy conversion. Possible technological diagrams of electric power plants with MHD generators are described as well as methods for further developments along these lines. Consideration is given to the planning of new non-standard equipment, a brief description of the characteristics of systems for control, automation and protection of equipment, as well as basic solutions for putting together the main building. Four illustrations, bibliography of four titles.

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UNCLASSIFIED

PROCESSING DATE--23OCT70

1/2 011

TITLE--DYNAMICS OF SYSTEMS OF CONTROL AT LOWER LIMIT OF RANGE OF CONTROLLING UNDER NONLINEAR DAMPING -U-

AUTHOR--(05)-DANILOV, YU.A.; KAZHIRENKO, V.F., KUZMIN, A.N., PARFENOV, A.S., PETROV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEXHANIKA, 1970, NR 3, PP 162-173

DATE PUBLISHED-----70

SUBJECT AREAS--MATHEMATICAL SCIENCES, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--DYNAMIC SYSTEM, NONLINEAR AUTOMATIC CONTROL SYSTEM, HARMONIC FUNCTION, LINEAR APPROXIMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1988/1474

STEP NO--UR/0103/70/000/003/0162/0173

CIRC ACCESSION NO--AP0106230

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

2/2 011

CIRC ACCESSION NO--AP0106230

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE ARE CONSIDERED CONTINUOUS CONTROL SYSTEMS WITH NONLINEARITIES EXISTING IN THE LOADING OF THE EXECUTIVE COMPONENT THE INFLUENCE OF WHICH IS ESSENTIAL AT THE LOW SPEEDS OF THE MOVEMENT. THE METHOD OF HARMONIC LINEARIZATION IS USED TO DETERMINE THE CONDITIONS OF THE ORIGIN GA AUTO OSCILLATIONS AS WELL AS THE POSSIBILITY OF USING THEM TO ACHIEVE THE EFFECT OF VIBRATIONAL LINEARIZATION. THE RESULTS OF THE INVESTIGATION HAVE BEEN EXPERIMENTALLY PROVED.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--RESONANCE INTEGRALS OF THE FISSION OF URANIUM, PLUTONIUM, AND
AMERICIUM ISOTOPES -U-
AUTHOR--(05)--PETRAZHAK, K.A., BAK, M.A., PETROV, YU.G., ROMANOV, YU.F.,
SHLYAMIN, E.A.
COUNTRY OF INFO--USSR
SOURCE--AT. ENERG. 1970, 28(CT), 359-60
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--NUCLEAR FISSION, NUCLEAR RESONANCE, INTEGRAL FUNCTION,
URANIUM, PLUTONIUM, AMERICIUM, FISSION CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/1066

STEP NO--UR/0089/70/028/000/0359/0360

CIRC ACCESSION NO--AP0136486

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--A0136486

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FISSION RESONANCE INTEGRALS WERE DETD. TO BE PRIME233 U 850 PLUS OR MINUS 90, PRIME239 PU 330 PLUS OR MINUS 30, PRIME241 PU 550 PLUS OR MINUS 40, AND PRIME241 AM 21 PLUS OR MINUS 2 BARNS. THE FISSION RESONANCE INTEGRAL FOR PRIME235 U WAS TAKEN AS 274 PLUS OR MINUS 11 IN THE CALCNS.

UNCLASSIFIED

USSR

UDC 534.2:532

PETROV, YU. I.

"Use of Thermoanemometric Measurements When Studying the Aerodynamic Noise of Marine Ventilation Systems"

Tr. Leningr. korablestroit. in-ta (Works of Leningrad Shipbuilding Institute), 1972, vyp. 77, pp 25-28 (from RZh--Mekhanika, No 6, Jun 73, Abstract No 6B247)

Translation: A thermoanemometer can be successfully used to measure the parameters of the air flow when studying the aerodynamic noise of centrifugal fans. By a thermoanemometer, it is possible to measure the velocity diagram of a non-uniform flow behind the output edges of the rotating rotor vanes. Knowledge of this diagram permits correct calculation of the optimal angle of inclination of the body around which flow takes place behind the rotor for which noise from nonuniformity of the flow is excluded. Another important case of the application of a thermoanemometer is determination of the noise intensity which individual aerodynamic sources introduce into the total sonic power emitted by the fan. For this purpose, in individual regions of the flow-through section of the ventilation unit, the pulsation components of the flow velocity, the correlation between them, the volume of the characteristic vortex and the characteristic pulsation frequency are measured, and then the sonic power is estimated by these data considering the general theory of vortex noise. The bibliography has 5 entries.

1/1

USSR

UDC: 534.322.3+534.83

PETROV, Yu. I.

"Using Hot-Wire Anemometer Measurements in Studying the Aerodynamic Noise of Ship's Fans"

Tr. Leningr. korablestroit. in-ta (Works of Leningrad Shipbuilding Institute), 1972, vyp. 77, pp 25-28 (from RZh-Fizika, No 5, May 73, abstract No 5Zh583 by E. I. Denisov)

Translation: In studying the aerodynamic noise of fans, one encounters problems which may be successfully solved by hot-wire anemometer measurement of airflow parameters. One of these is determination of the velocity curve of nonhomogeneous flow behind the trailing edges of rotating blades of fans to calculate the angle of inclination of the fairing surface located behind the rotor of the fan. The paper gives a block diagram together with an example of hot-wire anemometer measurement of the velocity curve for various distances to the rotor of a squirrel-cage fan. Another important case of application of hot-wire anemometer measurement is determination of the contribution of separate aerodynamic sources to the over-all acoustic energy emitted by the fan. This contribution may be calculated from known characteristics of turbulence. By using hot-wire anemometer measurement and the general theory of vortex noises, one can determine the acoustic power emitted by any region of the flow section of a fan.

1/1

- 18 -

1/2 061 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CLARIFICATION AND DISINTEGRATION OF GASEOUS BORON TRICHLORIDE (BCL
SUB3) BY RADIATION OF A CO SUB2 LASER -U-
AUTHOR-(05)-ARAKELYAN, V.S., KARLOV, N.V., KUZMIN, N.V., PETROV, YU.N.,
STELMAKH, O.M.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO 3, MAR 70, PP 634-635
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--LASER EXCITATION, CARBON DIOXIDE LASER, BORON FLUORIDE,
ABSORPTION COEFFICIENT, RESONANCE ABSORPTION, GAS DISSOCIATION, GAS
PRESSURE, RADIATION INTENSITY/(U)IKS21 SPECTROPHOTOMETER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/1461 STEP NO--UR/0109/70/000/003/0634/0635
CIRC ACCESSION NO--AP0104757
UNCLASSIFIED

2/2 061

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0104757

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER DISCUSSES THE RESULTS OF EXPERIMENTS CONCERNED WITH A DETERMINATION OF THE SATURATION FACTOR AND LIFE TIME OF OSCILLATION OF GASEOUS VORON TRICHLORIDE (BCL SUB3) AND ALSO THE DISINTEGRATION OF THE BCL SUB3 PRIME3 MOLECULE BY THE RADIATION OF A CO SUB2 LASER. THE DEPENDENCE OF THE RESONANT ABSORPTION COEFFICIENT ON PRESSURE IS SHOWN. MEASUREMENTS WERE MADE AT ROOM TEMPERATURE IN A VESSEL 10 CM LONG AND 2.8 CM IN DIAMETER WITH THE AID OF A IKS 21 SPECTROMETER. IN THE REGION OF NONHOMOGENEOUS BROADENING EXTENDING AT LEAST TO 5-7 TOR, THE VALUES OF THE ABSORPTION COEFFICIENT AMOUNTED TO ALPHA EQUALS 0.04 CM PRIME NEGATIVE1 TOR, WHICH CORRESPONDS TO THE ABSORPTION CROSS SECTION SIGMA EQUALS 1.1 TIMES 10 PRIME NEGATIVE18 CM PRIME2. THE SATURATION ABSORPTION WAS INVESTIGATED WITH THE AID OF A CO SUB2 LASER WITH AN OUTPUT POWER UP TO 100 WATT. THE TWO CHANNEL METHOD WAS USED FOR SIMULTANEOUS MEASUREMENT OF THE RADIATION POWER ENTERING THE VESSEL WITH THE BCL SUB3 AND LEAVING THE VESSEL. THE POWER LEVEL WAS CHANGED BY A GAS ATTENUATOR IN THE BCL SUB3. THE GAS ATTENUATOR MADE IT POSSIBLE TO CHANGE THE INTENSITY OF THE LASER BEAM, NOT CHANGING THE ENERGY DISTRIBUTION IN THE CROSS SECTION OF THE BEAM. CONTROL OF THE ATTENUATOR WAS ACCOMPLISHED BY A CHANGE OF THE GAS PRESSURE. THE AUTHORS THANK A. M. PROKHOROV FOR CONSTANT ATTENTION TO THE WORK AND FRUITFUL DISCUSSIONS, AND ALSO YU. B. KONEV FOR FREQUENT USEFUL DISCUSSIONS.

UNCLASSIFIED

USSR

UDC 621.9.047

PETROV, YU. N., Kishinev

"Contemporary State of Investigations in the Area of Electrochemical Dimensional Machining of Metals"

Kishinev, Elektronnaya Obrabotka Materialov, No 2, 1970,
pp 14-19

Abstract: An analysis is presented of the state of research in the area of electrochemical dimensional machining of metals. Results are noted of the technological utilization and insufficient development of investigations devoted to the theory of the process. Based on an extensive amount of experimental materials, some principal directions of theoretical investigations of the embossing during electrochemical dimensional machining of metals are presented.

1/1

UNCLASSIFIED

PROCESSING DATE--27NOV70

1/2 037

TITLE--DETECTION AND IDENTIFICATION OF A RADIOACTIVE CLOUD BY A SIMPLE
RADIOMETRIC METHOD -U-

AUTHOR--PETROV, YU.N.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(5), 431-2

DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--RADIOACTIVE CONTAMINATION, RADIOACTIVE ISOTOPE, ATMOSPHERIC
PRECIPITATION, AEROSOL, NUCLEAR EXPLOSION, RADIOACTIVITY, RADIOMETRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0586

STEP NO--UR/0089/70/028/005/0431/0432

CIRC ACCESSION NO--AP0137671

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 037

CIRC ACCESSION NO--AP0137671

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXISTING METHODS FOR THE DETECTION AND IDENTIFICATION OF GLOBAL AND LOCAL RADIOACTIVE CONTAMINATION REQUIRE LAB. PROCEDURES AND COMPLICATED EQUIPMENT. THE RATE OF DECOMP. OF RADIOISOTOPES, FORMED DURING THE ATM. NUCLEAR TESTS, DECREASES WITH TIME. THIS IS THE BASIS OF THE PROPOSED SIMPLE, GRAPHICAL METHOD FOR THE DETECTION AND IDENTIFICATION OF GLOBAL AND LOCAL RADIOACTIVITY. THE RADIOACTIVITY OF ATM. PPTNS. AND AEROSOLS AROUND NUCLEAR INSTALLATIONS IS MEASURED SYSTEMATICALLY AND THE DATA ARE GRAPHED. THE CHARACTER OF THE GRAPHS INDICATES THE TYPE OF RADIOACTIVE CONTAMINATION AND ITS LEVEL. THE PROPOSED METHOD WAS SUCCESSFULLY TESTED.

UNCLASSIFIED

UNCLASSIFIED
 PROCESSING DATE--27NOV70
 1/2 037
 TITLE--DETECTION AND IDENTIFICATION OF A RADIOACTIVE CLOUD BY A SIMPLE
 RADIOMETRIC METHOD -U-
 AUTHOR--PETROV, YU.N.
 COUNTRY OF INFO--USSR
 SOURCE--AT. ENERG. 1970, 28(5), 431-2
 DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, NUCLEAR SCIENCE AND TECHNOLOGY
 TOPIC TAGS--RADIOACTIVE CONTAMINATION, RADIOACTIVE ISOTOPE, ATMOSPHERIC
 PRECIPITATION, AEROSOL, NUCLEAR EXPLOSION, RADIOACTIVITY, RADIOMETRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--3008/0586

STEP NO--UR/0089/70/028/005/0431/0432

CIRC ACCESSION NO--AP0137671

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 037

CIRC ACCESSION NO--AP0137671

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXISTING METHODS FOR THE DETECTION AND IDENTIFICATION OF GLOBAL AND LOCAL RADIOACTIVE CONTAMINATION REQUIRE LAB. PROCEDURES AND COMPLICATED EQUIPMENT. THE RATE OF DECOMPN. OF RADIOISOTOPES, FORMED DURING THE ATM. NUCLEAR TESTS, DECREASES WITH TIME. THIS IS THE BASIS OF THE PROPOSED SIMPLE, GRAPHICAL METHOD FOR THE DETECTION AND IDENTIFICATION OF GLOBAL AND LOCAL RADIOACTIVITY. THE RADIOACTIVITY OF ATM. PPTNS. AND AEROSOLS AROUND NUCLEAR INSTALLATIONS IS MEASURED SYSTEMATICALLY AND THE DATA ARE GRAPHED. THE CHARACTER OF THE GRAPHS INDICATES THE TYPE OF RADIOACTIVE CONTAMINATION AND ITS LEVEL. THE PROPOSED METHOD WAS SUCCESSFULLY TESTED.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--DEFECTS IN THE CRYSTAL STRUCTURE OF UNTEMPERED HIGH CARBON
MARTENSITE -U-
AUTHOR-(02)-GRIDNEV, V.N., PETROV, YU.N.
COUNTRY OF INFO--USSR
SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(2), 217-23
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--HIGH CARBON STEEL, MARTENSITIC TRANSFORMATION, CRYSTAL
DISLOCATION, STEEL QUENCHING, MANGANESE STEEL, ELECTRON DIFFRACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1929

STEP NO--UR/0185/70/015/002/0217/0223

CIRC ACCESSION NO--AP0118891

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118891

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SMALL ADMIXT. OF MN IN THE SOLID SOLN. OF ALPHA IRON SUPERSATD. WITH C LOWERED THE MARTENSITIC TRANSFORMATION TEMP. OF AUSTENITIC STEEL TO UNDER ROOM TEMP. CONSEQUENTLY, AFTER QUENCHING IN WATER, THE STEEL SAMPLE CONTG. 115PERCENT C AND 1.9PERCENT MN WAS THE ONLY AUSTENITIC MODIFICATION OBTAINED. THIS WAS COOLED DURING ELECTRON DIFFRACTION SCANNING FROM ROOM TEMP. TO MINUS80DEGREES UNTIL MINUS 100DEGREES SO THAT THE UNINTERRUPTED STUDY OF THE MARTENSITIC TRANSFORMATION AND OF THE CREATED MARTENSITE WAS THUS MADE POSSIBLE WITHOUT WARMING TO ROOM TEMP. THE UNTEMPERED MARTENSITE CRYSTALS CREATED AT MINUS80 TO MINUS 100DEGREES HAVE A HIGH D. OF LINEAR AND PLANAR DEFECTS. THE DISLOCATION D. IN THIN FOILS OF HIGH C MARTENSITE CAN BE SUBSTANTIALLY LOWERED DUE TO THE LOSS OF A PART OF THE DISLOCATIONS AFTER ELECTROPOLISHING, UNLESS SPECIAL PRECAUTIONS FOR THEIR FIXATION ARE TAKEN. THIN STRIPS OF FCC. STRUCTURE WERE OBSD. IN THE (110) PLANES. TWO SYSTEMS OF PARALLEL DISLOCATIONS WERE OBSD., SCREW AND EDGE DISLOCATIONS WITH THE BURGERS VECTOR A-2 MEAN VALUE OF 111. THE DISLOCATION D. WAS GREATER THAN OR EQUAL TO 10 SUB11 CM PRIME NEGATIVE 2. THE DISLOCATION NET DIVIDES THE MARTENSITIC CRYSTAL INTO BLOCKS SIMILAR TO 100 ANGSTROM EACH. BEYOND THE DISLOCATIONS, THIN TWINS OF THE SYSTEMS (112) MEAN VALUE OF 111 AND (110) MEAN VALUE OF 110 WERE OBSD. FACILITY: INST. METALLOFIZ., KIEV, USSR

UNCLASSIFIED

USSR

UDC 621.793.3:669.245.781

KOVALEV, V. V., MARKUS, M. M., and PETROV, YU. N.

"Phase and Structural Conversions in Boron-Containing Nickel Films"

Bul. Akad. Shtiintse RSSMold, Izv. AN MOLDO SSR. Ser. fiztekh. i mat. n.
(Bulletin of the Academy of Sciences Moldavia SSR. Physical Technical and
Mathematical Science Series), No 3, 1972, pp 53-61 (from Referativnyy Zhurnal
-- Khimiya, No 8(II), 1973, Abstract No 8L318)

Translation: A study was performed on the structure of chemically precipitated Ni-B films, both of the original composition and after different thermal treatments. Electronographic methods of analysis indicated that prior to the thermal treatment, the films have a highly dispersed GTSK (expansion unknown) for nickel in a mixture amorphous boron. As a result of the annealing different borides are formed; however, their composition is essentially related to the concentration of B in the film. X-ray studies show the formation of compounds Ni_3B (at 310°), Ni_2B , and a previously unknown compound having the presumed composition Ni_1B_3 (at 410°). It was observed that the compound Ni_1B_3 is thermally unstable and decomposes into the phases Ni_2B and Ni_3B . It was shown that the thermal treatment of Ni-B films in air accompanied by oxidation reduction processes may lead to a reduction in the content of the borides in the film, to the separation of free Ni, and to the growth of grains of nickel which in turn causes a rapid reduction the microhardness. 1/1

USSR

UDC 621.317.78.023

KOTOSONOV, N. V., DUDKIN, V. P., PETROV, YU. N.

"Some Means of Improving the Sensitivity of a Superhigh Frequency Power Indicator by Using the Hall Effect"

Tr. Voronezh. un-ta (Works of Voronezh University), 1971, No 77, pp 44-49 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10A179)

Translation: A study was made of the basic characteristics of a superhigh frequency power indicator in the Hall effect and certain means of improving its sensitivity. The theoretical possibility of improving the sensitivity of the wattmeter in the Hall sensor using a ring resonator is demonstrated. Results are presented from an experimental study of the sensitivity of the cooled Hall sensor in the superhigh frequency range. There are 3 illustrations and a 5-entry bibliography.

1/1

- 60 -

UDC 539.3

USSR

YEVSEYEV, L. A., and PETROV, YU. P.

"Solution of a Plane Problem for a Rectangular Plate"

Samoletostr. i Tekhn. Vozd. Flota, Resp. Mezhved. Temat. Nauchno-Tekhn. Sb.
(Aircraft Construction and Air Force Equipment. Republic Interdepartmental
Thematic Scientific and Technical Collection of Works), No 24, 1971, pp 43-49
(from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V65,
Authors' abstract)

Translation: The article deals with a rectangular plate, which is in a two-dimensional stressed state. Arbitrary linear forces which, together with their derivatives, are continuous, are given on the longitudinal boundaries. On the transverse boundaries the load is given in terms of resultants. The solution is found in the form of a double series of products of the derivatives of certain functions $\Omega_{i0}(n)$ of the longitudinal coordinate, which depend upon the external load and on the function $E_{ik}(t)$ of the transverse coordinate. Summation is conducted according to the types of loads and stressed states (basic, self-balanced). The functions $E_{ik}(t)$ obtained in the work do not depend upon the geometric dimensions of the plate. A recurrent

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1/2 021

~~UNCLASSIFIED~~

PROCESSING DATE--20NOV70

TITLE--THERMAL DECOMPOSITION OF METHYL NITRITE IN SHOCK WAVES. I. INITIAL STAGE OF THE DECOMPOSITION AND MECHANISM OF H SUB 2 CO* CHEMILUMINESCENCE.

AUTHOR--ZASLONKO, I. S., KOGARKO, S. M., MOZZHUKHIN, E. V., PETROV, YU. P., BORISOV, A. A

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, VOL 11, NR 2, PP 296-304

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TCPIC TAGS--THERMAL DECOMPOSITION, NITRITE, CHEMILUMINESCENCE, ORGANIC NITROGEN COMPOUND, SPECTROPHOTOMETRIC ANALYSIS, FORMALDEHYDE, METHANOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0096

STEP NO--UR/0195/70/011/002/0296/0304

CIRC ACCESSION NO--AP0132389

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 021

CIRC ACCESSION NO--AP0132389

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DECOMPN. OF MEONO IN SHOCK WAVES (780-10000DEGRESSK AND 35-1.6 ATM) WAS STUDIED SPECTROPHOTOMETRICALLY ALONG WITH DETN. OF ABS. INTENSITY OF EMISSION BY EXCITED H SUB2 CO SEXTILE AND HNO SEXTILE MOLS. THE EXPT. REVEALS THAT ENERGYWISE, MEONO DECOMPN. PROCEEDS IN 2 STAGES: 1) THERMALLY NEUTRAL STAGE WHEN H SUB2 CO, NO, AND MEONH ARE FORMED; AND 2) THE BASIC STAGE OF ENERGY EMISSION TAKING PLACE DURING OXIDN. OF H SUB2 CO AND MEON. RATE CONST. OF THE PRIMARY CLEAVAGE OF N-J BOND IS $K_{SUB1} \text{ EQUALS } 10^{PRIME12.9} \text{ EXP (MINUS } 34,000\text{-RT) SEC PRIME NEGATIVE}$. THE EXCITED H SUB2 CO SEXTILE FORMS BY DISPREORTICNATION OF 2 MEON RADICALS. H SUB2 CO SEXTILE FORMS IMMEDIATELY AFTER INITIATION OF MEONO DECOMPN., ITS CONC. REACHES A MAX. AND THEN DECREASES PRACTICALLY TO ZERO. THE EMISSION BY H SUB2 CO SEXTILE HAS CHEMILUMINESCENT AND NOT A THERMAL NATURE. CONC. OF HNO SEXTILE INCREASED UNTIL THE END OF OBSERVATIONS. CONC. OF HNO INST. KHIN. FIZ., MUSCOW, USSR. FACILITY:

UNCLASSIFIED

P

UDC 621.396.6-181.5

USSR

GREVTSEV, N. V., YEGOROV, A. V., KONSHIN, V. V., KOSTINSKIY, L. N., KRASULIN, Yu. L.,
PETROV, Yu. P.

"An Installation for Film Vaporization by the Method of Electrical Explosion of Foil"

Elektron. prom-st'. Nauchno-tekhn. sb. (The Electronics Industry. Scientific and
Technical Collection), 1970, No 1, pp 67-69 (from RZh-Radiotekhnika, No 10, Oct 70,
Abstract No IOV233)

Translation: The authors describe the semiautomatic MEV-1 machine designed for
laboratory production of vaporized current-conducting films, contact areas and so
forth by the method of electrically exploding foil. To assure directed flight of
the foil particles, a magnetic field is used together with a special directing device
which utilizes gas-kinetic forces. A bank of capacitors is used to create the ex-
plosion. Three illustrations, bibliography of six titles. N. S.

B P UDC: 541.124.13

USSR

ZASLONKO, I.S., KOGARKO, S.M., MOZZHUKHIN, YE.V., PETROV, YU.E., and BORISOV, A.A.,
Institute of Chemical Physics, Moscow, Academy of Sciences USSR

"Thermal DEcomposition of Methyl Nitrite in Shock Waves. I. The Initial Stage of
Decomposition and the Mechanism of Chemiluminescence of H_2CO and HNO "

Moscow, Kinetika i Kataliz, Vol 11, No 2, Mar-Apr 70, pp 296-304

Abstract: The decomposition of $MeONO$ in shock waves at temperatures of 780-1000°K and pressures of 0.35-1.6 atm was studied on mixtures of $MeONO$ (0.7-1.5%) with Ar by carrying out spectroscopic measurements. The velocities of decomposition of $MeONO$ and the intensities of emission by the electronically excited molecules H_2CO and HNO that formed in its decomposition were determined. The velocity constant of the primary process of cleavage of the O-N bond was $k_1 = 10^{12.9} \exp(-3400/RT)$ sec⁻¹. It was established that the excitation of H_2CO took place as a result of its formation by the reaction $2 MeO \rightarrow H_2CO + MeOH$. The probability of excitation was very low and corresponded to a ratio of $\sim 10^{-10}$. The excitation of HNO in the early stage of decomposition was most likely due to the reaction $H + NO + Me \rightarrow HNO + Me$. Addition of NO to the mixture initially increased the rate of decomposition of $MeONO$ to some extent because of the reaction $MeONO + NO \rightarrow (MeO, H_2CO, MeOH)$ and then reduced it because of the reaction $MeO + NO \rightarrow MeONO$. From the energy

1/2

- 93 -

USSR

UDC 625.78.018.1(088.8)

KREMENA, V. P., PETROV, Yu. V., TRUSHECHKIN, N. P.

"Device for Determination of Velocity in Wind Tunnels"

USSR Author's Certificate No 307343, filed 15/10/69, published 8/09/71,
(Translated from Referativny Zhurnal, Raketostroyeniye, No 4, 1972,
Abstract No 4.41.169 P from the Resume).

Translation: A device for determination of velocity in shock tunnels containing a standard frequency generator, switch, counter and two master sensors, differing in that in order to eliminate losses of information resulting from the effects of electromagnetic interference, for example when operating with electric-discharge tubes, as well as interference from the reflected wave, the permit and forbid inputs of the switch are connected to sensors through the blocking unit and an OR circuit, the cross section of the tunnel between the diaphragm and the sensors contains an additional sensor which is connected through an AND circuit to the permit input of the blocking unit, the second input of the OR circuit and the zero-setting circuit of the counter, while the second input of the AND circuit is connected through a pulse expander to the starting device of the tunnel. 1 Figure.

1/1

PETROV-MASLAKOV, M. A.

IN VITRO MATURATION OF THE HUMAN OVUM

UDC: 611-013.16-085.2

JPRS 55669
29 May 72

Article by M.A. Petrov-Maslakov, A.P. Dzhin, N.A. Samokhina, A.I. Nikitin, L.T. Petukhina, Institute of Obstetrics and Gynecology, USSR Academy of Medical Sciences, and Institute of Experimental Medicine, USSR Academy of Medical Sciences, Leningrad; Moscow, Vsesenik Akademi Meditsinskikh Nauk SSSR, Russian, No 2, 1972, pp 60-65]

Cytogenetic investigations of human sex cells are of substantial interest both to theoretical and clinical medicine. We know that some congenital pathological states (for example, Down's, Shereshevsky-Turner, Klinefelter syndromes, and others) are determined by numerical chromosomal aberrations arising in parental sex cells when chromosomes do not separate in meiosis (Penrose, 1954; Lajeune et al., 1959; Lajeune et al., 1960). It was also shown that a considerable number of spontaneous miscarriages is related to chromosomal aberrations formed with nonseparation of chromosomes in meiosis or splitting of the zygote (Garr, 1963; N.P. Kochkov and N.S. Stonova, 1969). In the presence of diseases associated with prolonged fertility (Stein-Leventhal syndrome) impaired maturation of the ovum and degenerative changes therein were demonstrated (A.I. Nikitin and N.A. Samokhina, 1969, 1970).

Thus, investigation of maturing sex cells brings us closer to understanding the mechanism of chromosome pathology, miscarriages, and some forms of fertility in man.

In addition, one can clearly demonstrate different types of chromosomal anomalies (for example, translocations, inversions, and others) in the meiotic chromosomes of sex cells, which are unnoticeable when analyzing mitotic chromosomes of blood cells and other somatic tissues. In such cases, examination of meiotic chromosomes would permit detection of carriers of chromosomal aberrations, and this has definite diagnostic and prognostic value.

It is not surprising that contemporary cytogenetics is concentrating on the study of human sex cells (Garr, 1968; A.A. Prokof'yev-Kal'govskaya, 1971).

USSR

UDC 669.71.017:539-3/5.01

YELAGIN, V. I., SINYAVSKIY, V. S., PETROVA, A. A., and VAL'KOV, V. D.

"The Effect of Methods of the Homogenization of Ingots on the Structure and Mechanical and Corrosion Properties of Semifinished Products of Alloys of the System Al-Zn-Mg"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 5-10, resume

Translation: The effect of the method of homogenization on the structure, mechanical properties, and corrosion resistance of shapes and sheets of alloy O1911 was investigated. Optimum homogenization methods are recommended. Five figures, fifteen bibliographic references.

1/1

- 44 -

1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--INTERACTION OF A SILICON SURFACE WITH CHEMICALLY ACTIVE ELECTROLYTES
-U-
AUTHOR--(02)--PETROVA, A.G., RAKOV, A.V.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. PCLUPROV. 1970, 4(4), 697-701
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTROLYTE, COPPER, MERCURY, SILVER, GOLD, SILICON, CHEMICAL
REACTION RATE, ZINC, IRON, NITRIC ACID

CCNTRCL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/2024 STEP NO--UR/0449/70/004/004/0697/0701
CIRC ACCESSION NO--AP0132283
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132283

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTERACTION OF N-SI (1 OHM-CM) WAS ETCHING ACID SOLNS. CONTAMINATED WITH METAL IONS WAS INVESTIGATED. THE FACE OF THE SAMPLES CORRESPONDED TO THE (111) PLANE. AFTER TREATMENT IN THE RESP. ETCHANT, THE SAMPLES WERE THOROUGHLY RINSED IN DEIONIZED WATER. THE SURFACE CONTAMINATION WAS DETECTED BY EMISSION SPECTRAL ANAL. THE METAL IONS WERE STRIPPED OFF THE SI SURFACE BY DESORPTION WITH 2,4,PENTANEDIONE AND FIXED IN A 4PERCENT SOLN. OF POLY(METHYL METHACRYLATE) IN TOLUENE. AFTER EVAPN., THE RESIDUAL FILM WAS EXFOLIATED. THE METAL CONCNS. IN THE ETCHANTS WERE 10 PRIME NEGATIVE3 M. THE TEST SOLNS. WERE: (1) 45PERCENT HF, (2), 63PERCENT HNO SUB3, AND (3) A MIXT. OF HF:HNO SUB3:HOAC EQUALS 1:8:1. THE SURFACE CONC. OF THE METALS AFTER RINSING DEPENDS ON THE NATURE OF THE METAL AND OF THE SOLN. WITH 1, THE SURFACE CONCNS. OF CU, HG, AG, AND AU ARE HIGHER THAN THOSE OF ZN AND FE. WITH 2 AND 3, THE SURFACE CONCNS. OF ALL METALS WERE GENERALLY LOWER. THE LOWEST CONCNS. ARE OBSD. IN 2. THE SURFACE CONC. OF CU DECREASES WITH INCREASING HNO SUB3 CONC. THE MECHANISM OF SI DISSOLN. AND OF METAL DEPOSITION ON THE SI SURFACE IS DISCUSSED. DEPENDING ON THE OXIDN. POTENTIAL OF THE METAL AND ON THE HNO SUB3 CONC., THE IMPURITY IS EITHER DEPOSITIED OR ADSORBED. IN THE 1ST CASE, THE EFFECTIVE D. OF THE FAST SURFACE STATES IS INCREASED, WHILE IN THE 2ND, THE D. OF THE SLOW STATES IS AUGMENTED.

UNCLASSIFIED

USSR

UDC 621.315.592

P
PETROVA, A.G. and RAKOV, A.V.

"Interaction of a Silicon Surface with Chemically Active Electrolytes"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 697-701

Abstract: There is very little literature at the present time devoted to the interaction process between a semiconductor surface with acids and etching agents. There should be more, since the study of the physical mechanism involved in such interactions could demonstrate the mechanism of impurity deposition on the surface or of the electronic processes at the interface between semiconductor and electrolyte; it could also provide valuable information on the choice of optimal conditions for chemical processing of the semiconductor surface for modern semiconductor instrument manufacture. The purpose of this paper is to investigate the physical mechanism of the interaction between a silicon surface and electrolytes containing a small quantity of metallic impurity. The specimens used were n-type silicon plates with a specific resistance of 1 ohm cm, all given the same mechanical surface treatment, with the plane of the plate coinciding with the crystalline plane (111). The electrolytes

1/2

- 61 -

USSR

PETROVA, A.G., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 697-701

were 45% fluoric and 63% nitric acids, and etching agents using these acids. The metallic impurities introduced into the reagents were gold, silver, mercury, copper, iron, and zinc. The authors conclude that the equilibrium between the deposited atoms and the electrolyte ions is not established as a result of the high porosity because of the separation of gaseous reaction products and stripping of metal films. Hence, the metal deposition process is prolonged, with a time delay resulting from the reduction in the impurity concentration in the electrolyte.

2/2

USSR

UDC 621.762.5:661.882.661:665.1

PETROVA, A. M., RADOMYSEL'SKIY, I. D., and TITARENKO, S. V., Institute of Problems of Materials Science, Academy of Sciences Ukrainian SSR

"Structure Formation of Ti-Cr₃C₂ During Annealing"

Kiev, Poroshkovaya Metallurgiya, No 1, Jan 74, pp 85-89

Abstract: Structure formation was investigated and composition of the carbide phases was determined during annealing of a Ti-base composite (Ti-Cr₃C₂) under conditions similar to those used for sintering titanium alloys. It was shown that in the process of annealing extruded samples at 950-1250° C, the chromium carbide dissolves and a new phase -- titanium carbide -- is precipitated. This new phase contained no carbon, which was explained by the non-equilibrium state of the matrix. From determination of phase-structure microhardness after annealing, it was observed that a minimum value of titanium-base microhardness occurs on samples annealed at 1150° C when almost 14% Cr is dissolved in the titanium. Three figures, one table, six bibliographic references.

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DEXTRIN 4 GLYCOSYLTRANSFERASE IN HUMAN SALIVA -U-

AUTHOR--(02)-VOSKOBOYEV, A.I., PETROVA, A.N. *P*

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 708-10

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SALIVARY GLAND, GLUCOSE, STARCH, CHROMATOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605006/E12 STEP NO--UR/0020/70/191/003/0708/0710

CIRC ACCESSION NO--AT0139811

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0139811

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHROMATOGRAPHIC STUDY OF SALIVA
CONTG. EITHER STARCH ALONE OR ADMIXED WITH GLUCOSE AND MALTOSE, THEN
INCUBATED, WAS REPORTED. THE ACTIVITY WAS COMPARED WITH THAT OF A PURE
ALPHA AMYLASE SPECIMEN FROM MUTANT ASPERGILLUS ORYZAE. THE RESULTS
SHOWED THAT THE TRANSFER ACTION OF HUMAN SALIVA IS CATALYZED BY DEXTRIN
& GLYCOSYLTRANSFERASE PRESENT IN IT. FACILITY: INST. BIOKHM.
IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

PETROVA, A.S.

SO:JPRS 54304
29 OCT 71

UDC: 616.71-006-008.9-092.18

CYTOCHEMICAL STUDY OF SKELETAL TUMORS

in Medicine/Oncology
[Article by A.S. Petrova, N.A. Prokova (Moscow); Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 8, 1971, pp 15-20]

In modern oncology, the cytological method permits not only determination of the presence of tumor cells but also to obtain an idea about the nature of the structure and tissue classification of the neoplasm. Cytochemical analysis is of considerable aid in differential diagnosis of tumors.

In spite of the fact that tumors are more homogeneous than normal tissues with respect to enzymatic characteristics (Grinshchik), there is reason to believe that a neoplasm consisting of "highly specialized" tissues retains some of the traits of the "maternal" tissue.

We are still at the early phase of using cyto- and histochemical methods in human pathology, nevertheless, the data obtained as the result of a number of investigations of recent years (Brandes and Bourne; Monis et al., 1957, 1959, 1960; Mori et al.; Wilfong et al., N.T. Paykhlin; Elizalde and Miller; Elizalde and Korman; Cohen et al.) indicate that some human tumors differ in their set of enzymes. This could serve, on the one hand, as an important aid to differential diagnostics and, on the other hand, it could allow us to construct a more objective idea about the analogue of cellular elements of a neoplasm in the tissue from which the tumor originated by virtue of the identity of enzymes set. We have data from a cytochemical investigation of nonspecific hydrolases (alkaline and acid phosphatase) and SHK (Schiff's periodic acid) positive substances in the cells of osteogenic sarcoma (20 cases), of osteoblastosarcoma (9), Ewing's sarcoma (?), and reticulosarcoma (two cases).

We thought it promising to investigate these enzymes in bone tumors, since the presence of phosphatase is an important characteristic of bone tissue and a mandatory element at specific stages of osteogenesis. The latter suggested that we would encounter different quantities of these enzymes in different bone tumors.

We used the nitrogen coupling (azo combination) method with α -naphthyl phosphate sodium salt as a substrate (Pearce) to determine the activity of acid and alkaline phosphatase.

medicine/oncology

PETROVA, A. V.

Delker, A. S., Krasovskiy, R. R., Vaytsel', V. I.	Reception of a Fluctuating Optical Signal	Page 160
Shchelkunov, K. N.	Optimization of an Optical Heterodyne System	152
Litvinova, T. P., Lobkova, L. M.	Analysis of the Synchronization of an Optical Communication Channel with Time Division Multiplexing of the PCI Trunks	159
Lobkova, L. M., Chistyakov, A. B., Lobkov, H. M.	Frequency-Space Correlation Function of the Amplitudes of Waves Propagated in a Locally Isotropic Turbulent Atmosphere	160
Lobkova, L. M., Chistyakov, A. B., Lobkov, H. H.	Effect of Amplitude and Phase Field Distribution on a Laser Output on the Spatial Coherence of the Laser Emission	174
Kislitsin, N. V., Podobnyy, V. V.	Fast and Slow Fluctuations of the Angles of Arrival of Laser Emission	181
Kislitsin, N. V., Podobnyy, V. V., Fulemin, V. P.	Statistical Description of Hermitian and Laguerre Photon Fluxes	189
Podobnyy, V. V., Izvosnenko, B. Ya.	Quantum Mechanical Description of Some Proce- dures of Nonparametric Statistics	194
Yeliseyev, P. G., Ismailov, I., Pedorov, Yu. F., Kazantsovskiy, L. G.	Potential Accuracy of Measuring the Angular Position of Photon Source	198
Strizhevskiy, V. L., Karpenko, S. G., Biryayev, A. V.	Application of Semiconductor Lasers for Multichannel Optical Communications	202
Deryuzhin, I. A., Kurchov, V. H.	Relation of the Distribution Functions of a Quasimonochromatic Signal and Its Amplitudes ..	205
Adrilanovs, I. I., Vol- brodovich, N. A., Daniilov, Khonakiy, V. R., B. S., Nezerova, Z. V., Petrova, A. V., Popov, M. V., Rozanov, H. N.	Optimization of Optical-Band Quantum Counting Systems	210
	Laser Emission Modulation	221

11

TECHNICAL TRANSLATION

11071 / ESTC:JIT 21-2015-72

39 211 72

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

FOREIGN TITLE: ПРОБЛЕМЫ ПЕРЕДАЧИ ИНФОРМАЦИИ ЛАЗЕРНЫМ ИЗЛУЧЕНИЕМ

AUTHOR: L. A. DERJUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
INENI T.G. SEMEYCHENKO

Translated for ESTC by ACSE

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- First Page -

USSR

UDC 669.715'782'721:620.178.74

KOROL'KOV, A. M., PETROVA, E. N., FAYGELSON, B. YU.

"Estimating the Inclination of Cast Aluminum Alloys Toward Brittle Fracture when Testing for Impact Bending"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 88-90 (from RZh-Metallurgiya, No 4, Apr 72, Abstract 4I632)

Translation: A study was made of specimens of the Menage type made from AL4 aluminum alloys of the Al-Si system and AL27-1 aluminum alloy of the Al-Mg system during impact bending on the PSVO-1000 impact tester with oscillographic recording. The work of nucleation of the cracks A_n and the work of propagation of the cracks A_p were determined as functions of the test temperature. The work of destruction P of the specimens manufactured from the same alloys with a notch terminating in a fatigue crack during impact bending was determined in parallel. It was demonstrated that the work of fracture in both cases is much less than the impact toughness and although an identical tendency is observed toward variation of both characteristics as a function of the alloy composition, there is no direct correlation. For both alloys, both A_n and A_p drop with a reduction in temperature. A_p drops especially sharply for AL27-1 by comparison with AL4.

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USSR

KOROL'KOV, A. M., et al., Struktura i svoystva lekg. splavov, Moscow, Nauka, Press, 1971, pp 88-90

This indicates strong embrittlement of the former. The application of the indicated method permits qualitative estimation of the inclination of the cast aluminum alloys toward brittle fracture when testing for impact bending with respect to A_n and A_p . Three illustrations, 1 table, and a 4-entry bibliography.

2/2

- 7 -

Mechanical Properties

USSR

UDC 620.17:669.71'721

PETROVA, E. N., GERASIMOVA, L. P., and KOROL'KOV, A. M.

"Properties of the Alloy Al-9.5% Mg with Titanium, Zirconium, Molybdenum, and Boron under Tension and Impact Loadings"

Moscow, Metallovedeniye, No 5, 1971, pp 6-8

Abstract: The effect of the alloying elements Ti, Zr, Mo, and B on the mechanical properties and structure of the alloy Al-9.5% Mg was investigated under tension and impact loading conditions. The source of the increased tendency of Al-Mg alloys to formation of cracks was studied on the IMASH-5S-65 installation of the Institute of Machine Studies. Introduction of the additions in quantities of 0.05-0.1% increases the impact ductility. Additions in quantities of 0.5% bring about a sharp decrease of the impact ductility. These relations comply with the resistance to rupture by tension, as determined by the character and distribution of surplus phases. One figure, one table, three bibliographic references.

1/1

USSR

UDC 669.721.725.018.9

TAYTS, A. Yu., ALEKSANDROVSKIY, S. V., ABROSIMOVA, Ye. N., PETROVA, F. A.,
KHABAROVA, N. P.

"Study of the Process of Production of Magnesium Alloy, Alloyed With Beryllium"

Tr. Vses. N-i. i Proyechn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 144-149. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G201 by the authors).

Translation: A technology is described for production of a casting alloy in the Mg-Al-Zn-Mn system (type Mg55) with Be added. Due to the addition of Be, the oxidation of the alloy during melting and pouring is sharply reduced, allowing a decrease in the consumption of S and flux, and the losses of alloy with the bottom sediment are also decreased. Due to the poor solubility of Be in Mg, a 2 or 3 times excess quantity must be introduced to the charge. The influence of slight ($5 \cdot 10^{-4}$ - $15 \cdot 10^{-4}$ %) additions of Be on the structure, and mechanical and corrosion properties of the alloys is studied. The introduction of up to 0.008% Be to the Mg alloy does not result in significant enlargement of the grain, the mechanical properties are not reduced, and the corrosion properties are even increased. The production of Mg alloy with addition of Be has been undertaken on the commercial scale. 3 figs; 1 table; 5 biblio refs.

1/1

USSR

UDC: 681.3.06:51

PETROVA, G. B.

"On the Problem of Computer Distribution of Algorithms in a Computer Complex"

Tr. Mosk. vyssh. tekhn. uch-shcha im. N. E. Baumana (Works of the Moscow Higher Technical Academy imeni N. E. Bauman), 1971, No 141, pp 33-38 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V951)

Translation: The author considers the following problem. Given an aggregate of algorithms A realized by a set of computers B in a computer complex. The interrelation between the algorithms is modeled by a graph $G(x,u)$, where x is the set of vertices of the graph reflecting individual algorithms a_j , and u is the set of arcs reflecting the mutual relations between algorithms: an arc leads from x_j to x_k if x_k receives control or information from x_j . The aggregate of algorithms A must be effectively distributed on the set of computers B. As an example of a test for optimizing the possible versions of distribution, the author chooses the index of total expenditures on transfer of information between computers in the complex for a given arrangement of algorithms. The problem reduces

1/2

USSR

PETROVA, G. B., Tr. Mosk. vyssh. tekhn. uch-shcha im. N. E. Baumana,
1971, No 141, pp 33-38

to a class of problems in discrete programming, which means that it can
be solved by using approximate methods of solving problems on quadratic
designations. V. Mikheyev.

2/2

- 68 -

USSR

UDC 547.341.07

PETROV, K. A., PARSHINA, V. A., YEROKHINA, T. S., and PETROVA, G. M.

"A Method of Producing Hydroxymethyl-bis-(dialkylaminomethylene) Phosphine Oxides"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 16, Jun 73, Author's Certificate No 375300, Division C, filed 9 Aug 71, published 23 Mar 73, p 52

Translation: This Author's Certificate introduces: 1. A method of producing hydroxymethyl-bis-(dialkylaminomethylene) phosphine oxides. As a distinguishing feature of the patent, trioxymethyl phosphine oxide is reacted with a lower dialkylamine ($C \leq 4$) in the presence of heating with subsequent isolation of the goal product by conventional methods. 2. A modification of this method distinguished by the fact that heating is done to 100-140°C in a sealed tube.

1/1

USSR

UDC 574.754.755.756.757

PETROVA, G. N., SHNER, V. F., ALEKSEYEVA, L. M., and SUVOROV, N. N., Moscow
Chemico-Technological Institute imeni Mendeleev, Moscow

"Derivatives of Indole. LXXXIII. Synthesis of Indole and 5-Bromoindole
From 2-Naphthol and 6-Bromo-2-naphthol"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 73, pp 753-755

Abstract: Upon the oxidation of 2-naphthol and 6-bromo-2-naphthol with $\text{Na}_2\text{MoO}_4 + 40\% \text{H}_2\text{O}_2$ in glacial acetic acid, alpha-carboxycinnamic acids were obtained. These acids were converted into the corresponding diamides which, on being subjected to the Hofmann reaction with NaOCl and KOH , yielded indole and 5-bromoindole, respectively. The oxidation of 5-nitro-2-naphthol under similar conditions led to the formation of the gamma-lactone of 6-nitro-2-carboxycinnamic acid. This compound could be converted into its amide by successive treatment with PCl_5 and liquid NH_3 .

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ALTERATION OF NATURAL TITANOMAGNETITE AT HIGH PRESSURES AND
TEMPERATURES -U-
AUTHOR--(04)-BAGINA, O.L., KARPOVA, O.V., LIVSHITS, L.D., PETROVA, G.N.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, FIZ. ZEMLI 1970, (2), 103-7
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--IRON ORE, CURIE POINT, THERMAL EFFECT, SOLID SOLUTION,
TITANIUM COMPOUND, ARSENIC MINERAL, COPPER COMPOUND, MAGNETIZATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/1244 STEP NO--UR/0387/70/000/002/0103/0107
CIRC ACCESSION NO--AP0136655
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136655

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NATURAL OLIVINITE ASSOCD. WITH
TITANOMAGNETITE WAS HEATED AT VARIOUS TEMPS. UP TO 1000DEGREES IN CLOSED
AMPULS IN A NEUTRAL OR A SLIGHTLY REDUCING ENVIRONMENT. THE CURIE
POINTS ARE GIVEN TOGETHER WITH THE FRACTION OF SOLID SOLNS. IN THE
RESULTING PRODUCTS. THE SPECIFIC MAGNETIZATION DEPENDED ON THE AMT. OF
MAGNETITE PRESENT IN THE SOLID SOLNS. FACILITY: INST. FIZ.
ZEMLI, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 536.2

PETROV, V. A., PETROVA, I. I., NESHPOR, V. S., FRIDLENDER, B. A., KAPRALOV, V. K., BELIK, R. V., Institute of High Temperatures of the Academy of Sciences of the USSR, State Institute of Applied Chemistry

"Some Thermophysical Properties of Isotropic Pyrolytic Graphite"

Moscow, Teplofizika Vysokikh Temperatur, Vol 11, No 2, Mar/Apr 73, pp 308-313

Abstract: A study is done on the electrical resistance, thermal conductivity and radiative characteristics of pyrolytic graphite which lacks a preferred orientation of the crystallographic planes with respect to the deposition surface. The measurements were made on specimens with densities ranging from 1.76 to 2.19 g/cc over a wide temperature interval. The behavior of the properties as a function of density and temperature is explained in terms of peculiarities of the defect structure of isotropic pyrographite.

1/1

USSR

UDC 621.317.331:536.45

PETROV, V. A., PETROVA, I. I., CHEKHOVSKOY, V. Ya., LYUKSHIN, Ye. N.

"Specific Electric Resistivity of Pyrographite"

Moscow, Teplofizika Vysokikh Temperatur, Vol. 9, No. 2, Mar-Apr, 71, p. 302-305.

Abstract: Results are presented from an experimental determination of the specific electric resistivity of pyrographite. The specific resistivity in the direction parallel to the precipitation surface is determined in the 300-2200°K temperature interval, the resistivity in the direction perpendicular to this surface -- in the 300-1800°K temperature interval. The data produced are compared with the data of other authors.

1/1

- 84 -

USSR

UDC 621.396.69:621.318

PETROVA, I. I., YERMAKOV, B. N.

"On Peculiarities of the Behavior of $\text{Co}_2\text{Be}_3\text{Fe}_{24}\text{O}_{41}$ Over a Broad Temperature Range"

Elektron. tekhnika. Nauchno-tekhn. sb. Ferrit. tekhn. (Electronic Technology. Scientific and Technical Collection. Ferrite Technology), 1970, vyp. 1 (23), pp 86-89 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V441)

Translation: The authors study initial permeability μ_0 as a function of temperature in the interval from -196 to $+420^\circ\text{C}$ in grain-oriented specimens of $\text{Co}_2\text{Be}_3\text{Fe}_{24}\text{O}_{41}$. It is shown that the temperature dependence of the energy of crystallographic anisotropy has a decisive effect on the behavior of $\mu_0(t)$ curves. Pronounced temperature hysteresis is observed in specimens which contain a considerable number of bivalent iron cations. Resumé.

1/1

- 92 -

USSR

UDC 621.396.6:621.318

PETROVA, I. I., LIBEROVA, T. V.

"Properties of Ferroplanes With Various Types of Porosity"

Elektron. tekhnika. Nauchno-tekhn. sb. Ferrit. tekhn. (Electronic Technology. Scientific and Technical Collection. Ferrite Technology), 1970, vyp. 1 (23), pp 78-85 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V444)

Translation: The authors investigate the properties of Ferroplanes having Y- and W-structure with various densities and various types of porosity. It is shown that the loss tangent increases abruptly in all ferrites beginning with a certain density. A comparison of the properties of solid solutions $\text{Co}_2\text{Y-Mg}_2\text{Y}$ and $\text{Co}_2\text{Y-Zn}_2\text{Y}$ revealed a number of advantages of the latter from the standpoint of use at high frequencies. Resumé.

1/1

USSR

UDC 536.2

CHEKHOVSKOY, V. Ya., PETROV, V. A., PETROVA, I. I., and LYUKSHIN, E. N.

"Heat Conductivity of Pyrographite at High Temperatures"

Moscow, Teplofizika Vysokih Temperatur, Akademiya Nauk SSSR, Vol 9, No 1, Jan-Feb 1971, pp 80-81

Abstract: The specimens of pyrographite used to determine its heat conductivity were of tubular form, they were obtained by precipitation from methane at 2100°C temperature. The outside diameter of the tubes was 12 millimeter, wall thickness 1 and 2 millimeter. The specimen was heated by electric current passing through it, the heat generated was determined by measuring the current and the voltage drop.

The coefficient of heat conductivity in the radial direction was determined in the range of 1200 to 2500°K.

The results are compared with those obtained by other authors. The discrepancies are quite high. This is apparently due to differences in micro and macro structure of pyrographite, which depends on precipitation temperature, heat treatment, specimen geometry and other factors. The discrepancies
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USSR

CHEKHOVSKOY, V. Ya., et al., *Teplofizika Vysokih Temperatur*, Akademiya Nauk SSSR, Vol 9, No 1, Jan-Feb 1971, pp 80-81

are also caused by systematic errors connected with different experimental methods.

The error analysis of the obtained results shows that the maximum relative systematic error in determining the coefficient of heat conductivity is 15 to 16%.

2/2

1/2 023 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--INFLUENCE OF STRONTIUM ON THE MAGNETIC PROPERTIES OF CO SUB2 BA
SUB3 FE SUB24 O SUB41, CO SUB2 SR SUB3 FE SUB24 O SUB41 SOLID SOLUTIONS
AUTHOR--PETROVA, I.I. P
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1447-9
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, CHEMISTRY
TOPIC TAGS--SOLID SOLUTION, STRONTIUM, MAGNETIC PROPERTY, COBALT COMPOUND,
BARIUM COMPOUND, STRONTIUM COMPOUND, IRON OXIDE, THERMAL EFFECT,
MAGNETIC STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0168 STEP NO--UR/0181/70/012/005/1447/1449
CIRC ACCESSION NO--AP0129424
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129424

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS CONSIDERED OF SR PRIMEZ POSITIVE ON THE MAGNETIC PROPERTIES AND THE MAGNETIC STRUCTURE OF COMPS. WITH THE Z TYPE HEXAGONAL STRUCTURE. AT THE RATIO SR:BA IS GREATER THAN OR EQUAL TO 1.8, THE CHARACTER OF THE TEMP. DEPENDENCE OF THE INITIAL MAGNETIC PERMEABILITY CHANGES, WHICH INDICATES VARIATION OF THE MAGNETIC STRUCTURE.

UNCLASSIFIED

USSR

UDC 542.65:546.791.6'171.5

VYKHOVSKIY, D. N., and PETROVA, I. K.

"A New Compound of Uranyl Oxalate with Hydrazine"

Leningrad, Radiokhimiya, Vol XIII, No 3, 1971, pp 470-472

Abstract: Uranyl oxalate in reaction with hydrazine forms a crystalline precipitate upon decantation of the aqueous solutions, containing uranyl oxalate ions and some hydrazine salt. Several preparations of this salt were made with addition of hydrazine and HCl to a solution of uranyl oxalate in ammonium oxalate, or by decantation of aqueous solutions of uranyl chloride and hydrazine with a solution of oxalic acid, the precipitates being washed in a little water, alcohol and ether, and then air-dried. Despite variation in contents of the initial solutions, gravimetric and titration methods indicated a practically invariable formula -- $N_2H_5H(UO_2)_2(C_2O_4)_3 \cdot 4H_2O$ -- for the new compound. Additional data on the weight composition and chemical reactions of this compound are included in the paper.

1/1

- 13 -

Organophosphorous Compounds

USSR

UDC 546.183

PETROVA, I. M., ZYK, N. V., NIFANT'YEV, E. YE.

"Hydrolysis and Acidolysis of Methriol Phosphite"

Vestnik Moskovskogo Universiteta, Khimiya, No 4, 1971, pp 433-435

Abstract: Earlier works have noted the great hydrolytic instability of methriol /1,1,1-tris(hydroxymethyl)ethane/ phosphite and concluded that it is hydrolyzed by even traces of moisture to the monocyclic acid phosphite. The authors established that the hydrolysis does not occur so simply. Studying the interaction of methriol phosphite with acids when heated to 80° for several hours, the authors determined that the reactivity of methriol phosphite is lower than that of non-cyclic normal phosphite. 2-Methyl-2-benzoyloxymethyl-1,3-propylene phosphite was produced by reesterifying methriol monobenzoate with dimethyl phosphite. Certain properties of this substance were studied, including reactions producing polyphosphites.

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1/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--APPARATUS FOR MEASURING THE LIFETIMES OF MINORITY CARRIERS IN
SEMICONDUCTORS -U-
AUTHOR--(05)-VLASOV, A.N., KABANOV, A.N., KURBATOV, L.N., PETROVA, I.YU.,
SOROKONOVITSKIY, N.V.
COUNTRY OF INFO--USSR
SOURCE--PRIB. TEKH. EKSP. 1970, 1, 222-3
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--CADMIUM SULFIDE, ZINC TELLURIDE, MINORITY CARRIER,
SEMICONDUCTOR MATERIAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1008 STEP NO--UR/0120/70/001/000/0222/0223
CIRC ACCESSION NO--AP0115029

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0115029

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. IS DESCRIBED FOR MEASURING THE LIFETIMES OF MINORITY CARRIERS ACCORDING TO THE DROP IN CATHODOLUMINESCENCE OF SEMICONDUCTORS IN THE VISIBLE AND NEAR IR REGIONS. VALUES ARE GIVEN FOR CDS AND ZNTE.

UNCLASSIFIED

USSR

UDC: 539.4.624.012

BRYZHATYY, E. P., PETROVA, K. V.

"Effect of Inelastic-Deformation on Crack Formation in Concrete Elements Which are Eccentrically Compressed With Low Eccentricities"

V sb. Dlitel'n. deformativn. protsessy v beton. i zhelezobeton. konstruktsiyakh (Long-Term Deformation Processes in Concrete and Reinforced Concrete Structures--collection of works), Moscow, Stroyizdat, 1970, pp 92-100 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4V831)

Translation: The paper presents the results of a study of crack formation in concrete elements with low eccentricities. It is shown that the calculation for crack formation recommended by existing norms gives an overstatement of the actual crack resistance in many instances, and gives no indication of the boundary where it is necessary to begin taking the appearance of cracks into consideration. It is recommended that calculation for crack formation be done on eccentrically compressed elements beginning at the boundary defined by the condition $e_0/h \geq 0.13$, and that inelastic deformations in the compressed zone of the concrete be taken into account at lower stresses than the bending compression strength of the concrete. Authors' abstract.

1/1

- 44 -

USSR

AGEYEV, N. V., Academician, PETROVA, L. A., GRANKOVA, L. P., MARKOV, A. M.,
Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences of the USSR,
Moscow

"A Titanium-Based Composite Material"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 4, 1 Jun 73, pp 811-814

Abstract: The paper describes a composite laminar material based on titanium made by hot-rolling in a vacuum. Five-layer and three-layer composites are studied to determine the force and temperature parameters and the feasibility of making a strong joint between layers. The plastic component for the five-layered composite was VT1 α -titanium foil 0.1 mm thick. It was assumed that a sheet built up from n layers of such foil would have greater resistance to brittle fracture than a monolithic sheet of titanium of the same thickness. The foil was etched in dilute hydrofluoric acid and washed in hot water with hydrogen peroxide added before rolling the sheet. A sheet 0.6 mm thick was then rolled from nine layers of foil, and two such sheets were rolled together to make a sheet about 1 mm thick, which was used in the composite. The strength material for

1/2

- 8 -

USSR

AGEYEV, N. V. et al., Doklady Akademii Nauk SSSR, Vol 210, No 4, 1 Jun 73, pp 811-814

the composite was IVT1 alloy (Ti-7Mo-5.5Cr-3Fe-3Al) in 0.65 mm cold-rolled sheets. The two outside plates and the central plate were IVT1 alloy with alternating layers of titanium foil. After assembly of the stack, the edges were welded and rolling was done to 35% reduction at 1100°C. The resultant 2.7 mm plate was then cold-rolled to 2.3 mm. The plate was cut in the direction of rolling into specimens which were heat treated and studied for structure, microhardness of the layers and diffusion redistribution of the alloying elements between layers. The three-layer sandwich plates were made with α -titanium in the outer layers and an alloy similar to IVT1 in the center. The results of tests show that specimens made up of n layers of the same material are stronger than a monolithic plate of the same thickness. Greater strength can also be achieved by increasing the number of layers in a composite material.

2/2

USSR

UDC 669.295.5:539.376

AGEYEV, N. V., PETROVA, I. A., GREKOV, N. A., GRANKOVA, L. P.,
KOZLOVSKAYA, T. M., and ARKOVENKO, G. I., Moscow

"Creep of IVT-1, a β -Alloy of Titanium"

Moscow, IAN SSSR, Metally, No 2, Mar-Apr 71, pp 163-167

Abstract: The creep of IVT-1, a β -alloy of titanium (7% Mo, 5.5% Cr, 3% Fe, 3% Al, remainder Ti) was determined at temperatures of 100, 200, 250, and 350°C at stresses of 120, 115, 110, 90, 80, and 75 kg/mm² over 1,000 hours and in some cases up to 2,500 hours. The limiting stress causing 0.02% residual deformation of the alloy after 1,000 hours is 105 kg/mm² at 200°C and 79 kg/mm² at 250°C. The rate of stable creep at these stresses and temperatures is $2 \cdot 10^{-5}$ %/hr. The creep tests showed that if two specimens tested under identical conditions show different initial deformation, the specimen with greater initial deformation generally has lower creep than the specimen with less initial deformation. Total deformation increases little with increasing load time at 100-250°C and 120-75 kg/mm². Following creep tests, some breakup of β phase grains is observed; migration of grain boundaries and displacement along grain axes (slipping) were noted.

1/1

- 72 -

USSR

UDC: 539.385

AGEYEV, N.V., ~~PETROVA, L.A.~~, TERENT'YEV, V.F., GRANKOVA,
L.P. and KOZLOVSKAYA, T.M., Institute of Metallurgy imeni
A. A. Baykov, Academy of Sciences USSR

"Effect of Structure on the Cyclic Strength of IVT1 Titanium
Beta-Alloy"

Moscow, Sb. "Ustalost' metallov i splavov". "Nauka" Press, 1971,
pp 70-73

Translation: The cyclic strength of IVT1 titanium alloy (6.7%
Mo, 4.99% Cr, 2.8% Fe, 3.1% Al) has been investigated under
alternating loads following heat treatments under various con-
ditions. The structure of the alloy was examined as a function
of these conditions under both light and electron microscopes.
The highest fatigue limit of 5.3 kg/mm² was exhibited by an
alloy heat treated under the following specifications: harden-
ing at 800C for 1 hr., water quenching, aging for 15 hrs. at
550C, and cooling in open air. The alloy treated under these
conditions is characterized by homogeneous decay of the β -solid
solution. (3 illustrations, 6 bibliographic references;
summary).

1/1

USSR

UDC 669.295.5:539.376

AGEYEV, N. V., PETROVA, L. A., GREKOV, N. A., GRANKOVA, L. P.,
KOZLOVSKAYA, T. M., and ARKOVENKO, G. I., Moscow

"Creep of IVT-1, a β -Alloy of Titanium"

Moscow, IAN SSSR, Metally, No 2, Mar-Apr 71, pp 163-167

Abstract: The creep of IVT-1, a β -alloy of titanium (7% Mo, 5.5% Cr, 3% Fe, 3% Al, remainder Ti) was determined at temperatures of 100, 200, 250, and 350°C at stresses of 120, 115, 110, 90, 80, and 75 kg/mm² over 1,000 hours and in some cases up to 2,500 hours. The limiting stress causing 0.02% residual deformation of the alloy after 1,000 hours is 105 kg/mm² at 200°C and 79 kg/mm² at 250°C. The rate of stable creep at these stresses and temperatures is $2 \cdot 10^{-5}$ %/hr. The creep tests showed that if two specimens tested under identical conditions show different initial deformation, the specimen with greater initial deformation generally has lower creep than the specimen with less initial deformation. Total deformation increases little with increasing load time at 100-250°C and 120-75 kg/mm². Following creep tests, some breakup of β phase grains is observed; migration of grain boundaries and displacement along grain axes (slipping) were noted.

1/1

- 72 -

USSR

UDC 669.295:620.186.5

PETROVA, L. A., BABAREKO, A. A., GRANKOVA, L. P., KOZLOVSKAYA, T. M., and SAZONOVA, T. N., Institute of Metallurgy imeni A. A. Baykov

"Recrystallization of β -Alloy of IVT-1 Titanium"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, 1972, pp 30-34

Abstract: The ionization method of taking texturograms was used for plotting polar figures. The changing character in annealing of polar figures describes the process of recrystallization. Specimens were cut from a bar forged by broaching in two perpendicular directions at 950°C. The specimens were annealed in air at 400-1200°C with 30 min aging at each temperature. The textures of specimens of different grain size and boundary character in continuous heating up to 700°C are discussed by reference to microstructures and polar figures. Specimens annealed at 600°C showed a considerably changed texture in comparison with the initial texture. This is connected with the beginning recrystallization, which is practically completed at 650°C. Extrusion or forging by a more complex method is recommended for obtaining stable properties of normal forging on two mutually perpendicular surfaces. Two figures, one bibliographic reference.

1/1

USSR

UDC: 621.375.4(088.8)

KATIKOV, V. M., KUSHPIL', V. I., PETROVA, L. F.

"A Device for Amplification of Electric Signals"

USSR Author's Certificate No 265957, filed 8 Dec 68, published 7 Jul 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D76 P)

Translation: This Author's Certificate introduces a device for amplification of electric signals which vary over a wide range of input values. The device consists of series-connected amplification and control stages. To ensure normal operation of the device in the case of small signal-to-noise ratios (less than unity), the regulating circuit for the control stages is connected to the following amplification stage of the device through a synchronous detector with filter.

1/1

Computers: Applications & Programming

USSR

UDC: 681.3.06:51

LINKIN, G. A., PETROVA, L. I., and TATARENKO, V. N.

"Methods of Analytic Description of Discretely Specified Plane Outlines of Complex-Shaped Parts"

Kiev, V sb. Chislovoye programmnoye upr. tekhnol. oborud. (Numerical Programmed Control of Technological Tools--collection of works) "Tykhnika," 1973, pp 8-13 (from RZh--Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1973, Abstract No 12B167)

Translation: A classification is considered for the most widely used methods of solving problems in the analytic description of discretely specified outlines which is general for geometric interpretations and degree of accuracy in satisfying conditions at specified points. The methods and procedures for solving problems of discretely specified contours involve the replacement of the contours by analytic curves determined by the form of the connection between the substituted curve and the discrete points, with possible additional conditions depending on the geometrical interpretations of the problem's solution. Three illustrations, bibliography of 10. Resume.

1/1

USSR

UDC 541.183

DUBININ, M. M., NIKOLAYEV, K. M., POLYAKOV, N. S., and PETROVA, L. I.,
Institute of Physical Chemistry, Academy of Sciences USSR

"Study of Adsorption Dynamics in a Wide Range of Penetration Concentrations.
2. Examination of the General Picture of the Adsorption Dynamics Process"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 72, pp
1265-1269

Abstract: The article examines the general picture of the dynamics of benzene vapor adsorption in a wide range of penetration concentrations (from 10^{-5} mg/l to initial concentration) and with varying adsorbent layer lengths (from one grain to 16 cm). It was found that the adsorption process taking place in a layer can be conditionally divided into three stages in the movement of the concentration front over the layer. The first (initial) stage is characterized by the practically instantaneous distribution of concentrations over the length of the layer, resulting in the penetration of the vapor a certain layer length. The second (and longer) stage includes the movement of the concentration front over the layer at various velocities which are characteristic of each concentration and which change during the process. This stage is characterized by non-stationarity of the process, which tends in the limit to a stationary regime (i.e., the third stage).

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3

1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--LUBRICATING COATING -U-
AUTHOR--(05)-SENTYURIKHINA, L.N., RUBTSOVA, Z.S., PETROVA, L.N., LUTSENKO,
G.A., VIONTSEK, N.I.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 265,447
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--09MAR70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--CHEMICAL-PATENT, PROTECTIVE COATING, LUBRICANT, CHEMICAL
COMPOSITION, MOLYBDENUM DISULFIDE, SILOXANE, BENZENE DERIVATIVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1798 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0130631
UNCLASSIFIED

2/2 027

CIRC ACCESSION NO--AA0130631

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A LONG LASTING LUBRICATING COATING
CONTAINS 60-75 WT. PERCENT MO DISULFIDE AND 25-40 WT. PERCENT
POLYMETHYLPHENYLSILOXANE RESIN WITH A UNIT STRUCTURE ((ME SUB2
SIO)(PHSIO SUB1.5)(PH SUB2 SIO) SUB0.35).

UNCLASSIFIED

USSR

UDC 542.91:547.1'118

ARBUZOV, A. Ye. (deceased), VALITOVA, F. G., GAZETDINOVA, N. G., and PETROVA, L. P., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, Kazan'

"Alpha-Phenyl-beta-diethyl(diphenyl)phosphonodiazines"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 73, pp 1646-1648

Abstract: Upon the reaction in dry benzene of the chlorides of diethyl and diphenyl phosphate with unsymmetric sodium phenylhydrazine, alpha-phenyl-beta-diethylphosphonohydrazine (I) and alpha-phenyl-beta-diphenylphosphonohydrazine (II), respectively, were obtained instead of the expected alpha-phenyl-alpha-diethyl (diphenyl) phosphonohydrazines. The reaction of I and II with phthalic acid dichloride in dry benzene in the presence of Et_3N led to the formation of 2-phenyl-3-diethylphosphono- and 2-phenyl-3-diphenylphosphono-1,4-phthalazinedione, respectively.

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USSR

UDC 616.932-092.9

ZYKIN, L. F., LOBANOV, V. N., SAGEYEVA, O. F., and PETROVA, L. S., All Union Scientific Research Antiplague Institute "Mikrob"

"Study of the Action of Cholero-gen and Isolated Cell Components of *V. cholerae*"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunologii, No 9, Sep 70, pp 36-43

Abstract: A comparative study of the action of cholero-gen and the isolated cell structures of Cholera vibrio (cell walls, flagellae, and cytoplasm) is presented. A fatal cholera syndrome developed in neonatal rabbits following endoenteric infection. Histological investigations revealed various lesions in the intestine, including necrotic changes in the villi, mucosa and submucosa of the small intestine, and granular dystrophy of the kidney and liver cells. No cholero-genic action was produced by the cell walls, flagellae, and cytoplasm. Endotoxin localized in cell walls and cholero-gen differed in respect to their effect on neonatal rabbits.

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1/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--THE ROLE OF CELLULAR STRUCTURES OF CHOLERA AND NON CHOLERA VIBRIIDS
IN DEVELOPMENT OF NON SPECIFIC RESISTANCE -U-

AUTHOR--(02)--ZYKIN, L.F., PETROVA, L.S.

COUNTRY OF INFO--USSR

SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 6, PP 537-540

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHOLERA, VIBRIO COMA, CYTOPLASM, CELL MEMBRANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1865

STEP NO--UR/0297/70/015/006/0537/0540

CIRC ACCESSION NO--AP0125476

UNCLASSIFIED