USSR UDC 631.291.27

YEFIMOV, V. M., LIVSHITS, Z. A., Novosibirsk

"Some Methods of Improving the Efficiency of Digital Data Compression Systems"

Novosibirsk, Avtometriya, No 2, 1973, pp 50-56

Abstract: A study was made of the problems connected with the efficiency of using various linear signal conversions, anticipating their compression by a zero-order predictor with fixed aperture. The paper is an extension of a previous paper by the same authors (V. M. Yefimov, et al., Avtometriya, No 4, 1972].

First, the one-dimensional case is considered in which the signal subjected to compression is a random function of one coordinate (for time determination). Then the case is considered in which a mixture of a "smooth" gaussian signal and gaussian noise not correlated with the signal and mean square differentiable is fed to the input of the predictor with fixed aperture operating in the continuous reading mode. The mathematical description of the optimal ideal filter is given. With regard to the effectiveness of using preliminary algebraic linear transformations of the signals and multichannel systems, it is noted that the linear transformations leading to decorrelation of the signals are not optimal. A two-channel system is examined briefly as proof of this statement.

1/1

USSR UDC: 53.08+535.853

YEFIMOV, V. M., ISKOL'DSKIY, A. M., and YANSHIN, E. V.

"Detection of a Point Signal in Noise for Images of Discrete Structure"

Novosibirsk, Avtometriya, No 6, 1971, pp 42-52

Abstract: In the photographic recording of small objects of low brightness, as in the registration of weak stars or laser location of the moon, a method of increasing the sensitivity of the recording equipment is through an electronic-optical converter. Since the use of high-gain converters in such recording systems involves substantial difficulties because of the limitations in the dynamic range of the photomaterial used as the memory device, the authors of this article analyze the possibilities of the traditional method of single-frame memory and propose methods for broadening these possibilities. Multiframe memory is also discussed. Experiments are described to determine the probability of detection of the point signal in noise, and a description of
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USSR

YEFIMOV, V. M., et al., Avtometriya, No 6, 1971, pp 42-52

the experimental apparatus is given. Formulas are derived for accurate computation of this probability if the noise in question is generated by an outside source. The authors thank Yu. Ye. Nesterikhin for posing the problem, Yu. A. Grigor'yevich for assisting in the experiments and discussing the results, and G. D. Frizen for making the required computations on the electronic computer.

2/2

USSR

UDC: 512.25/.26+519.3:330.115

YEFIMOV, V. M.

"Some Properties of the Problem Which is Dual to the Problem of Concave Programming in a Hilbert Space With a Strictly Concave Target Functional"

V sb. Modelir. ekon. protsessov (Modeling of Economic Processes--collection of works), Moscow, Moscow University, 1971, pp 319-324 (from RZh-Kibernetika, no 11, Nov 71, Abstract No 11V697)

Translation: The author investigates the properties of a functional which is an analog of the Lagrange function. D. Epshteyn.

USSR

UDC 51:330.115

YEFIMOV, V. M.

"Certain Stochastic Statements of Optimal Planning Problems as Problems of Statistical Decisions"

Mat. Metody Issled. i Optimiz. Sistem. Vyp 5 [Mathematical Methods of Investigation and Optimization of Systems, No 5 -- Collection of Works], Kiev, 1970, pp 48-55, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V487).

NO ABSTRACT.

USSR

UDC 612.822.3

KOGAN, A. B., YEFIMOV, V. N., and SOKOLENKO, P. T., Problem Laboratory of Biophysics, State University, Rostov-on Don

"Analysis of the Dynamics of Neuron Functioning by Its Impulse Activity"

Leningrad, Fiziologicheskiy Zhurnal SSSR, Vol 56, No 4, 1970, pp 514-517

Abstract: Impulse activity is considered as a continuous process reflecting the functional dynamics of a given nerve. A great number of factors enter into the function of a nerve, such as the distance of its activity, distribution of stimuli, sympathetic and inhibitory affects, trophic and metabolic states, state of excitability and lability of the nerve cell, etc. All these factors are reflected, to some extent, in the measurement of impulse frequencies (frequency-gram) and of the intervals between the frequencies (intervalo-gram). The construction of a histogram (several types are shown) which is a graphic representation of a frequency distribution by means of rectangles, whose widths represent the class of intervals and whose heights represent the correeponding frequencies serves as the pattern of analysis of neuron activity.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ANALYSIS OF NEURON FUNCTIONING DYNAMICS FROM RECORDINGS OF PULSE ACTIVITY -U-

AUTHOR-(03)-KOGAN, A.B., YEFIMOV, V.N., SOKOLENKO, P.T.

COUNTRY OF INFO--USSR

SOURCE--FIZIOLOGICHESKII ZHURNAL SSSR, VOL. 56, APR. 1970, P. 514-517

DATE PUBLISHED----APR70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NEUROPHYSIOLOGY, NEURON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1219 STEP NO--UR/0239/70/056/000/0514/0517

CIRC ACCESSION NO--AP0124873

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124873

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF PULSE ACTIVITY AS A CONTINUOUS PROCESS REFLECTING NEURON FUNCTIONING DYNAMICS. A METHOD OF CONSTRUCTING A GENERALIZED NEURON STATE FUNCTION FROM A PULSE OUTPUT FLOW IS PROPOSED. THE METHOD IS BASED ON THE CONSTRUCTION OF A SO CALLED "FREQUENCY GRAM" A PIECEWISE CONTINUOUS FUNCTION OF TIME, THE VALUES OF WHICH AT EACH POINT ARE EUQAL TO THE RECIPROCAL OF THE INTERVAL BETWEEN THE PULSES. FACILITY: ROSTOVSKII-NA-DONU GOSUDARSTVENNYI UNIVERSITET, ROSTOV, USSR.

UNCLASSIFIED

USSR

UDC: 681.32.001

BELEVTSEV, A. T., BESSHAPOSHNIKOV, Ye. A., YEFIMOV, V. P., KUZALEV, Ye. Yu., SEMENOV, B. A., CHIZHIK, S. P.

"Resistive Element for a Potentiometer"

USSR Author's Certificate No 293271, filed 1 Aug 69, published 11 Mar 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B148 P)

Translation: This Author's Certificate introduces a resistance element for a potentiometer. The element is made in the form of two layers applied in sequence, one of them being a layer of rhodium. For the purpose of thermal stabilization of the resistance, the element utilizes a heat-treated chromium film as the rhodium sublayer. One illustration.

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USSR

UDC: 539.121.75

GRISHAYEV, I. A., YEFIMOV, V. P., KASILOV V. I., KOVALENKO, G. D., MOROKHOVSKIY, V. L., FISUN, A. N., SHRAMENKO, B. I., Physicotechnical Institute, Academy of Sciences of the Ukrainian SSR, Khar'kov

"Concerning Some Particulars of the Interaction of High-Energy Electrons and Positrons With Crystals"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 9, Sep 71, pp 1548-1550

Abstract: The total yield of electron and positron bremsstrahlung is studied as a function of crystal orientation when the primary beam is nearly parallel to the crystal axis. The electron and positron beams were characterized by the following data: the energy at the maximum of the spectra was (1000±5) MeV; the width of the energy spectra in both instances was ~4 %; there was no more than 8% difference between the average currents of the electron and positron beams; the difference in angular divergences of the beams was no more than $5 \cdot 10^{-5}$ radian; the number of charged background particles did not exceed 0.05% of the number of electrons and positrons respectively. The experiment was done on the

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USSR

GRISHAYEV, I. A. et al., Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 9, Sep 71, pp 1548-1550

accelerator at the Physicotechnical Institute of the Academy of Sciences of the UkrSSR. The background due to positron converter photons was 30% of the measured total photon yield and varied by 0.5% during the experiment. Silicon crystals 0.64 mm thick cut in plane (110) and niobium crystals 1 mm thick cut in plane (100) served as the specimens. The strongest distinguishing parameter on the curves plotted for bremsstrahlung yields as related to crystal orientation was the width of the minimum in the small-angle region, which was less for positrons than for electrons in both instances. Controlled experiments seem to indicate that this effect can be attributed to the sign of the charge. The authors thank V. M. Kobezskiy, V. I. Myakota, and V. I. Popenko for maintaining stable accelerator operation; V. I. Artemov for assisting with measurement of beam parameters; and Ye. A. Levikov for assisting with preparation of the crystals. One figure, bibliography of five titles.

2/2

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--TNB 2 APPARATUS USED FOR CARBONATE SAPONIFICATION OF OXIDIZED PARAFFINS IN THE PRODUCTION OF SYNTHETIC FATTY ACIDS -U-

AUTHOR-(05)-YEFIMOV, V.T., NAZARYAN, M.M., MOSKVIN, V.O., BOLOTIN, I.M., KOVAL, L.P.

COUNTRY OF INFO--USSR

SOURCE--MASLO-ZHIR, PROM. 1970, 36(3), 21-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARBONATE, SAPONIFICATION, ALKANE, FATTY ACID, CHEMICAL PLANT EQUIPMENT, CHEMICAL REACTOR/(U)TNB2 CHEMICAL EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0550 STEP NO--UR/9085/70/036/003/0021/0025

CIRC ACCESSION NO--AP0119469

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT7C

CIRC ACCESSION NO--AP0119469

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OPTIMUM OPERATING PARAMETERS WERE DETD. FOR THE TITLE APP. THE APP. CONSISTED OF A MIXER AND A CASCADE OF 4 SEQUENTIALLY CONNECTED REACTORS. THE EFFECTS OF TEMP. OF THE NA SUB2 CO SUB3 SOLN. USED AND OF THE OXIDIZED PARAFFIN, THE CONCN. OF THE NA SUB2 CO SUB3 SOLN., THE SAPON. TEMP. OF THE CARBONATE MASS, THE PRODUCTIVITY OF THE APP., AND THE H SUB2 O CONSUMPTION DUE TO MIXING AND CO SUB2 STRIPPING WERE DETD. THE DEPENDENCE OF THE ACID NO. OF THE CARBONATE MASS ON THE RESIDENCE TIME IN THE APP. WAS PLOTTED FOR VARIOUS PARAFFIN-NA SUB2 CO SUB3 RATIOS (1:0.21-0.26) AND TEMPS. (50-100DEGREES). THE NA SUB2 CO SUB3 DECOMPN. RATES AT VARIOUS TEMPS. OF THE OXIDATE AND OF THE NA SUB2 CO SUB3 WERE ALSO DETD. THE APP. DESCRIBED IS THE MOST SUITABLE ONE FOR THE ABOVE CARBONATE SAPON. BECAUSE IT PROVIDES COMPLETE REMOVAL OF CO SUB2 AND A HIGH DEGREE OF NA SUB2 CO SUB3 DECOMPN. FACILITY: KHAR'KOV. POLITEKH. INST. IM. LENINA, KHARKOV, USSR.

UNCLASSIFIED

Refractory Materials

USSR

UDC 669.046.5.091

KEFIMOV, V. YE. (Moscow)

"Certain Features of the Process of Refining Refractory Metals by Electron Beam Melting"

Moscow, Izvestiya AN SSSR, Metally, No 3, May-Jun 70, pp 49-52

Abstract: Certain features of the process of refining niobium and tantalum by the electron beam method are analyzed on the basis of experimental data in order to ascertain the effect of various factors on metal purity. The effects of electron beam power, melting rate, number of remeltings, and holding time in the liquid state were investigated. The variation of metal hardness and impurities content with holding time, and the effect of melting rate, ingot diameter, and the number of remeltings on metal hardness are presented in graphs and discussed. An analysis of the results shows that: 1) In order to obtain a maximum degree of purity the holding time should be ~ 5.5 min for niobium and 2.5 min for tantalum; 2) the refining occurs basically in the metal bath during the liquid phase; 3) the smaller the ingot diameter, the smaller the degree of refining which can be obtained in a single melting of a metal-ceramic batch. Consecutive remelting will ensure a total refining at the same holding time.

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YE F/MOF, Ye

Author

CIA-RDP 55656
7 APRIL 1972

SUMMARY OF ANNUAL MEETING OF UZBEK ACADEMY OF SCIENCES

[Article by Ye. Yefimov and V. Sergeyev, Correspondents, Uzbek Telegraph Agency; Tashkent, Pravda Vostoka, Russian, 25 March 1972, p 2]

One hundred fifty problems, over 400 topics -- the year of work and creativity of the Uzbek Academy of Sciences can be so described in the most condensed form. It was a remarkable year, a year worthy of the great era, the era in which -- as Leonid Il'ich Brezhnev stated at the 24th Party Congress -- the role of science as a direct productive force will increasingly be manifested.

The task of the scientist and the task of the scientific collective is to be equal to the era, to be equal to the goals of the revolution in science and technology. This criterion was the basis for the evaluations and plans that were discussed on 25 February at the annual general meeting of the Academy of Sciences of the Uzbek SSR.

The meeting was opened with an introductory address by A. S. Sadykov, Corresponding Member of the USSR Academy of Sciences, President of the Uzbek Academy of Sciences.

A report on the scientific and scientific-organizational activity of the Uzbek Academy of Sciences during 1971 and on the plan of problems and topics for 1972 was presented by M. Z. Khamudkhanov, a member of the academy presidium.

Even the most condensed survey of the activity of the academy and its institutions indicates the breadth and purposiveness of its research. This year brought enrichment to the theoretical foundation of science and many valuable decisions, conclusions, and recommendations promoting the growth of social labor productivity and the flourishing of socialist culture.

USSR

UDC 621.382.002

YEFIMOV, YE.A., YERUSALIMCHIK, I.G., OSIPENKOVA, E.L., SOKOLOVA, G.P.

"Electrodeposition Of Copper In Order To Obtain Volume Leads Of Semiconductor Devices"

Elektron. tekhnika. Nauch.-tekhn.sb. Poluprovodn.pribory (Electronics Technology. Scientific-Technical Collection. Semiconductor Devices), 1970, Issue 6(56), pp 89-92 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B488)

Translation: Preceding electrochemical deposition of copper volume leads on a sputtered 0.5-[?] thick Cu layer with masking by "385" photoresist, processing of the substrate in concentrated HCl during 15--20 sec at a temperature of 20 plus or minus 2° C is optimum. The electrolyte composition 200 g/l $CuSO_4$, 5 H_2O, 50 g/l H_2SO_4; 0.04 g/l $CS(NH_2)_2$; 0.04 g/l NaCl gives the greatest increase of the diameter of the local deposition of Cu. With a 20° C temperature of the solution, the current density is 0.1 a/cm^2, the height of the deposited columns of Cu not greater than 40 micrometer, the diameter of the column during the time of deposition (50 min) is increased by 5--10 micrometer. Cylindrical leads of proper form are obtained with horizontal immersion of the working wafer into the electrolyte. Correction of the electrolyte by addition of thiourea is necessary in the operating process. The assumed mechanism of chemical and electrochemical reactions occuring during electrodeposition of Cu is described. 1 ill. 4 ref. I.M.

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YEFIMOV, Ye. I.

JPRS 53425

22 June 1971

PSYCHOLOGICAL THEORY OF THINKING AND CYBERNETICS DEVELOPMENT

[Article by V. N. Pushkin, Institute of General and Pedagogical Psychology of USSR Academy of Pedagogical Sciences, and D. A. Pospelov and Ye. I. Yefimov, USSR Academy of Sciences Computer Center; Moscow, Voprosy Filosofii, Russian, No 2, 1971, pp 66-79]

1. The Theory of Automats and Elements of the Psychological Theory of Thinking

Theoretical analysis has shown that that theory of automats which for many years determined the particular features of the structure and operation of cybernetic machines [4]* is a reflection of a certain system of theoretical psychology [24, 28, 42, 43, 45]. At the basis of this first theory of automats lies the basic principle of behavioral psychology, the principle of "stimulus and reaction." All researchers in the area of cybernetics who have attempted to reproduce thinking or other psychic functions of the human being using computer technology have, to a certain degree, realized this theoretical-psychological principle. If we draw back from the purely practical capabilities of cybernetic machines, which are indisputable, and consider them from a psychological point of view, as a means of modeling the psyche, it is not difficult to discover one fundamental feature which significantly distinguishes their work from the functioning of the human or animal brain. Cybernetic machines cannot re-create or construct in themselves objects of the external environment in their links and functional relationships with that degree of completeness which the brain achieves.

* Footnote references given in brackets.

USSR

YEFIMOV, Yu., BARANOV, G., GALALU, V., and ROMENSKIY, Ye.

"Digital Functional Converter With Nonuniform Separation of the Argument"

Moscow, Elektronno-Vychislitel'naya Tekhnika i Programmirovaniye No. 4, 1971, pp 109-111

Abstract: A possible method for shortening the computation time in electronic computers, the use of a special functional converter operating in conjunction with the computer, is discussed. It is noted that analog functional converters are useless because of poor accuracy and the complexity of devices that must be connected with the computer. The digital functional converter, however, is convenient for obtaining functional dependence of the $y = f(x)$ type with a finite number of plotting points, with intermediate values found through interpolation methods. Two graphs showing approximations of curves with uniform separation and with nonuniform separation are shown for the sake of contrasting the two methods; the much closer approximation of nonuniform separation of interpolated points is strikingly evident. A functional diagram of the converter is given, together with an explanation of its operation. From prototypes of the various units in the converter

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203620015-0"

USSR

YEFIMOV, Yu., et al, Elektronno-Vychislitel'naya Tekhnika i Programmirovaniye, No. 4, 1971, pp 109-111

and their behavior, the authors draw the conclusion that when the converter is made of the elements used in the "Ural-10", the time for computing the functional dependence $y = f(x)$ is less than 10 μs, as compared with the time of 2-10 ms for the "Minsk-2" to compute even the simplest functions.

2/2

USSR

YEFIMOV, Yu., KIZEV, V., NEVRAYEV, V., SEDEL'NIKOV, P. UDC: 8.74

"Algorithm and Program for Compilation of an Operative Calendar Plan on the 'Ural-11' Computer"

V sb. Elektronno-vychisl. tekhn. i programmir. (Electronic Computer Technology and Computer Programming--collection of works), vyp. 4, Moscow, "Statistika", 1971, pp 80-85 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1062)

Translation: The described automated system for operetive control of a machine building enterprise under conditions of small-series, series and large-series production is based on the theory of graphs and set-theory concepts and, in the authors' opinion, has advantages over a number of existing systems. Authors' abstract.

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USSR

UDC: 519.1

YEFIMOV, Yu. N., SEDEL'NIKOV, P. A.

"An Algorithm for Transforming the Form of Representation of a Graph"

Izv. Tomsk. politekhn. in-ta (News of Tomsk Polytechnical Institute), 1972, 243, pp 154-157 (from RZh-Kibernetika, No 5, May 73, abstract No 5V535 by V. Kozyrev)

Translation: An algorithm for "joining" network models is described -- constructing an oriented graph $G = (I, U)$, where $I = \bigcup_{k=1}^{n} I_k$, $U = \bigcup_{k=1}^{n} U_k$ for data of n orgraphs $G_k = (I_k, U_k)$, $k = 1, 2, \ldots, n$.

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USSR

UDC: 8.74

YEFIMOV, Yu. N., YURENKOV, Yu. T.

"On a Methed of Organizing the Operation of a System of Programs"

Izv. Tomsk. politekhn. in-ta, 1972, 243, pp 105-168 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V635)

Translation: Programs which organize the solution of problems on digital computers are usually designed so that the algorithm of solution of the problem takes the form of a linear sequence of programs. In the solution of many problems (planning, control, etc.) the sequence of programs is more conveniently represented as a graph of nonlinear structure. This paper deals with one of the possible ways of constructing a program which organizes the operation of systems of programs of the above mentioned type. A dispatcher program of this type has been developed for the "Ural-14D" digital computer as a controlling program in the "ASUP-Tomsk" automated production and control system. The "ASUP-Tomsk" is used for production planning and management in several enterprises. The "ASUP-Tomsk" software is a fairly complex system which is most conveniently represented by a nonlinear graph.

1/1

USSR

UDC: 519.1

YEFIMOV, Yu. N., KIZEV, V. I., NEVRAYEV, V. I., SEDEL'NIKOV, P. A.

"Concerning a Graph Enlargement Algorithm"

Izv. Tomsk. politekhn. in-ta, 1972, 223, pp 15-17 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V391 by I. Sigal)

Translation: The paper deals with the problem of transformation of an oriented graph with a large number of arcs and vertices, retaining all main parameters and mutual relations of the initial graph (the problem of enlargement). In the given graph $G=(I, \Gamma)$, where I is the set of vertices, and Γ is its mapping, the author indicates the set of vertices $I' \subset I$ to be excluded. For each vertex $i' \in I'$ a set of vertices is designated with which this vertex is associated (connected), and characteristics are assigned for all vertices of the designated set. Then for each vertex $i' \in I'$ a vertex i'_k is defined for which $i' \in \Gamma_{i'_k}$, the connections of vertex i' are included in the connections of i'_k, and the connections of vertex i' are deleted from the graph. The parameters of the vertices are recalculated accordingly.

1/1

USSR

YEFIMOV, Yu. N.

"Arithmetic Form of Representation of a Function. Part 1. Arithmetic Form of Representation of a Binary Function"

Tr. Taganrog. Radiotekhn. In-ta [Works of Taganrog Electronic Engineering Institute], 1973, No 37, pp 225-230 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V625).

Translation: In problems of analysis and synthesis of modular computers, the form of representation of the logic function plays an important role. This work shows the possibility, in addition to logical forms of representation of a logic function, of using arithmetic forms, realized by the performance of certain arithmetic operations. A theorem of the existence of such an arithmetic form is proven.

Methods of reduction of the number of terms in the arithmetic form are studied. Certain criteria for the selection of coefficients from the corresponding polynomial are established for this purpose. Examples are presented showing the expediency of the methods of minimization used.

1/1 Author's view

USSR

UDC: 519.1

YEFIMOV, Yu. N., KIZEV, V. I., MAROSHKIN, G. Yu., NEVRAYEV, V. I., SEDEL'NIKOV, P. A.

"Using Graphs in Normative Calculation of the Production Cost of an Item"

Izv. Tomsk. politekhn. in-ta, 1972, 223, pp 10-11 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V390 by I. Sigal)

Translation: The paper deals with the problem of determining the production cost of a good. The problem consists in calculating indirect expenses, as well as expenses introduced by the elements which comprise the given product. The problem may be represented by an oriented graph, each vertex corresponding to some item i, while the arcs (i,j) of the graph correspond to the applicability of this item (good) i for obtaining product j into which these products i are incorporated as a component part. It is assumed that the vertices in this graph are broken up into layers (topologically ordered). To get the complete production cost, the expenses are calculated for each product j by adding the expenses with respect to the component products for all vertices of the graph from left to right.

1/1

USSR

UDC: 534.322.3+534.83

YEFIMOV, Yu. S., MAKAROV, L. T., MYASNIKOV, L. L., FINAGIN, B. A.

"A Maskless, Fiber-Optics Acoustic Analyzer"

Tr. Leningr. korablestroit. in-ta (Works of Leningrad Shipbuilding Institute), 1972, vyp. 77, pp 45-48 (from RZh-Fizika, No 5, May 73, abstract No 5Zh591 by R. I. G.)

Translation: A device is described which is designed for analyzing complex acoustic and electric signals by using a multichannel filter made of fiber light guides. Oscillations are optically fixed by passing light through resonating fibers. The maskless analyzer developed by the authors uses the effect of intensity modulation of light as it passes through vibrating fiber-optics light guides. It is experimentally shown that the maskless analyzer accomplishes linear conversion of a signal over a fairly wide range of dynamic variation.

1/1

USSR

UDC: 537.312.62

BURTSEV, V. T., YEFIMOV, Yu. V.

"An Investigation of Oxygen Content in Superconducting Compounds Based on Vanadium and Niobium"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 63-69 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D565 [résumé])

Translation: The authors study the oxygen content in superconductive refractory compounds Nb_3Sn, V_3Ga and V_3Si and an alloy of vanadium with 25 at.% aluminum by the vacuum melting method. The auxiliary metal bath is selected, a study is made of the kinetics of liberation of carbon monoxide in the platinum carbide bath, and the sorption capacity of the condensate is evaluated in analysis of V_3Si. The compounds should be analyzed: 1) in a melt of nickel with 25 wt.% iron with a dilution of 1:10 in steel capsules with the addition of tin up to 10-12 wt.% of the bath weight at a temperature of 1650°C and extraction time of 7 minutes; specimen weight 0.3-0.4 g; number of specimens -- 4; 2) in a melt of platinum with dilution of 1:10 at 1920°C and extraction time of 7 minutes; specimen weight 0.1-0.15 g; number of specimens -- 5-6. Ill. 2, tabl. 3, bibl. 9.

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USSR

UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., YEFIMOV, Yu. V., MODEL', M. S.

"Structure and Superconducting Properties of Alloys in the Vanadium-Tantalum System"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 78-86 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D560 [résumé])

Translation: Solid-state transformations are determined and phase diagrams are plotted for alloys of the vanadium-tantalum system on the basis of methods of microscopic, radiographic, x-ray spectral and thermal analyses, as well as by measuring microhardness and the superconductive transition point for alloy phases. The compound TaV_2 with structure of the $MgZn_2$ type is formed at 1420°C and about 33 at.% tantalum. At 1125°C and 29 at.% tantalum this phase decays eutectoidally to a solid solution with bcc lattice and a phase with structure of the $MgCu_2$ type. The latter is also formed by a peritectoidal reaction at 1200°C and 37 at.% tantalum. It is homogeneous at 800°C in the range of 32-39.5 at.% tantalum; the T_c of the high-temperature phase with hexagonal lattice of the $MgZn_2$ type reaches 10 K. Four illustrations, bibliography of nine titles.
1/1

YEFIMOV, YU.V.

Technical Science

JPRS 54563
26 Nov 71

ALLOYS OF RARE METALS WITH SPECIAL PHYSICAL PROPERTIES

(Conference in Moscow)

[Article by Candidate of Technical Sciences Yu. V. Yefimov and L. F. Kynenkov; Moscow, Vestnik Akad [illegible] SSSR, Russian, Vol 41, No 9, September 1971, pp [illegible]]

The development of new branches of industry -- atomic power engineering, the space industry, rocketry and electronic equipment -- presents ever growing requirements for metallic materials and dictates a need to create very various alloys with special properties. Alloys widely used now, based on iron, nickel, cobalt, copper, magnesium, aluminum, lead and zinc already cannot satisfy all the requirements of rapidly developing technique. Therefore an urgent problem of contemporary science is the study of rare metals and alloys based on them which often have a unique complex of properties. Progress in the development of new metallic materials is closely connected with the level of development of physical metallurgy, physical chemistry and the physics of metals.

An All-Union conference held in the Institute of Metallurgy imeni A. A. Baykov of the AS USSR on [illegible] May was devoted to the comprehensive analysis of problems arising in that area of science, making known the results of recent theoretical and experimental investigations, and discussion of the directions of further scientific searches for alloys of rare metals with special physical properties. Participating in its work were about 500 representatives of 10[illegible] organizations and enterprises of various cities of the Soviet Union. Heard were [illegible] reports on the study and use of superconducting alloys and compounds [illegible] vanadium and niobium, [illegible] materials on the basis of [illegible] with the participation of rare-earth metals, alloys [illegible] noble metals, and [illegible] refractory rare metals (tungsten, [illegible] denum, rhenium, etc) with different [illegible] (in [illegible] ion properties).

At the conference special attention was given to study of the electronic structure, crystalline structure, and physical and chemical properties of alloys and compounds; to the

USSR UDC 669.292.7:537.312.62

SAVITSKIY, Ye. M., and YEFIMOV, Yu. V.

"Superconducting Metal Compounds"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 71-88

Translation: The regularities of the change in transition temperature for metal compounds are studied as a function of type of crystalline structure, degree of order of this structure, electron structure, chemical composition, and formation conditions. The influence of pressure, interstitial impurities, alloying, heat treatment, and other factors on the superconducting properties and the structure of various compounds is studied. The regularities of the change in critical temperature are studied in binary and trinary alloys based on compounds, and the characteristic features of the "composition-T_c" diagrams are discussed. The maximum critical temperatures are observed in compounds with structures such as Cr_3Si. The structure and properties of superconducting compounds can be controlled within certain limits by varying the thermodynamic factors (concentration, temperature, pressure) or by applying magnetic, radia-

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USSR

SAVIETSKIY, Ye. M., and YEFIMOV, Yu. V., Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 71-88

tion, and other fields. Certain possibilities are noted for manufacture of various products of brittle superconducting compounds.

6 figures; 2 tables; 69 biblio. refs.

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USSR

UDC 669.292.5.293:537.321.62

SAVITSKIY, Ye. M., BARON, V. V., NAUMKIN, O. P., and YEFIMOV, Yu. V.

"The Vanadium-Scandium and Niobium-Scandium Systems and Their Superconducting Properties"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials — Collection of Works], Moscow, Nauka Press, 1970, pp 178-186

Translation: Based on their own experiments and data from the literature, the authors study the regularities of the change of T_c of superconducting alloys in simple eutectic systems of the transition and non-transition metals, as well as in the eutectic portions of the state diagrams of binary alloys forming intermediate compounds. "Composition-T_c" diagrams of the binary systems of vanadium and niobium with scandium and diagrams of the states of these systems are presented. In eutectic type superconducting system alloys, superconductivity is observed both in the case of melting of two superconductors, and in the case of melting of a superconductor with a "normal" element. T_c of the superconducting element increases or decreases when the second component is dissolved within

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USSR

SAVITSKIY, Ye. M., et al., Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 178-186

the area of homogeneity of the solid solution. In two-phased eutectic mixtures, the T_c of each of the superconducting phases changes almost on a horizontal line as the composition of the alloys changes.

5 figures; 25 biblio. refs.

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USSR

UDC 669.292.5:537.312.62

BARON, V. V., and YEFIMOV, Yu. V.

"Superconducting Alloys of Vanadium With Titanium, Alloyed With Hafnium and Rhenium"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp 161-165

Translation: The influence of hafnium and rhenium (up to 10 at.%) individually on the superconducting and mechanical properties of the equiatomic alloy of vanadium and titanium is studied. The alloying elements were introduced for titanium. Alloying causes an increase in hardness and strength of the alloys, but the superconducting characteristics are reduced. However, with a content of up to 1 at.% Hf or 5 at.% Re in trinary alloys, high technological properties for cold deformation were established. These alloys still have high superconducting properties (T_c = 7-8°K; critical current density at 4.2°K and 26 koe reaches $1.5 \cdot 10^4$ a/cm^2).

3 figures; 2 tables; 5 biblio. refs.

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USSR

UDC 669.292.5.793.669.293.5.793.669.018.5

SAVITSKIY, Ye. M., BARON, V. V., NAUMKIN, O. P., YEFIMOV, Yu. V.

"Vanadium-Scandium and Niobium-Scandium Systems and Their Superconducting Properties"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 178-186. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I752 by the authors).

Translation: Based on their own experiments and the data from the literature, the authors study the regularities of the change of T_c of superconducting alloys in simple eutectic systems of the transition and nontransition metals, as well as in the eutectic sectors of the state diagrams of binary systems with the formation of intermediate compounds. Composition-T_c diagrams of the binary systems of V and Nb with Sc and the state diagrams of these systems are presented. The T_c of the superconducting element is increased or decreased upon dissolution of the second component within the limits of the area of homogeneity of the solid solution. In 2-phase eutectic mixtures, T_c of each of the superconducting phases changes along a near-horizontal straight line when the composition of the alloy is changed. 5 figs; 25 biblio refs.

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USSR UDC 669.292.5:537.321.62

YEFIMOV, Yu. V., and BARON, V. V.

"Influence of Niobium on Superconducting Properties of an Equiatomic Alloy of Vanadium With Titanium"

Problemy Sverkhprovodyashchikh Materialov [Problem of Superconducting Materials — Collection of Works], Moscow, Nauka Press, 1970, pp 173-177

Translation: The influence of niobium (up to 10 at.%) on the structure and properties (hardness, strength, ductility, transition temperature, critical current) of the alloy of vanadium with 50 at.% Ti was studied. The trinary alloys are single-phase solid solutions with body-centered cubic lattice. The lattice period changes from 3.138 to 3.116 A at 10 at.% Nb. Alloying with niobium increases the hardness and the strength of the binary alloy. The ductility of cold deformed wire remains practically unchanged (δ = 2-3%). T_c is decreased from 7.8 to 7.1°K. A sharp decrease in the critical current of cold deformed wire is observed with niobium contents of over 0.5 at.%. With lower niobium content (up to 0.5 at.%) the alloys have good technological properties and sufficiently high superconducting characteristics.

3 figures; 1 table; 3 biblio. refs.

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USSR UDC 669.292.5.295.018.5.537.312.62

YEFIMOV, Yu. V., BARON, D. V.

"Influence of Niobium on Superconducting Properties of Equiatomic Alloy of Vanadium and Titanium"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 173-177. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I753 by the authors).

Translation: The influence of Nb (up to 10 at.%) on the structure and properties (hardness, strength, ductility, transition temperature to superconducting state T_c, critical current) of the alloy of V with 50 at.% Ti is studied. Trinary alloys are single-phase solid solutions with body-centered cubic lattice. The lattice period varies from 3.183 to 3.116 A with 10 at.% Nb. Alloying with niobium increases the hardness and strength of the binary alloy. The ductility of cold deformed wire remains practically unchanged (δ 2-3%). T_c decreases from 7.8 to 7.1°K. A sharp decrease in the critical current of cold deformed wire is observed with contents of Nb > 0.5 at. %. 3 figs; 1 table; 3 biblio refs.

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USSR

UDC 669.292.5.295.297.849.018.5.537.312.62

RON, V. V., YEFIMOV, Yu. V.

"Superconducting Alloys of Vanadium with Titanium, Alloyed with Hafnium and Rhenium"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 161-165. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I754 by the authors).

Translation: The influence of Hf and Re (up to 10 at.%) added individually on the superconducting and mechanical properties of the equiatomic alloy of V and Ti is studied. The alloying elements were introduced to replace Ti. Alloying causes an increase in the hardness and strength of the alloys, while the superconducting characteristics decrease. However, with a content of up to 1 at.% Hf or up to 5 at.% Re in the trinary alloys, increased technological properties for cold deformation were observed. These alloys have rather high superconducting properties (T_c 7-8°K, critical current density at 4.2°K and 26 koe, $1.5 \cdot 10^4$ a/cm^2). 3 figs; 2 tables; 5 biblio refs.

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USSR UDC: 537.312.62

BARON, V. V., YEFIMOV, Yu. V.

"Superconducting Vanadium-Titanium Alloys Doped With Hafnium and Rhenium"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 161-165 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D543)

Translation: The authors study the individual effect of hafnium and rhenium (up to 10 atomic percent) on the superconducting and mechanical properties of fifty-fifty (atomic) vanadium-titanium alloy. The dopants are added at the expense of titanium. Doping increases the hardness and strength of the alloys, but reduces superconducting characteristics. However, concentrations of up to 1 atomic percent hafnium or up to 5 atomic percent rhenium improve the technological properties of ternary alloys for cold deformation. These alloys still have fairly high superconducting properties (T_k = 7-8°K, critical current density at 4.2°K and 26,000 oersteds reaches $1.5 \cdot 10^4$ A/cm^2). Three illustrations, bibliography of five titles, two tables.

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USSR

UDC: 537.312.62

SAVITSKIY, Ye. M., BARON, V. V., NAUMKIN, O. P., YEFIMOV, Yu. V.

"Vanadium-Scandium and Niobium-Scandium Systems and Their Superconducting Properties"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 178-186 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D546)

Translation: Taking characteristic experimental and literature data as a basis, the authors consider the principles which govern the change in T_k of superconducting alloys in simple eutectic systems of transition and non-transition metals, and also in the eutectic segment of phase diagrams of binary systems with the formation of intermediate compounds. "T_k composition" diagrams are presented for binary systems of vanadium and niobium with scandium, as well as the phase diagrams of these systems. In alloys of superconducting systems of the eutectic type, superconductivity is observed both in the case of alloying of two superconductors and in the case of alloying of a superconductor with a "normal" element. The T_k of the superconducting element goes up or down as the second component is dissolved within the limits of the region of homogeneity of the solid solution. In two-phase eutectic mixtures, the T_k of each of the superconducting phases varies along a nearly horizontal straight line as the composition of the alloys changes. Five illustrations, bibliography of twenty-five titles. Authors' abstract.
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USSR

UDC: 537.312.62

YEFIMOV, Yu. V., BARON, V. V.

"Effect of Niobium on the Superconducting Properties of a Fifty-Fifty (Atomic) Vanadium-Titanium Alloy"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 173-177 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D553)

Translation: The authors investigate the effect of niobium (up to 10 atomic percent) on the structure and properties (hardness, strength, ductility, temperature of transition to the superconducting state, critical current) of an alloy of vanadium with 50 atomic percent titanium. The ternary alloys are single-phase solid solutions with bcc lattices. The period of the lattice varies from 3.138 to 3.116 Å. Doping with niobium increases the hardness and strength of the binary alloy. The ductility of cold-deformed wire is practically constant (δ = 2-3%). T_k decreases from 7.8 to 7.1°K. A sharp reduction in the critical current of the cold-deformed wire is observed as soon as the niobium concentration passes 0.5 atomic percent. With small additions of niobium (less than 0.5 atomic percent), the alloys are distinguished by excellent technological properties with fairly high superconducting characteristics. Three illustrations, one table, bibliography of three titles.

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USSR UDC: 537.312.62

SAVITSKIY, Ye. M., YEFIMOV, Yu. V.

"Superconducting Metallic Compounds"

V sb. Probl. sverkhprovodyashch. materialov (Problems of Superconducting Materials—collection of works), Moscow, "Nauka", 1970, pp 71-78 (from RZh--Radiotekhnika, No 5, May 71, Abstract No 5D56)

Translation: The authors discuss the principles which govern the change in temperature of transition to the superconducting state in metallic compounds as a function of the type of crystal structure, degree of ordering, electron structure, chemical composition and conditions of formation. An analysis is made of the effect which pressure, interstitial impurities, alloying, heat treatment and other factors have on the superconducting properties and structure of various compounds. The principles which govern the change in critical temperature in binary and ternary alloys based on the compounds are discusses as well as the characteristic singularities of "composition — T_k" diagrams. The maximum critical temperature is observed in compounds of the Cr_3Si type. By changing thermodynamic factors (concentration, temperature, pressure) or by applying magnetic, radiation and other fields, the structure and properties of superconducting compounds can be controlled within certain limits. Some of the possibilities of making different articles from brittle superconducting compounds are pointed out. Six illustrations, two tables, bibliography of sixty-nine titles. Resumé.

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UDC 621.3.038.615:621.318.1:621.385.6

USSR

YEFIMOVA, A. V.

"Magnetic Focusing Systems (Survey Of Information From Patent Materials)"

Elektron. tekhnika. Nauchno-tekhn. sb. Ferrit. tekhn. (Electronic Technology. Scientific-Technical Collection. Ferrite Technology), 1970, No 2(24), pp 95-101 (From RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A182)

Translation: Patents and author's certificates are considered which were issued from 1966 to 1969 and devoted to the magnetic focusing of extended electron flow in wide-band Type-O electron devices.

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UNCLASSIFIED PROCESSING DATE--16OCT70

2/2 021

TITLE--PREPARATION OF REFINED SECONDARY ALUMINUM ALLOYS IN A MACHINE CONSTRUCTION SHOP -U-

AUTHOR-(05)-KIMSTACH, G.M., UTKIN, S.YE., ZHELEZNYAKOV, L.R., KORYAKIN, G.I., YEFIMOVA, A.YA.

COUNTRY OF INFO--USSR

SOURCE--LETEINOE PROIZVOD. 1970, (1), 10-11

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALUMINUM ALLOY, SECONDARY METAL, MAGNETIC SEPARATION, METAL REFINING, TECHNICAL STANDARD/(U)AL4 ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0128/70/000/001/0010/0011

PROXY REEL/FRAME--1995/1380

CIRC ACCESSION NO--AP0116829

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116829

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE ALLOYS WERE PREPD, FROM AL TURNINGS (GRADE AL4) IN 2 STAGES: PRELIMINARY TREATMENT AND REMELTING. THE PRELIMINARY TREATMENT CONSISTED IN SEPN. FROM DIRT ON SCREENS, DRYING IN DRUMS AT 300-50DEGREES, AND MAGNETIC SEPN. FROM IRON IMPURITIES. THEN THE TURNINGS WERE REMELTED IN AN INDUCTION CRUCIBLE FURNACE. AT 740DEGREES, 1.5PERCENT FLUX (KCL 47, NACL 30, AND NA SUB3 AIF SUB6 23WT.PERCENT) WAS ADDED, AFTER MELTING OF WHICH C SUB2 CL SUB6 WAS ADDED (IN 0.1PERCENT AMTS. FOR A TOTAL AMT. 0.7-0.8PERCENT). BEFORE TAPPING LIQ. FLUX (KCL 47.5, NACL 47.5, AND NA SUB3 AIF SUB6 5 WT.PERCENT) IN THE AMT. 2.5PERCENT OF THE METAL WAS ADDED INTO THE LADLE. THE RESULTING MIXING DURING POURING RESULTED IN EFFICIENT REFINING FROM IMPURITIES AND GASES, SO THAT THE RESULTING METAL CORRESPONDED TO GOST STDS. FOR THE ORIGINAL AL4 METAL AND CONTAINED GASES 0.10-0.12 CM PRIME3-100G WITH COMPLETELY PORE FREE TEXTURE. AUTOMOBILE CYLINDER BLOCKS CAST WITH THE ADDN. OF 20PERCENT OF THIS SECONDARY METAL WERE OF THE SAME QUALITY AS THOSE CAST FROM 100PERCENT PRIMARY ALLOY AL4.

UNCLASSIFIED

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USSR

UDC 669.71.018.9.4(088.8)

KIMSTACH, G. M., KORYAKIN, G. I., UTKIN, S. Ye., SOTNIKOVA, A. T., YEFIMOVA, A. Ya., and PROTALEV, V. M.

"Method of Refining Aluminum Alloys"

USSR Author's Certificate No. 265451, Filed 8/07/68, Published 23/06/70, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No.1 G159 P).

Translation: In order to achieve simultaneous removal of gas inclusions and nonmetallic impurities and to increase the effectiveness of refining, the alloy is treated with hexachloroethane with a layer of liquid refining flux on the surface of the bath.

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1/2 017 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--MECHANISMS OF THE SCATTERING OF CURRENT CARRIERS IN LEAD CHALCOGENIDES -U-

AUTHOR-(05)-RAVICH, YU.I., GURIYEVA, YE.A., DUBROVSKAYA, I.N., YEFIMOVA, B.A., PROKOFYEVA, L.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4) 917-19

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LEAD SULFIDE, TELLURIUM COMPOUND, ELECTROMOTIVE FORCE, LOW TEMPERATURE EFFECT, HALL CONSTANT, MAGNETIC FIELD EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0582 STEP NO--UR/0181/70/012/003/0917/0919

CIRC ACCESSION NO--AP0105565

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105565

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANAL. WAS CARRIED OUT OF THE EXPTL. DATA ON MOBILITY AT 2-600DEGREES K AND THE LORENZ NO. AT SMALLER THAN OR EQUAL TO 77DEGREES K IN N AND P TYPE PBTE, PBSE, AND PBS WITH CARRIER CONCNS. OF APPROX. 10 PRIME20-CM PRIME3. CONSIDERATION OF POLAR SCATTERING ALLOWS ONE TO EXPLAIN ALSO THE RESULTS OF MEASUREMENTS OF MAGNETORESISTANCE. CALCNS. WERE MADE OF THERMAL EMF. AND THE LORENZ NO. IN PBTE AND PBSE OF N TYPE IN A BROAD INTERVAL OF CONCNS. AT GREATER THAN OR EQUAL TO 300DEGREES K; THE TEMP. DEPENDENCE OF THE HALL COEFF. FROM VERY LOW TEMPS. TO THE BEGINNING OF INTRINSIC COND.; THE NERNST ETTINGSHAUSEN COEFF. AT 300DEGREES K AS A FUNCTION OF CONCN. ALSO AT 77DEGREES K, WHERE SCATTERING IS INELASTIC; AND FINALLY THE VARIATION OF THERMAL EMF. IN A STRONG MAGNETIC FIELD AT 77DEGREES K. IN ALL CASES, GOOD AGREEMENT WAS OBSD. BETWEEN THEORY AND EXPT. AT HIGH CONCNS. (OF THE ORDER OF 10 PRIME20-CM PRIME3), SCATTERING ON LONG WAVELENGTH ACOUSTICAL PHONONS PREVAILS. BECAUSE OF NONPARABOLICITY, THE MATRIX ELEMENT OF THE ACOUSTICAL SCATTERING DEPENDS ON THE ENERGY. AT CONCNS. OF SMALLER THAN OR EQUAL TO 10 PRIME18 MINUS 10 PRIME19-CM PRIME3, IN ADDN. TO ACOUSTICAL SCATTERING, AN ESSENTIAL ROLE IS PLAYED BY POLAR SCATTERING. AT RELATIVELY LOW TEMPS. (20-200DEGREES K), THERMOELEC. AND THERMOMAGNETIC EFFECTS ARE INFLUENCED BY THE COLLISIONS BETWEEN CARRIERS. AT EXTREMELY LOW TEMPS. (SMALLER THAN OR EQUAL TO 100DEGREESK), SCATTERING IS CONSIDERABLE IN THE CENTRAL PART OF THE IMPURITY POTENTIAL.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--EFFECT OF POLAR SCATTERING ON THE MOBILITY OF CARRIERS IN LEAD CHALCOGENIDES -U-

AUTHOR-(04)-RAVICH, YU.I., YEFIMOVA, B.A., PROKOFYEVA, L.V., DUBROVSKAYA, I.N.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1), 230

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--LEAD SULFIDE, TELLURIUM COMPOUND, THERMAL EFFECT, OPTIC PROPERTY, LIGHT SCATTERING, REACTION MECHANISM, PHOTON EMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0591 STEP NO--UR/0449/70/004/001/0230/0230

CIRC ACCESSION NO--AP0105574

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105574

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CALCN. OF CARRIER MOBILITIES IN PBTE, PBSE, AND PBS IS PRESENTED, COVERING A WIDE RANGE OF TEMPS. AND CONCNS. (2-600DEGREES K; 10 PRIME18 MINUS 10 PRIME20-CM PRIME3). IT TAKES INTO ACCOUNT THE POLAR SCATTERING ON OPTICAL PHONONS. RESULTS ARE COMPARED WITH EXPTL. DATA. POLAR SCATTERING HAS A SUBSTANTIAL INFLUENCE ON MOBILITY AND IS CONSIDERED TO BE THE PREVAILING MECHANISM OF SCATTERING AT LOWER CONCNS. (SMALLER THAN OR EQUAL TO 10 PRIME18-CM PRIME3) AT BOTH LIQ. N AND ROOM TEMPS. THE CONTRIBUTION OF POLAR SCATTERING INCREASES FROM PBTE TO PBS. MANY EXPTL. RESULTS CAN BE BETTER UNDERSTOOD IF POLAR SCATTERING IS CONSIDERED. THIS APPLIES IN PARTICULAR TO THE TEMP. DEPENDENCE OF MOBILITY AT SMALLER THAN 77DEGREES K.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--KINETIC EFFECTS IN (PBTE) SUBL MINUS X (SNTE) SUBX COMPOSITIONS -U-

AUTHOR-(03)-YEFIMOVA, B.A., DUBROVSKAYA, I.N., FGURIYEVA, YE.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2) 245-51

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--HALL CONSTANT, ELECTROMOTIVE FORCE, MAGNETIC FIELD EFFECT, MODEL, SOLID SOLUTION, ELECTRICAL CONDUCTIVITY, CONDUCTION BAND, LEAD COMPOUND, TELLURIUM COMPOUND, SELENIUM COMPOUND, REACTION KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0588 STEP NO--UR/0449/70/004/002/0245/0251

CIRC ACCESSION NO--AP0105571
UNCLASSIFIED

2/2 . 025 UNCLASSIFIED

CIRC ACCESSION NO--AP0105571 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. N-TYPE SOLID SOLNS. OF (PBTE) SUB1 MINUSX (SNTE) SUBX OF SNTE CONTENTS 5-60PERCENT WERE SUBJECTED TO HALL EFFECT AND THERMO EMF. MEASUREMENTS IN A STRONG MAGNETIC FIELD AT 85DEGREES K. THE SP. ELEC. RESISTANCE, SIGMA, THE THERMOEMF. COEFF. ALPHA, THE HALL CONST., R, AND THE TRANSVERSE NERNST ETTINGSHAUSEN EFFECT, Q, WERE MEASURED AT 80-300DEGREES K IN WEAK AND ZERO MAGNETIC FIELDS. THE DEPENDENCES OF THE EFFECTIVE MASS D. OF STATES AT THE FERMI LEVEL ON THE COMPN. OF THE SOLID SOLN., THE TEMP., AND THE CONCN. WERE DETD. AT 85DEGREES K, THE CONDUCTION BAND OF THE SOLID SOLNS. OF 5 AND 25PERCENT SNTE, AS ALSO THE CONDUCTION BAND FOR PBTE, IS WELL DESCRIBED BY A KEAN MODEL, AND THE PARAMETERS OF THIS MODEL ARE DETD. AT HIGHER TEMPS., A DEPARTURE FROM THE KEAN DISPERSION LAW IN THE DIRECTION OF INCREASED DEPARTURE FROM A PARABALOID IS OBSD. WITH RISE IN TEMP. AND CONCN. EXPTS. ON SOLID SOLNS. WITH HIGH CONTENTS OF SNTE REVEALED THE ANOMALOUS NATURE OF THE CONCN. AND TEMP. RELATIONS FOR THE EFFECTIVE MASS D. OF STATES AT THE FERMI LEVEL, WHICH MUST BE ASSOCD. WITH A CHANGE IN SIGN OF THE TEMP. COEFF. FOR THE WIDTH OF THE FORBIDDEN BAND. THE DATA OBTAINED AGREE WITH THE BAND INVERSION MODEL PROPOSED BY J. O. DIMMOCK, J. MELNGAILIS, AND A. J. STRAUSS (1966).

UNCLASSIFIED

1/2 066 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--RADIATIVE TRANSPORT WITHIN AN ABLATING BODY -U-

AUTHOR-(02)-APSHTEYN, E.Z., YEFIMOVA, L.G.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA ZHIDKOSTI I GAZA, JAN.-FEB. 1970, P. 148-153

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RADIATIVE COOLING, RADIATIVE HEAT TRANSFER, ABLATIVE MATERIAL, ABLATIVE COOLING, MOTION EQUATION, TRANSPORT EQUATION, ABSORPTION COEFFICIENT, ABLATIVE HEAT SHIELD, THERMAL RADIATION, HEAT RADIATION, GAS DYNAMICS, HEAT TRANSFER COEFFICIENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1777

STEP NO--UR/0421/70/000/000/0148/0153

CIRC ACCESSION NO--AP0112763

UNCLASSIFIED

2/2 066 UNCLASSIFIED

CIRC ACCESSION NO--AP0112763 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE STEADY MOTION OF THE LIQUID FILM ON THE SURFACE OF AN ABLATING BODY, WITH ALLOWANCE FOR HEAT TRANSFER BY RADIATION FROM THE INTERIOR OF THE BODY. AN APPROXIMATION IS PROPOSED, USING WHICH THE EQUATION OF MOTION CAN BE SEPARATED FROM THE ENERGY AND RADIATIVE TRANSPORT EQUATIONS. THE SOLUTIONS TO THE ENERGY AND RADIATIVE TRANSPORT EQUATIONS ARE THEN USED TO OBTAIN AN ANALYTICAL SOLUTION TO THE EQUATION OF MOTION. TO THIS END, THE TEMPERATURE PROFILES (OBTAINED NUMERICALLY) ARE APPROXIMATE BY THE EXPONENTIAL CURVE OF A QUADRATIC FUNCTION OF THE COORDINATES. GRAPHS ARE PLOTTED, SHOWING THE INFLUENCE OF THE ABSORPTION COEFFICIENT, THE TEMPERATURE AND THICKNESS OF THE HEAT SHIELD, THE RADIANT FLUX EMITTED BY THE GAS THE SURFACE TEMPERATURE, AND THE REFLECTION COEFFICIENT ON THE TEMPERATURE PROFILE. IT IS SHOWN THAT NEGLECT OF RADIATIVE TRANSPORT WITHIN A BODY CAN LEAD TO GREATLY UNDERESTIMATED VALUES FOR THE ABLATION RATE. FACILITY: MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 632.95:543.544

FOMICHEVA, L. G., and YEFIMOVA, L. I., Moscow Oblast Plant Protection Station

"Determination of Residual Amounts of Keltane in Cucumbers by the Method of Thin-Layer Chromatography"

Moscow, Khimiya v Sel'skom Khozyaystve, No 9, 1971, pp 45-47

Abstract: A method of determining the residual amounts of keltane (chloroethanol) in cucumbers using thin-layer chromatography was developed. The basis for the method consists of extracting the keltane from the product with n-hexane, driving off the solvent after preliminary drying of the extract over anhydrous sodium sulfate and subsequent chromatographic analysis in a thin layer of aluminum oxide or silicon dioxide fixed with gypsum. Benzene was used as the mobile solvent. The procedure is outlined in detail and data are presented from some analyses using it. These data characterize the content of the residual amounts of keltane depending on the "waiting time" after treating the cucumbers with 0.1-0.2 percent solutions of keltane. Even 9 days after treating the cucumbers they still contained up to 0.1 milligrams of keltane per kilogram of product.

1/1

USSR

UDC 541.183

BERING, B. P., GORDEYEVA, V. A., DUBININ, M. M., YEFIMOVA, L. I., and SERPINSKIY, V. V., Institute of Physical Chemistry, Acad. Sc. USSR

"Development of Concepts on Micropore Volume Filling During Adsorption of Gasses and Vapors by Microporous Adsorbents. 4 Communication. Differential Heats and Adsorption Entropies"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 22-28

Abstract: Equations were developed for differential molar heats and entropies of adsorption based on characteristic equations of the theory of micropore volume filling during adsorption of gasses and vapors on various types of microporous adsorbents. These equations may be used to calculate with sufficient approximation above values for various levels of adsorption or volume filling of the adsorption space from the data obtained from these characteristic equations requiring only minimal experimental information. The conditions necessary for satisfactory reliability have been discussed. Several examples have been reported showing satisfactory relationship between the calculated and experimental values for isosteric heat of adsorption.

1/1

1/2 007 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--MUTUAL SOLUBILITY IN 5,METHYLFURFURAL WATER SYSTEM -U-

AUTHOR-(02)--KARMILCHIK, A.YA., YEFIMOVA, L.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 717-19

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SOLUBILITY, FURFURAL, WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1113 STEP NO--UR/0080/70/043/003/0717/0719

CIRC ACCESSION NO--AP0126540

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0126540

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONSOLUTE TEMP. OF MIXTS. OF 5,METHYLFURFURAL (I) WITH H SUB2 O, AS DETD. AT GREATER THAN 70DEGREES BY TURBIDIMETRY AND AT LESS THAN 70DEGREES BY CHEM. ANAL. OF THE AQ. LAYER, IS A MAX. AT APPROX. 160DEGREES AT APPROX. 44 WT. PERCENT I.

FACILITY: INST. ORG. SIN., RIGA, USSR.

UNCLASSIFIED

Acc. Nr: AP0046111 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0365 1

92800y Chemical nickel-molybdenum coating from an ammonium citrate solution. Rozenblyum, R. G.; Burakov, M. R.; D'yakov, A. A.; Burakova, E. A.; Efimova, M. A. (Sverdlovsk. Nauch.-Issled. Inst. Khim. Mashinostr., Sverdlovsk, USSR). *Zashch. Metal.* 1970, 6(1), 70-8 (Russ). Ni-Mo or Ni-Mo-P were deposited from solns. contg. Na citrate 47, and NH_4Cl 30 g/l.; the pH was 8-9. Best results were obtained with solns. contg. $NiCl_2$ and NaH_2PO_2 20 g/l. and solns. contg. 10 and 20 g/l. of the 2 salts, resp. The amt. of Mo in the deposit increased with its content in the plating soln. and with a decrease of Ni in the same soln. The max. concn. of Mo in the deposit was 8-10%. The deposits contg. P did not crack even if they were 50 μ thick, whereas Ni-Mo deposits cracked when they were appreciably thinner. M. Hoseh

MT

1/1

REEL/FRAME
19781188

18

YEFIMOVA, N. A.

JPRS 55893
4 may 72

- 41 -

UDC 551.511.12

PROPOSALS FOR DESIGNING MODELS OF THE INTERNATIONAL STANDARD ATMOSPHERE

[Article] by Professors S. S. Gruzkov, E. D. Zhorova, N. A. Yefimova, M. Ya. Kalikhman, Candidates of Geographic Sciences Yu. P. Kostikov, M. A. Tarnopolskaya, Professor Ye. G. Shvidkovskiy, L. V. Shcherbakova, Central Aerological Observatory; Moscow, Meteorologiya i Gidrologiya, Russian, No 2, 1972, submitted 6 July 1971, pp 38-49]

A study was made of the vertical profile of the mean annual temperature of the hemisphere and also models of the standard atmosphere for different latitudinal zones and possible longitudinal variations. The characteristic of the data used to construct the models of the standard atmosphere is presented.

Introduction

The present proposals with respect to expansion of the international standard atmosphere are presented in the procedures for execution of the resolutions of the meeting of the Working Group of the ISO [International Standardization Organization] TK-20/RG-6 26-29 May 1969. The working group adopted the resolution to charge the USA (A. E. Cole) and the USSR (Ye. G. Shvidkovskiy) with preparing the design for models of the international standard atmosphere for altitudes of 20-60 km (the mean distribution and the models reflecting the latitudinal and seasonal variations). In the resolution there is a recommendation regarding the necessity of selecting the temperature profile closest to the mean annual profile with respect to the Northern Hemisphere for the mean model. At the meeting of the working group it was recognized as desirable to expand the standard atmosphere to 80 km, considering the data in the 60-80 km layer as a supplement to the basic profile.

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[1] The given proposals were presented by the Soviet Union for examination by the Sixth Working Group of the Twentieth Technical Commission of the International Standardization Organization (ISO/TC/WG = 6) — Standard Atmosphere — a meeting of which was held in France (Poucrsevoir) in February 1970.

1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SATURATED ALIPHATIC ALDEHYDES -U-

AUTHOR-(05)-ALEKSEYEVA, K.A., DELNIK, V.B., YEFIMOVA, N.I., RUDKOVSKIY, D.M., TRIFEL, A.G.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,102

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

DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALIPHATIC ALDEHYDE, ORGANIC SYNTHESIS, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1759 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136999

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136999

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SATD. ALIPHATIC ALDEHYDES ARE PREPD. BY CONDENSING LOWER ALDEHYDES OVER CO NAPHTHENATE OR STEARATE, AND HYDROGENATING THE UNSATD. ALDEHYDES OVER THE SAME SALTS WITH SYNTHESIS GAS (CO-H SUB2 1:1) AT 100-80DEGREES TO 150-250 ATM.

UNCLASSIFIED

USSR

YEFIMOVA, N. N., and MAMALUY, Yu. A., Khar'kov State University

"Magnetic Properties of Indium-Substituted Ferrites of Type M"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 34, No 5, May 70, pp 979-981

Abstract: The magnetic characteristics of ferrites grown by the formula $BaO \cdot Fe_{12-x}In_xO_{18}$ (x = 1, 2.7, 3.36) were studied. The saturation magnetization $\sigma_s(T)$ of the indium-substituted ferrites was measured as a function of temperature. The shape of the curves changes with a change in the concentration of the In^{3+} ions. The curves corresponding to x = 1 and x = 3.6 are of the Neel Q-type, and P-type curves were observed for x = 2.7 and x = 3. The introduction of nonmagnetic ions into the ferrite lattice was expected to decrease the inter- and intrasublattice exchange interactions due to a change in the number of exchange bonds. The introduction of ions with different ion radii from the Fe^{3+} ions changes the parameters of the crystal lattice; the appearance of curves of the P-type is associated with the fact that the magnetization of the A-sublattice drops more sharply with the growth of temperature than does the B-sublattice. The

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203620015-0"

USSR

YEFIMOVA, N. N., and MAMALUY, Yu. A., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 34, No 5, May 70, pp 979-981

distribution of In^{3+} ions in the lattice of ferrites of type M is discussed and it is shown that indium ions probably occupy certain predominant positions at high concentrations.

2/2

USSR

UDC 621.385.632.12.032

BATYGIN, V.N., YEFIMOVA, N.V., INOZEMTSEVA, A.V., MAZUROVA, L.G.

"Volumetric Absorbers For Power TWTs"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 95-102 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A186)

Translation: The absorber of microwave energy developed for a power traveling-wave tube is characterized by high mechanical stability, good thermal conductivity, and low gas generation. The construction is described of a volumetric absorber for a TWT with a spiral-type delay system. It is shown that damping and matching with the delay system of such an absorber is not worse than with a film absorber obtained by the method of pyrolysis of methane. The absorber makes it possible to dissipate large levels of average power. A volumetric absorber with a delay system of the coupled resonators type is also investigated and its high-frequency characteristics are presented. 3 ref. Summary.

1/1

USSR

UDC 615.212.015.2:615.214.27.015.4:612.822.3+617-089.5: 615.212+615.214.2-07:616.831-073.97

KUZIN, M. I., OSIPOVA, N. A., YEFIMOVA, N. V., and BOGDANOVA, E. A., Chair of Faculty Surgery, First Moscow Medical School imeni I. M. Sechenov

"Effect of Phentanyl and Dehydrobenzperidol on the Human Central Nervous System"

Moscow, Khirurgiya, No 1, 1970, pp 95-101

Abstract: Changes in the bioelectrical activity of the human brain vary with the depth of neuroleptic analgesia (NA). Light NA is characterized by the dominance and decreased frequency of the alpha rhythm; deep NA, by the dominance of the slow delta and theta rhythms. The absence of desynchronization in the EEG and the cutaneous galvanic reaction to light and pain suggest that the system of afferent conduction is effectively blocked during NA. The isolated use of dehydrobenzperidol produced only minor changes in the EEG and total electrical activity. Phentanyl caused a shift toward the low-frequency range, with the delta- and theta-waves predominating, and thereafter or more increase in the total electrical activity. 1/2

USSR

KUZIN, M. T., et al., Moscow, Khirurgiya, No 1, 1970, pp 95-101

Reorganization of the EEG waves in response to rhythmic light stimulation ceased under the influence of dehydrobenzperidol alone or combined with phentanyl. Phentanyl promoted assimilation of high frequencies of light flashes and blocked the effect of dehydrobenzperidol previously administered. This indicates that phentanyl has a central activating influence.

2/2

Acc. Nr: AP0044853

Ref. Code: UR0531

PRIMARY SOURCE: Khirurgiya, 1970, Nr 1, pp 95-101

ON THE EFFECT OF PHENTANYL AND DEHYDROBENZPERIDOL ON THE HUMAN CENTRAL NERVOUS SYSTEM

Kuzin, M. I.; Osipova, N. A.; Yefimova, N. V.; Bogdanova, E. A.

The results of analysis of the spontaneous bioelectric activity, frequency composition of the elecroencephalogram, electroencephalographic and dermogalvanic reactions to pain and rhythmic light stimuli testify to inhibition in the system of afferent conduction with extinguishing of cortical and dermogalvanic reactions to external stimuli in this type of anesthesia.

1/1

02

DT

REEL/FRAME
19771708

USSR

UDC 547.397+595.7

DRABKINA, A. A., YEFIMOVA, O. V., TSIZIN, Yu. S., GAMPER, N. M., and PRIDANTSEVA, Ye. A., Institute of Chemical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy; All-Union Institute of Plant Protection

"Compounds Which Simulate the Effect of the Juvenile Insect Hormone. III. Synthesis of 3,11-Dimethyl-11-chlorodecen-2-oic Acid Ethyl Ester"

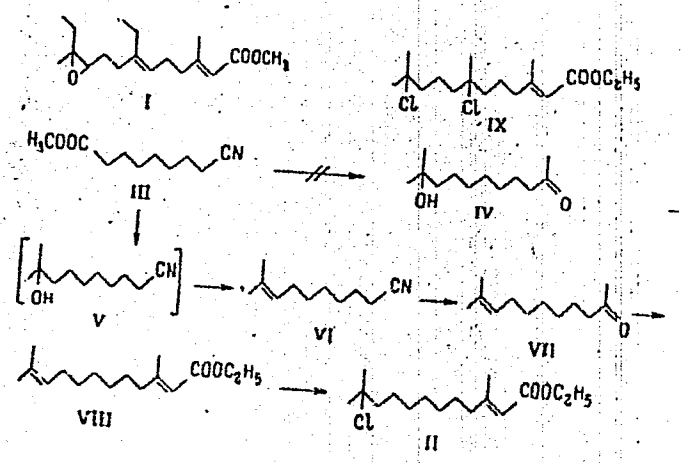
Leningrad, Zhurnal Obshchey Khimii, Vol 42(103, No 2, Feb 72, pp 457-459

Abstract: 3-11-Dimethyl-11-chlorododecen-2-oic acid ethyl ester (II) was synthesized for biological tests. Compound (II) shows the groups typical of the active analogs of insect juvenile hormone of (I).

1/3

USSR

DRABKINA, A. A., et al., Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 457-459



2/3

USSR

DRABKINA, A. A., et al., Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72 pp 457-459

The synthesis is based on methyl 8-cyanooctanoate (III). It was assumed at first that ester (III) could be converted to hydroxy ketone (IV) with excess methylmagnesium iodide. However, even a reagent ratio of 1:10 failed to give the desired result. Careful selection of reaction conditions showed that ester (III) reacts with three moles of methylmagnesium iodide to form hydroxy nitrile (V) which is converted to unsaturated nitrile (VI) after dehydration without filtering. Reaction of (VI) with four moles of methylmagnesium iodide yields ketone (VII) which is converted to the diene ester (VIII) by the Whittig reaction. Compound (II) is obtained by bubbling hydrogen chloride through an alcohol solution of diene ester (VIII). Tests on mosquito larvae showed that (II) is as active physiologically as compound (IX), which is called "synthetic juvenile hormone."

3/3

USSR

UDC 538.662.14

YEFIMOVA, T. V., POLOTNYUK, V. V., and SHMATKO, O. A.

"Investigation of the Decomposition of Supersatured Solid Solutions of Tungsten in Cobalt by the Thermomagnetic Method"

Kiev, Metallofizika, No 32, 1970, pp 56-59

Translation: Cobalt alloys with 3.58, 5.22, and 13 at.% tungsten were investigated by the thermomagnetic method. The concentration dependence of the Curie point of the alloys studied was constructed. It was shown that in an alloy with 13 at.% tungsten tempered at 700° C two Curie points were observed. The transformed volume of the alloy tempered at 700° C for 3,5 hours and tungsten concentration in the separation stage were calculated according to thermomagnetic curves.

1/1

USSR

UDC 621.397.67:621.317.743(088.8)

ZARAYSKIY, I. V., SHMITT, M. A., YEFIMOVA, V. F.

"An Installation for Measuring Discretely Switched Radiation Patterns of a Receiving Antenna"

USSR Author's Certificate No 255381, Filed 15 May 68, Published 8 Apr 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10B110 P)

Translation: The proposed installation contains a transmitter, transmitting antenna, receiving antenna, three receivers (with linear, quadratic and logarithmic amplitude response respectively), an electronic commutator comprised of coincidence circuits, a synchronization unit, a signal level and azimuth calibration unit, a loop oscillograph and a rotator. To improve the precision of radiation pattern measurement, the commutator input is connected to the output of one of the receivers; the commutated outputs of the commutator are connected to the corresponding inputs of the loop oscillograph, and the commutating inputs of the commutator are connected to the corresponding inputs of the synchronization unit. One illustration.

1/1

Acc. Nr.: AP0029332

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp5-9

GENIMYCIN, A MEMBER OF A NEW GROUP OF ANTIFUNGAL PENTAENIC ANTIBIOTICS

Severinets, L.Ya.; Yefimova, V.M.; Bol'shakova, L.O.; Karnaushkina, A.I.; Solov'yev, S.N.; Yegorenkova, A.N.;

Leningrad Institute for Antibiotics

A soil culture LIA-0174 was isolated and classified as belonging to the genus of Actinosporangium. An antibiotic named genimycin was recovered from the fermentation materials of this culture. By a number of physico-chemical properties the antibiotic was beleved to belong to a new group of pentaenic antibiotics. Genimycin possesses antifungal activity, which is 10—100 times higher than that of pentaens from other groups.

1/1

REEL/FRAME

19680904

6

USSR

UDC 547.824+547.26'118

FOROSTYAN, Yu. N., YEFIMOVA, Ye. I., KUKHTA, Ye. P., and SOROKA, I. I., Zaporozh'ye Branch of the Donetsk Institute of Soviet Trade, and the Crimean Agricultural Institute imeni M. I. Kalinin

"Study of a Series of Bipiperidines. X. Reaction of Hexahydrodipiperidines With Phosphoryl Chlorides"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,438-2,441

Abstract: In light of the demonstrated alkylating action of diethyl chlorophosphate and diethyl chlorothiophosphate on pyridine, it was of interest to determine the nature of their reactions with hexahydrobipyridines, which contain both pyridine and piperidine rings. Eight 2,2'-, 3,3'-, 4,4'- and 3,2'-hexahydrobipyridines react with the acid chlorides of the diethyl ester of phosphoric and thiophosphoric acids at --15°C to form the corresponding complex compounds. At +20-22°C, the corresponding [1'-(diethyl phosphate and diethyl thiophosphate)piperidyl] pyridines. Formulas, basic physical data, yields, etc., of the end-products are given.

Nitrogen Compounds

USSR

UDC 547.544

FOROSTYAN, YU. N., [redacted], SOROKA, I. I., Zaporozh'ye Branch of Donets Institute of Soviet Trade

"Studies in the Bipiperidine Series. VIII. Synthesis of Diastereomers of 2,2'-Bipiperidine"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 10, Oct 71, pp 2198-2201

Abstract: 2-(Piperidyl-2)pyridine can be obtained in 96-98 percent yield by the reduction of 2,2'-bipyridine with aluminum in boiling aqueous-alcoholic alkali. Hydrogenation of a boiling solution of 2-(piperidyl-2)pyridine with sodium in isoamyl alcohol results in the formation of a mixture of two diastereomeric 2,2'-bipiperidines--the erythro and threo isomers--in 82-83 percent yield. The separation of this mixture into individual isomers is accomplished by the action of excess ethyl chloroformate resulting in the formation of 2,2'-(1,1-dicarbethoxy) bipiperidines and 2,2'-1-carbethoxy)bipiperidine hydrochloride. The article lists analysis results and some properties of the resultant compounds.

1/1

1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PREPARATION OF LUPININE AND ANABASINE -U-

AUTHOR-(03)-FOROSTYAN, YU.N., YEFIMOVA, YE.I., KUKHTA, YE.P.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PRIR. SOEDIN. 1970, 6(2), 276

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED PLANT PRODUCT, ALKALOID, FRACTIONATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0453 STEP NO--UR/0393/70/006/002/0276/0276

CIRC ACCESSION NO--AP0132668

UNCLASSIFIED

2/2 008 UNCLASSIFIED

CIRC ACCESSION NO--AP0132668 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LOW BOILING FRACTION OF ALKALOIDS FROM ANABASIS APHYLLA MAY BE SEPD. USING ACETYLATION WITH AC SUB2 O; THE ACETYL DERIVS. OF LUPININE (I) AND ANABASINE (II) MAY BE SEPD. AS A RESULT OF DIFFERENCES IN B.P. THUS, 500 G OF A MIXT. OF ALKALOIDS FROM TECHN. II.H SUB2 SO SUB4 WAS MIXED WITH 320 G AC SUB2 O WITH STIRRING AND COOLING AND THE MIXT. HEATED FOR 10 HR AND FRACTIONATED. THE ACETYL DERIV. OF I WAS OBTAINED AS THE FIRST FRACTION, B SUB2 115-17DEGREES, N PRIME20 SUBD 1.5550, (93PERCENT). SAPON. WITH 25PERCENT NAOH FOR 1 HR GAVE FREE I, M. 68-9DEGREES. THE SECOND FRACTION, B SUB2 198-200DEGREES (ACETYL DERIV. OF II) GAVE AFTER HYDROLYSIS WITH 25PERCENT H SUB2 SO SUB4 (6 HR) PURE II, B SUB1 105-6DEGREES (85PERCENT). APHYLLIDINE AND APHYLLINE WERE NOT ISOLATED FROM THE TARS. FACILITY: ZAPOROZH. FILIAL, DONETS. INST. SOV. TORG., ZAPOROZHE, USSR.

UNCLASSIFIED

USSR

UDC 669.712

YEFIMOVSKAYA, T. V., LANIN, A. A., SHERMAZANYAN, YA. T., SHAKHPARPNYAN, V. V., SHEKOYAN, M. G., and SMOKOVDINA, G. S., All-Union Order of the Labor Red Banner Scientific Research, Planning, Design, and Technological Institute of Sources of Current (VNIIT)

"Utilization of a High-Temperature Solar Installation for the Study of High-Melting Materials in an Oxidizing Medium (on the Basis of the Example of beta-Alumina)"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Seriya Tekhnicheskikh Nauk, Vol 26, No 4, 1973, pp 3-7

Abstract: Experimental research has been conducted by the Armenian Department of the VNIIT in Yerevan, on the thermal dissociation of sodium and potassium beta-alumina in a high-temperature solar heating installation for the purpose of obtaining a solid electrolyte. Results of this research have demonstrated considerable stability of the beta-alumina under conditions of radiant heating in air: beta-alumina does not dissociate completely with an exposure of up to 30 minutes at the melting point (2,000-2050°C. Sodium beta-alumina is considerably less subject to dissociation than is potassium beta-aluminum. 1 figure. 1 table. 2 references.

1/1

USSR

UDC 615.332.015.42:576.851.31

BELIZHENKO, V. D., VED'MINA, YE. A., YERMOL'YEVA, Z. V., and YEFIMTSEVA, YE. P., Chair of Biochemistry, Vitebsk Medical Institute and Chair of Microbiology, Central Institute for Advanced Training of Physicians, Moscow

"Effect of Antibiotics (Neomycin, Monomycin, and Kanamycin) on the Synthesis of Protein and Nucleic Acid in Intact NAG Vibrio Cells"

Moscow, Antibiotiki, No 12, 1971, pp 1085-1088

Abstract: Study of the effect of antibiotics on protein synthesis in intact NAG vibrio (strain 1115) cells showed that neomycin, monomycin, and kanamycin at concentrations of 10, 50, and 500 μg/ml inhibit the incorporation of 1-C^{14}-glycine into the protein fraction soluble in phenol, but stimulate its incorporation into the fractions of RNA, DNA, and proteins insoluble in phenol. The degree of inhibition and stimulation varied directly with the dose of antibiotic. The stimulating effect of the antibiotics on the incorporation of labeled glycine into nucleic acids and phenol-insoluble protein fraction is attributed to the competitive relationships resulting from the utilization by the bacterial cells of amino acids to synthesize proteins and nucleic acids. When protein synthesis in inhibited, the free amino acids can be more fully utilized for nucleic acid synthesis. The stimulation of incorporation of 1-C^{14}-glycine into the phenol-insoluble proteins suggest that the synthesis of this protein fraction is not sensitive to neomycin, monomycin, or kanamycin. 1/1

USSR

UDC: 532.526

YEFIMTSOV, B. M., SHUBIN, S. Ye.

"Results of Measurement of Mutual Spectra of Wall Pressure Pulsations in a Turbulent Boundary Layer"

Uch. Zap. Tsentr. Aero-gidrodinam. In-ta [Scientific Writings of Central Institute of Aerodynamics and Hydrodynamics], 1972, 3, No 4, pp 126-129 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12B788, from the resume)

Translation: Results are presented from measurement of the real and imaginary parts of longitudinal and transverse mutual spectra, as well as the phase velocity for the field of near-wall pressure pulsations of a turbulent boundary layer on the surface of an aircraft. Measurements were performed over a smooth surface with zero mean pressure gradient in the speed range M=0.35-1.5, $R=0.5\cdot10^8-1.9\cdot10^8$. Universal dependences are produced for longitudinal and transverse mutual spectra. It is established that the ratio of phase velocity to velocity on the external boundary of the boundary layer depends little on flow parameters. Twenty one biblio. refs.

1/1

USSR

UDC 51:801

ARAPOV, M. V., YEFINOVA, Ya. N.

"The Complexity of a Control Tree"

Nauchno-Tekhn. Inform. Sb. Vses. In-t Nauchn. I Tekhn. Inform., [Scientific and Technical Information, Collection of All-Union Institute of Scientific and Technical Information], 1970, Series 2, No 10, pp 36-44, 49, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V703 by the authors).

Translation: A numerical characterization of the complexity of the syntactic structure of a sentence is suggested. The syntactic structure is represented in the form of a control tree. A number of theorems are proven concerning the class of trees having the minimum complexity. Functions are studied relating the number of points in the minimum tree to its complexity, and a number of its properties are determined.

- END -

1/1
6508
CSO: 1843-W

USSR

UDC 581.143

CHAYLAKHYAN, M. KH., YEFOROVA, T. A., and YANINA, L. I., Institute of Plant Physiology imeni Timiryazev, USSR Academy of Sciences

"The Effect of Darkness and Retardants on Growth and Blooming of Short-Day Plants"

Doklady Akademii Nauk Armyanskoy SSR, Vol 51, No 4, 1970, pp 244-249

Abstract: Short-day plants exhibit the characteristic feature that during short days their blooming is stimulated while their growth is inhibited. To investigate the correlation between these two properties, one set of short-day plants was exposed to darkness; a second set was treated with growth retardants; a third set was exposed to darkness and treated with retardants; and a fourth set served as control. All sets included specimens of Perilla nankinensis, Xanthium pennsylvanicum, Bidens maximoviczíana, and Cannabis sativa, and they were all treated according to a definite schedule. Prolonged exposure to darkness, followed by induction with short days, accelerated blooming in Perilla, Xanthium, and Bidens, but not in Cannabis; and it inhibited growth of Xanthium, Bidens, and Cannabis, but not of Perilla. Retardants suppressed the growth of all four kinds of plants, but had no effect

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USSR

CHAYLAKHYAN, M. KH., et al., Doklady Akademii Nauk Armyanskoy SSR, Vol 51, No 4, 1970, pp 244-249

on their blooming. Thus, there is no direct correlation between growth and blooming processes in short-day plants. Inhibition of growth and stimulation of blooming coincide after exposure to darkness but do not coincide after treatment with retardants. In Perilla, darkness has no effect on growth but stimulates blooming; in Cannabis, darkness and retardants inhibit growth but have no effect on blooming. Apparently, retardants are antagonists of natural gibberellins which do not suppress blooming, while darkness promotes formation of metabolites required for blooming.

USSR

UDC 621.396.6-181.48

YEFREMENKO, G., KOZLOVSKAYA, V.

"Mass-Spectrometric Studies of Organometal Compounds used in Microelectronics"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1972, vyp. 20, pp 108-145 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No 7V304)

Translation: A study was made of the mass spectra of certain classes of compounds, the mechanism of their decomposition and the composition of the films obtained. Alkyl and aryl metal compounds, alkoxyl compounds, cyclopentadienyl complexes of metals, bis-aromatic π-complexes of metals, metal carbonyls and metal acetylacetonates were investigated. There are 96 entries in the bibliography.

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USSR

UDC 539.23

KOZLOVSKAYA, V.M., KHVOSTIKOVA, V.D., VELEZHEV, D.K., YEFREMENKO, G.A.

"Structure And Composition Of Films Prepared By Electron Beam Decomposition Of Molybdenum Hexacarbonyl"

Tr. Mosk. in-ta elektron. mashinostr. (Works Of The Moscow Institute Of Electrical Machine Building), 1972, Issue 20, pp 100-107 (from RZh:Elektronika i yeye primeneniye, No 7, July 1972, Abstract No 7A256)

Translation: Deposition of films was performed by electron-beam decomposition of molybdenum hexacarbonyl in Type ELUPO equipment. Electromicroscope and electron diffraction studies were conducted as well as mass-spectrum analysis of films with an impurity, and the presence of molybdenum carbide in the films was established. M.V.

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1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--A DEVICE FOR PROTECTING CHEMICAL CONTAINER TYPE APPARATUS WITH POWDERED POLYMERS -U-

AUTHOR-(03)-ZHERDENKO, A.M., YEFREMENKO, I.P., MISHUROV, V.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. NEFT. MASHINOSTR. 1970, (2), 38-40

DATE PUBLISHED--------70

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

TOPIC TAGS--SPECIALIZED COATING, CONTAINER, PLASTIC COATING, POLYETHYLENE, EPOXY RESIN, FLUOROCARBON RESIN, PLASTIC FABRICATING MACHINERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0735 STEP NO--UR/0314/70/000/002/0038/0040

CIRC ACCESSION NO--AP0119642

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119642

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COATING DEVICE WAS DEVELOPED FOR COATING CONTAINERS, REACTORS, DRUMS, LIDS, ETC. WITH A PROTECTIVE POLYMER COATING. A DIAGRAM OF THE DEVICE AND ITS MODE OF OPERATION WERE PRESENTED. THE USE OF THE DEVICE FOR COATING CONTAINERS WITH MOLTEN POWD. POLYETHYLENE, EPOXY RESINS, AND F CONTG. COPOLYMERS WAS DISCUSSED.

UNCLASSIFIED

Acc. Nr: AP0034713

Ref. Code: UR 0241

PRIMARY SOURCE: Meditsinskaya Radiologiya, 1970, Vol 15, Nr 2, pp3-6

THE RESULTS OF TREATMENT OF CHILDREN WITH WILMS' TUMOR

Pereslegin, I. A.; Yefremenko, S. G.;

Summary

Clinical observations over 150 children and an analysis of their life span made it possible to arrive at the conclusion that irrespective of the age, stage of the disease, histological structure of the tumor and volume of the operation the most expedient is combined therapy — preoperative irradiation with subsequent operation. The most effective absorbed doses are within the limits of 3500—4000 rad.

D. n.

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REEL/FRAME

19711418

02

USSR

UDC 541.12.017

DAVYDOV, Yu. P., YEFREMENKOV, V. M., and SKRIPTSOVA, A. V.

"Polymerization of U(VI) Hydroxocomplexes in Solutions"

Leningrad, Radiokhimiya, Vol 15, No 3, 1973, pp 452-454

Abstract: The polymerization of U(VI) hydroxocomplexes was studied by the dialysis method proposed in earlier work by Davydov (DAN SSSR, Vol 15, No 1, 43, 1971). Solutions of $^{238}UO_2(NO_3)_2$ and $^{233}UO_2(NO_3)_2$ in HNO_3 at various values of pH were subjected to dialysis, using a cellophane membrane. The concentration of U in the solutions was determined on the basis of the alpha-radiation emitted by ^{233}U. At pH 4.0 and 5.0 no U was retained by the membrane in the concentration range of $UO_2(NO_3)_2$ that was subjected to study (10^{-6}-10^{-4}M) -- hence, only monomeric forms of uranyl were present. At pH 6.0 the degree of polymerization (the average number of U atoms per molecule) was constant in the entire concentration range and equal to 1.7. At pH 6.5 the degree of polymerization of U hydroxocomplexes was considerably higher at low concentrations of U ($1X10^{-5}$M) than that at pH 6.0. With increasing concentrations of U, the degree of polymerization decreased. At pH 7.0 and concentrations $\geq$ $1X10^{-5}$M, a precipitate of uranium hydroxide formed. Dialysis of the supernatant solution showed that polymeric forms were present in it to a considerable extent in

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USSR

DAVYDOV, Yu. P., et al., Radiokhimiya, Vol 15, No 3, 1973, pp 452-454

addition to the monomeric form. The results of experiments in which $UO_2(NO_3)_2$ solutions were subjected to ultrafiltration confirmed those obtained by the dialysis method.

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USSR

UDC 62-531.4

YEFREMENKO, V.T., ZHURAKOVSKIY, T.D., MOROZOV, L.G., PERFIL'EV, L.M., RYAPOLOV, V.A., SVIRIDOV, G.S., TAREYEVA, V.N.

"Positional Tracking Drive"

USSR Author's Certificate No 262659, Filed 14/10/68, Published 19/05/70, (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Takhnika, No 12, 1970, Abstract No 12 A274P by T.R.)

Translation: A positional tracking pneumatic drive is patented, consisting of a power cylinder divided by a piston into two working cavities connected to the high-pressure channel through calibrated chokes. The power cylinder shaft contains a fluid distributor consisting of a cylindrical plunger with spiral grooves connected to the low-pressure chamber and through apertures in the shaft of the power cylinder with its working cavities. The distributor is rotated by the controller through the required angle. As the distributor rotates, a pressure difference is developed in the power cylinder cavities, acting on the piston until the holes in the shaft are moved to a symmetrical position relative to the distributor slots. The rotation of the sensor is converted to forward movement of the power cylinder shaft by the drive system. One figure.

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USSR UDC 581

KANEVCHEVA, I. S., ZEMLINA, A. G., YEFREMENKO, YE. A., and LOMATSKAYA, YE. N., North Caucasian Scientific Research Institute of Phytopathology, Krasnodar

"Effect of Wheat Streak Mosaic Virus on the Composition of Nucleic Acids in Wheat Leaves"

Moscow, Fiziologiya Rasteniy, No 1, 1971, pp 186-189

Abstract: Infection of wheat (Bezostaya 1 variety) leaves with streak mosaic virus resulted in destruction of the fraction of high molecular weight nucleic acids. The quantity of nucleic acids extracted from the leaves of diseased plants was only 56 to 79% of that obtained from healthy plants. On columns with methylated albumin, the nucleic acids were separated into several fractions - soluble, DNA, and ribosomal nucleic acid. The infected plants were characterized by a decrease in the content of ribosomal nucleic acids and accumulation of soluble nucleic acids. Virus reproduction is accompanied by the destruction of normal nucleic acids. This seems to be the main reason for the damage done by the disease. None of the fractions studied or even a total extract of nucleic acids proved to be infectious. Competition between normal and viral RNA for the "cell receptors" in the leaves is presumed responsible.

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Extraction and Refining

USSR UDC 669.782.018.9.4(088.8)

YEFREMKIN, V. V., and VOROB'YEV, V. P.

"Method of Refining Silicon Alloys"

USSR Author's Certificate No 258344, filed 19-11-68, published 30-04-70, (from Referativnyy Zhurnal-Metallurgiya, No 1, 1971, Abstract No 1 G165 P)

Translation: A method is suggested for refining silicon alloys consisting in an introduction of refining additives to the metal. In order to remove Al from the alloys, Ni-containing materials are introduced to the metals in quantities sufficient to bond the Al into intermetallic Al-Ni system compounds.

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USSR UDC 669.71.053.2

VODOP'YANOV, A. G., KOZHEUNIKOV, G. N., MIKULINSKIY, A. S., and YEFREMKIN, V. V.

"The Role of Suboxides of Aluminum in Reduction Processes"

V. sb. Vakuumn. protsessy v tsvetn. metallurgii (Vacuum Processes in Nonferrous Metallurgy -- Collection of Works), Alma-Ata, "Nauka," 1971, pp 213-216 (from Referativnyy Zhurnal - Metallurgiya, No 6, Jun 71, Abstract No 6G142)

Translation of Abstract: A study is made of the interaction of gaseous oxides of lower valent Al with SiO_2 and C at 1450-1700° and residual pressure of 15-22 mm Hg. Al suboxides possess reducing and oxidizing properties (Two illustrations)

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YEFREMOV, A. A.

TECHNICAL TRANSLATION

FSTC-HT-23- 1023-72

ENGLISH TITLE: THERMOELECTRIC GENERATORS

FOREIGN TITLE: TERMOELEKTRICHESKIYE GENERATORY

AUTHOR: A. S. Okhotin, A. A. Yefremov, V. S. Okhotin, and A. S. Pushkarskiy

SOURCE: Termoelektricheskiye generatory, 1971

Translated for FSTC by ACSI

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1/3 023 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--POWER EFFICIENCY EVALUATION OF THERMOELECTRIC MATERIALS FOR THERMOGENERATORS OF VARIOUS -U-
AUTHOR-(03)-EFREMOV, A.A., DANILOV, YU.I., PUSHKARSKY, A.S.

YEFREMOV, A.A.

COUNTRY OF INFO--USSR, UNITED STATES

SOURCE--4TH ANNUAL INTERSOCIETY ENERGY CONVERSION ENGINEERING CONFERENCE WASHINGTON, U.S.A., SL:2584
DATE PUBLISHED-------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, ENERGY CONVERSION (NON-PROPULSIVE)
TOPIC TAGS--ELECTRIC ENGINEERING CONFERENCE, THERMOELECTRIC POWER, THERMOELECTRIC PROPERTY, THERMOELECTRIC GENERATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1632 STEP NO--US/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AT0135261
UNCLASSIFIED

2/3 023 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0135261

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXTENSIVE VARIETY OF THERMOELECTRIC FACILITIES AND SPECIFIC CHARACTER OF THEIR WORK UNDER VARIOUS CONDITIONS MAKE, FOR EACH CONCRETE CASE, CERTAIN REQUIREMENTS TO THERMOELECTRIC MATERIALS BEING USED AND CONVERTERS ON THEIR POWER CHARACTERISTICS. GENERALLY, AT THE PRESENT TIME, IN PRACTICE, VALUE OF QUALITY OR IOFFE CRITERION ARE USED FOR EVALUATION OF POWER POTENTIALITY OF THERMOELECTRIC MATERIAL APPLICATION. HOWEVER, NOW, WHEN FIELDS OF THERMOELECTRIC GENERATOR APPLICATION AND CONDITIONS OF THEIR OPERATION ARE CONSIDERABLY EXTENDED, SUCH EVALUATION BECOME EVIDENTLY INSUFFICIENT. THE PRESENT THEORETICAL WORK CONTAINS NEW CRITERIONS OF EFFICIENCY EVALUATION OF THERMOELECTRIC MATERIALS DEPENDING ON SPECIFIC CONDITIONS OF OPERATION. THESE CRITERIONS ARE PRESENTED IN ANALYTIC EQUATIONS, DEDUCED FOR SOME CONDITIONS STATED BELOW WHEN IT IS NECESSARY TO ACHIEVE. 1. MAXIMUM INTERNAL EFFICIENCY OF THERMOELECTRIC MATERIAL. 2. MAXIMUM EFFICIENCY OF CONVERSION. 3. MAXIMUM ELECTRIC CAPACITY FROM CROSS SECTION UNIT OF THERMOELECTRIC CONVERTER FOR A CASE WHEN COLD JOINTS OF THERMOELEMENTS ARE COOLED BY CONVECTIONAL WAY. 4. MAXIMUM ELECTRIC CAPACITY FROM CROSS SECTION UNIT OF THERMOELECTRIC CONVERTER, WHEN COLD JOINTS OF THERMOELEMENTS ARE COOLED ONLY BY RADIANT HEAT EXCHANGE. FOR ALL INDICATED CASES, THE EFFICIENCY OF THERMOELECTRIC MATERIALS WORK IS ESTIMATED BY DIMENSIONAL OR NON DIMENSIONAL COMPLEX WHICH INCLUDES ONLY VALUES OF QUALITY, MAXIMUM OPERATING TEMPERATURE OF THERMOELECTRIC MATERIAL AND MAXIMUM PERMISSIBLE TEMPERATURE DROP ON IT.

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3/3 023 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0135261

ABSTRACT/EXTRACT--THERE IS A TABLE IN CONCLUSION OF THE REPORT WHICH CONTAINS CALCULATED VALUES OF QUANTITY OF COMPLEXES BEING CONSIDERED FOR SOME PRESENT THERMOELECTRIC MATERIALS. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF REFRIGERATING INDUSTRY, MOSCOW. FACILITY: MOSCOW AVIATION INSTITUTE. FACILITY: STATE COMMITTEE ON THE UTILIZATION OF ATOMIC ENERGY OF THE USSR.

UNCLASSIFIED

UDC: 539.4:624.012

USSR

SAKHAROV, V. N., YEFREMOV, A. I.

"Some Problems of Measuring Deformation on the Surface of Reinforced Concrete Structures Using Optically Active Coatings and Photoelastic Pickups Under Laboratory and Full-Scale Conditions"

V sb. Modelir. stroit. konstruktsiy (Modeling of Structural Elements--collection of works), Moscow, Stroyizdat, 1971, pp 180-185 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7V964)

Translation: Data are presented on development of a procedure for making and applying coatings of optically sensitive materials enabling testing of concrete structures both before fracture and under conditions of crack formation. Some results of the research are presented, e. g.: the study of distribution of deformation between the cement rock and the filler in ordinary concrete, rock-concrete and keramzit-concrete; studies of the deformed state of reinforced concrete bendable elements in the presence of crack formations. In addition, the article contains a report on elaboration of basic procedural problems related to the use of optically active coatings for studying dynamically loaded structures. Bibliography of 15 titles. Authors' abstract.

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