"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR UDC 661.143.046.4

GOLUBEV, I. F., MIRONOV, K. YE., TANANAYEV, A. N., and KHIDZHIBALO, L. N.

"Chemical Transformations During Heating of Mixtures of $BaHPO_4$, TiO_2, BaF_2 and $(NH_4)_2HPO_4$"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Collection of Scientific Works of All-Union Scientific Research Institute for Phosphors and Ultrapure Substances), 1971, vyp. 6, pp 7-18 (English summary) (from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14L130 from summary)

Translation: A study was made by thermographic, roentgenographic and luminescent methods of analysis of the chemical interaction during heating of mixtures of $BaHPO_4$, TiO_2, BaF_2 and $(NH_4)_2HPO_4$. Formation of the luminescent phase of $2BaO \cdot TiO_2 \cdot P_2O_5$ from $BaHPO_4$ and TiO_2 begins at temperature $> 800^o$ with the phase transformation of Ba_2P_2O. On the addition of BaF_2 and $(NH_4)_2HPO_4$ below 400^o barium metaphosphate is formed, which plays the role of flux in the formation of $2BaO \cdot TiO_2 \cdot P_2O_5$. Bibliography with nine titles.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

UDC 534.222.2

KINELOVSKIY, S. A., MATYUSHKIN, N. I., TRISHIN, YU. A.

"Convergence of an Incompressible Ring Toward the Center Under the Action of Explosion Products"

V sb. Dinamika sploshn. sredy. Vyp. 5 (Dynamics of a Continuous Medium. No. 5 -- Collection of Works), Novosibirsk, 1970, pp23-32 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9B168)

Translation: The problem of the motion of a ring of incompressible fluid under the action of explosion products is discussed. The calculation is carried out for an ideal gas with an adiabatic index $\gamma = 3$. The relationship between pressure and density $p = A\rho^3$ (where A is a constant) are added to the equations describing the one-dimensional motion of a gas with cylindrical symmetry. $P = c + v$ and $N = c - v$, where v is velocity and c is the speed of sound, are taken as the initial functions. The equations obtained are written in dimensionless form and are solved by the modified method of characteristics. The computational results are compared with experimental data. N. N. Kochina

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USSR UDC 615.919:591.145.2.615.918:58.615.9.576.8.097.29

ARTEMOV, N. M., KINEYEVA, V. F., and GUDENKO, N. A.

"Effect of Bee Venom on the Sugar Level in the Blood"

Uch. zap. Gov'kov. un-t. Ser. biol. (Educational Proceedings of the Gor'kov University, Biological Series), Vyp 40, 1972, pp 5-8 (from Referativnyy Zhurnal -- Farmakologiya. Khimioterapevticheskiye Sredstva. Toksikologiya, No 1, 1973, Abstract No 1.54.789)

Translation: An increase in the concentration of reducing compounds by 14.9% and of glucose by 29.8% was observed in the blood of rabbits 1.5 hours after they had been injected with 5 mg/kg of bee venom (BV). After 4 hours the concentrations were normal. For a BV dose of 1 mg/kg no change was noted in the above indicators. Possible mechanisms for the change in glucose level in rabbits treated with BV are considered. (11 references)

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Acc. Nr: AP0043775 KINGSEP A.S. Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 1040-1045

CONTRIBUTION TO THE THEORY OF QUASILINEAR RELAXATION OF AN ION-ACOUSTIC WAVE SPECTRUM IN A PLASMA

A. S. Kingsep

The problem of relaxation of an anisotropic spectrum of ion-acoustic noise in a plasma is solved in the quasilinear approximation. It is shown that for a sufficient intensity of the wave spectrum quasilinear relaxation results in a three-dimensional spectrum changing into a one-dimensional spectrum. A self-similar solution of the quasilinear relaxation equations which describes the process is obtained for the case of a strongly anisotropic spectrum.

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KINGSEP A.S.

Acc. Nr: AP0043792 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 582-586

EVOLUTION OF THE WAVE SPECTRUM IN A PLASMA DUE TO STIMULATED SCATTERING

A. S. Kingsep, L. I. Rudakov

It is shown that nonlinear transfer of sufficiently narrow wave packets to the long wave spectral region as a result of scattering by particles does not occur via diffusion ccreeping» but via the satellite system. For Langmuir oscillations the process may represent either a discontinuous variation of wavelength or nonlinear reflection involving a change of the wave vector direction. Conditions are found for which evolution of broad wave packets ultimately leads to the same type of two-level transfer.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

UNCLASSIFIED PROCESSING DATE--03JUL70.

TITLE--INVESTIGATION OF THE ANOMALOUS RESISTANCE OF A PLASMA DURING TURBULENT HEATING -U-

AUTHOR--KALININ, YU.G., KINGSEP, A.S., LIN, C.N., RYUTOV, V.D., SKORYUPIN, V.A.

CORPORATE SOURCE--LSSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKIY FIZIKI, 1970, VOL 58, NR 1, PP 68-75

DATE PUBLISHED--------70

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SUBJECT AREAS--PHYSICS

TOPIC TAGS--TURBULENT HEATING, PLASMA PHYSICS

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Acc. Nr: AP0038029 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 68-75

INVESTIGATION OF THE ANOMALOUS RESISTANCE OF A PLASMA DURING TURBULENT HEATING

Yu. G. Kalinin, A. S. Kingsep, D. N. Lin, V. D. Ryutov, V. A. Skoryupin

The dependence of plasma resistance on initial conditions of the experiment during turbulent heating by a current is investigated. The plasma resistance decreases approximately as $n^{-1/2}$ with variation of the concentration between 10^{12} cm^{-3} and 10^{14} cm^{-3}. The resistance does not depend on the magnitude of the confining magnetic field when the strength of the latter varies between 5 and 21 kOe. The ratio of the current velocity to the ion beam velocity is calculated on basis of the experimental results. It changes from 1.5 to 10 on variation of the concentration from 10^{13} cm^{-3} to $5\cdot10^{14}$ cm^{-3}. The dependences obtained and turbulent heating are explained by assuming excitation of ion-acoustic instability in the plasma by a current.

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USSR

KINKUL'SKINA, A. M.

"The Use of the Apparatus of Discrete Markov Chains to Calculate the Probability Characteristics of Reliability of Control Computers with Redundancy"

Probl. Nadezhnosti Sistem Upr. [Problems of Control System Reliability -- Collection of Works], Kiev, Nauk. Dumka Press, 1973, pp 69-75 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V249)

Translation: The calculation of the reliability of systems with time redundancy is shown on the example of a computer which duplicates the performance of sections of a program and compares the results. The apparatus of homogeneous Markov chains is used. I. Kovalenko

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CHEMISTRY OF UNSATURATED COMPOUNDS. SYNTHESIS AND SOME REACTIONS OF TERTIARY(ALLYLETHYNYL)CARBINOLS -U-

AUTHOR-(03)-PIRENYAN, S.K., KINOYAN, F.S., VARTANYAN, S.A.

COUNTRY OF INFO--USSR

SOURCE--ARM. KHIM. ZH. 1970, 23(2), 140-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACETYLENE, ALCOHOL, ALLYL CHLORIDE, ISOMERIZATION, BUTENE, CHEMICAL SYNTHESIS, HETEROCYCLIC NITROGEN COMPOUND, HETEROCYCLIC OXYGEN COMPOUND, AMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1444 STEP NO--UR/0426/70/023/002/0140/0142

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2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116886

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TERTIARY ACETYLENIC CARBINOLS RR PRIME C(OH)C TRIPLE BOND CH (I) REACT WITH ALLYL CHLORIDE OR BROMIDE AND 1,3,DICHLORO,2,BUTENE AT 40-50DEGREES UNDER N IN THE PRESENCE OF CU SUB2 CL SUB2 AND AN AQ. SOLN. OF NH SUB4 CL TO GIVE RR PRIME C(OH)C TRIPLE BOND CCH SUB2 CH:CXR DOUBLE PRIME (II), X BEING H OR CL AND R DOUBLE PRIME BEING H OR ME. ISOMERIZATION OF II (X EQUALS H) WITH HGSO SUB4 (III) IN MEOH AT 30-5DEGREES GAVE RR PRIME C:CHCOCH SUB2 CH(OME)ME (IV). SIMILARLY, II (X EQUALS CL) GAVE RR PRIME C:CHCOCH SUB2 CH:CCLME (V). II (X EQUALS H) WERE CYCLIZED TO VI BY TREATMENT WITH 10PERCENT H SUB2 SO SUB4 AND III. (ADDITIONAL SYNTHESIS AND REACTIONS SHOWN ON MICROFICHE). FACILITY: INST. ORG. KHIM., EREVAN, USSR.

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SO: JPRS 54304
AMP 22 OCT 71

USSR: 616-D53.31-021418.33-035,337.2

THE EFFECT OF HYPOTHERMIA OF THE FETAL BRAIN DURING LABOR ON ITS FUNCTIONAL STATE AND ON THE COURSE OF THE NEONATE PERIOD

(Article by [illegible] Chankvetadze, P. Ya. Khintraya, A. N. Zirakadze, M. Lominadze, N. P. Shabiya, Scientific Research Institute of Obstetrics and Gynecology, Georgian Ministry of Health, Tbilisi; Moscow, Vestnik Akusherii i Ginekologii, Russian, No 8, 1971, pp 52-62)

The prevention and treatment of fetal asphyxia and cerebrocranial trauma during labor has always been in the center of attention of obstetricians and gynecologists, since these conditions are a most important cause of perinatal mortality.

The existing methods of treating asphyxia involve treatment of the maternal organism in order to improve the condition of the fetus; these methods are not effective when there is impairment of maternal-placental and feto-placental circulation or of fetal tissue metabolism, and it becomes necessary to treat the fetus directly.

In view of the fact that the fetal brain is particularly sensitive to hypoxia, the chief objective of prophylaxis and treatment of intra-uterine asphyxia consists of increasing the resistance of brain tissue to oxygen deficiency, of preventing onset of hypoxia, and eliminating the developing pathological consequences.

In the last few years, for this purpose, our clinic has been using hypothermia of the fetal brain during labor.

Both in the Soviet and foreign literature there is an enormous quantity of works dealing with the effect of cerebrocranial hypothermia on the organism and with the good results obtained when this method was used in clinical practice (V.A. Rukov; I.I. Mirskiy; I.R. Petrov; B.V. Petrovskiy; P.M. Stavkov; N.V. Sazanov; Gertz; Miller; Kimoto; Laudhead; Parkinge, and others).

In the world literature there are descriptions of a considerable number of brain and heart operations under general hypothermia on pregnant women with a good outcome of pregnancy and labor (Baxter; Vandewater; Cannal; Fevehouse; Wilson, and others).

KINTRAYA, P. Ya.

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USSR UDC 678.5;620.171

TARNOPOL'SKIY, YU. M., and KINTSIS, T. YA.

"Features of Mechanical Tests of High Modulus Reinforced Plastics"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 11, Nov 73

Abstract: The features of testing high modulus reinforced plastics (with boron and carbon fibers) in tension, compression, and shear, with determination of their elastic and plastic properties, are examined in this survey article. The factors associated with the selection of the sample shape and size as well as means of applying loads and securing them in test machine clamps are studied for plane samples in the form of strip, two-sided blades, and triple-layer beams, and circular samples. The factors involved in the testing of reinforced plastics differ from those in testing metals due to the elastic and strength anisotropies of plastic and the weak shear and tear strengths. Another considration is the method used to process the data of experimental results in order to correctly evaluate the potentialities of this new class of structural polymer materials. Three figures, 18 bibliographic references.

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USSR UDC 621.762.4

KIPARISOV, S. S., HARVA, V. K., DALYAYEVA, L. I., and NAGORNYY, N. YU., Moscow Institute of Steel and Alloys, Chair of Rare and Radioactive Metals and Powder Metallurgy

"Investigation of the Process of Dross Molding of Titanium Carbide"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 3, 1973, pp 147-152

Abstract: Conditions are analyzed for production of highly porous billets from titanium carbide by the method of injection molding of thermoplastic drosses. The degree of porosity of the speciments (40-70%) was dictated by their further use for producing materials of the ferro-TiC class by the impregnation method and with a specified relationship of titanium carbide in steel. Porous objects of titanium carbide were produced by injection molding of thermoplastic drosses according to the schema of mixing titanium carbide (screen undersize) with the bond and the filler followed by injection molding, bond distillation, filler separation, and sintering. The best bonds are 85% paraffin and 15% wax and 91% paraffin, 6% wax, and 3% oleinic acid. Alcohol, starch, and dextrin are recommended as fillers. The porosity of titanium

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USSR

KIPARISOV, S. S., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 3, 1973, pp 147-152

carbide samples produced by injection molding of thermoplastic drosses can be varied depending on the quantitative correlation of titanium carbide, the bond, and the filler, and also depending on the sinetering temperature of porous objects. Four figures, two table, six bibliographic references.

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KIPARISOV, S. S., and LIBENSON, G. A.

Poroshkovaya Metallurgiya (Powder Metallurgy), Izdatel'stvo Metallurgiya

Moscow, 1972, 527 pp

Translation of Annotation: Powder metallurgy is the branch of industry which produces metal items from compressed or molded powders by sintering without melting (or partial melting of the high melting component of the powder mixture).

According to the figurative statement of one of the outstanding Soviet metalloceramicists M. Yu. Bal'shin, powder metallurgy is as old as Egyptian pyramids and at the same time it is as contemporary as jet planes. In fact, Indians made iron columns by the metalloceramic method several centuries BC, although they did not know how to produce either cast iron or steel. Several centuries later powder metallurgy was again in use, then it was abandoned again.

Contemporary powder metallurgy originated during the first quarter of the 19th century (1826) when P. G. Sobolevskiy developed the production method of coins from platinum powder on instruction of the Russian mint [1].

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KIPARISOV, S. S., and LIBENSON, G. A., Izdatel'stvo Metallurgiya, 1972, 527 pp

Basic directions in the development of powder metallurgy are related to solutions of many difficulties encountered in the casting of high-melting metals (tungsten, molybdenum, tantalum), as well as to possibilities of producing materials and items with specific properties by the metalloceramic method, which could not be produced by any other industrial methods (for example, production of castings with successive machining). Production of pseudoalloys (W + Cu, W + Ag), hard carbide alloys, porous bearings, filters, and others requires the use of metalloceramic methods.

New types of items (for example, automobile parts, shaped castings, guages, and others) can be produced by powder metallurgy methods from common materials but with specific properties and at low cost compared with casting, which requires further machining. In particular, the powder metallurgy method makes it possible to decrease the consumption of materials needed for the production of certain items.

Finally, the production of metallic powders for direct use in paints, pyrotechnics, explosives, catalysts, cementing mixtures in the hydrometallurgy of nonferrous metals, welding industry, and others is also an important branch of powder metallurgy.

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USSR

KIPARISOV, S. S., and LIBENSON, G. A., Izdatel'stvo Metallurgiya, 1972, 527 pp

The directives of the 23d Congress of the CPSU state the need "to secure and facilitate a further development of powder metallurgy and to introduce metalloceramic products into the machine-building and other industries."

Powder metallurgy has been developing rapidly not only in the Soviet Union and other socialist countries, but also in such capitalistic countries as the U.S., England, Austria, the FRG, and Japan. With the increase of products produced by powder metallurgy methods, there is a growing demand for specialists in this branch of industry.

Powder metallurgy methods have been used widely in all branches of science and industry and it is impossible to list all places of their application.

It is impossible to name any single branch of industry where some items and materials produced by powder industry methods are not used. Hard cutting tools are used in the machining industry, hard alloys and diamondmetal compositions are used in the mining and petroleum industries, and metal powder additives and ferroalloys (modificators) are used in the metallurgical industry for precision rolling and drawing. In the welding industry the powders are used for built-up welding and for preparation of the welding pastes. In

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KIPARISOV, S. S., and LIBENSON, G. A., Izdatel'stvo Metallurgiya, 1972, 527 pp

machine-building, the instrument industry, the automobile industry, and aviation, powder metallurgy methods are used for the production of different wear-resistant machine parts and mechanisms, as well as parts with high antifriction and friction properties.

It is difficult to name any single instrument or a device in the contemporary electrical industry where some of the metalloceramic items are not used. This concerns high precision electronic instruments as well as bulky equipment at power stations and that of industrial ovens.

Metalloceramic products are also used in the food and textile industries, for building of sewing and washing machines, tape recorders, electric shavers, house locks, and others.

The technological production of items by powder metallurgy methods consists of the following operations: Preparation of the metallic powder or a mixture of powders → pressing of powders (molding) → sintering (heat treatment) → finishing treatment (final heat treatment, calibration, annealing, heat treatment).

Some deviations from these steps are frequently encountered in industrial and experimental works. Thus, for example, the pressing and sintering processes

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KIPARISOV, S. S., and LIBENSON, G. A., Izdatel'stvo Metallurgiya, 1972, 527 pp

can be combined into one operation, and the preliminary sintered porous briquets can be impregnated with molten metal. Some other deviations can be found. However, the use of powders and sintering them at temperatures below the melting temperature of the basic element always remains unchanged.

As was mentioned before, the main advantage of metalloceramic production methods is a considerable decrease of the material losses during the entire production process up to the finished product.

Losses during the production of machine parts and devices by casting process followed by machining reaches 60% and sometimes higher compared with only 7-10% in the case of the powder metallurgy methods.

The number of technological operations amounts to two-three at one plant during production of items from metallic powders, even if items are of complex shape and configuration. At the same time there is no need to have machine shops and skilled operators because the machining is excluded.

On the other hand, production of identical items from castings requires ten or more industrial operations carried out at different shops and departments which require skilled labor. However, it can be said that there are some difficulties in powder metallurgy which limit to some extent the areas of applicability of metalloceramic methods.

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KIPARISOV, S. S., and LIBENSON, G. A., Izdatel'stvo Metallurgiya, 1972, 527 pp

First of all can be mentioned the high price for powders and pressing equipment. The economy of the metalloceramic industry in this case is motivated by the industrial scale (if production of many thousands of items is required). This is justified in the case of machine parts produced from the iron powder. In many other cases the unique properties of the metalloceramic items secure the economical advantages of powder metallurgy methods even if the scale of production is much smaller.

Nevertheless, one of the most important problems of powder metallurgy is the development of production methods which would secure the production of high-quality inexpensive metallic powders, first of all iron powder. One of the most difficult problems for metallurgists, machine builders and users is the elimination of defects in metals during its solidification, that is, the phenomenon related to the crystallization processes.

The crystallization process determines basically the characteristics of the metal structure, including the development of defects which show up when the produced part is used during the machine assembly or during its performance. In the case of the powder metallurgy methods the crystallization stage is absent, and as a result there are lesser number of defects related to crystallization.

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Miscellaneous

USSR

UDC 669.26/29:621.785.532

KIPARISOV, S. S., and LEVINSKIY, YU. V.

Azotirovaniye tugoplavkikh metallov (Nitriding High-melting Metals), Moscow, Metallurgiya, 1972, 160 pp

Translation of Annotation: Nitriding problems are examined for high-melting metals (titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, and tungsten). Data are presented on the equilibrium state in nitride -- metals systems, on nitriding kinetics, on properties of nitrided products, and on the technology of nitriding.

Analytic methods are given for calculating the speed of formation of various nitride layers, and data are systematized on the constants of nitriding processes, and on diffusion coefficients of nitrogen in various nitrides and metals. Practical regimens are presented for the nitriding of high-melting metals, and areas of application for nitrided products are described.

The book is intended for scientific workers and designers and engineers specializing in metal science and the metallurgy of rare metals. It also may be useful to students and graduate students in metallurgical schools of higher education. 91 figures, 50 tables, 198 bibliographic citations.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

KIPARISOV, S. S., and LEVINSKIY, YU. V., Nitriding High-melting Metals, Moscow, Metallurgiya, 1972, 160 pp

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KIPARISOV, S. S.

FRB S-8079 /82

(3)

SINTERING OF A HEAT-RESISTANT NICKEL-BASE ALLOY

UDC 621.77

[Article by S. S. Kiparisov, Kh. M. Kolbin, and Yu. F. Ponkratenko, Department of Rare and Refractory Metals and Powder Metallurgy, Moscow Institute of Steel and Alloys; Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, Russian, No 3, 1971, submitted 2 July 1970, pp 100-104]

Heat-resistant nickel-, iron- and cobalt-base alloys are often used in cast and deformed states. In work /1/ the possibility of producing a heat-resistant nickel-base alloy by means of sintering blanks pressed from powders is reported. The problems of charge preparation and pressing and sintering modes were examined by us in work /2/.

The course of the sintering process is determined to a significant degree by the nature of the corresponding phase diagrams. In the process of sintering complex systems the formation of alloys is accomplished by diffusion and therefore the rate and completeness of the process of heterodiffusion has much significance /3/. The kinetics of sintered body compaction and changes of its physicochemical properties depend on the degree of occurrence of this process. To the factors, influencing increase of rate of heterodiffusion, belong granularity of the initial powders, uniformity of component distribution, increase of sintering temperature, removal of adsorbed gases and oxide film and increase in the density during pressing. Sintering of complex compositions can be done in both the solid phase and with formation of the liquid phase.

The charge for preparation of the alloy had the following composition (%): 47 Ni, 20 Co, 7.75 Cr, 15 MiAl, 3.75 Ti, 5 Mo and 1.5 Ta. Procedure from the fact that chromium carbide and nickel are added to the charge composition, one can surmise that sintering will proceed with the formation of a liquid phase since it is known /4/ that during sintering of the

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USSR

UDC 621.762.012.5

KIPARISOV, S. S., NARVA, V. K., and BURYMOVA, T. M., Moscow Institute of Steel and Alloys; Chair of Rare, Radioactive Metals and Powder Metallurgy

"Production and Properties of Materials Using Titanium Carbide"

Ordzhonikidze, Tsvetnaya Metallurgiya, No 2, 1973, pp 153-155

Abstract: Investigation results are presented of the production conditions and of the properties of materials incorporating TiC (30-80 wt%) and the bond of the Ni-Cr-Mo alloy. The hardness of the materials (30-80 wt% TiC) after aging and heat treatment, their mechanical properties at room temperature and at 800°, the increase in weight with oxidation, and the antifriction properties of the materials (30-50 wt% TiC) are discussed by reference to experimental data. Baked materials, containing titanium carbide and Ni alloy of complex composition, were found capable of being subjected to heat treatment, after which their hardness is 60-73 HRC. The materials retain high strength and hardness up to 500-550°, and they possess good wear resistance and high heat resistance at 600-1000°. Their oxidation proceeds according to the logarithmic rule. One figure, four tables, six bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

UDC 632.95

MELIKADZE, L. D., KIPIANI, R. YA., MUKHASHAURIYA, A. L., SHONIYA, D. I., GURGENIDZE, Z. I., Institute of Physical and Organic Chemistry, Academy of Sciences of the Georgian SSR, Institute of Plant Protection, Ministry of Agriculture

"A Chemicalfor Controlling Large Spruce Bark Beetles"

USSR Author's Certificate No 270390, filed 18 Jan 67, published 9 Apr 71 (from RZh-Khimiya, No 1(II), Jan 72, Abstract No 1N25 P)

Translation: The large spruce bark beetle can be effectively controlled by treating the trunks of trees with a 50% emulsion prepared from a concentrate containing 5.5-6.0% technical hexachlorocyclohexane, 49-54.5% kerosene, 20-25% dichloroethane, 2.0% sulfite pulp extract, 0.5% OP-10 or OP-7 and water (to make 100%). The treatment does not harm the tree. P. V. Popov

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

KIPNIS, A. YA., Candidate of Chemical Sciences

Karbonil'naya Metallurgiya (Carbonyl Metallurgy), Moscow, Izdatel'stvo Znaniye, 1973, 64 pp

Translation of Annotation: We customarily connect blazing furnaces, blinding flows of molten metal, and newspaper articles on "people of the fire profession" with the word "metallurgy." Such a concept is not always true. This booklet will discuss metal extraction from ores and semifinished products in the form of amazing compounds with carbon monoxide -- metal carbonyls -- and metal production from these compounds in the form of so-called carbonyl metals.

These processes, which lie on the border between chemistry and metallurgy, are connected with many problems of general chemical importance. These are problems of solid-state chemistry, the study of catalysis and reactivity, organometallic chemistry, chemical kinetics, and the study of aerosols.... Their application to the objects of carbonyl metallurgy is the most gratifying endeavor for chemists of almost any specialization. The main task that this author set for himself was to attract the attention of research chemists to this field.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

KIPNIS, A. YA., Carbonyl Metallurgy, Moscow, Izdatel'stvo Znaniye, 1973, 64 pp

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

UDC 669.243.73;621.762.214;620.187

KIPNIS, A. YA., MURAVIN, K. A., and NEMOYTIN, M. A., Gipronicel'

"Investigation of Carbonyl Nickel Powders by the Electron Microscopic Method"

Poroshkovaya Metallurgiya, No 4(100), Apr 71, pp 8-12

Abstract: Carbonyl nickel powders obtained by different methods and differing in their macroscopic characteristics were used in this study. Five samples measuring less than 2 microns or between 2 and 3 microns were examined by electron microscopic methods. Examination of these particles showed a range in particles size from several angstroms to several hundred angstroms. The relation of the macroscopic properties of the powders to the cumulative size of the primary particles, and probably, also to the form of the aggregate could be established from the data. The relation of specific surface and bulk density to the primary particle size was shown.

The size of the primary particles and the nature of the aggregates are dependent on the methods of powder production. Higher velocities usually corresponded to smaller sizes and more porous aggregates of primary particles. On standing at room temperature, primary particles of carbonyl nickel powders spontaneously undergo transformation to micron-size particles. Macroscopic properties and particle size composition of carbonyl nickel powders can be

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

KIPNIS, A. YA., et al., Poroshkovaya Metallurgiya, No 4(100), Aor 71, pp 8-12

used to determine the size of the primary particles and the nature of the aggregates.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--CATALYSIS OF THE SYNTHESIS OF NICKEL CARBONYL BY ELECTRONEGATIVE ELEMENTS -U-

AUTHOR--KIPNIS, A.YA, KULLOVA, N.V., MIKHAYLOVA, N.F.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 256-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYSIS, CARBONYL COMPOUND, NICKEL COMPOUND, ELECTRONEGATIVITY, CATALYST ACTIVITY, SELENIUM, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0203 STEP NO--UR/0195/70/011/001/0256/0258

CIRC ACCESSION NO--AP0106859

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

2/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106859

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATE OF NI(CO) SUB4 FORMATION FROM NI AND CO INCREASED IN THE PRESENCE OF ELECTRONEG. ELEMENTS LIKE, N, P, AS, S, SE, TE, CL, BF, OR I. IN THE PRESENCE OF SE, THE RATE INCREASED SIMILAR TO 700 TIMES. EFFECT OF ADDITIVES ON THE RATE OF NI(CO) SUB4 FORMATION SHOWS A MAX. WHICH DEPENDS ON THE CONCN. AND ELECTRONEGATIVITY OF THE SPECIES. CATALYTIC ACTIVITY OF THESE ELEMENTS IS EXPLAINED BY A DECREASE OF ACTIVATION ENERGY OF THE REACTION DUE TO THE FORMATION OF INTERMEDIATE COMPDS. INVOLVING THESE ADDITIVES.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR UDC: 531.55:521.1

GRODZOVSKIY, G. L., KIPORENKO, B. N.

"Investigating Control of the Weight of an Engine System by Using a Continuous Model"

Tr. pyatykh chteniy, posvyashch. razrabotke nauch. naslediya i razvitiyu idey K. E. Tsiolkovskogo, 1970. Sekts. "Mekh. kosmich. poleta" (Works of the Fifth Readings Dedicated to Elaborating the Scientific Legacy and Developing the Ideas of K. E. Tsiolkovskiy, 1970. "Space Flight Mechanics" Section), Moscow, 1971, pp 17-29 (from RZh-Mekhanika, No 5, May 72, Abstract No 5A50)

Translation: The paper deals with the problem of the maximum payload of a rocket when a given maneuver is executed. It is assumed that the weight of the engine system can be reduced by stages; this stage-by-stage weight reduction is accounted for by introducing additional parameters. Corresponding to the infinitely great values of these parameters are breaks in the continuity of the initial problem. It is also assumed that a transition to a continuous model is possible. The principle of the maximum is used in solving the variational problem of continuous type. Considerable

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

GRODZOVSKIY, G. L., KIPORENKO, B. N., Tr. pyatykh chteniy, posvyashch. razrabotke nauch. naslediya i razvitiyu idey K. E. Tsiolkovskogo, 1970. Sekts. "Mekh. kosmich. poleta", Moscow, 1971, pp 17-29

attention is given to analysis of specific segments. A necessary condition for optimality of specific controls is found. Regions of existence of solutions containing specific segments are constructed for optimum problems corresponding to certain maneuvers. V. A. Troitskiy.

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1/1 008 UNCLASSIFIED PROCESSING DATE--23OCT7C

TITLE--SYNTHESIS OF O HIPPURYL DELTA GUANIDINO ALPHA L HYDROXYVALERIC ACIC O HIPPURYL L ARGININIC ACID -U-

AUTHOR-(03)-KRAINOVA, B.L., KIPORENKO, S.S., CHAMAN, YE.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 708-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALIPHATIC HYDROXY CARBOXYL ACID, GUANIDINE, BENZENE DERIVATIVE, AMINE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/2015 STEP NO--UR/0079/70/040/003/0708/0709

CIRC ACCESSION NO--AP0120658

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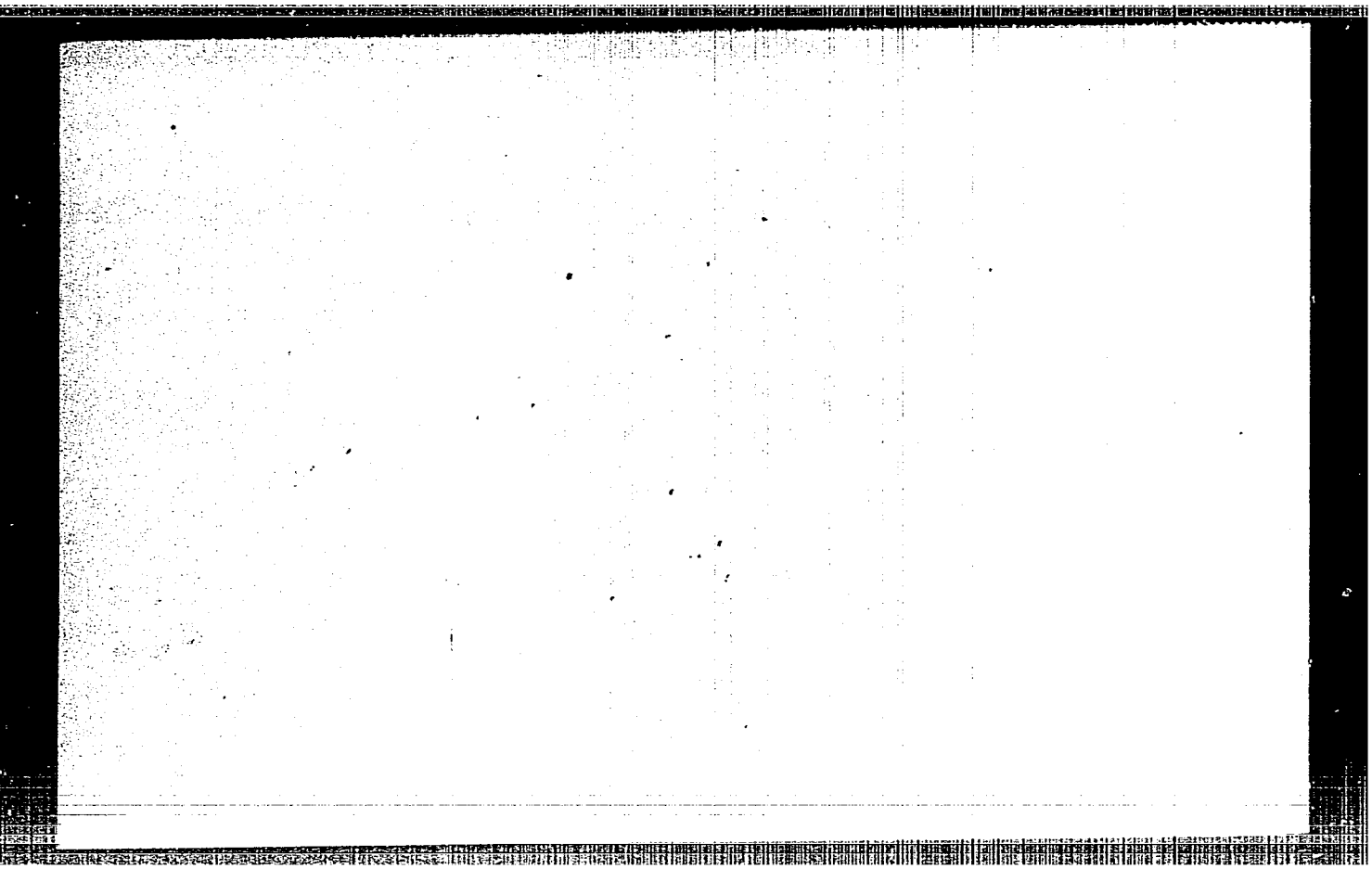

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1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--INTRAMOLECULAR SALT BONDS IN SYNTHETIC POLYAMPHOLYTE; A COPOLYMER OF 2 METHYL 5 VINYLPYRIDINE AND METHACRYLIC ACID -U-

AUTHOR-(04)-KIPPER, A.I., DMITRENKO, L.V., PTITSYN, O.B., SOGOMONYANTS, ZH.S.

COUNTRY OF INFO--USSR

SOURCE--MOLEKULYARNAYA BIOLOGIYA, 1970, VOL 4, NR 2, PP 175-183

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COPOLYMER, PYRIDINE, METHACRULIC ACID, POTENTIOMETRIC TITRATION, SPECTROPHOTOMETRIC ANALYSIS, INTRAMOLECULAR MECHANICS, CHEMICAL BONDING, PROTEIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1716 STEP NO--UR/0463/70/004/002/0175/0183

CIRC ACCESSION NO--AP0100313

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

2/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100313

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INVESTIGATION WAS CARRIES OUT OF ELECTROCHEMICAL AND CONFORMATIONAL PROPERTIES OF A WATER SOLUBLE COPOLYMER OF 2 METHYL 5 VINYLPYRIDINE AND METHACRYLIC ACID (50:50) BY POTENTIOMETRIC TITRATION, SPECTROPHOTOMETRIC TITRATION (FROM ULTRAVIOLET AND INFRARED SPECTRA) AND BY VISCOMETRY. IT WAS SHOWN THAT IN THE PH RANGE FROM SIMILAR 2 TO SIMILAR TO 7 AN INTRAMOLECULAR SALT BOND WAS FORMED OF THE TYPE NH PRIME PLUS COO WITHOUT COUNTER IONS FROM THE SOLUTION. ABOUT 30PERCENT OF GROUPS OF EACH TYPE WAS INVOLVED IN THE SALT BONDS. THE OCCURRENCE OF INTRAMOLECULAR FORCES OF ELECTROSTATIC ATTRACTION LEADS TO A MORE COMPACT CONFORMATION OF THE MACROMOLECULE AS COMPARED WITH THAT OF THE GAUSSIAN COILS. THE PROPERTIES AND BEHAVIOUR OF THE AMPHOLYTE PERMITS TO CONSIDER IT AS AN APPROXIMATED PROTEIN MODEL.

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KIPPET, O.G.

POSSIBILITIES OF THE METHOD OF REACTION GAS CHROMATOGRAPHY

(Symposium at Tallin)

Article by Corresponding Member of the AS Estonian SSR O. G. Kippet, Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol 44, No 12, December 1971, pp 87-90)

Reaction gas chromatography is a new analytical method which permits identifying investigated compounds by making use of their directed chemical transformation in a single system with gas-chromatographic apparatus.

In the work of the First All-Union Symposium on Reaction Gas Chromatography, held in Tallin on 6-8 June, two hundred participants, including specialists from East Germany, Poland, and Czechoslovakia, heard reports on questions of pyrolytic gas chromatography, reaction kinetics and catalysis, the analysis of hydrocarbons, petroleum products, chlorine and compounds containing nitrogen, and also inorganic compounds.

In the report of V. M. Alekseev, data were presented on the application of pyrolytic gas chromatography for the analysis of polymers. The method permits determining even very slight differences in the structure of analogous compounds, especially distinguishing separate nitrogen-containing fibers very close in composition (O. G. Kippet, E. A. Kruglik, and M. Ayvazi).

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USSR UDC 616.24-089.843-092.9-07:616.24-009.4-072.7

KOLESNIKOV, V. D., KIPRENSKIY, Yu. V., RABINOVICH, Yu. Ya., and MALYSHEVA, L. G., Department of Clinical Physiology, and Department of Thoracic Surgery, Institute of Clinical and Experimental Surgery, Ministry of Health USSR, Moscow

"Study of the Ventilation and Mechanics of Respiration of the Replanted Lung Under Experimental Conditions"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 4, Jul/Aug 70, pp 67-71

Abstract: Clinical and x-ray studies were conducted of lung replantation in dogs for a period of one year after the operation. No significant narrowing of the bronchial anastomoses was noted during that period. Spirography, bronchospirography, and analysis of blood gases showed that the functional indices of the replanted lung were close to normal within 3 months after surgery. However, the mechanical properties of the lung were not restored even at the end of the observation period when an increase in alveolar pressure, bronchial resistance, and elasticity and a decrease in distensibility were still noted. These abnormalities are probably attributable to histological changes in the tissues, blood vessels, and bronchial walls, as well as to the formation of adhesions in the pleural cavity surrounding the replanted lung.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

UDC 669.259-04

USSR

DEGTYAREV, V. S., DENISOV, S. I., DENISOVA, N. V., KIPRICH, N. A., and GOBOV, A. P.

"On Controlling the Process of Smelting Titanium Slags by Change in Electric Conductivity"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 27-29

Translation: Results are given of an investigation of the electrical resistance of pulverized titanium slags at a temperature of 25°C. It is established that, with a change in the ferrous oxide content from 15.49 to 2.5%, the specific resistance of the titanium slag with a coarseness of -0.1 millimeters decreased from $3.08 \cdot 10^{-5}$ to $1.41 \cdot 10^{-3}$ ohms/cm, i.e., by a factor of 218. In the authors' opinion, control over reduction electrosmelting of titanium concentrates, which consists of determining ferrous oxide during the course of the process, can be exerted by establishing the electrical resistance of the slags. Two illustrations, one table, and three bibliographic entries.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

UDC 669.295.053.24

DEGTYAREV, V. S., DENISOV. S. I., DENISOVA, N. V., KIPRICH, N. A., AND GOBOV, A. P.

"Testing the Process of Melting of Titanium Slags on the Basis of Changing Electrical Resistance"

Sb. tr. Vses. n.-i. i proyektn. in-t titana [Collected works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, 27-29, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No. 1G188 by the authors).

Translation: Results are presented from a study of the electrical resistance of granulated Ti slags as a function of various factors at 25°. As the content of FeO changes from 15.49 to 2.5%, the resistivity of Ti slag with a grain size of less than 0.1 mm decreases from $3.08 \cdot 10^{-5}$ to $1.41 \cdot 10^{3}$ ohm·cm, i.e., by 218 times. Testing of the reduction electric melting of Ti concentrates, consisting of determination of FeO during the course of the process, can be performed by determining the electrical resistance of the slags. 2 figures; 1 table.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

UDC 513.86:513.83:517.9

KIPRIANOV, I. A.

"Scales of Functional Spaces With a Weight and Their Application"

Moscow, V sb. Teoremy vlozheniya i ikh prilozh. (Theorems of Embedding and Their Applications -- collection of works), "Nauka," 1970, pp 107-118 (from RZh-Matematika, No 7, Jul 1970, Abstract No 7S624)

Translation: A survey is given on the theory of functional spaces with a weight which are constructed by means of a Fourier-Bessel transform. The author points out the applications of the constructed spaces to the solution of singular boundary value problems which contain a singular Bessel differential operator and other singular differential operators generated by a Fourier-Bessel transform. Consideration is given not only to case L_2 but also to the case of functions which are summable with the p-th degree. Bibliography of 22 titles. Author's abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

Titanium

USSR UDC 669.295.31

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

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

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

Abstract: The crystallo-optical method was used in a study of the processes taking place in the oxidation of a solid solution of anosovite, the principal phase of high-titanium slags. During the oxidation of high-titanium slags, crystallo-chemical transformations occur, during heating, in the anosovite lattice: below 400°C, oxidation reactions take place in titanium of lowest valencies in Ti^{4+} with TiO_2-separation in form of an independent phase; above 500°C, Fe^{2+} oxidizes to Fe^{3+} and the products of the reaction form with a part of free rutile a solid solution on the base of pseudobrookite ($Fe_2O_3 \cdot TiO_2$) lattice. The phase transformations in the case of maximum oxidation of anosovite by the oxygen of air and water vapors at 700°C and higher temperatures show a similar character: the reactions take place topochemically with the final formation of rutile and the solid solution on the base of pseudobrookite lattice. Three figures, three tables, 19 bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

UDC 669.295.31

3

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

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

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

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

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

AN0012919

UR9027

AUTHOR-- RUMYANTSEV, I., DIRECTOR, SCIENTIFIC-RESEARCH INSTITUTE OF CHEMICAL MACHINE CONSTRUCTION /SRICM/

TITLE-- THE EFFECT OF RESEARCH

NEWSPAPER-- VECHERNYAYA MOSKVA, JANUARY 13, 1970, P 2, COLS 2-5

ABSTRACT-- THE ARTICLE IS A VERY BRIEF REVIEW OF THE ACTIVITIES OF THE SRICM. THE INSTITUTE IS THE LEADING ORGANIZATION IN THE FIELD OF MACHINE DESIGN FOR CHEMICAL INDUSTRY. IT GUIDES THE TECHNOLOGICAL POLICIES AND COORDINATES THE EFFORTS OF OTHER INSTITUTES AND PLANTS. THE FOLLOWING STAFF MEMBERS OF THE INSTITUTE ARE MENTIONED AS ACHIEVERS-- R. KAZAKOV, S. GDALIN, V. SEMENOV, YU. KIRYANOV, YE. CHUVPILO, AND V. ZAVAROV. ALL ARE MEMBERS OF THE COMMUNIST PARTY.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

UDC: 51:621.391

USSR

KIPSHIDZE, Z. Sh.

"Weighted Arithmetical Error-Correcting Codes"

Tr. Vychisl. tsentra AN GruzSSR (Works of the Computing Center of the Academy of Sciences of the Georgian SSR), 1972, 11, No 1, pp 72-79 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V500)

Translation: The author proposes using the following check equation for verifying the operation of addition in digital computer adders:

$$\Delta = \sum_{i=1}^{k} \gamma_i \mu_i - \sum_{i=1}^{k} (\alpha_i + \beta_i) \mu_i + \sum_{i=1}^{k} \delta_i (\mu_i - \mu_{i-1} + (q-1)\mu_i).$$

where k is the number of digits of summands and sum, α_i, β_i, γ_i are the values of the i-th digits of the two summands and the sum, δ_i is the value of the carry which arises in the i-th digital place, μ_i is the weight of the i-th digit, and q is the base of the number system.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

USSR

KIPSHIDZE, Z. Sh., Tr. Vychisl. tsentra AN GruzSSR, 1971, 11, No 1, pp 72-79

In the absence of errors $\Delta = 0$, and in the presence of t-fold errors $\Delta = \sum_{i=1}^{t} \nu_i \mu_i$, where ν_i is the error $(0 < \nu_i < q)$.

In the binary case, t-fold application of the check equation leads to a system of t equations in t unknowns. In error correction, the system must have a unique solution. The case of finding the weight parameters for correcting binary errors in a binary adder is considered. Examples are given of construction of codes with $q = 5$. V. Dyn'kin.

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USSR

UDC: 51:621.391

KIPSHIDZE, Z. Sh., KLIMIASHVILI, M. A., FAYN, S. B.

"On Polynomial Error-Correcting Codes"

Tr. Vychisl. tsentra AN GruzSSR (Works of the Computing Center of the Academy of Sciences of the Georgian SSR), 1972, 11, No 1, pp 80-86 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V497)

Translation: By "polynomial code", the authors mean the set of solutions of the system

$$\sum_{i=1}^{n} a_{ij}x_i(x) = b_j(x),$$

where $a_i(x) = \sum_{s=0}^{k-1} \alpha_{is}x^s$, $i = 1, 2, \ldots, n$; $b_j(x) = \sum_{s=0}^{k-1} \beta_{js}x^s$, $j = 1, 2, \ldots, l$.

To correct t-fold error groups, it is proposed that the coefficients a_{ij} be selected in the form

$$a_{ij} = g^{j(i-1)};\ l = 2t.$$

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USSR

KIPSHIDZE, Z. Sh. et al., Tr. Vychisl. tsentra AN GruzSSR, 1972, 11, No 1, pp 80-86

A tk-fold mixed-degree asymmetric error in a polynomial code is understood to mean asymmetric distortions of the symbols of a code word which take place in conjunction with the same degrees of x in the sequence $(a_1(x), a_2(x), \ldots, a_n(x))$ which is a solution of the initial system in no more than t cases. A method is given for constructing polynomial codes for correcting mixed-degree asymmetric errors.

In addition, a special code is proposed for correcting symmetric errors in two adjacent polynomials over the field *GF* (2). This last code is a solution of the system of equations

$$\sum_{i=1}^{n} a_i(x) = a(x) \pmod 5, \quad \sum_{i=1}^{n} S_i a_i(x) = b(x) \pmod p,$$

where $S_i = \frac{i(i+1)}{2}$, $(p, S_i) = 1$, $p > 2(n+1)$, $i = 1, 2, \ldots$ V. Dyn'kin.

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USSR

KIPSHIDZE, Z. Sh.

"Possibility of Using Weighted Testing to Increase the Reliability of Digital Computers"

Sistemy Avtomatich. upr. [Automatic Control Systems -- Collection of Works], Kiev, 1971, pp 56-58, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V496 by O. Belkin).

Translation: A method is suggested for testing the operation of addition, which is quite simple to achieve in practice. The method allows separate and independent testing of several digits in a digital computer adder.

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1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ON THE PARTICIPATION OF MAMILLARY NUCLEI OF THE HYPOTHALAMUS IN THE REGULATION OF ERYTHROPOIESIS -U-

AUTHOR--KIRAKOSYAN, E.V.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, NR 3, PP 22-23

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RABBIT, BRAIN, ANEMIA, ERYTHROPOIESIS, RETICULOCYTE, LEUKOCYTOSIS, BONE MARROW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0858 STEP NO--UR/0219/70/069/003/0022/0023

CIRC ACCESSION NO--AP0052292

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

2/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0052292

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BILATERAL ELECTOLYTIC COAGULATION OF THE POSTERIOR HYPOTHALAMUS OF RABBITS IN THE REGION OF MAMILLARY NUCLEI CAUSES A PROLONGED WAVE LIKE ANEMIA WHICH WAS MOST MARKED IN THE 3RD AND 16TH WEEK AFTER THE OPERATION. THE FIRST WAVE OF ANEMIA IS ACCOMPANIED BY A RISE OF THE ERYTHROPOIETIC ACTIVITY OF THE BLOOD, RETICULOCYTOSIS, LEUKOCYTOSIS AND AN INCREASED QUANTITY OF ELEMENTS OF THE ERYTHROBLASTIC SERIES OF THE BONE MARROW. AT THE PEAK OF THE SECOND WAVE OF ANEMIA THERE IS NOTED A REDUCTION OF THE QUANTITY OF ERYTHROBLASTIC ELEMENTS IN THE BONE MARROW WITHOUT CHANGES IN THE CONTENT OF RETICULOCYTES, LEUKOCYTES AND ERYTHROPOIENTINS IN THE BLOOD OF ANIMALS.

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USSR

UDC 539.374

KIRAKOSYAN, R. M., Institute of Mechanics, Academy of Sciences, Armenian SSR

"The Minimum Principles and Some Theorems of the Elastoplastic Equilibrium of Bodies During the Action of Force and Temperature Effects"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, No 2, 1973, pp 51-61

Abstract: The paper deals with the quasi-static elastoplastic equilibrium of bodies that are subjected to the action of nonsteady force and temperature effects. The minimum principles of an elastoplastic boundary-value problem for the rates of stress-strain variation are generalized for the case of nonsteady temperature fields. In the case of arbitrarily hardening materials, an evaluation of the work of increments of real stresses upon the increments of plastic deformations is obtained on the basis of thermoelastic solutions. Some theorems and inequalities are established, which link the solution of the boundary-value problem in the thermoelastic formulation to the one in the thermoelastoplastic formulation. 1 reference.

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USSR

UDC 519.2

KIRCHEV, K. P.

"General Form of the Correlation Function of a Class of Nonstationary Random Processes"

Dokl. Bolg. AN (Reports of the Bulgarian Academy of Sciences), 1971, Vol 24, No 11, pp 1411-1443 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V117)

Translation: The author investigates the random processes of the type of $h(t) = e^{iAt}h(0)$ where A is a bounded linear operator. Assuming that A is a dissipative operator with a nuclear imaginary component and imposing certain additional restrictions on A, the author describes the correlation functions of such processes. For other restrictions on the operator A, this problem was studied in the book by M. S. Livshits and A. A. Yantsevich (Teoriya operatornykh uzlov v gil'bertovykh prostranstvakh (Theory of Operator Nodes in Hilbert Spaces), Kharkov State University Press, 1971).

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USSR UDC 519.2

KIRCHEV, K. P.

"Spectral Expansions of Some Classes of Nonstationary Processes"

Dokl. Bolg. AN (Reports of the Bulgarian Academy of Sciences), 1971, Vol 24, No 11, pp 1601-1603 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V118)

Translation: For processes of the type of $h(t) = e^{iAt}h(0)$ where A is the dissipative operator with a nuclear imaginary component satisfying some additional conditions, the author, generalizing the results of M. S. Livshits and A. A. Yantsevich, obtains a representation of the damping oscillators in the form of the sum (possibly continuous).

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USSR

UDC: 519.2

KIRCHEV, K. P.

"Concerning a Class of Nonstationary Random Processes"

Teoriya funktsiy, funkts. analiz i ikh pril. Resp. mezhved. temat. nauch. sb. (Theory of Functions, Functional Analysis, and Their Applications. Republic Interdepartmental Thematic Scientific Collection), 1971, vyp. 14, pp 150-169 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V87)

Translation: It is assumed that the random process $x(t)$ treated as a curve in separable Hilbert space H can be represented in the form $x(t)=e^{tA}x(0)$, where A is a linear bounded operator in H. It is further assumed that $\operatorname{Im}A\geq 0\ (\operatorname{Im}A=-i(A-A^*))$, the spectrum of A is exclusively real, $\operatorname{Im}A$ has a finite Spur, and the determinant of the characteristic matrix function $w_A(\lambda)$ of operator A (M. S. Brodskiy, RZh-Mat, 1970, 1B590) takes the form

$$\det(w_A(\lambda))=e^{i\int_0^l \frac{dx}{\lambda-\alpha(x)}},$$

where $\alpha(x)$ is non-decreasing and continuous on the interval $[0,l]$, and $\lambda\in[\alpha(0),\ \alpha(l)]$. Then, as the author shows, the correlation function $V(t,s)$ of process $x(t)$ can be represented in the form

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USSR

KIRCHEV, K. P., Teoriya funktsiy, funkts. analiz i ikh pril. Resp. mezhved. temat. nauch. sb., 1971, vyp. 14, pp 150-169

$$V(t,s)=F(t-s)+\tilde{V}(t,s).$$

where F is a positive-definite function with finite spectrum, and $\tilde{V}(t,s)$ takes the form

$$\tilde{V}(t,s)=\int_0^t e^{i\alpha(x)(t-s)}dK_x+\int_0^\infty\sum_{m=1}^{r}\Phi_m(t,\,t+\tau)\,\overline{\Phi(t,\,s+\tau)}\,d\tau.$$

Here

$$K_x(x)=\int_0^x\sum_{k=0}^{r}|\psi_{xk}(\xi)|^2d\xi-\int_0^\infty\sum_{m=1}^{r}\Phi_m(x,\,t)\,\overline{\Phi_m(x,\,t)}\,dt,$$

where $\{\psi_{0k}\}$ is some sequence of functions for which

$$\int_0^t\sum_{k=0}^{r}|\psi_{xk}(\xi)|^2d\xi<\infty,\quad \Phi_m(x,\,t)=\frac{1}{2\pi i}\int_\gamma e^{t\lambda t}\left\{\int_0^x\frac{\psi_{0m}(\xi)}{\lambda-\alpha(\xi)}e^{i\int_\xi^x\frac{d\eta}{\lambda-\alpha(\eta)}}d\xi\right\}d\lambda,$$

γ is an arbitrary contour encompassing the segment $[\alpha(0),\,\alpha(l)]$, and $r(l<\infty)$ is the rank of nonstationarity of process $s(t)$ defined as the greatest rank of all quadratic forms of type

$$\sum_{\alpha,\beta=1}^{n}w(t_\alpha,\,t_\beta)\xi_\alpha\bar{\xi}_\beta\quad(n=1,2,\ldots,\,-\infty<t_1<t_2<\ldots<t_n<\infty),$$

where $w(t,s)=-\frac{\partial}{\partial\tau}V(t+\tau,\,s+\tau)|_{\tau=0}$. M. Gordin.

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USSR UDC 576.851.45.098.31:577.158.8

GOLUBINSKIY, YE. P., RUBLEV, B. D., KIRDEYEV, V. K., and SAGATOVSKIY, V. N., Rostov-na-Donu Antiplague Institute

"Cytochromes of Plague Bacteria"

Moscow, Voprosy Meditsinskoy Khimii, Vol 19, No 1, Jan/Feb 73, pp 38-42

Abstract: Differential spectrophotometry of intact cells and empty membranes of Pasteurella pestis strains EV and No 17 revealed beta and alpha absorption maxima, indicating the presence of cytochromes b_1, b, and a_2. Photoreactivation of respiration with monochromatic blue and green light (400-480 and 510-600 mmu) in a 1:5 mixture of oxygen and carbon monoxide also established the presence of cytochrome O, which is the terminal oxidase in the plague bacterium's electron transfer chain, reacting directly with oxygen. The quantity of cytochromes in P. pestis is approximately the same as in other heterotropic microorganisms. Comparison of the concentration of cytochromes per mg of intact bacteria and per mg of empty membranes indicates that the cytochromes are attached to the membranes.

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Microbiology

UDC 576.851.45.098(612.262:612.398.145.1)

USSR

GOLUBINSKIY, Ye. P.; RUBLEV, B. D.; KIRDEYEV, V. K.; Antiplague Institute, Rostov-na-Donn

"Oxidative Phosphorylation in Plague Microbes"

Moscow, Voprosy Meditsinskoy Khimii, Vol 17, No 5, Sep/Oct 71, pp 512-516

Abstract: The oxidation of NAD-N_2 in subcellular preparations of two P. pestis strains, EV and No 17, was combined with phosphorylation. The highest P/O ratio (0.58) was noted for a mixture of fractions of cytoplasmic membranes and the soluble proteins of the microbial cell. The efficiency of oxidative phosphorylation in P. pestis preparations depends on the concentration of inorganic phosphate in the test medium, as well as on the oxidation process during incubation of the microorganism. Sodium amytal, antimycin A, potassium cyanide and 2,4-dinitrophenol inhibit, in varying degrees, NAD-N_2 oxidation and associated phosphorus esterification.

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USSR

UDC 621.791.77.019

KIRDO, I. V., Institute of Electric Welding imeni Ye. O. Paton of the Ukrainian SSR Academy of Sciences

"Continuous Flaw Detection of a Weld During High-Frequency Welding of Thin-Walled Aluminum Pipe"

Kiev, Avtomaticheskaya Svarka, No 7, 1971, pp 55-57

Abstract: A technological process for manufacturing aluminum radiator pipe by high-frequency welding was proposed earlier by the Institute of Electric Welding imeni Ye. O. Paton jointly with the Scientific Research Institute of Motor Vehicle Industry Technology and the Gor'kiy Motor Vehicle Plant [Kirdo, et al., Avtomaticheskaya svarka, No 10, 1967]. A system for continuous flaw detection of the weld and reliable rejection of unsealed radiator pipes during the process of manufacturing them is described for automation of quality control for the developed high-frequency welding process. The basic electroinductive method of flaw detection was used. The resolution capacity of the monitoring procedure depends on the design of the sensor, primarily on the dimensions of the signal winding sections and the frequency of the current feeding the exciting coil. After a series of experimental tests, the described sensor design was developed. The automated weld quality control system with

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USSR

KIRDO, I. V., Avtomaticheskaya Svarka, No 7, 1971, pp 55-57

flaw indication was tested when welding experimental lots of pipe with a total length of more than 50,000 meters. It demonstrated good sensitivity and reliability during prolonged operation. The primary requirements placed on the system were sensitivity to identical and group flaws greater than 0.5 mm long with a pipe speed of up to 60 m/min, sensitivity to elongated discontinuities up to poor penetration along the entire length of the pipe, and storage of the flaw signals for output to a secondary automated reject system.

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KIRDO I. V.

AA0052671 UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 2/70

243751 TUBE WELDING CONTROL monitors the temperature of the edges of the joints at a certain point between an HF coil and a pair of upsetting rollers by a scanning photoelectric pyrometer. The maximum temperature is turned into a signal to control the power of the HF heating coil, and the distance at which it occurs from the centre of the upsetting rollers is used as a signal to control the amount of upset by displacing the rollers relative to each other.

13.7.67 as 1173535/25-27 I.V. KIRDO et al. E.O. Paton Electric Welding Inst. (1.10.69) Bul. 17/ 14.5.69. Class 21h, Int. Cl. B 23k.

Kirdo, I. V.; Pachentsev, I. V.; Pachentsev, Yu. A.; Skachko, Yu. N.
Institut Elektrosvarki im. Ye. O. Patona

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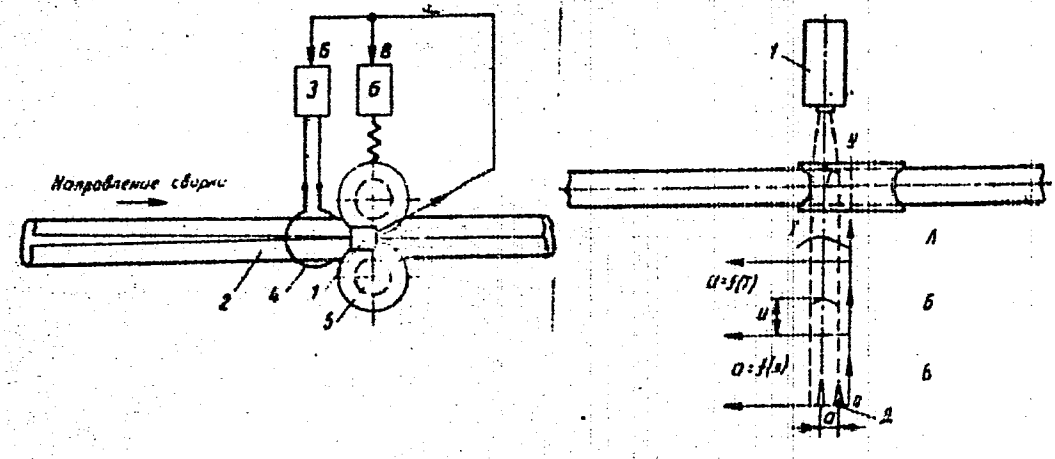

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USSR UDC 533.951.08

KIRDYASHEV, K. P., ZAIKINA, A. N.

"Effect of Low Frequency Oscillations on Attenuation of a Superhigh-Frequency Signal in Plasma Beam Discharge"

Moscow, Radiotekhnika i Elektronika, Vol XVI, No 3, March 1971, pp 358-365

Abstract: This article contains a study of attenuation of a superhigh-frequency signal in plasma-beam discharge under operating conditions with intense low-frequency oscillations, and the contribution of scattering to the anomalous attenuation is determined. The attenuation of the signal is measured. The anomalous attenuation conditions are discovered, and the relation of the attenuation characteristics and signal amplitude fluctuations to the intensity and spectrum of the low-frequency oscillations is established. The mechanism of scattering of the probing signal in plasma oscillations arising as a result of the beam-drift instability and leading to anomalous attenuation is investigated. Numerical estimates and a qualitative study of the effect of low-frequency oscillations permit the conclusion to be drawn that the contribution of this phenomenon is predominate by comparison with the mechanism of braking cyclotron absorption. Scattering of the signal in the plasma oscillations complicates

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USSR

KIRDYASHEV, K. P., et al., Radiotekhnika i Elektronika, Vol XVI, No 3, March 1971, pp 358-365

determination of the plasma density by the superhigh-frequency probe method, but additional data can be obtained on the intensity and spectrum of the low-frequency oscillations. It is pointed out that the values of the electron temperature and density determined by the probe method and an interferometer coincide with respect to order of magnitude with the values obtained under analogous conditions on other experimental devices and can be used for approximate calculations. The experimental data are plotted for various pressures and magnetic fields.

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KIRDYASHKIN, A. F.

COMPUTERS

SO: FOREIGN PRESS DIGEST
31 Aug 71

UDC 002.513.5:681.3

71. USSR

BALAFANOV, Ye., KACHURINA, O. K., KIRDYASHKIN, A. F., KUSEKOV, B., LYAN, S. N., USTINOV, V. A., TAZHIBAYEV, B. B., TRET'YAKOV, V. V., and FEDOROV, V. V.

"The MS-1 Information Retrieval System"

Tr. In-ta Mat. i Mekh. AN KazSSR (Works of the Institute of Mathematics and Mechanics of the Academy of Sciences, Kazakh SSR), No 1, 1970, pp 298-302 (from R-Zh -- Informatika, No 4, Apr 71, Abstract No 71.4.169 (71R--1250))

Translation: An approach to the creation of a system for collection, storage, and processing of technological information from a controlled process is described. One variant of an information retrieval system is presented. It includes technical resources, the organization of information arrays in computer storage, and a complex of programs for processing information.

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USSR

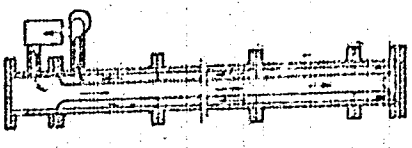
UDC 621.372.822

BRUTYAN, V. G., KIRDYASHOV, V. A., SUKHOV, Yu. I.

"A Device for Drying a Waveguide"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 21, Jul 71, Author's Certificate No 308471, Division H, filed 23 Jan 70, published 1 Jul 71, p 196

Translation: This Author's Certificate introduces a device for drying a waveguide. The installation contains hermetic sealing devices and pipe fittings. As a distinguishing feature of the patent, the weight and overall dimensions are reduced by placing a thin dielectric cylinder inside the waveguide sections with ends in the form of expanding sleeves held in connectors between the waveguide sections. The input and output fittings are in direct proximity with each other.



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USSR UDC: 389.0.009.0I(4:I08):535.231.2.089.6

Krakhmal'nikova, G. A., Kirenkov, I. I.

"Standardization of the Black Body Models of the CEMA Countries at the Gold Point"

Moscow, Metrologiya, No. 8, 1972, pp. 21-27.

Abstract: The plan of work of the permanent CEMA commission for 1968-1970 included a theme on "standardization of the basic parameters of black bodies at the equilibrium temperature of solid and liquid gold." Based on analysis of results of measurements, the following conclusions can be drawn. 1) Differences in results of measurement of the gold point in laboratories participating in the work were slight. The use of identical black body models in all of these laboratories can have only an insignificant influence on the national high temperature scales. 2) The standardization work has supported exchanges of experience, mutual familiarization with methods of apparatus and has revealed the sources of the slight differences present. 3) Investigations in the area of theoretical and experimental determination of corrections to black body models should be continued. 4) Temperature scales should be standardized over a broader temperature range. 5) The question should be studied as to whether it is expedient to develop and create standard equipment for realization of the gold point in the CEMA countries.

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USSR UDC 539.4

REGEL', V. R., LEKSOVSKIY, A. M., KIREYENKO, O. F., Leningrad

"Study of the Kinetics of the Growth of Cracks in Polymers. Report 2. Fractographic Study of the Kinetics of Crack Growth"

Problemy Prochnosti, No 10, 1971, pp 12-15.

Abstract: This report discusses information on the kinetics of growth of main cracks which can be extracted from experimental data on the dependence of the dimensions of the smooth zone on the rupture surface on test conditions. The fractographic method used is a simple method, based on measurement of the dimensions of smooth zones on rupture surfaces for specimens of equal durability, of producing the values of parameters β, C^* and V_0, characterizing the kinetics of the development of main cracks, without performing direct and generally difficult experiments involving direct measurement of crack propagation velocity in massive and nontransparent specimens. The author's believe that further development and application of the fractographic method can produce significant information on the kinetics and nature of the rupture process, particularly when these data are difficult to produce by either methods.

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USSR

UDC 539.4

REGEL', V. R., LEKSOVSKIY, A. M., KIREYENKO, O. F. (Leningrad)

"Study of the Kinetics of the Growth of Cracks in Polymers. Report 1. Development of Through Cracks in Thin Polymer Films in Static Extension"

Problemy Prochnosti, No 10, 1971, pp 3-11.

Abstract: This article studies the problem of the regularities of growth of main tracks, naturally developing from microcracks or created by notching. The article is basically limited to analysis of the results of study of regularities of the growth of main cracks in a comparatively narrow range of growth rates which defines the lifetime of a specimen under load. It is determined that the regularities of the development of main cracks are determined by thermofluctuation processes occurring at the tips of the cracks. The study of the kinetics of crack growth allows more information to be produced on the nature of the process of rupture and the physical sense of coefficients included in formulas describing rupture than the study of the dependence of durability on test conditions.

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USSR

UDC 539.214;539.374

AKHMED'YANOV, I. S., KIREYEV, A. V.

"Integration of Differential Equations for the Elastic-Plastic Bending of a Spherical Shell Under an Arbitrary Load"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1972, No. 63, pp 33-39 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V449)

Translation: The problem of integrating the nonlinear differential equations of elastic-plastic deformations of a spherical shell under an arbitrary load is discussed. By expansion into Fourier series the component of the surface load and the nonlinear terms of the equation are reduced to a system of ordinary differential equations which is solved by consecutive approximations. Expressions are obtained for the forces, moments, and displacements for each approximation. Authors' abstract.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320015-5

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UDC 669.1:539.216.2:538.249

KIRENSKIY, L.V., PYN'KO, V.G., and TEMCHENKO, N.SH., Institute of Physics, Siberian Branch of the Academy of Sciences USSR and Krasnoyarsk Pedagogical Institute

"Uniaxial Magnetic Anisotropy in Single-Crystal Fe-Co Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 2, Feb 71, pp 324-329

Abstract: A study was made to explain the nature of the uniaxial anisotropy observed in single-crystal Fe-Co Films. The films were prepared by vacuum condensation of Fe-Co vapors on the surfaces of LiF and MgO single crystals for which a portion was condensed in a magnetic field of approximately 150 oersted using a horseshoe magnet. Films having a b.c.c lattice and containing up to 70% Co were investigated. Measurements were made of the constant of uniaxial anisotropy K_u for films condensed in a magnetic field and without it. The greatest values of K_u (up to 10^5 erg/cm3) were observed in films with 70% Fe and 30% Co. Values of K_u were measured after cooling the films to the temperature of liquid nitrogen in the magnetic field. The results obtained testify to the fact that the reason for a large unixial anisotropy of the films is directed ordering of the alloy. The authors thank N.M. REPIN for his assistance in conducting the experiments. 3 tables, 5 bibliographical references.

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USSR UDC: 621.396.6:621.318

KIRENSKIY, L. V.

"Some Superhigh-Frequency and Magnetic Properties of Chemically Deposited Films"

V sb. Fiz. magnitn. plenok (Physics of Magnetic Films), Vyp. 3, Irkutsk, 1970, pp 35-42 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V424)

Translation: A standard SHF spectrometer is used to study the basic SHF parameters of films -- the width and intensity of the ferromagnetic resonance line, the components of complex susceptibility. Processes of quasi-static magnetic reversal and the structural properties of films are also studied. The objects of study were films chemically deposited on copper and polyethylene terephthalate substrates. An investigation was made of the effect of conditions of deposition and annealing on film parameters. The results show that the chemical method of deposition is practically as good as the method of thermal vaporization in a vacuum, and makes it possible to regulate the SHF parameters of films over extensive intervals. The chemical method has an advantage over the electrolytic method in that films can be deposited on dielectric substrates. Three illustrations, bibliography of nine titles. M. B.

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UDC 538.56.01+621.38.029.64

VOROBEYCHIKOV, E. S., KIREYEV, A. M., KORCHAGIN, YU. A., POYZNER, B. N.

"Non-Autonomic Operation of a Reflex Klystron"

Kiev, Izvestiya VUZ -- Radioelektronika, Vol 13, No 8, 1970, pp 923-933

Abstract: The object of this paper is to demonstrate the merit of proving that multifrequency uhf oscillators are possible, comparing them with lasers, and explaining the characteristics of their non-autonomic operation. The authors begin by considering a device consisting of a reflex klystron connected to a waveguide line, and obtain the equations for the amplitudes and frequencies of the oscillations produced by the device. Since the equations they derive are of the same form as those of the gas laser, there is a definite analogy between multifrequency oscillation systems in the optical and uhf ranges. A table is presented listing the comparative aspects of the klystron and the helium-neon laser. The non-autonomous operation of the klystron is investigated by generalizing the known results of laser analysis, and an experiment for checking the findings of this investigation is described. The results of the experiment agree closely with the results obtained from theory.

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1/2 036 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--SPECIAL FEATURES OF FRINGE RADIATION OF POLYGONAL APERTURES -U-

AUTHOR-(02)-KIREYEV, E.K., KINBER, B.E.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, VOL 15, NO 2, 1970, PP 246-251

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ANTENNA RADIATION PATTERN, ANTENNA EFFECTIVE APERTURE, ELECTROMAGNETIC RADIATION, ANTENNA SIDE LOBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/1332 STEP NO--UR/0109/70/015/002/0246/0251

CIRC ACCESSION NO--AP0110908

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2/2 036 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0110908

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FRINGE RADIATION OF APERTURE ANTENNAS IS CONSIDERED AS THE RESULT OF GRINGE WAVE INTERACTION. SPACE RADIATION PATTERNS OF VARIOUS POLYGONAL APERTURES WITH NONPARALLEL SIDES ARE PRESENTED. IT IS HSOWN THAT IN CONTRAST TO RECTANGUALR OR NEARLY SIMILAR APERTURES, WHERE THE PRIMARY PORTION OF THE FRINGE RADIATION IS CONCENTRATED ALONG RAYS NORMAL TO THE APERTURE EDGES, AND IN CONTRAST TO ROUND (OVAL) APERTURES WHERE THE FRINGE RADIATION IS UNIFORMLY DISTRUBITED ALONG ALL DIRECTION, THE POLYGONALS WITH NONPARALLEL SIDES MAKE IT POSSIBLE TO REDUCE THE FRINGE RADIATION LEVEL IN A FINITE REGION OF A SOLID SPHERE. CALCULATIONS WERE CARRIED OUT FOR A FIELD IN AN APERTURE USING KIRCHHOFF'S APPROXIMATION FOR A QUADRANGEL WITH ALPHA EQUAL 0;15;30 AND 45DEGREES AND ALSO FOR AN DQUILATERAL TRIANGLE. THE RESULTS SHOW THAT: 1) THE FRINGE RADIATION OF POLYGONAL ABSTRACT: APERTURES IS CONCENTRATED BASICALLY IN BANDS OF FRINGE WAVE LOBS; 2) THE LEVEL OF FRINGE RADIATION IN THESE REGIONS IS DETERMINED BY TWO FACTORS, FRINGE WAVE AMPLITUDE AND FRINGE WAVE INTERFERENCE AT DIFFERENT EDGES; 3) THE APPLICATION OF POLYGONAL APERTURES WITH NONPARALLEL EDGES MAKES IT POSSIBLE TO ELIMINATE THE INTERFERENCE. HOWEVER, THE RELATIVE VALUE OF THE APERTURE PERIMETER INCREASES SIMULTANEOUSLY, LEADING TO AN INCREASE IN FRINGE WAVES AMPLI E; AND 4) DURING OPTIMUM SELECTION, WHICH PROVIDES A COMPROMISE BETWEEN THE INICATED CONTRASTING TENDENCIES, THE APPLICATION OF POLYGONAL APERTURES MAKES IT POSSIBLE TO DECREASE THE LEVEL OF SIDE RADIATION AS COMPARED WITH THE LEVEL OF SIDE RADIATION OF RECTANGULAR AND CIRCULAR APERTURES.

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KIREYEV, E. K., KINBER, B. E.

"Special Features of Fringe Radiation of Polygonal Apertures"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 2, 1970, pp 246-251

Abstract: The fringe radiation of aperture antennas is considered as the result of fringe wave interaction. Space radiation patterns of various polygonal apertures with nonparallel sides are presented. It is shown that in contrast to rectangular or nearly similar apertures, where the primary portion of the fringe radiation is concentrated along rays normal to the aperture edges, and in contrast to round (oval) apertures where the fringe radiation is uniformly distributed along all direction, the polygonals with nonparallel sides make it possible to reduce the fringe radiation level in a finite region of a solid sphere. Calculations were carried out for a field in an aperture using Kirchhoff's approximation for a quadrangle with $\alpha = 0;15;30$ and 45° and also for an equilateral triangle. The results show that: 1) the fringe radiation of polygonal

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KIREYEV, E. K., et al, Radiotekhnika i Elektronika, Vol 15, No 2, 1970, pp 246-251

Abstract: apertures is concentrated basically in bands of fringe wave lobs; 2) the level of fringe radiation in these regions is determined by two factors -- fringe wave amplitude and fringe wave interference at different edges; 3) the application of polygonal apertures with nonparallel edges makes it possible to eliminate the interference. However, the relative value of the aperture perimeter increases simultaneously, leading to an increase in fringe waves amplitude; and 4) during optimum selection, which provides a compromise between the indicated contrasting tendencies, the application of polygonal apertures makes it possible to decrease the level of side radiation as compared with the level of side radiation of rectangular and circular apertures.

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UDC 621.3.049.75

NEFEDOV, V. S., YAKUNIN, V. A., BOLOTOV, G. V., KIREYEV, I. V., UMOV, V. S., GRISHCHENKO, G. V., VAYSBURG, A. O.

"A Method of Making Multilayered Printed-Circuit Boards"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 2, Jan 71, Author's Certificate No 290492, division H, filed 18 Dec 67, published 22 Dec 70, pp 169-170

Translation: This Author's Certificate introduces a method of making multilayered printed-circuit boards which is based on stacking the boards followed by interconnection of the current-conducting sections. As a distinguishing feature of the patent, the manufacturing technique is simplified and the resolving capacity of the boards is improved by connecting the outer current-conducting layers to the inner layers, and interconnecting the inner layers, the interlayer connections of the boards being made by current-conducting pins.

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KIREYEV, N.

"Attention! Focus of Bacterial Infection!"

Moscow, Sovetskiy Krasnyy Krest, No 11 (137), 1971, pp 20-21

Translation: A territory, along with the population, bodies of water, vegetation, structures, and other objects located on its which is exposed to direct bacterial infection, is called a focus of bacterial infection.

This area is quarantined. That is, there is a system of strict anti-epidemic measures for isolation of the entire area and eradication of the infectious diseases in it.

To prevent the spread of the epidemic beyond the limits of the focus, it is surrounded with an armed guard and entering and leaving the area is forbidden. Contact between individual groups of the population is stopped unless there is a special need. Institutes, schools, theaters, clubs, movies, children's institutions, etc. are closed. A specially created garrison service sees to the observance of the quarantine measures.

The people in focus of bacterial infection are obliged to strictly observe all measures recommended by the civil defense medical service. Special attention should be paid to personal and public hygiene and disinfection of

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KIREYEV, N., Sovetskiy Krasnyy Krest, No 11 (137), 1971, pp 20-21

water and food products.

Reliable and effective measures for protecting the population from infectious diseases involve emergency and specific prophylaxis.

For emergency prophylaxis which is used up to the time when the pathogen is established, br d spectrum antibiotics are used.

After the pathogen is established, specific prophylactic inoculations are used to decrease the susceptibility of the population to the disease.

If it turns out that the infection in the focus is not especially dangerous, then instead of a quarantine, the area is put under observation; i.e., a system of limited measures is created within which movement is allowed within the territory of the focus and communication between individual groups of the population is also allowed. Under the observation system, the medical service searches out those who are ill and isolates them.

In a focus of bacterial infection, medical aid is given at the first stage, i.e., directly in the area. This is done to prevent spread of the infection.

As a rule, all antiepidemic work in the area is headed by the anti-epidemic service and the manager of the rayon health department.

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KIREYEV, N., Sovetskiy Krasnyy Krest, No 11 (137), 1971, pp 20-21

With the central rayon infirmary as a base, a hospital is set up for isolation and treatment of infected people. To reinforce the measures taken in the focus of bacterial infection, the central rayon hospital is augmented by a sanitary unit and a mobile epidemic-control brigade by an order from the chief of the rayon-civil defense.

At this point, where the type of infection has still not been established, a mobile epidemic-control brigade and a sanitary unit have been assigned fron another rayon to the local health agencies.

The work of the sanitary unit and also the public sanitary inspectors and members of the sanitary stations will be carried out under the guidance of the district doctor.

The work consists of door-to-door canvassing to provide all inhabitants with emergency prophylaxis (giving them broad-spectrum antibiotics on the order of the district doctor) and then going to the homes of the ill and looking after them, not allowing contacts and, after a diagnosis has been made, taking measures for hospitalization and doing a final disinfection by washing the walls, floors and ceilings with a 3% solution of chloramine or some other solution, according to the orders of the district doctor. Hospitalization will be provided at the local hospital.

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KIREYEV, N., Sovetskiy Krasnyy Krest, No 11 (137), 1971, pp 20-21

It is necessary to take everyone's temperature both morning and evening and, if a patient has a high temperature, to isolate the infected one to prevnet contact. Sanitary and hygienic measures should also be taken and there should be conversations on themes dealing with sanitation. In all homes in the focus of bacterial infection, the sanitary inspector will teach the population how to conduct daily continued disinfection and to disinfect food products. They are reminded that wooden crates must be washed with a 20% solution of calcium hypochlorite mixture and glass dishes must be soaked for 2 hours in a 2% solution of chloramine. Canned goods must be boiled for 30min in a 3% solution of soda, and bulk products and meat must be boiled for 2 hours. Only boiled water is permitted.

After the cause of the infection has been established, members of the sanitary unit will be recruited to give specific vaccinations to the population This must be preceded by additional instructions. Dry live vaccines are used for plague, smallpox, tularemia, and brucellosis. Liquid vaccines are used for cholera and anthrax. If necessary, one can simultaneously give inoculations for plague, tularemia, and brucellosis. If it is established that there is a quarantine infection (plague, small pox, or cholera) then the state of quarantine will be maintained until the infection is completely eliminated. Depending on

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KIREYEV, N., Sovetskiy Krasnyy Krest, No 11 (137), 1971, pp 20-21

the nature of the pathogen, work with plague and smallpox will be done in an antiplague suit and work with cholera will be done without it, but with observance of all measures for protection. All work will be continued until the incubation (latent) period of the disease has passed after the last patient has arrived: with plague and yellow fever it is 6 days with cholera, 5 days; and with smallpox, 14 days.

The instruction,s also take into account rules of conduct and work in areas of infection, methods of disinfection of places, and other precautionary measures. Ways are shown for entering the area. After that, an order is given to all medical workers to take antibiotics from their individual medical kits as emergency prophylaxis.

Since the type of infection is not known the focus of bacterial infection is entered gas masks must be donned.

While working in the focus, it is forbidden to take off the gas mask without permission. When this order is given, it is forbidden to drink water, smoke, or eat until disinfection treatment has been completed. If it is established that there is no especially dangerous pathogen in the area and it is possible to work without a gas mask, then before each meal it is necessary to wash hands withsoap and to drink only boiled water. Bread must be toasted

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KIREYEV, N., Sovetskiy Krasnyy Krest, No 11 (137), 1971, pp 20-21

over a fire before eating and vegetables and fruits may be eaten only after they have been washed in boiling water.

Every sanitary brigade worker must be recommend these rules to the inhabitants of the houses to which they are assigned.

If the sanitary brigade workers are assigned to caring for patients in the infectious disease hospital, they must without fail put on a gown, a kerchief, a cotton and gauze mask, and rubber gloves and upon completion of their work, they must do a complete disinfection.

If it is necessary to go from one ward to another, they must put on a clean gown each time. Before linen is sent for washing, it is soaked in a 3% solution of chloramine and kept there for no less than 2 hrs. Morning and evening, the floors in the wards are also washed with a 3% solution of chloramine. The dishes used by the patients are boiled after each meal. Before each nursing operation it is necessary to wash hands in 0.5% solution of chloramine.

Sanitary brigade workers assigned to testing the external environment must observe the same precautionary measures as those who work in the infectious disease hospital. In an accompanying note, they must state precisely the time, date, and place of the test, the name of the material and where the given specimen is being sent.

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KIREYEV, N., Sovetskiy Kreasnyy Krest, No 11 (137), 1971, pp 20-21

These are the basic rules of operation for sanitary brigade workers attached to a focus of bacterial infection.

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USSR UDC 519.281

KIREYEV, N. G., DABAGYAN, A. V., LIKHOSHERST, N. V.

"Determination of Dynamic Parameters of Unstable Objects"

Tekhn. Kibernetika (Khar'kov. Otd.). Vyp. 1 [Engineering Cybernetics (Khar'kov Division), No. 1 -- Collection of Works] Kiev, 1970, pp 52-59 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V205 by V. Noskov).

Translation: A linear unstable system is described by the system of equations

$$\dot{x}_i = \sum_{j=1}^{n} a_{ij}(t)\, x_j(t) + F_i(t) \quad (i = 1, 2, \ldots, n).$$

It is assumed that $a_{ij}(t) = \sum_{k=0}^{m} a_{ij}^{(k)} t^k$, $F_i(t) = \sum_{k=0}^{m} f_i^{(k)} t^k$.

Using the least squares method, estimates are sought for the coefficients $a_{ij}^{(k)}$ and $f_i^{(k)}$ with respect to known $x_j(t)$. The results of a mathematical experiment (n=6) are studied in detail in cases of various a priori information. In one version of the experiment, normal noise of known intensity is added to the observations $x_i(t)$.

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UDC 533.95

KIREYEV, N. N., SMOLYANSKIY, S. A.

"Possibility of Using a Nonstationary Magnetoactive Plasma for Amplification and Conversion of Superhigh Frequency Oscillations"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2221-2224

Abstract: A study was made demonstrating that the conclusion of Lugovoy [V. N. Lugovoy, ZhETF, No 41, 1562, 1961; V. N. Lugovoy, Izv. vuzov MVSSO SSSR (Radiofizika), No 6, 695, 1963] of the impossibility of using cyclotron resonance to obtain systems with negative absorption is erroneous and that a periodically nonstationary magnetoactive plasma is potentially unstable with respect to an external signal and can be used for amplification or conversion of the spectral composition of electromagnetic oscillations. The propagation of a plane monochromatic electromagnetic wave in an infinitely homogeneous Lorentzian plasma placed in a spatially uniform alternating magnetic field $\vec{H}(t) = \vec{H}_0 + \vec{H}_1 \cos \Omega t$ is considered. A formula is derived which relate the frequency of the alternating magnetic field to the frequency of the external electromagnetic field for which the amplification or generation becomes possible: $k = 2\omega/\Omega$, where k is a nonnegative integer. The maximum rate of variation of the power of the electromagnetic wave is observed for $k = 2$.
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USSR UDC 621.376.222.029.64:533.9

KATS, L. I., KIREYEV, N. N., SMOLYANSKIY, S. A.

"On the Problem of Modulating Electromagnetic Radiation by a Gas-Discharge Plasma in a Variable Magnetic Field"

Moscow, Radiotekhnika i Elektronika, vol 16, No 12, Dec 71, pp 2273-2277

Abstract: A theory is constructed in the "average electron" approximation for a microwave modulator of electromagnetic radiation based on utilizing magneto-optical effects in a gas-discharge plasma located in an alternating field. The results show the possibility of developing such modulators for the millimeter and submillimeter bands in the case of static and rf magnetic field strengths suitable for practical use. The authors thank B. K. Tsykin, D. I. Trubinkov and M. A. Khodorkovskiy for discussing the results of the work. Two figures, bibliography of seven titles.

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USSR

UDC: 621.315.592

ZIBOROV, A. I., BEZBORODOVA, V. M., and KIREYEV, P. S.

"$Cd_xHg_{1-x}Se$ Photosensitivity Spectra"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 2045-2047

Abstract: This brief communication provides the results of experiments designed to investigate the photosensitivity spectra of $Cd_xHg_{1-x}Se$ compounds made by the Bridgman method in a vertical oven. Formation of the solid solutions of cubic structure for values of x up to 0.8 was roentgenographically confirmed, and the measurements made were subject to an average error of $\pm 2.5\%$. A description of the preparation procedure for the specimens is given; their photosensitivity spectra were obtained with a device using the IKS-21 spectrometer, narrow-band amplifier U-2-6, and synchronous detector SD-1. The spectra were shifted to the long-wave side with increasing mercury content of the solution; at the same time, the bandwidth increased and the photosensitivity dropped with increasing shadow conductivity. Curves are plotted for the maximum spectral distribution energy as a function of the specimen composition at 77° K, and for other obtained results.

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1/2 076 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CHARACTERISTICS OF P N JUNCTIONS IN PBTE -U-

AUTHOR-(05)-ZHEMCHUZHINA, YE.A., FIGUROVSKIY, YE.N., IVANOV, A.I., INOZEMTSEV, K.I., KIREYEV, P.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, VOL. 15, NO. 3, 1970, PP 546-550

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--PN JUNCTION, LEAD, TELLURIDE, SINGLE CRYSTAL, MANUFACTURING METHOD, TEMPERATURE GRADIENT, ARGON, ATMOSPHERE, CRYSTAL GROWTH, ELECTRON HOLE, VOLT AMPERE CHARACTERISTIC, JUNCTION DIODE, IR SENSOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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CIRC ACCESSION NO--AP0139945

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CIRC ACCESSION NO--AP0139945

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALTHOUGH LEAD TELLURIDE HAS SOME INTERESTING PROPERTIES, ITS P N JUNCTIONS HAVE NOT BEE GIVEN ENOUGH ATTENTION. THIS ARTICLE CONSIDERS THE PROBLEMS IN THE WAY OF OBTAINING PBTE MONOCRYSTALS, THE MANUFACTURE OF THE P N JUNCTIONS AND THE INVESTIGATION OF SOME OF THEIR CHARACTERISTICS. PBTE IS MADE FROM 99.999PERCENT PURE LEAD AND TELLURIUM, BY WEIGHT, BY THE TEMPERATURE GRADIENT METHOD. THE OVEN IN WHICH THE COMPOUND IS SYNTHESIZED, AND ITS TEMPERATURE DISTRIBUTION WITH HEIGHT ARE SOWN IN A DIAGRAM. THE SYNTHESIS WAS MADE IN AN ATMOSPHERE OF SPECTRAL ARGON, AND THE OPERATING TEMPERATURE IN THE SYNTHESIS ZONE AND CRYSTAL GROWTH ZONE WAS MAINTAINED WITH AN ACCURACY OF PLUS OR MINUS 0.5PERCENT C. THE ELECTRON HOLE JUNCTIONS WERE MADE BY THREE METHODS: DIFFUSION OF THE LEAD; VAPORIZATION OF THE TELLURIUM; DIFFUSION OF INDIUM IN THE PBTE. DETAILS OF EACH OF THESE METHODS ARE GIVEN. THE VOLTAMPERE CHARACTERISTICS FOR VARIOUS DIODES, PLOTTED IN SEMILOGARITHMIC COORDINATES, ARE ALSO GIVEN. IT IS STATED THAT THE JUNCTIONS CAN BE USED FOR INFRARED RADIATION SENSORS, LASERS WITH A TUNABLE RADIATION SPECTRUM UNDER PRESSURE, AND SIMILAR DEVICES.

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Instruments and Measurements

USSR UDC: 621.382.001.5:621.376

KHOLOPKIN, A. I., KOL'TSOV, G. I., KIREYEV, P. S.

"Pulse Characteristic of a Detector With a PIN Silicon Structure"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 1, Jan 72, pp 132-137

Abstract: The authors calculate the pulse characteristic of a silicon structure with PIN structure uniformly excited with respect to volume. The detector is made by a method briefly described by P. S. Kireyev and others in *Pribory i Tekhnika eksperimenta*, 1968, No 5, p 63. A pulse x-ray tube was used as the source of emission, giving an x-ray pulse with an average energy of the quanta of about 60 keV and a duration of several nanoseconds. This enables comparison of the theoretical and experimental pulse characteristic. The results of the study show that silicon detectors with PIN structure can be successfully used to register x-ray pulses in the nanosecond range. Utilization of a simple model of the process of collection of charge carriers enables investigation of the pulse shape and the processes determining it. Fig. 4, bibl. 6.
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USSR UDC 621.376.234

KIREYEV, P.S., KHOLOPKIN, A.I., KOL'TSOV, G.I., YUKHTANOV, YE.D.

"On The Nature Of The Quick Action Of Cadmium Telluride Detectors"

Radiotekhnika i elektronika, Vol XVII, No 3, Mar 1972, pp 604-608

Abstract: The cadmium telluride p-n junction detectors used in this study had a working area of 0.1 cm^2, a thickness of 200 micrometer, a capacitance measured at 600 kHz of 5 pf with a back bias of 220 v, and a back current with this voltage of 0.1 microamp. The thickness of the region of the space charge, assessed from the voltfarad characteristic, had a magnitude of approximately 10 micrometer. The output signal was taken from a load resistance of 75 ohm, and the time constant of the circuit did not exceed 0.6 nanosec. With the use of an amplifier, the time constant increased to 4.6 nanosec. The complex structure of the output signal is interpreted as the result of a collection of charges from the space charge region, giving a current pulse with a duration of approximately 10 nanosec, and from the base with a pulse duration of 150-100 nanosec. The drift collection of charges from the base is assured as a result of redistribution of the field with a sufficiently high level of generation of the charge carriers. 2 fig. 9 ref. Received by editors, 4 Dec 1970.

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UDC 621.315.593:535.215.6

KIREYEV, P. S., FEDOROVSKIY, A. M., POLISAN, A. A., YUKHTANOV, Ye. D.

"Photomagnetoelectric Effect in P-Type Cadmium Telluride"

Elektron. tekhnika. Nauchno-tekhn. sb. (Electronic Technology. Scientific-Technical Collection), 1970, Series 14, No 1, pp 72-74 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8B204)

Translation: The photomagnetoelectric effect is investigated in p-type cadmium telluride. Complete conformity of the results obtained with theory is established. The spectral characteristics of the effect are presented and the diffusion length and life time of minority carriers is determined. Summary.

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USSR UDC: 621.382.001.5

KALUGINA, L. I., YUKHTANOV, Ye. D., KIREYEV, P. S.

"On the Capacitance-Voltage Characteristics of PN Junctions in Cadmium Telluride"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 12, Dec 70, pp 2623-2625

Abstract: The authors study the capacitance-voltage characteristics of PN junctions in cadmium telluride of P-type conductivity with a resistivity of 10^6-10^8 $\Omega \cdot$cm. It was found that the capacitance falls sharply with an increase in reverse bias from 0 to 10 V. However, there is very little change in capacitance with a further increase in voltage. It was found that capacitance is inversely proportional to the cube root of the voltage in the 1-10 V range. The weak change in capacitance with bias voltage in excess of 10 V is attributed to impact ionization of deep acceptor levels.

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ZHEMCHUZHINA, Ye. A., FIGUROVSKIY, Ye. N., IVANOV, A. I., INOZEMTSEV, K. I., and KIREYEV, P. S.

"Characteristics of p-n Junctions in PbTe"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No. 3, 1970, pp 546-550

Abstract: Although lead telluride has some interesting properties, its p-n junctions have not been given enough attention. This article considers the problems in the way of obtaining PbTe monocrystals, the manufacture of the p-n junctions, and the investigation of some of their characteristics. PbTe is made from 99.999% pure lead and tellurium, by weight, by the temperature gradient method. The oven in which the compound is synthesized, and its temperature distribution with height are shown in a diagram. The synthesis was made in an atmosphere of spectral argon, and the operating temperature in the synthesis zone and crystal

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ZHEMCHUZHINA, YE. A., et al, Radiotekhnika i Elektronika, Vol 15, No 3, 1970, pp 546-550

Abstract:

growth zone was maintained with an accuracy of ±0.5% C. The electron-hole junctions were made by three methods: diffusion of the lead; vaporization of the tellurium; diffusion of indium in the PbTe. Details of each of these methods are given. The volt-ampere characteristics for various diodes, plotted on semi-logarithmic coordinates, are also given. It is stated that the junctions can be used for infrared radiation sensors, lasers with a tunable radiation spectrum under pressure, and similar devices.

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UDC: 678:[624.074.4+539.377].001

BELOZEROV, L. G., KIREYEV, V. A., Central Aerohydrodynamics Institute imeni Professor N. Ye. Zhukovskiy, Moskovskaya Oblast

"Stability of Cylindrical Shells of Composite Materials Compressed in the Axial Direction and Subjected to Unsteady Heating"

Riga, Mekhanika Polimerov, No 2, Mar/Apr 73, pp 289-297

Abstract: The problem of buckling of smooth cylindrical shells with the application of nonstationary heating is solved in the linear formulation, disregarding dynamic terms in the initial equations. Calculation of a non-homogeneous shell reduces to calculation of a homogeneous one of equal rigidity. Computational formulas for determining critical loads are derived and their regions of applicability are determined. It is experimentally shown that the geometry and temperature distribution in the wall influence the nature of destruction of smooth cylindrical fiberglass plastic shells compressed in the axial direction and heated. In the case of high load levels and high heating rates of brief duration, the walls of thick shells were destroyed by oblique shear. With a reduction in load level and an increase in heating duration, i. e.,at higher temperatures, the walls

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BELOZEROV, L. G., KIREYEV, V. A., Mekhanika Polimerov, No 2, Mar/Apr 73, pp 289-297

of thick specimens buckled. At points of high temperature, the layers of the walls separated. This temperature is 480°K for fiberglass plastic shells with phenolformaldehyde binder. The walls of thin shells buckled at both normal and elevated temperatures. Comparison with theory shows satisfactory agreement.

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