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Therapy

USSR UDC 616-006-092.08:615.849.19+615.847

KOZLOV, A. P., AKIMOV, A. A., and MOSKALIK, K. G., N. N. Petrov Institute of Oncology, Ministry of Health USSR

"Treatment of Experimental Tumors With Laser Radiation Combined With Fast Electrons"

Moscow, Voprosy Onkologii, No 6, 1973, pp 93-97

Abstract: In nonpurebred C57Bl and $CC_{57}W$ mice with transplanted Harding-Pasey melanoma, B_{16} melanoma, and squamous cell carcinoma, laser radiation combined with fast electrons inhibited tumor growth to a much greater degree than did either agent alone. For example, the growth of the Harding-Pasey melanoma was inhibited 68 to 73% and 55 to 64% by laser radiation and fast electrons alone, respectively, but 90 to 92% when both agents were used. After transplanted Harding-Pasey melanomas were 5 to 6 mm in diameter, the average survival time of the animals exposed to laser rays combined with fast electrons was 92 days compared to 67 and 80 days after laser radiation and fast electrons alone, respectively. The survival time of the untreated controls was 56 days.

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USSR UDC 615.849.19:621.375.9/.033

KOZLOV, A. P., BAZHANOV, YE. B., DIKOV, V. I., TERPUGOV, V. G., and SHISHOV, V. A., Laboratory of High Energies, Institute of Oncology a imeni N. N. Petrov, Ministry of Health USSR, Leningrad

"Distribution of Depth Doses During Irradiation With Bremsstrahlung from a B5M-25 Betatron"

Moscow, Meditsinskaya Radiologiya, Vol 17, No 7, Jul 72, pp 72-76

Abstract: In experiments in which a water phantom was used, the distribution of ionization along the beam axis upon irradiation with bremsstrahlung from the new medical betatron B5M-25 in the energy range E_{max} = 12-27 Mev at DIB values of 80, 100, and 200 cm was studied. It was shown that as the distance from which irradiation of the surface was carried out increased, the ionization maximum at E_{max} = 20-27 Mev was displaced towards greater depths of the tissue-equivalent medium by 2.0 and 0.9 cm for every meter of this distance in irradiation with filtered and unfiltered radiation, respectively. With increasing values of E_{max}, the position of the ionization maximum was displaced at the rate of 0.12 ± 0.05 cm/Mev for both filtered and unfiltered radiation

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USSR

KOZLOV, A. P., et al., Meditsinskaya Radiologiya, Vol 17, No 7,

irrespective of the value of DIB. Steel plates were used to filter the radiation. Some characteristics of the isodose curves were determined. There was almost complete coincidence of the position of the 50% isodose with the geometric boundaries of the beam at the depth of the ionization maximum, while any dependence of this position on the dimensions of the radiation field was absent. The results obtained can be used in calculations to determine the optimum procedures in therapy.

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USSR UDC 616-006-08:615.849.19

KOZLOV, A. P., MOSKALIK, K. G., and AKIMOV, A. A., Institute of Oncology imeni N. N. Petrov, Academy of Medical Sciences USSR

"The Antitumor Effect of Laser Radiation in Relation to the Pulse Energy and the Radiation Rate"

Leningrad, Voprosy Onkologii, Vol 18, No 6, 1972, pp 65-70

Abstract. A neodymium laser with a wavelength of 10,600 Å, and an energy density of 12,000, 25,000-28,000 joules/cm^2 was used for irradiation of Ehrlich's carcinoma, skin cancer, cancer of the pancreas and Harding-Passy melanoma. The pulse duration was 1 msec, with an energy output of 300, 700-750 joule. The growth inhibition of Ehrlich's carcinoma by 22-25% was achieved with 1-2 laser pulses of 700-750 joules energy. A lower energy level was ineffective. In the case of tumor of the pancreas blastoma growth was inhibited by 69% when irradiated with 4-8 laser pulses (1-2 pulses every other day) of 700-750 joules. The growth of Harding-Passy melanoma was inhibited by 63% after five treatments with 1-2 laser pulses, with 1-2 days intervals between treatments. Growth inhibition of skin cancer after three treatments with 1-2 laser pulses of 700-750 joules was only 19%. The best effects were obtained with a single treatment of pancreas cancer and Harding-Passy melanoma with 3-7 and 4-7 laser pulses, respectively, of 700-750 joules

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KOZLOV, A. P., et al., Voprosy Onkologii, Vol 18, No 6, 1972, pp 65-70

The tumor growth inhibition in these cases amounted to 63 and 76%, respectively. Energy density of 25,000-28,000 joule/cm^2 caused some skin damage. The anti-tumor effect of the laser was higher in the case of small tumors when it was possible to irradiate the entire affected area.

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Oncology

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UDC 616-006.615.849.19

MOSKALIK, K. G., KOZLOV, A. P., and AKIMOV, A. A., Laboratory of High Energy, Institute of Oncology imeni N. N. Petrov, Ministry of Health USSR

"Use of Lasers in Oncology"

Moscow, Voprosy Onkologii, No 8, 1972, pp 97-105

Abstract: It appears from this review of the Soviet and foreign literature that laser radiation cannot replace the ordinary methods of treating cancer. It is effective primarily for localized, surface neoplasms of a precancerous and benign nature. Promising results have been achieved in the treatment of squamous cell carcinoma of the larynx, pigmented and nonpigmented basal cell epitheliomas, some malignant lymphomas, epidermoid carcinoma of the penis, mycosis fungoides, small melanomas, papillomas, angiomas, hemangiomas, fibromas, nevi, and so forth. Disadvantages include possible dissemination of surviving viable tumor cells through the lymphatics and blood vessels and difficulty in determining and regulating doses. The effects of laser radiation can be potentiated by the use of dyes to promote absorption of the radiant energy by the tumors, chemotherapeutic agents to increase tumor sensitivity to laser rays (e.g., tetracycline, vitamin K, pyridoxine), and ionizing radiation.

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USSR

UDC: 539.3

KOZLOV, A. T.

"On Determination of Stressed State of Elliptical Paraboloid"

Moscow, Sb. Nauch. Rabot Aspirantov. Inzh. Fac. Un-t Druzhby Narodov im. Patrisa Lumumby (Symposium of Scientific Works by Graduate Students. School of Engineering. University of Peoples Friendship imeni Patrice Lumumba), 1972, vyp 12, pp 3-11 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2V154 by N. V. Kolkunov.

Translation: Algorithm of solution is developed for a static problem of shallow elliptical paraboloid under uniformly distributed vertical load. Small parameter method is used for displacement equations of shallow shell. The geometric characteristic of shell form μ $(0 \leq \mu < 0.4)$, included in the equation of surface $z = \mu a (x^2/a^2 + y^2/b^2 - 1)$, serves as the small parameter. The shell is fixed along the edge. An example is given of calculation of an elliptical paraboloid, maintaining three terms of the series, into which the components of displacements are expanded. 7 references.

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Lasers and Masers

USSR

BELOKRINITSKIY, N. S., GNATOVSKIY, A. V., DANILEYKO, M. V., ZAKHAROV, V. P., KOZLOV, A. V., and SHPAK, M. T., Physics Institute, Academy of Sciences Ukrainian SSR

"Recording of Optical Information on Amorphous Films of Semiconducting Compounds"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 4, 20 Feb 72, pp 198-200

Abstract: The article describes a new optical information method based on local variations [illegible] and optical characteristics of some semiconducting compounds [illegible] of laser radiation. This opens up the possibility of creating [illegible] with a high recording speed (10^{-4}-10^{-5} sec) and high spatial resolution without the need for subsequent processing. Amorphous GeTe and InTe [illegible] on glass and NaCl substrates, were used by the authors as carriers for optical signal recording. Laser radiation by a semitransparent mirror was separated into two beams approximately equal in intensity and [illegible] at the sample at a convergence angle of ~55° for GeTe

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BELOKRINITSKIY, N. S., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 4, 20 Feb 72, pp 198-200

and ~ 25° for InSb. The interference hologram grating of the radiation field was recorded on the film. Samples were exposed to radiation pulses of a free-running ruby (λ = 0.69 micron) and neodymium (λ = 1.06 microns) laser. Given a sufficiently homogeneous laser field amplitude distribution, interference gratings with a spatial frequency of up to 1000 lines/mm were obtained, representing [illegible] with different spectral and structural properties. [illegible] the sample preparation conditions and the [illegible] spatial frequency. There are optimal radiation energies for [illegible] of gratings (e.g., ~0.1 j/sq cm for recording on [illegible] laser radiation ~ 500 picoseconds in duration). [illegible] observed the fact of film structural changes accompanying the [illegible], depending on the density of the recorded grating. In the [illegible] spatial frequency of ~100-200 lines/mm, the lines [illegible] of polycrystalline material, films in an amorphous state divided in [illegible]. In the recording of gratings with a spatial frequency of

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BELOKRINITSKIY, N. S., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 4, 20 Feb 72, pp 198-200

~1000 lines/mm, grain enlargement is observed over the entire area of the film segment being irradiated with luminous radiation, but the optical density of the interference grating lines differs, making it possible to obtain a grating with sufficient efficiency in this case as well.

Work is continuing on the further kinetic study of the amorphous state-polycrystal phase transition of the above-indicated materials and a number of others, as well as the study of their use as carriers for recording information in the visible and IR region of the spectrum.

The authors thank V. S. SAMOYLOV for useful discussions of the results.

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USSR

UDC 622.33-52:681.3

SHOYKHET, L. A., MALITSKIY, I. A., TIKHONRUK, V. F., BAZHENOV, A. N. and KOZLOV, A. V.

"Control System for Mines Using Computer Equipment"

Avtomatika I Tekhn. Kibernet. Na Shakhtakh I Rudnikakh (Automation and Engineering Cybernetics in Mines -- Collection of Works) pp 5-7, Kiev, Tekhnika Press, 1969 (from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 2, 1970, Abstract No 2A565 by G.K.)

Translation: On the basis of a study of an installation flow of information and analysis of interrelationships involved, tables are composed which present data on the volume of information and paths through which it flows, results of processing, etc. Control algorithms are developed for individual processes, and an algorithmic evaluation of control problems which was used in the selection of computer equipment and development of structural plans for the system is presented. Three variants of structural plans for mine control, depending on the degree and location of information processing, are suggested. Two illustrations; one table; one bibliography.

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Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

237633 REMOVAL OF SCALE or dense oxide layers from a plurality of relatively small articles made of ferrous metals or copper alloys, is carried out by immersing the articles in an aqueous medium containing 2.5-5% of HCl, 1.5% of an emulsifier (OP-7 or OP-10), and 10-20% of polishing grains (e.g. white electrocorundum), at room temperature, and applying mechanical vibrations for 15-40 mins. The weight ratio artic es: liquid is 1:2. The scale is effectively and rapidly removed. 6.6.67. as 1161895/25-8. E.S.BLAGODETELEVA et alia. (16.6.69.) Bul.8/ 12.2.69. Class 67a. Int.Cl. B24d.

LD 18

AUTHORS: Blagodeteleva, Ye. S.; Shermazanov, G.-I. K.; Kozlov, A. Ye.; Antonyuk, Yu. K.; Solodkin, I. A. and Tikhonov, V. Yu.

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K

UDC 519.2:62-19

USSR

GNEDENKO, B. V., KOZLOV, B. A., USHAKOV, I. A.

"On the Role and Place of Reliability Theory in the Process of Developing Complex Systems"

V sb. Teoriya nadezhnosti i massovoye obsluzh. (Reliability Theory and Queueing -- Collection of Works), Moscow, "Nauka", 1969, pp 14-32 (from RZh-Matematika, No 6, Jun 70, Abstract No 6V275)

Translation: Stages in the design of complex systems are briefly described and it is shown what role mathematical methods of probability theory can play in the process of developing highly reliable systems. Simple explanatory examples are given. Authors abstract.

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USSR

UDC 519.2:62-19

VASIL'YEV, Yu. A., KOZLOV, B. A.

"On the Effect of the Form of the Restoration Time Distribution on the Reliability of a Parallel-Redundant System"

V sb. Teoriya nadezhnosti i massovoye obsluzh. (Reliability Theory and Queueing -- Collection of Works), Moscow, "Nauka," 1969, pp 37-45 (from RZh-Matematika, No 6, Jun 70, Abstract No 6V268)

Translation: The effect of the restoration time distribution G(t) on the average time of failure-free operation of the system T is investigated for a parallel-redundant system in which the time of failure-free operation of the basic element is subject to an exponential law with parameter λ; and that of the reserve element, with a parameter $\nu\lambda$, $\nu \leq 1$. Evaluations of the parameter T are obtained for the case in which the G(t) are selected from a class of distributions K_m, in which the first m moments are fixed (m = 0, 1, 2, 3, 4). The case m = 0 corresponds to the absence of limitations on the distribution G(t).

V. Kashtanov

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VASIL'YEV, Yu. A., KOZLOV, B. A.

"Redundant System-Aging System"

V sb. Teoriya nadezhnosti i massovoye obsluzh. (Reliability Theory and Queueing -- Collection of Works), Moscow, "Nauka," 1969, pp 33-36 (from RZh-Matematika, No 6, Jun 70, Abstract No 6V267)

Translation: A redundant repairable system is considered which can be found in one of the states H_i; $i = 0,1,\ldots,n$. The state H_i corresponds to i failures of elements of the system, and the state H_n is defined as the absorption state of failure. It is assumed that in time Δt the system transforms from state H_i into H_{i+1} with probability $\Lambda_i \Delta t + o(\Delta t)$, to the state H_{i-1} with probability $M_i \Delta t + o(\Delta t)$, and remains in H_i with probability $1-(\Lambda_i + M_i)\Delta t + o(\Delta t)$. Transitions into other states have the probability $o(\Delta t)$. Under the assumption that the system is in H_0 at $t = 0$, it is shown that the failure rate $\lambda(t) = -P't/P(t)$ (where $P(t)$ is the probability of failure-free operation in time t) is a monotonically increasing function of time.

V. Kashtanov

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USSR

UDC: 550.388.2

BORISOGLEBSKIY, V. S., VASIL'YEV, G. V., KOZLOV, B. F., PROKHORENKO, E. A., PROKHORENKO, V. P., Special Design Office of Physical Instrument Making of the Institute of Terrestrial Magnetism of the Ionosphere and Propagation of Radio Waves of the Academy of Sciences of the USSR

"An Ionospheric Probe"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331354, Division G, filed 25 Nov 70, published 7 Mar 72, p 143

Translation: This Author's Certificate introduces an ionospheric probe which contains an antenna with switch, a transmitter, a superhet receiver, a frequency synthesizer, a quartz-crystal oscillator module, a high--frequency amplifier module with electronic commutator, and a registration unit. As a distinguishing feature of the patent, the probe is designed for improved accuracy of measurements, acceleration of the process of recording a nomogram, and simultaneous printing of auxiliary symbols for operational analysis of the nomograms. A multiple-electrode registration unit is used with a paper-chart recording and with recording shapers on each electrode.
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BORISOGLEBSKIY, V. S. et al., USSR Author's Certificate No 331354

The registration unit is connected to the superhet receiver through a coding module. Connected to one input of the coding module is a matching unit which is connected to the quartz-crystal oscillator module through an electronic commutator. Connected to the other input of the coding module are the outputs of mosaic storage and electronic calendar modules which are connected directly to some of the recording shapers.

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SO-JPRS 59279
14 June 73

MECHANISM OF THE DISAPPEARANCE OF PACKING DEFECTS IN SILICON EPITAXIAL FILMS DURING CERTAIN THERMAL PROCESSES

[Article by [illegible], [illegible], [illegible], Novosibirsk, Protsessy, Sosta i Struktura Monokristallicheskikh Slovev Poluprovodnikov -- Trudy Simposiuma, Russian, Part 2, 1969, pp 93-96]

One of the most widespread structural defects of epitaxial films is the packing defects. When pickling in selective pickling agents the packing defects are revealed in the form of flat configurations or individual lines. For epitaxial films with a diamond type crystal lattice oriented in the (111) plane, the tetrahedral packing defects which give etching configurations in the form of right triangles are characteristic. The morphology and the possible causes of nucleation of the tetrahedral packing defects and the defects appearing in the form of individual lines are described in detail [1-5]. Prolonged annealing in an inert atmosphere has no effect on the packing defects [4, 6]. However, it is noticeable that after annealing in hydrogen, in a vacuum or after diffusion of the admixtures, the number of packing defects decreases [4, 6, 7]. No variations in their morphology are noted in this case.

We have observed analogous facts of a decrease in the number of defects. We also recorded this defect during thermal oxidation of silicon epitaxial films in wet oxygen. It must be noted that during annealing in hydrogen during the boron diffusion process and also during thermal oxidation of the films, the variation in morphology and packing defects was observed. Previously there were no indications of such facts in the literature.

As the specimens we used silicon epitaxial films of n-type conductivity with an admixture concentration of $5 \cdot 10^{16}$ cm^{-3} alloyed with phosphorus. The films were oriented in the (111) plane.

The specimens were oxidized for 1 hour at a temperature of 1,200° C.

The experiments with respect to annealing in hydrogen and boron diffusion were described previously [8].

Before oxidation, the packing defects were revealed by a selective etching agent (1 part HF + 1 part 33 percent CrO_3 solution in deionized water).

KOZLOV, B. I.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

Microelectronics

KOZLOV B. I.

JPRS 57333

25 October 1972

MICROELECTRONICS

Excerpts from Russian-language book edited by F. V. Lukin: Mikroelektronika, No 5, 1972, Sovetskoye Radio Publishing House, Moscow, UDC 621.382:621.396.6-181.5.

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cuits, an important role is played by the choice of a constant current source.

The article analyzes the dependence of instability of the logic differential of the integrated circuits for the current switches on change in the destabilizing factors (supply voltage, temperature, and technological scatter in the component parameters) by using different modifications of the constant current source.

Recommendations are given for the optimal selection of the constant current source.

The article contains 4 figures, 1 table, and 5 bibliographic references.

UDC 539.166.3.211.27

Distribution of Thermoelastic Deformations in the Surface Region of Thermally Oxidized Silicon. Valiyev, K.A., Kozlov, B.I., Kokin, A.A., Malov, A.G., and Rakov, A.V. in the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 292, Sovetskoye Radio Publishing House, 1972.

The article theoretically analyzes the distribution of elastic deformations in the surface region of thermally oxidized silicon. The authors examine the case of a dense oxide film on a semiconductor and the case of termination of its denseness. The value obtained agrees with the theoretical computation. The authors discuss the results of experiments testifying to the localization of the deformations in the surface layer of silicon at the sites of termination of denseness of the oxide. They show the influence of thermoelastic deformations on the chemical activity and volt-Faraday characteristics of the MDP structures.

The article contains 3 figures and 11 bibliographic references.

UDC 621.383.42:546.49.22/23

Investigation of the Longitudinal Operating Mode of CdS-CdSe Film Photoresistors. Vdovenkov, A.A., Krolevetz, K.M., Komashko, V.A., and Skarzhevskaya, E.P. in the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 296, Sovetskoye Radio Publishing House, 1972.

The article describes a manufacturing method and the parameters of the CdS-CdSe photoresistors, operating in a longitudinal mode. The authors mention their high specific sensitivity (0.5-1 A/V·lu) and the weak dependence of the

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KOZLOV, B. I.

29 Oct 71 49 FPD:CYBERNETICS

SO: FOREIGN PRESS DIGEST 29 OCTOBER 1971

24. USSR

OSHANIN, D. A., and KOZLOV, B. I., Institute of General and Pedagogical Psychology, USSR Academy of Pedagogical Sciences, Moscow

"The Effector Operative Image"

Moscow, Voprosy Psikhologii, No 3, May-Jun 71, pp 13-30

Abstract: In contrast to cognitive images, operative images are those formed in conjunction with action on the object. They are less thorough, emphasizing those features related to the action involved. Operative images are further divided into afferent and effector images. Afferent images are related to monitoring the object of action, effector images to the selection and preparation of actions upon it. Finally, effector images can be further subdivided into three groups, ranging from most schematic to most detailed, representing the development of action plans.

Experimental confirmation of these concepts was obtained by presenting subjects with a square pattern of lettered buttons, in which each letter was repeated several times, and requiring them to reproduce words displayed on a screen as rapidly as possible. Only ten different words were used, requiring only eight letters; most subjects eventually came to use the same thirteen buttons, enabling them to reproduce the words with the minimum movement possible. The pattern by which other buttons were eliminated is shown to represent the formation of an effector image.

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USSR UDC: 621.396.662:621.396.679

BAZANOV, V. U., KOZLOV, B. M., PANCHENKO, V. A.

"An Adapter for a Rod Antenna"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331459, Division H, filed 5 Jun 70, published 7 Feb 72, pp 172-173

Translation: This Author's Certificate introduces: 1. An adapter for a rod antenna. The device contains a rigid section of coaxial line fitted with a standard coaxial connector. The adapter also includes a flange-supported housing which is simultaneously a shield. As a distinguishing feature of the patent, connection is simplified and reliability is improved, and also provision is made for DC isolation of the adapter from the antenna by making the central conductor of the coaxial line in the attachment in the form of an expanded hollow cylinder which forms an open coaxial line section together with the antenna rod. The support flange serves as the outer conductor of the coaxial line in the adapter. The flange is located in the insulator and forms an open section of radial line together with the base of the antenna. 2. A modification of this adapter distinguished by the

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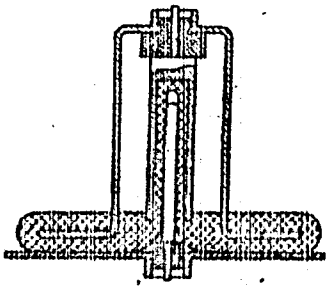
USSR

BAZANOV, V. U. et al., USSR Author's Certificate No 331459

fact that matching with a top-fed antenna is improved by making a cylindrical constriction directly encompassing the insulator in the outer conductor of the coaxial line of the adapter within the limits of the protruding part of the antenna base.



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Welding

USSR UDC 621.774.2

MATVEYEV, Yu. M., MAKAROV, I. P., KRYUKOV, V. N., ZUBAREVA, V. A., SAMARYANOV, Yu. V., ANTIPOV, B. F., KOZLOV, D. G., and ZIMINA, N. G., Ural Scientific Research Pipe Institute, Vyksunskiy Metallurgical Plant

"Production of Furnace-Welded Pipes With Oxygen Blowing of Skelp Edges"

Moscow, Metallurg, No 1, Jan 71, pp 34-35

Abstract: The quality of furnace-welded pipe is assessed by the welded seam quality, which is a function of the chemical composition of the metal, reduction in the welding pass, heating temperature, and the finish of the edges to be welded. In order to remove the scale and preheat the metal prior to welding, the edges are blown with high-pressure air. Blowing with oxygen makes it possible to raise the temperature of the edges. Oxygen facilitates the melting of refractory oxides and their removal from the surface of the skelp. The use of oxygen for blowing skelp edges on the furnace welding line of the Vyksunskiy Metallurgical Plant resulted in a marked increase in the quality of pipes. The strength of the weld in cone flaring tests was found to increase more than six-fold and the weld structure improved as well. The yearly savings with the use of oxygen on one mill was about 50,000 rubles.

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USSR

UDC 624.072.2

KOZLOV, D. M.

"Application of Random Search to the Design of Minimum Volume Trusses"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1971, No. 54, pp 40-49 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V1130)

Translation: The possibility of applying one of the algorithms of the random search method to design statically indeterminate trusses of minimum volume operating at several loads is discussed. The configuration of the axes of the truss is assumed to be given and only conditions for the strength of the rod are taken into account. It is concluded on the basis of an analysis of several simple examples solved on the "Ural-2" computer that the effectiveness of the algorithm is inadequate for a large number of parameters in view of the absence of a criterion for achieving a target function for the extremal value and the considerable expenditure of machine time. Yu. P. Kitov.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC 629.78.002.5

KOZLOV, D. M.

"Use of Random Search and Planning of Ribs of Minimum Volume"

Tr. Kuybyshev. Aviats. In-t. [Works of Kuybyshev Aviation Institute], 1971, Vol 54, pp 40-49. (Translated from Referativnyy Zhurnal Raketostroyeniye, No 1, 1972, Abstract No 1.41.175, from the resume).

Translation: The task of planning of statically indefinite ribs of minimum volume, operating for several cases of loading, is studied in its simplest statement: placement of the ribs is fixed, all rods are made of identical material and operate identically in extension and compression, the required cross-sectional areas of rods are determined by the strength conditions. The problem of finding the most suitable relationships between areas of cross-sections of rods is solved using a random search algorithm. A description is presented of the algorithm and its properties are discussed using the solution of certain problems as examples. 3 figs; 4 biblio refs.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--KINETICS OF THE OXIDATION AND STABILIZATION OF POLYUNSATURATED COMPOUNDS. II. AUTOXIDATION OF VITAMIN 1 ACETATE IN THE SOLID STATE -U-

AUTHOR-(03)-FINKELSHTEYN, YE.I., KOZLOV, E.I., SAMOKHVALOV, G.I.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 71-4

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VITAMIN, OXIDATION, SPECTROPHOTOMETRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1648 STEP NO--UR/0195/70/011/001/0071/0074

CIRC ACCESSION NO--AP0101703

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

2/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0101703

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETICS OF OXIDN. OF 1 MU THIN VITAMIN A ACETATE FILMS BY ATM. O AT 10, 10, AND 250DEGREES WAS STUDIED SPECTROPHOTOMETRICALLY. THE SOLID STATE OXIDN. PROCEEDS FASTER THAN OXIDN. IN THE LIQ. PHASE. FREE RADICAL SCAVANGERS INHIBIT THE OXIDN. ACTIVATION ENERGY OF THE REACTION IS 28 KCAL-MOLE. THE OXIDN. IS LIMITED BY MOL. MOBILITY IN THE SOLID STATE. FACILITY: VSES. NAUCH. ISSLED. VITAM. INST., MOSCOW, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC 62-531.4

DOROSHKEVICH, Ye.M., KOZLOV, E.P., POTAPOV, A.A., SHAPKAYTS, G.I.

"A Tracking System"

USSR Author's Certificate No 263014, Filed 23/12/68, Published 8/06/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 12, 1970, Abstract No 12 A277P)

Translation: A tracking system is suggested containing a sensor, sine-cosine transformer, amplifiers, a phase detector, and an actuating motor. It differs in that in order to increase accuracy, it contains an additional commutator, one input of which is connected to an external reference voltage source, the other to the cosine winding of the sine-cosine transformer rotor, while the output is connected to the reference voltage input of the phase detector.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC: 621.396.669.8:621.3.078-503.53

DOROSHKEVICH, Ye. M., KOZLOV, E. P., POTAPOV, A. A., SHUPKAYTS, G. I.

"A Tracking System"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 18, 1970, Author's Certificate No 271617, filed 23 Dec 68, p 46

Abstract: This author's certificate introduces a tracking system which contains a pickup, sine-cosine transformer, circuit for suppression of quadrature interference made in the form of a key controlled by a full-wave rectifier with angle cutoff, amplifiers, a phase detector, and an actuating motor. As a distinguishing feature of the patent, the precision and reliability of the system are improved by adding a minimum signal amplitude limiter connected in parallel with the circuit for suppression of quadrature interference. The cosine winding of the sine-cosine transformer rotor is connected to the input of the full-wave rectifier.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR

UDC 541.67

GORDEYEV, A. D., KOZLOV, E. S., AND SOYGER, G. B., Perm' State University Perm' and Institute of Organic Chemistry, Academy of Sciences UkrSSR, Kiev

"The Nuclear Quadrupole Resonance of ^{35}Cl in Dimeric Trichlorophosphazomethane"

Moscow, Zhurnal Strukturnoy Khimii, Vol 14, No 5, Sep-Oct 73, pp 934-935

Abstract: The study of compounds of pentacovalent P by the method of nuclear quadrupole resonance of ^{35}Cl was continued in the instance of $(MeNPCl_3)_2$, the molecular geometry of which is known. It follows from the crystallographic structure of this compound that all axial Cl atoms are crystallographically equivalent, while two nonequivalent positions for the equatorial Cl atoms must exist. One must there expect in the nuclear quadrupole resonance spectrum three lines of equal intensity, two of which (ν^{eq}_{P-Cl}) must differ considerably with respect to the frequency from the third (ν^{ax}_{P-Cl}). The experimental data confirmed this conclusion. The resonance frequencies of the Cl nuclei in the axial and equatorial positions were considerably lower than those for PCl_5, but the difference between them was practically the same.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC 547.558.1:543.42

DYADYUSHA, G. G., KOZLOV, E. S., and KHOMENKO, D. P., Institute of Organic Chemistry, Acad. Sc. Ukrainian SSR, Kiyev

"IR Spectra and Calculations of the Vibrations of Phosphonitrile Chloride Trimer and of the Phosphorus Acid Phosphazo Derivatives With Isotopes ^{14}N and ^{15}N"

Kiyev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 9, No 4, 1973, pp 535-540

Abstract: An investigation was carried out of the IR spectra of phosphonitrile chloride trimer $(PNCl_2)_3$ (I), trichlorophosphazotrichlorophosphonium hexachlorophosphonate $[Cl_3PNPCl_3]^+PCl_6^-$ (II) and trichlorophosphazodichlorophosphonyl $Cl_3P{=}NPOCl_2$ (III) with nitrogen isotopes ^{14}N and ^{15}N and the relationship between the absorption bands in (I) has been refined. Calculations of the vibrations of (I) were used in determining the force constants of the rings (10^6 cm^{-2}): K_{PN} = 10.13; H^{PN} (through the phosphorus) = -0.35; H^{PN} (through the nitrogen) = 0.266. The value of the PN bond interactions through the nitrogen was used to calculate the vibrations in II and III. It was shown that the PNP angle in these compounds should be in the range of 130-140°. The $POCl_2$ group in compound III should be capable of conjugation with the P=N bond.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC 547.412+661.718.1

KOZLOV, E. S., GAYDAMAKA, S. N., SOYFER, G. B., GACHEGOV, YU. N., and GORDEYEV, A. D., Institute of Organic Chemistry, Academy of Sciences Ukraine SSR and Perm State University

"Stereochemistry of the Trichloromethyl Derivatives of Pentavalent Phosphorus"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), Vyp 4, 1972, pp 756-759

Abstract: Nuclear magnetic resonance -- in particular the P-Cl, N^{15}-H, and C-Cl interactions -- was used to determine the geometry of (trichloromethyl)-tetracholorophosphorus (I), bis(tricholoromethyl)trichlorophosphorus (II), and bis(tricholormethyl)amidodicholorophosphorus (III). Spectra were taken at 77°K and 300°K. The distribution and intensity of the peaks indicate a covalent bipyramidal structure, the trichloromethyl group occupying an axial position. The nature of the hybridization of the nitrogen in III was determined from the value of the spin-spin interaction $J(N^{15}-H)$: $\%2S = 0.43J(N^{15}-H)-6$.

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USSR UDC 546.185

KUKHAR', V. P., KASHEVA, T. N., and KOZLOV, E. S., Institute of Organic Chemistry, Academy of Sciences, UkrainianSSR

"Reaction of Trichlorophosphazoperchloroethane With Ammonium Chloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 743-747

Abstract: Trichlorophosphazoperchloroethane reacts with ammonium chloride forming a four member heterocyclic 2,2-dichloro-4-trichloromethyl-1,3-diaza-2-phosphate, m.p. 83-84°. Evidently the first step in the reaction is the formation of trichlorophosphazoiminotrichloroacetyl which then undergoes cyclization. The reaction takes place in 20-25 hrs at 150-170° in absence of a solvent. Catalytic amounts of aluminum chloride shorten the reaction time to 10-12 hours. Diazaphosphete is easily hydrolyzed even with air moisture yielding trichloroacetamide. Reaction of the diazaphosphete with acetic acid goes probably via formation of 2-chloro-4-trichloromethyl-2-oxo-1,3-diaza-2-phosphetene [not isolated] which then converts to N-dichlorophosphonyl-N'-acyltrichloroacetamidine, m.p. 207-208°. With formic acid N-dichlorophosphonyltrichloroacetamidine, m.p. 202-204° is obtained. The four member ring of the phosphete appears to be planar.

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USSR UDC 621.396.6.049.75.019.3

YELISOV, L. N., KOZLOV, E. S., SERGEYEV, N. P.

"Utilizing Analog Equipment to Estimate the Reliability of Printed Connections"

V sb. Metody mat. i fiz. modelir. i optimiz. parametrov radioelektron. apparatury. No 1 (Methods of Mathematical and Physical Simulation and Optimization of the Parameters of Radio Electronic Equipment. No 2 -- collection of works), Moscow, 1972, pp 123-124 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No 7V324)

Translation: The problem of estimating the reliability of printed joints is solved as a problem of elasticity theory. The biharmonic fourth-order equation describing the state of equilibrium of the printed structural element is derived which can be solved by electronic simulation. The solution technique using a vibration test unit with vibration sensors is described in general features the signals from which goes to a computer with modules for separating the harmonic component and envelope, an averaging module and a ratio module. The voltage field of the printed structure is obtained at the system output. The bibliography has 2 entries.

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USSR

KOZLOV, E. S., and GAYDAMAKA, S. N.; Institute of Organic Chemimtry, Academy of Sciences Ukrainian SSR, Kiev

"Concerning the Communication of A. S. Tarasevich and Yu. P. Yegorov on "The Determination of the Bond Order of P = N in Phosphazo Derivatives by the Method of P^{31} NMR""

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 8, No 3, 1972, pp 420-421

Abstract: The article contradicts the communication of Tarasevich and Yegorov [Teoreticheskaya i Eksperimental'naya Khimiya, 7, 628, 1971] which asserts that they have determined chemical shifts δ_p of the series of trichlorophosphazoperhaloidalkanes $Cl_3P = NR_{Hal}$ and bistrichloromethylchlorophosphazoalkanes $(CCl_3)_2ClP = NAlK$. These shifts have been already determined by D. P. Khomenko, E. S. Kozlov, and G. G. Dyadyusha [Spectroscopy Lett., 3, 129, 1970], and by E. S. Kozlov, S. N. Gaydamaka, Yu. Ya. Borovikov, V. T. Tsyba, and A. V. Kirsanov [Zhurnal Obshchey Khimii, 40, 2549, 1970], which has been overlooked by the authors of the above communication. Tarasevich and Yegorov make also use of the erroneous theory of Letcher and Van Wazer on the P^{31} chemical shift [Topics in Phosphorus Chemistry, 5, 75, 169, 1967] which

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USSR

KOZLOV, E. S. and GAYDAMAKA, S. N., Teoreticheskaya i Eksperimental'naya Khimiya, Vol 8, No 3, 1972, pp 420-421

however, they unwittingly disprove themselves by their data; therefore, their conclusions are invalid.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC 547.241

KOZLOV, E. S., SEDLOV, A. I., and KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences of the Ukrainian SSR

"Some Conversions of 1-Phospha-3,5-dioxa-4-arylbicyclo[2,2,1]-heptanes and Their Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 519-522

Abstract: Reaction of 1-phospha-3,5-dioxa-4-arylbicyclo[2,2,1]heptanes with sulfur produces 1-hydroxymethyl-1-thio-4-aryl-1-phospha-3-oxacyclopentenes-4. Treating 1-hydroxymethyl-1-oxo-1-phospha-3-oxacyclopentenes-4 with excess chlorine gives oxides of 1-phospha-3,5-dioxa-4-aryl-7,7-dichlorobicyclo-[2,2,1] heptanes.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC 547.241

KOZLOV, E. S., GAYDAMAKA, S. N.

"Synthesis and Infrared Spectra of Derivatives of bis-trichloromethylchlorophosphazohydride"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 106-110

Abstract: On interaction with chlorine or N,N-dibromobenzenesulfamide, bis-trichloromethylchlorophosphazohydride (I) gives the corresponding N-halide derivatives. It also reacts easily with phosphorus pentachloride, phosphorus oxychloride, trimethylchlorosilane, and sulfuryl chloride with the formation of N-substituted phosphazo compounds. The infrared spectra of the phosphazo compounds obtained lead to qualitative conclusions regarding the nature of conjugation of the P=N bond with substitutions on the nitrogen atom. Efforts to synthesize N-iodophosphazo compound did not succeed. Experimental procedures are presented for the synthesis of 7 of the mentioned derivatives. The yields, physical properties and infrared spectra are described.

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USSR

UDC 546.185

KOZLOV, E. S., GAYDAMAKA, S. N., BOROVIKOV, Yu. Ya., TSYHA, V. T., and KIRSANOV, A. V., Institute of Organic Chemistry, Ukrainian Academy of Sciences

"The Infrared Spectra and Nuclear Magnetic Resonance Spectra of P^{31}, and the Dipole Moments of Bistrychloromethylchlorophosphazohydride and -chlorophosphazoalkanes"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2549-2552

Abstract: Recent studies of the synthesis of bistrychchloromethylchlorophosphazo compounds $(CCl_3)_2ClP = NR$ (R = H, Alk) (I) have allowed us to observe the effect of bulky electrophilic substituents at the phosphorus atom -- and of electron donor substituents at the nitrogen atom -- on the character of the P = N bond; but information on the trichlorophosphazoalkanes $(Cl_3P = N\ Alk)_2$ has not offered the same possibility.

To achieve this, the authors made experimental studies of trichloromethylchlorophosphazo-β-chloroethane.

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KOZLOV, E. S., et al., Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2549-2552

It was found that with increase in the PNC angle, there is a shift in the resonance of the phosphorus atom, and an increase in the dipole moment, and in the bond order of the P = N bond.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC 547.241

KOZLOV, E. S., SEDLOV, A. I., KIRSANOV, A. V., Institute of Organic Chemistry, Kiev, Academy of Sciences Ukrainian SSR

"Oxidation of 1-Phospha-3,5-dioxa-4-arylbicyclo [2,2,1]-heptanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70, pp 1673-1677

Abstract: Oxidation of 1-phospha-3,5-dioxa-4-arylbicyclo-[2,2,1]-heptanes (I) with HgO at 20° gives the corresponding phosphine oxides (II), which by heating can easily be rearranged to 1-hydroxymethyl-1-oxo-4-aryl-1-phospha-3-oxacyclopentenes. Reacting (II) with benzyl chloride gives the corresponding benzoyl derivatives. The oxides (II) are not very stable except for those with electronegative substituents at the phenyl ring. This instability is probably due to the stress of the bicyclic ring system.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC 669.24:548.4

POPOV, L. YE., TERESHKO, I. V., GORENKO, L. K., KONEVA, N. A., KOZLOV, E. V., and KOVALEVSKAYA, T. A., Siberian Physicotechnical Institute imeni V. D. Kuznetsov and Tomsk Engineering Construction Institute

"Dislocation Structure of Ni_3Al at Different Stages of Deformation"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 409-418

Abstract: This study was conducted to study the change in the nature of dislocation structure in intermetallide Ni_3Al with increasing degree of deformation. Alloys with nickel and 22.9 and 24.0 at.% Al were investigated to which deformations of 1-12% were applied. At small degrees of deformation (1-2%) interlaces of dislocations were extended along slip traces and the average distance between slip traces was 8300 A. The number of interlaces and dislocation density increased with increased deformation. Plastic deformation of Ni_3Al results in the generation of three types of dislocations two of which are inherently located in octahedral planes and one -- cubic planes. In the deformed alloy numerous wide stacking faults are observed when alloy composition is close to stoichiometric and the energy of the stacking faults amounts to 29 erg/cm^2 for the alloy with 24.0 at.% Al. At high degrees

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR

POPOV, L. YE., et al., Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 409-418

of deformation, dislocation interlacings are noted which form a cellular structure. 9 figures, 22 bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--MECHANICAL PROPERTIES OF ORDERED SOLID SOLUTIONS -U-

AUTHOR-(02)-POPOV, L.YE., KOZLOV, E.V.

COUNTRY OF INFO--USSR

SOURCE--MECHANICAL PROPERTIES OF ORDERED SOLID SOLUTIONS (MEKHANICHESKIYE SVOYSTVA UPORYADOCHENNYKH TVERDYKH RASTVOROV) MOSCOW, METALLURGIYA.

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--SOLID SOLUTION, PLASTIC DEFORMATION, ALLOY, ORDERED ALLOY, MECHANICAL PROPERTY, CYRSTAL LATTICE STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1279 STEP NO--UR/0000/70/000/000/0001/0216

CIRC ACCESSION NO--AM0130263

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

2/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AM0130263

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 5. CHAPTER I ORDERED SOLID SOLUTIONS 9. II DISLOCATION IN SUPERLATTICES 9. III SPECIAL ATOMIC MECHANISMS OF BLOCKING AND INHIBITION OF DISLOCATIONS IN ORDERED SOLID SOLUTIONS 54. IV CHARACTERISTICS OF THE MECHANISM OF PLASTIC DEFORMATION OF ALLOYS WITH A LONG RANGE ORDER 72. V EXPERIMENTAL DATA ON THE MECHANICAL PROPERTIES AND DISLOCATION STRUCTURE OF RODERED ALLOYS 94. VI ON THE PHYSICAL THEORY OF PLASTICITY AND DURABILITY OF ORDERED SOLID SOLUTIONS 170. LITERATURE 206. IN THE MONOGRAPH IS EXAMINED THE NATURE OF PLASTICITY AND DURABILITY OF ORDERED ALLOYS AND METAL COMPOUNDS. THE DISCUSSION OF THE EXPERIMENTAL DATA IS BASED ON PRESENT DAY DISLOCATION THEORIES OF ORDERING OF METALS. THE BOOK IS FOR MATALO PHYSICISTS, PHYSICAL METALURGISTS AND ALSO FOR ENGINEERS OF FACTORY LABORATORIES.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

Coatings

USSR UDC: 546.882'811:548.522

PETRUSEVICH, I. V., KOZLOV, F. N., BOGDANOV, V. P., NISEL'SON, L. A.

"Production of Nb_3Sn Coatings from the Gas Phase"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 6, Jun 73, pp 952-955.

Abstract: Coatings of Nb_3S_n were produced on a moving strip of nickel by reduction of $NbCl_5$ and $SnCl_4$ from the gas phase. The dependence of coating thickness and yield on strip movement rate through the experimental apparatus is presented in tabular form. In the apparatus used, varying strip movement rate from 5 to 25 cm/min caused the coating thickness to decrease from 10.8 to 0.6 μ. Joint reduction of the higher chlorides of Nb and Sn by hydrogen in continuous apparatus used was determined by coating thickness as a function of strip movement rate, hydrogen concentration and gas stream velocity. The composition and structure of the Nb_3Sn coatings were found to be homogeneous along the length of the tape. The temperature at which the coatings convert to the superconducting state is 17.7° K.

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USSR UDC 546.821'28:67

RABINOVICH, B. S., RADOVSKIY, I. Z., KOZLOV, F. N., SIDORENKO, F. A., and GEL'D, P. V., Ural Polytechnical Institute imeni S. M. Kirov

"Electrical and Magnetic Properties of TiSi and $TiSi_2$"

Moscow, Neorganicheskiye Materialy, Vol 6, No 12, Dec 70, pp 2202-2204

Abstract: The composition and structural characteristics of TiSi and $TiSi_2$ preparates were studied chemically, metallographically, roentgenographically, and densitometrically. The data produced confirmed the single-phase and stoichiometric nature of the silicides, as well as the great complexity of their lattices.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC 546.821'28:67

RABINOVICH, B. S., RADOVSKIY, I. Z., KOZLOV, F. N., SIDORENKO, F. A., and GEL'D, P. V., Ural Polytechnical Institute imeni S. M. Kirov

"Electrical and Magnetic Properties of TiSi and $TiSi_2$"

Moscow, Neorganicheskiye Materialy, Vol 6, No 12, Dec 70, pp 2202-2204

Abstract: The composition and structural characteristics of TiSi and $TiSi_2$ preparates were studied chemically, metallographically, roentgenographically, and densitometrically. The data produced confirmed the single-phase and stoichiometric nature of the silicides, as well as the great complexity of their lattices.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

1/2 015 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--INHIBITION OF SUPERDISLOCATIONS BECAUSE OF CORRELATION DESTRUCTION IN CLOSE PACKED SOLID SOLUTIONS -U-

AUTHOR-(03)-KOZLOV, E.V., POPOV, L.YE., GINZBURG, A.YE.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(1), 146-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SOLID SOLUTION, ORDERED ALLOY, CRYSTAL DISLOCATION PHENOMENON, TRANSITION TEMPERATURE, YEILD STRESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1340 STEP NO--UR/0185/70/015/001/0146/0149

CIRC ACCESSION NO--AP0107813

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

2/2 015 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107813

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VALUE AND DEPENDENCE OF FORCES THAT INHIBIT DISLOCATIONS ON THE EXTENT OF LONG RANGE ORDER WERE DETD. FOR SOLID SOLNS. HAVING L1 SUB2 STRUCTURE (OF AUCU SUB3 TYPE). THESE DISLOCATIONS FORMED DUE TO DESTRUCTION OF CORRELATION. MAX. INHIBITION OF DISLOCATION EXIST AT THE ORDERING TEMP. (T SUBR). ABOVE T SUBR THE DISLOCATIONS MOVE IN PAIRS. THE BEHAVIOR OF YIELD STRESSES CANNOT BE ATTRIBUTED SOLELY TO THE INHIBITION OF DISLOCATIONS, WHICH OCCUR DUE TO CORRELATION-DESTRUCTION.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC: 621.316.543(088.8)

GAK, I. I., KOZLOV, G. A.

"A Coaxial Switch"

USSR Author's Certificate No 277891, filed 7 Mar 69, published 19 Nov 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V418 P)

Translation: This coaxial switch consists of two input and two output transmission lines connected to a commutating element with capacitive coupling between the commutating conductors. As a distinguishing feature of the patent, in order to ensure operation without sparking with high--power signals, the above-mentioned commutating element is made in the form of a rectangular metal box with the four coaxial leads mounted in its corners. The inner conductor of each lead contains a flat spring with a plate on its end. The plates of the two leads located on one diagonal of the box are covered with an insulating film on one side, and switching is done by laying adjacent plates one on the other.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

Analysis and Testing

UDC: 539.214:620.175

USSR

BOGATOV, A. A., KOZLOV, G. D., KOLMOGOROV, V. L., KHOVSIKOV, R. P., and PLAKHOTIN, V. S.

"Plasticity of Metals with Sign-Changing Deformation"

Izv. VUZ, Chernaya Metallurgiya, No 6, 1970, pp 83-86

Abstract: Experimental investigations and analytical methods were used to establish the regularity of the growth of plasticity of a number of types of steels and nonferrous alloys under alternating deformation (twisting) with symmetrical and pulsating cycles. The value of the Coffin factor was determined, and the method of determining constant C in Coffin's formula was clarified. Data were obtained on the plasticity of steel and nonferrous alloys with alternating deformation which can be used for the calculation of cracking under cyclical loading. One illustration; six biblio. refs.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

1/2 009 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--PREPARATION OF DOUGH FROM WHEAT FLOUR -U-

AUTHOR-(03)-SHCHERBATENKO, V.V., KOZLOV, G.F., PATT, V.A.

COUNTRY OF INFO--USSR

K

SOURCE--U.S.S.R. 262,788
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, WHEAT, PROCESSED PLANT PRODUCT, AMINO ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1382 STEP NO--UR/0482/70/000/[illegible]

CIRC ACCESSION NO--AA0[illegible]

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

2/2 009 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AA0130117

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DOUGH WAS PREPD. FROM WHEAT FLOUR IN AN INTERMEDIATE PRODUCT BY ADDN. OF CYSTEINE, WHICH HAD BEEN PREMIXED WITH FLOUR AND WATER. THE RESULTING MIXT. WAS ACTIVATED AT 31-50DEGREES FOR 10-20 MIN. CYSTEINE WAS 0.003-0.02 WT. PERCENT OF THE FLOUR WHICH CONSTITUTED 20-5PERCENT OF THE MIXT. WHICH ALSO CONTAINED 65-5PERCENT WATER. FACILITY: ALL-UNION SCIENTIFIC-RESEARCH INSTITUTE OF THE BAKING INSUSTRY.

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EQUIPMENT
Aeronautical

USSR UDC 533.697.3

ANUFRIEV, V. M., KOZLOV, G. I., and ROYTENBURG, D. I., (Moscow)

"Investigation of Diffusors Characteristics in Aerodynamic Shock Tube"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 72, pp 156-161

Abstract: An experimental investigation of diffusors performance (start-up) at M=8 and variable Reynolds number corresponding to transitional as well as laminar flow in the boundary layer, in an aerodynamic shock tube is reported, and which is an extension of the authors previous investigation. The experimental setup and techniques are described. Hydrogen at 115 atm was used as a driving gas, while nitrogen at 4 atm as a working gas. Velocity of incident shock wave propagation, pressure behind a reflected shock wave at the nozzle inlet, as well as pressure at various points of tested diffusors were measured during tests. Moreover, the time of working gas passage through the nozzle was determined. Models of frontal diffusors with central body and relative throat area F_m=0.12, 0.16, 0.21, are tested and their operation analyzed. A method for determining the total pressure recovery coefficient in a diffusor under condition of a shock tube is outlined. An analysis of the

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USSR

GENERALOV, N. A., ZIMAKOV, V. P., KOZLOV, G. I., MASYUKOV, V. A., and RAYZER, Yu. P.

"Experimental Investigation of Continuously Heated Optical Discharges"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol. 61, No. 4(10), October 1971, pp 1434-1446

Abstract: This article is the consequence of a letter written to the editor of the ZhETF (Journal of Experimental and Theoretical Physics) by the authors named above, in which they reported obtaining a continuously heated optical discharge in gases at pressures of the order of several atmospheres. The discharge plasma occurs at the center of a gas volume far from all solid surfaces, emits a blinding white light, and lasts as long as energy fed it by an input laser beam lasts. The present article provides the results of the first experimental investigation of some characteristics of this continuous optical discharge. It discusses the existence limits of the discharge's unattenuated mode and their dependence on the power of the light and the pressure of various gases, the stability of the heating for various beam configurations, and the determination of the shape and dimensions of the plasma. The part

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GENERALOV, N. A., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol. 61, No. 4(10), October 1971, pp 1434-1446

of the laser beam energy absorbed by the discharge is measured, and the plasma discharge is analyzed by measuring the electron density through the spectroscopic method and estimating the plasma temperature. The authors express their thanks to A. Z. Abaliyev for his assistance in setting up the experimental apparatus and conducting the experiments. They are associated with the Institute of Mechanical Problems, Academy of Sciences, USSR.

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RAYZER, Yu. P.; GENERALOV, N. A.; KOZLOV, G. I. (Moscow)

"Occurence of Conditions of Nonequilibrium and the Variation of the Absorbing Capability of a Plasma under the Influence of Powerful Pulses of Light"

Novosibirsk, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki; May-June, 1970; pp 27-37

ABSTRACT: The authors studied the kinetic processes taking place in a plasma under the influence of laser radiation which result in conditions of nonequilibrium and a variation in the absorbing capability of the plasma. The population distribution of the excited levels of the atoms during the action of the radiation was found by solving the Fokker-Planck equation for bound states. The rate of gradual ionization and the kinetics of the variations in electron density, excited atoms, and the absorption coefficient were calculated. The results of the calculation of light absorption were compared with experimental data obtained by the authors on the passage of laser pulses through plasma, and a satisfactory agreement between theory and experiment was found.

The article includes 32 equations and 4 figures. There are 12 references.

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KOZLOV G.I.

Acc. Nr: AP0043666 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 438-440

«BLEACHING» OF MOLECULAR IODINE AND BREAKDOWN INDUCED IN IT BY LASER PULSES

N. A. Generalov, G. I. Kozlov, V. A. Murzikova

Changes in the absorbbtion power of iodine vapor induced by pulses from a Q-switched ruby laser are investigated. It is found that with increase of the intensity from 10^7 to 10^9 W/cm^2 iodine gradually bleaches until it becomes totally transparent. For intensities close to the breakdown threshold values a structure is observed which consists of a large number of tiny growing points. The breakdown threshold value in iodine is found to be anomalously low.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

1/2 077 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--BREAKDOWN OF GASES UNDER THE INFLUENCE OF THE LONG WAVE INFRARED RADIATION OF A CARBON DIOXIDE LASER -U-

AUTHOR-(05)-GENERALOV, N.A., ZIMAKOV, V.P., KOZLOV, G.I., MASYUKOV, V.A., RAYZER, YU.P.

COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(7), 343-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CARBON DIOXIDE LASER, CHEMICAL PURITY, ARGON, HELIUM, NEON, IR RADIATION, RUBY LASER, NEODYMIUM LASER, IONIZATION, XENON, LUMINESCENCE, LASER INDUCED PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1133 STEP NO--UR/0386/70/011/007/0343/0346

CIRC ACCESSION NO--AP0123123

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

2/2 077 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123123

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PULSES (50-250 HZ, 0.3-1.5 MUSEC, PEAK OUTPUT 10 KW) OF THE 10.6-MU RADIATION OF A LASER BASED ON THE CO SUB2-N-HE MIXT., WORKING WITH CONTINUOUS PUMPING, WERE USED TO STUDY THE BREAKDOWN OF AR, NE, HE, AND XE AT LESS THAN 25 ATM. THE BREAKDOWN FREQUENCY WAS GREATER THAN 10 HZ; THE GAS LUMINESCENCE IN THE BREAKDOWN REGION WAS CONTINUOUS. THE FORMS OF THE INCIDENT, PASSING THROUGH THE BREAKDOWN PLASMA, AND REFLECTED (FROM THE PLASMA) PULSES AS WELL AS A VISIBLE LUMINESCENCE OF THE PLASMA WERE RECORDED SIMULTANEOUSLY. THE BREAKDOWN DEVELOPED FOR APPROXIMATELY EQUAL TO 0.1 MUSEC. THE LUMINESCENCE DURATION WAS LONGER THAN THAT OF THE PULSES AND SHORTER BY SIMILAR TO 3 ORDERS THAN THE BREAK BETWEEN THE PULSES. THE BEGINNING OF APPEARANCE OF RARE VISIBLE FLASHES WAS CONSIDERED A THRESHOLD; MOST RELIABLE MEASUREMENTS OF THE THRESHOLD INTENSITY WERE OBTAINED FOR XE. AT VARIANCE WITH XE, THE THRESHOLD IN HE INCREASES CONSIDERABLY WITH INCREASING GAS PURITY. THE SPARKS IN AR, HE, AND NE LIGHT LONGER THAN IN XE AND THE REFLECTION AND ABSORPTION OF THE PULSES IS SMALLER. THE XE ATOMS ARE IONIZED AND AT HIGHER PRESSURES, THE ELECTRON D. REACHES A CRIT. VALUE OF 1.13 TIMES 10 PRIME19-CM PRIME3. THE THRESHOLDS MEASURED ARE DISCUSSED ON THE BASIS OF AN AVALANCHE IONIZATION. THE AVALANCHE DEVELOPS IF THE ENERGY GAIN RATE EXCEEDS THE TOTAL RATE OF LOSSES. THE THRESHOLD CORRESPONDS TO AN ELECTRON D. STABILITY, IN CONTRADICTION TO THE SHORT GIANT PULSES OF THE RUBY AND ND LASERS. FACILITY: INST. PROBL. MEKH., MOSCOW, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

1/2 045 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--A METHOD FOR INFRARED DIAGNOSTICS OF A PLASMA AND ITS APPLICATION FOR INVESTIGATION OF IONIZATION AND RECOMBINATION OF XENON BEHIND THE

AUTHOR-(03)-GENERALOV, N.A., ZIMAKOV, V.P., KOZLOV, G.I.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 6, PP 1928-1937

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SHOCK WAVE, XENON, PLASMA ELECTRON TEMPERATURE, GAS STATE, ION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2236 STEP NO--UR/0056/70/058/006/1928/1937

CIRC ACCESSION NO--AP0125814

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

2/2 045 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125814

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR DETERMINATION OF THE ELECTRON TEMPERATURE AND ELECTRON CONCENTRATION PROFILES BEHIND THE FRON OF A SHOCK WAVE. IT IS BASED ON SIMULTANEOUS MEASUREMENT OF EMISSION AND ABSORPTION BY THE IONIZED GAS IN THE INFRARED REGION OF THE SPECTRUM (LAMBDA EQUALS 10.6 MICRONS). RESULTS OF AN EXPERIMENTAL INVESTIGATION OF IONIZATION AND RECOMBINATION PROCESSES IN XENON AT T EQUALS 8200-9200DEGREESK ARE PRESENTED. GOOD AGREEMENT BETWEEN THE EXPERIMENTAL DATA AND RECOMBINATION THEORY BASED ON A MODIFIED FOKKER-PLANCK THEORY IS OBTAINED. FACILITY: INSTITUT PROBLEM MEKHANIKI AN SSSR.

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USSR UDC 621.372.54

KOZLOV, G. R. and OSTAPENKO, G. S.

"Analysis of RC-Filter Null Networks"

Kiev, Izvestiya VUZ--Radioelektronika, vol. 14, No. 7, 1971, pp 802-808

Abstract: This paper is part of the continuing search for an integrated circuit component to act as an inductance. Two generalized circuits of null R-C filters with selectivity characteristics and the graphs representing their respective topological pictures are considered. From the latter, the transfer factor and the input and output admittances are determined. Taking into account the nature of the resistances in those circuits, the authors analyze four R-C filter networks with similar structures. The parameters of these circuits are given in tabular form, and it is shown that two of them are best used for tuning devices of lower frequency than the other two. The authors conclude that asymmetrical filters are preferable in that they offer the best matching of input and output impedances for the proper resistor and capacitor distribution law.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

Instrumentation and Equipment

USSR UDC 669.183:621.746.75

KOZLOV, G. S., BLIZNYUKOV, S. A., YAVOYSKIY, V. I., GOL'DSHTEYN, L. G., and USHKOVA, A. N., Moscow Institute of Steel and Alloys

"The Use of an Emission Microscope for the Investigation of Micrometallurgical Processes"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 11, 1970, pp 44-49

Abstract: The use of the EF-6 emission microscope for the investigation of new phase formations in the crystallization process of metals is described. The EF-6 provides three types of reaction on the test piece: thermo-electron emission with heating up to 2500°C, controlled primary electron beam action up to 15 kev, and primary ion flux action of various gases with a disruption voltage of 20 kev. The EF-6 was used for studying the behavior of nonmetallic inclusions at the moment of their generation in the steel recrystallization process in the system Fe-O and in the system Fe-O with deoxidation of nonmetallic inclusions in the melting-crystallization cycles. The temperature dependence of the wetting of Fe-Si-Mn-O alloys by manganese and iron silicates is demonstrated.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC:519.44/.45

KOZLOV, G. T.

"Insolubility of Elementary Theory of Lattices of Subgroups of Finite Abelian P-Groups"

Algebra i Logika [Algebra and Logic], Vol. 9, No. 2, 1970, pp. 167-171 (Translated from Referativnyy Zhurnal Matematika, No. 12, 1970, Abstract No. 12A177 by Yu. Gurevich)

Translation: The affirmation formulated in the title is proven. Insolubility of the theory of finite abelian p-groups in a language containing variable elements, variable serving subgroups, the group theory operation, and the set theory relationship $\in$ is also proven. Here p is an arbitrary prime. As usual, several slightly stronger affirmations than simple insolubility are proven. The results are extended to a broader class of abelian groups; in particular, to the class of all abelian groups.

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USSR

VINOGRADOV, Ye. A.; IRISOVA, N. A.; KOZLOV, G. V. (Lebedev Physics Institute, USSR Academy of Sciences, Moscow)

"Birefringence of Crystalline Quartz in the Millimeter Range of the Spectrum"

Leningrad, Solid State Physics; November, 1970; pp 3155-9

ABSTRACT: A method of measuring the birefringence of anisotropic media in the submillimeter range of the spectrum which takes into account interference phenomena inside the sample is described. An equation is obtained which determines the relation of the phase shift $\Delta\Phi$ between ordinary and unusual waves passing through a plane-parallel plate of an anisotropic dielectric. A quasi-optical apparatus for measuring birefringence in the 110-150 billion-cycle range was devised. Measurement of the phase shift $\Delta\Phi$ was carried out with the aid of a compensator consisting of two one-dimensional reticular elements with fine, mutually perpendicular wires. The birefringence of natural crystalline quartz was measured on the apparatus, and the following values for the refractive indices n_o and n_e were obtained: $n_o = 2.10 \pm 0.03$, $n_e = 2.14 \pm 0.03$, $\Delta n = n_e - n_o = 0.0477 \pm 0.0003$.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

1/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ELECTROOPTICAL EFFECT IN LINBO SUB3 IN THE MILLIMETER RANGE -U-

AUTHOR-(03)-VINOGRADOV, YE.A., IRISOVA, N.A., KOZLOV, G.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 781-4

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROOPTIC EFFECT, DIELECTRIC LOSS, FREQUENCY CHARACTERISTIC, REFRACTIVE INDEX, NIOBATE, LITHIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/2033 STEP NO--UR/0181/70/012/003/0781/0784

CIRC ACCESSION NO--AP0106691

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

2/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0106691

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR INVESTIGATION OF THE ELECTROOPTICAL EFFECT IN THE SUB MM RANGE. FORMULAS WERE OBTAINED WHICH DESCRIBE THE VARIATION OF THE AMPLITUDE AND THE PAHSE OF THE WAVE AT THE EXPENSE OF THE ELECTROOPTICAL EFFECT IN A PLANE PARALLEL PLATE. THE REFRACTIVE INDEX (N SUB0) AND DIELEC. LOSS TANGENT (TAN DELTA) WERE MEASUREDFOR THE CONVENTIONAL WAVE, AND THE NONLINEAR COEFF. R SUB22 FOR LINBO SUB3. THE FOLLOWING VALUES WERE OBTAINED FOR THESE PARAMETERS: N SUB0 EQUALS 7.2 PLUS OR MINUS 0.2, TAN DELTA EQUALS (2.5 PLUS OR MINUS 0.5) TIMES 10 PRIME NEGATIVE3, AND R SUB22 EQUALS (10 PLUS OR MINUS 2) TIMES 10 PRIME NEGATIVE10 CM-V. ALL THE MEASUREMENTS WERE CARRIED OUT AT 126-132 GHZ. FACILITY: FIZ. INST. IM. LEBEDEVA, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

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USSR UDC 620.172.2

KOZLOV, I. A., AKHREMENKO, V. L., Institute of Reliability Problems of the Academy of Sciences, UkrSSR

"An Investigation of the Stress State of Plates with Holes in an Area of Small Elastic-Plastic Deformation"

Kiev, Problemy Prochnosti, No 1, 1970, pp 26-30

Abstract: The authors stressed cruciform samples of 1Kh18N9T austenite steel and D16T aluminum alloy 2 mm thick, with holes 20 mm in diameter as stress concentrators. From single-axis tension, they obtained an expression for the relationship between the width of the sample, the hole diameter and the coefficient of stress concentration at the periphery of the hole, in the region of elastic deformation:

$$K_\sigma = \left(\frac{\sigma'_1}{\sigma_1}\right)^{\frac{b}{d} + \left(\frac{d}{b}\right)^3}$$

where σ_1 and σ'_1 are the stress in the unweakened and most weakened cross sections respectively, b is the width of the sample, d is hole diameter. For samples with multiple holes arranged along a line perpendicular to the axis of tension, b is the distance between hole centers.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR

KOZLOV, I. A., AKHREMENKO, V. L., Problemy Prochnosti, No 1, 1970, pp 26-30

The authors also tested the samples under two-axis tension, with the ratios of the stresses involved equal to 1, 2 and 3. Here the concentration of stress was determined as the ratio of the intensity of stress at a given point to the intensity of stress which would have occurred at this point in the absence of a stress concentrator:

$$K^*_\sigma = \frac{\sigma_{ig}}{\sigma_i},$$

where

$$\sigma_i = \sqrt{\sigma^2_1 - \sigma_1\sigma_2 + \sigma^2_2} \;;$$

σ_{ig} is the intensity of stress found from the deformation diagrams $\sigma_1 - \varepsilon_1$, constructed for various ratios of the primary stresses.

Tests were made on the aluminum samples at stress ratios of 1 and 2, with the larger stress applied along the axis of greater mechanical strength (the aluminum alloy has anisotropic mechanical properties on the order of 30%). The results showed that for the same values of σ_1, the concentrations of stress around the hole were 15-20% less in anisotropic material than in isotropic material.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC 539.4:621.835.8

LESHCHENKO, V. M., KOZLOV, I. A., GONTAROVSKIY, V. P., Institute of Problems of Strength of the Academy of Sciences UkrSSR, Kiev; Zhitomir General Engineering Faculty of Kiev Polytechnical Institute, Zhitomir

"A Method for Calculating Rotating Discs of Complex Profile"

Kiev, Problemy prochnosti, No. 5, May 72, pp 3-9

Abstract: A numerical method for analyzing the elastic equilibrium of composite axisymmetrically loaded shells of rotation is the basis of the calculation. The method is extended to the case of discs of complex shape in the elastic and elastic-plastic regions and also to the case of calculating composite discs where the physical properties of the material along the radius varies according to any given law. In the calculation method the discs are replaced by a set of plates of variable thickness and conical shells connected rigidly to one another in an arbitrary fashion. Arbitrary boundary conditions are assumed on the free ends, such as free contour, radial load, and rigid fastening. The nonuniformity of the temperature field with an arbitrary change along the radius and the functional dependence of the elastic modulus of the material E, the Poisson

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LESHCHENKO, V. M., et al, Problemy prochnosti, No. 5, May 72, pp 3-9

coefficient μ and the coefficient of linear thermal expansion α on temperature and the functional dependence of μ on the degree of deformation of the material are taken into account. It is noted that differential equations describing the stress state of a shell are useful for an arbitrary meridian and values which vary in an arbitrary manner along the material (such as thickness, load, temperature, etc.), but that in this case there are the following limitations considering the use of the M-220 computer: (1) elementary shells can have only a rectilinear meridian or a meridian which is an arc of a circle. This does not prevent the calculation of shells with meridians of other forms, since any complex shell can be divided into parts representing elementary shells with meridians that are straight or defined along the arc of a circle. (2) The thickness of the elementary shell must follow a linear law of change along the meridian. The quantities E, μ and α characterizing the properties of the material are put into the machine in the form of tables and intermediate points are determined by linear interpolation. A comparison of the calculated data based on this method of solving elastic-plastic problems and the results of destructive acceleration tests under nonuniform heating conditions supports the condition of breakdown for low-plastic materials based on the theory of greatest normal stresses.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC: 620.172.2

Kozlov, I. A., Semirog-Orlik, V. N., Rybenok, G. V.

"Study of the State of the Structure of Turbine Disc Materials Following Use"

Kiev, Problemy Prochnosti, No 7, 1972, pp 86-90.

Abstract: The state of the structure of turbine disc material is studied following use. It is demonstrated that after extended operation under normal operating conditions, the structure of the material undergoes no significant changes in comparison with its initial structure.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

KOZLOV, I. A.

JPRS 55771
15 May 72

UDC 620.171

INVESTIGATION OF THE CONDITION OF TURBINE DISC MATERIAL AFTER OPERATION

[Article by I. A. Kozlov, V. N. Rudenko, G. N. Sybenok; Kiev, Problemy Prochnosti, Russian, No 7, 1971, signed to press 12 November 1970, pp 78-82]

An increase in the service life of transport gas turbine engines and an increase in their reliability should be based on investigations of the character of change of the properties of the material as a function of the time and conditions of engine operation.

The metal of modern gas turbine engines operates under complex loading conditions, which create variable stresses under the influence of variable temperatures. Investigation of the behavior of material under these conditions involves tremendous procedural difficulties and is accomplished basically in application to individual simple loading conditions [1]. The tests presently in use for specimens under conditions approaching operational conditions by no means completely reflect all factors of the actual load condition.

The problem of determining the predominant mechanism of residual changes, accumulation of which leads a part to the limiting state, requires analysis and comparative evaluation of the changes that occur in the metal during operations performed on parts. It is also essential to evaluate the state of the material after operation under real conditions in order to employ the methods of abbreviated service life tests.

We investigated turbine discs after 2,221 and 2,934 hours of operation, a new disc of the same stage and engine and a turbine disc from another engine that had undergone stand tests with a summary operating time of 143 hours.

The discs, made of EI437BUVD alloy, were heat treated as follows: hardening from 1,080°C for 8 hours, cooling in air, aging at 730°C for 16 hours, cooling in air.

For preparation of blanks for the specimens the discs were cut on anode-mechanical machines with the maintenance of the standard tolerances

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR UDC 539.412.1

GORODETSKIY, V. N., KOZLOV, I. A., VASILENKO, L. P., Kiev

"The Question of the Strength of Disks with Inclined Rim"

Problemy Prochnosti, No 3, 1972, pp 28-30.

Abstract: Results are presented from experimental tests of two methods of designing inclined disks. The actual influence of the area of contact between rim and hub on the stress state of the disk is demonstrated. Values of coefficients describing the increase in true stresses in the dangerous area of inclined disks are presented.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR

UDC 539.4.013

KOZLOV, I. A., GORODETSKIY, V. N., AKHREMENKO, V. L., Institute of Problems of Strength, Academy of Sciences UkrSSR, Kiev

"Study of the Stress State in Chamfers of Discs"

Kiev, Problemy prochnosti, No. 8, Aug 71, pp 14-17

Abstract: A stress concentrator in the form of a chamfer was studied as a function of its radius and the effect of the radius of the chamfer on the baring capacity of the disc. The experiments were conducted on discs with an external diameter of 245 mm with a hub diameter of 60 mm and a central opening diameter of 30 mm. The ratio of the thickness of the disc to the diameter was 0.0612. Five models of the disc were made with chamfer radii of 5, 10, 15, 25 and 35 mm. The discs were made of St. 5 steel with a strength limit σ_B = 54 kG/mm^2 and δ_{10} = 16.5%. All measurements were made in the elastic region of deformation at 12,000 rev/min at normal temperatures. The breaking revolutions of the discs are shown as the ratio of the maximum revolutions of the disc to the maximum revolutions of a disc with a chamfer radius of 5 mm. It was found that the carrying capacity of discs increases with an increase in the chamfer radius

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but that the breaking revolutions of the disc with a chamfer radius of 35 mm was only 20% greater (34,240 rev/min) than for a disc with a chamfer radius of 5 mm. This slight increase is explained by the fact that the material redistributes the stresses well in the region of plastic deformation and the carrying capacity is basically characterized by the area of the transverse cross section, which with a fixed external diameter and hub diameter and with a variable chamfer radius increases parabolically. Since destruction of all models began in the zone of maximum stress at the chamfer, total balancing of stresses did not occur at the time of breaking. It is concluded from the study that the radius of the chamfer has a considerable effect on the carrying capacity of discs made only from brittle or low-plastic materials since the greatest stresses in the disc ordinarily arise in this region considering the coefficient of stress concentration.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

Acc. Nr: AP0045916 Abstracting Service: 5/70 Ref. Code: UR 3663
INTERNAT. AEROSPACE ABST.

A70-22464 # Study of a stressed state in the region of stress raisers, within small elastic plastic strains (Issledovanie napriazhennogo sostoianiia plastin s otverstiiami v oblasti malykh uprugo-plasticheskikh deformatsii). L. A. Kozlov and V. L. Akhremenko (Akademiia Nauk Ukrainskoi SSR, Institut Problem Prochnosti, Kiev, Ukrainian SSR). *Problemy Prochnosti*, vol. 2, Jan. 1970, p. 26-30. 5 refs. In Russian.

Experimental determination of a stressed state in the region of strain raisers (round holes) in a plate subjected to the two-axial tension associated with a plastic yield. Samples of the austenitic steel 1Kh18N9T and aluminum alloy D16T are taken into consideration. An analysis is made of the effect of the sample width on the stress coefficient around the hole. A method for determining the stress concentration at an arbitrary point of the plate weakened by stress raisers is described. Z.W.

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REEL/FRAME
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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--GASODYNAMIC STAND FOR TESTING THE STRENGTH OF TURBINE DISKS UNDER NONSTATIONARY LOADING CONDITIONS -U-

AUTHOR--SEKISTOV, V.A., KOZLOV, L.A., POMICHEV, V.I.

77
5
82

COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, FEB. 1970, P. 68-73

DATE PUBLISHED--------70

SUBJECT AREAS--ENERGY CONVERSION (NON-PROPULSIVE), PROPULSION AND FUELS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--TURBINE DISK, GAS TURBINE ENGINE, ENGINE TEST STAND, AIRCRAFT ENGINE, GAS DYNAMICS, THERMAL EFFECT, ELASTICITY, STRAIN, TURBOPUMP, LIQUID PROPELLANT ENGINE, CENTRIFUGAL FORCE/(U)GST01 GASODYNAMIC TEST STAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1978/1972 STEP NO--UR/3663/70/002/000/0068/0073

CIRC ACCESSION NO--AP0046656

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

Acc. Nr: AP0046659 Abstracting Service: INTERNAT. AEROSPACE ABST. 5-70 Ref. Code: UR 3663

A70-25296 Gasdynamic stand for testing the strength of turbine disks under nonstationary loading conditions (Gazodinamicheskii stand dlia ispytaniia turbinnykh diskov na prochnost' v usloviiakh nestatsionarnykh nagruzhenii). V. P. Sebiator, I. A. Kozlov, and V. I. Fomichev (Vysshee Inzhenerno-Aviatsionnoe Voennoe Uchilishche VVS; Akademiia Nauk Ukrainskoi SSR, Institut Problem Prochnosti, Kiev, Ukrainian SSR). *Problemy Prochnosti*, vol. 2, Feb. 1970, p. 68-73. In Russian.

Description of the GSTP-1 gasdynamic test stand designed for studying elastoplastic strains in aircraft gas-turbine disks and turbopump units of liquid-propellant rocket engines under alternating nonisothermal loads. The stand simulates the centrifugal forces and thermal effects experienced by an actual disk. It can be also used for determining the strains and temperature field in a disk subjected to abrupt and rapid temperature variations, with temperature control over the disk radius. V.P.

REEL/FRAME
19781972

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CERTAIN PROBLEMS OF LOW TEMPERATURE TENSOMETRY -U-

AUTHOR-(03)-BOGAYCHUK, V.I., KOZLOV, I.A., LIKHATSKIY, S.I.

COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, MAR. 1970, P. 86-89

DATE PUBLISHED--------70

SUBJECT AREAS--METHODS AND EQUIPMENT, PHYSICS

TOPIC TAGS--TENSILE TEST, STRAIN MEASURING INSTRUMENT, LOW TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1230 STEP NO--UR/3643/70/002/000/0086/0089

CIRC ACCESSION NO--AP0124884

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

2/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124884

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF SOME PROBLEMS IN LOW TEMPERATURE TENSOMETRY WITH RESPECT TO ITS APPLICATION FOR STUDYING THE STRESS STRAIN STATE OF TURBINE DISKS OPERATING AT TEMPERATURES DOWN TO 77 DEG K. THE EFFECTS OF LOW TEMPERATURE ON THE STRAIN SENSITIVITY COEFFICIENT OF SENSORS ARE ESTIMATED. THE FORMATION OF FICITIOUS STRAINS AND THE POSSIBILITY OF THEIR DETECTION ARE DISCUSSED.

FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT PROBLEM PROCHNOSTI, KIEV, UKRAINIAN SSR.

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Public Health, Hygiene & Sanitation

USSR

UDC 362.13(47+57)

KOZLOV, I. I., Central Council for the Administration of Trade Union Health Resorts"

"Geography of Health"

Moscow, Sovetskaya Meditsina, No 2, 1973, pp 3-8

Abstract: Health resorts and related facilities occupy a prominent place in the Soviet health system. More than three thousand have been built during the past 50 years and the number keeps growing, especially in Siberia and the Far East. These resorts and sanatoria not only treat hundreds of thousands of patients a year for a variety of diseases, they do a great deal of research. They also use up-to-date methods of therapy and diagnosis. For example, many of the sanataria that specialize in cardiovascular diseases routinely employ biotelemetry for diagnostic purposes and as a basis for individualizing exercise therapy. Radiotelemetry laboratories in the Kislovodsk, Odessa, Anapa, Gelendzhik, Sochi, Yalta, Yurmal, and other resorts study functional changes in patients as they move about, methods of hardening the body, and physical procedures. Radium isotopes are used for diagnostic purposes in the Truskavtsa, Yalta, Odessa, and Kislovodsk resorts. This technique saves the sanatorium

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USSR

KOZLOV, I. I., Sovetskaya Meditsina, No 2, 1973, pp 3-8

physicians a great deal of time in examining persons with hypertension, cardio-vascular, thyroid, and urinary tract diseases. The Pyatigorsk resort uses television as a means of centralized monitoring of patients while bathing.

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AA0046414 KOZLOV II

Soviet Inventions Illustrated, Section II Electrical, Derwent, UR 0482

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242477 DETERMINING THE RESISTANCE OF POLYMERS TO CORROSIVE MEDIUM, where samples of articles (5) are fixed to clamps (3) and (4). Clamps (3) are mounted on the revolving disc (7), clamps (4) are moving in the groove in the immobile plate (8) which is of sinusoidal or similar form in order to change the distance between the clamps in suitable manner. Chamber (2), housing the clamps and discs, can be filled with corrosive media, and disc (7) is revolved by motor (6) causing the clamps to put oscillating loads on the samples. The measurement data can be obtained by suitably placed strain gauges.

2.2.66 as 1053420/23-5. A.N.GORDEEV et al.RUBBER & LATEX RES.INST. (8.9.69) Bul 15/25.4.69. Class 42k. Int.Cl.G 01 n.

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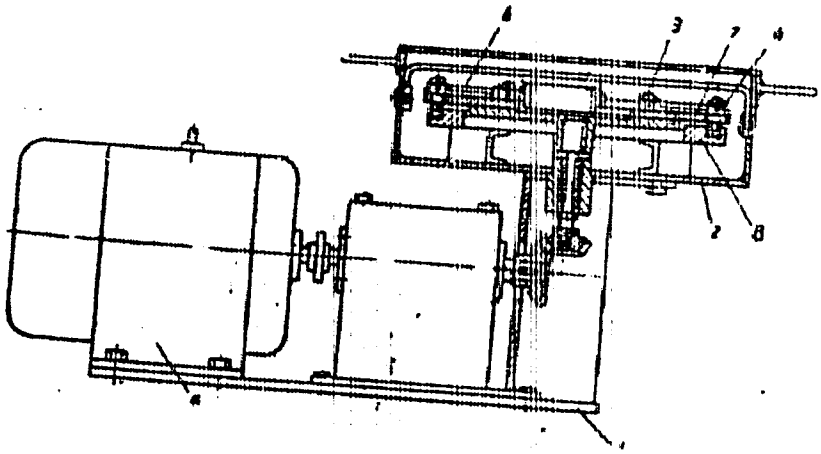
"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

AA0046414



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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

AA0046414

AUTHORS: Gordeyev. A. N.; Kozlov. I. I.; Orekhova, N. K.; Reznikovskiy, M. M.; Smirnova, T. N.; Suzdal'nitskaya, Zh. S.; Fedyukin, D. L.; Shmulev, Yu. S.

Nauchno - Issledovatel'skiy Institut Rezinovykh i Lateksnykh Iadeliy

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

172 026 UNCLASSIFIED

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

PROCESSING DATE--02OCT70

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

COUNTRY OF INFO--USSR

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

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

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

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0557

STEP NO--UR/0073/70/015/003/0602/0606

CIRC ACCESSION NO--AP0113448

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

2/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113448

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM AN X RAY DIFFRACTION STUDY, THE NATURE OF THE STARTING MATERIALS AFFECTS THE POLYMORPHOUS TRANSITIONS OF THE RESULTING AL SUB2 O SUB3 (ALPHA GAMMA OR THETA MODIFICATION). WHEN PREPD. FROM AL HYDROXIDE, THE PHASE TRANSITION FROM GAMMA TO ALPHA AL SUB2 O SUB3 PROCEEDS VIA THE INTERMEDIATE THETA MODIFICATION, WHICH IS MORE ORDERED THAN THE GAMMA MODIFICATION. THIS TRANSITION INTERMEDIATE WAS NOT OBSD. WHEN THE GAMMA YIELDS ALPHA TRANSITION OCCURRED IN AL SUB2 O SUB3 PREPD. FROM ALUMS.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR

UDC 621.791.011:669.715

MAKAROV, V. P., KOZLOV, I. T., IGNAT'YEV, V. G., NAZARENKO, A. N.

"Mechanical Properties of the Base Metal and Welded Joints of Alloys 01915 and AMg6 at Below-Freezing Temperatures"

Avtomaticheskaya Svarka, No 12, 1971, pp 62-63.

ABSTRACT: The new aluminum-zinc-magnesium alloy type 01915 has better characteristics for use in railroad car building than the traditional aluminum alloy AMg6. The new alloy is stronger, has a higher yield point and better pressing properties. Pressed shapes of 01915 alloy are approximately 10% less expensive than shapes of AMg6 alloy. Studies of the mechanical properties of base metal and welded joints of 01915 alloy were performed at +20, -20, -40 and -60°C. A table of the test results is presented. The results showed that the mechanical properties of the base metal and welded joints of both alloys remain practically unchanged in the temperature interval tested. The mechanical properties of welded joints of both alloys are lower than those of the base metal. The yield point of joints of 01915 alloy is 20 to 24% higher than that of joints of AMg6 alloy. The relative elongation is

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MAKAROV, V. P, et al., Avtomaticheskaya Svarka, No 12, 1971, pp 62-63

greater for AMg6 joints. The impact toughness of joint metal made by semi-automatic welding is lower than that of the base metal, while the impact toughness of joint metal produced by manual welding is higher than that of the base metal.

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USSR

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[illegible]

LIKHOBABENKO, I. Ya., [illegible], I. T., [illegible], I. [illegible], and [illegible], [illegible]

"Machine for Spot-Welding Large Parts With Curvilinear Profiles"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 70, pp 67-68

Abstract: A description is given of a spot-welding machine developed by the Kalinin Polytechnical Institute in cooperation with the [illegible] of the All-Union Scientific Research Institute and the N. E. Bauman [illegible] Technical School. The tops of automobiles are given as examples of [illegible] meant by curvilinear-profiled parts. Welding can be done on the machine without readjustments in going from one type of part to another. [illegible] two small type [illegible] double-electrode welding heads mounted on a [illegible] and the rim of a ring capable of turning on its own axis. The machine has manual, automatic, and emergency drives, and other details of its operation, together with a diagram of the machine and its drive system, are given.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

USSR

UDC 669.71.042.6

KUZNETSOV, K. I., GENISARETSKIY, M. A., GOROKHOV, V. P., SKUCHILOV, A. I., SHCHEGLOV, D. A., FIRSOV, V. M., KOZLOV, K. A.

"Development and Assimilation of Continuous Casting of Large Aluminum Ingots"

Tekhnol. Legkikh Splavov. Nauchno-tekhn. Byul. VILSa [The Technology of Light Alloys, Scientific and Technical Bulletin of the All-Union Institute of Light Alloys], 1970, No. 6, pp. 91-93. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G139 by G. Svodtseva).

Translation: The equipment and technology for casting large T-shaped ingots (I) of Al weighing 1 t were developed in 1963-1964 at the SMK (expansion unknown -- possibility: Siberian Metallurgical Combine). In 1969-1970, about 10,000 tons of large I were processed. The use of these I by metallurgical plants to replace the 15-kg I provides for: 1) complete elimination of manual labor in all loading and unloading operations from casting of I at the manufacturer to charging in the melting furnaces of metallurgical plants; 2) reduction in labor consumption by consumers during unloading of I from railroad cars by a factor of 4 by using lift trucks; 3) halving of storage area requirements; 4) reduction in labor consumption involved in transportation of I from railroad car to casting shop by 1.3 times; 5) reduction in labor consumption during charging into furnace by a factor of 2; 6) reduction in requirements for charging boxes by 40%; 7) reduction in melting time by 10-15%; 8) improvement of quality of metal of I

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

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UDC 669.71.042.6

KUZNETSOV, K. I., GENISARETSKIY, M. A., GOROKHOV, V. P., SKUCHILOV, A. I., SHCHEGLOV, D. A., FIRSOV, V. M., KOZLOV, K. A., Tekhnol. Legkik Splavov. Nauchno-tekhn. Byul. VILSa, 1970, No. 6, pp. 91-93.

as a result of decreased gas content and increased metal purity with continuous casting. The ratio of the surface area of large I to volume is 6 times lower than that of 15 kg I as a result of which the charge includes less oxide film, which also improves the quality of the metal.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201530002-6

1/2 025 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--EVALUATION OF THE EXTENT OF DEFORMATION OF RIGID CELLULAR PLASTICS -U-

AUTHOR-(02)-ROMANENKOV, I.G., KOZLOV, K.V.

COUNTRY OF INFO--USSR

SOURCE--MEKH. POLIM. 1970, 6(1), 177

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COMPRESSIVE STRESS, PLASTIC DEFORMATION, POLYSTYRENE RESIN, FOAM PLASTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0808 STEP NO--UR/0374/70/006/001/0177/0177

CIRC ACCESSION NO--AP0107350

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2/2 025 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107350

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STRESS STRAIN DIAGRAM OF RIGID CELLULAR PLASTICS (I) WAS DISCUSSED. A STRUCTURAL MODEL, ESSENTALLY A HEXAGONAL PRISM COMPOSED OF RECTILINEAR VERTICAL AND DIAGONAL RODS, IS PROPOSED FOR THE DESCRIPTION OF COMPRESSION DEFORMABILITY OF I. THE MODEL PROPOSED LED TO THE DERIVATION OF EQUATIONS USED FOR CALCN. OF THE MECH. CONSTS. OF I, E.G. POLYSTYRENE PSB FOAM. THE CALCD. CONSTS. WERE IN GOOD AGREEMENT WITH THE EXPTL. RESULTS.

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Immunology

USSR UDC 615.371:576.858.25].038+616.988.25-002.395.42-085.371-039.71

DUBOV, A. V., KOZLOV, L. B., MOLOTILOV, B. A., and FEMEVA, N. A., Tyumen' Scientific Research Institute of Regional Infection Pathology, Ministry of Health RSFSR, and Antiencephalitis Division, Ministry of Health RSFSR

"Live Vaccine Against Tick-Borne Encephalitis. Antigenic Potency"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 72, pp 703-705

Abstract: Live vaccine and inactivated formolvaccine against tick-borne encephalitis were tested on 900 individuals to determine differences in immunogenicity and to derive optimum vaccination schedules. Single live vaccination produced virus-neutralizing antibodies in 46% of the individuals, antihemagglutinating antibodies in 43%, and complement-fixing antibodies in 6%. With one vaccination schedule production of virus-neutralizing antibodies was 62% greater with live than with inactivated vaccine. The best vaccination schedule for live vaccine was 2 injections (1 ml, 5.5-6.7 lg LD_{50}) 3.5 months to 1 year apart. A pronounced booster effect was noted when individuals had 2-3 previous vaccinations by inactivated vaccine. Thus use of live tick-borne encephalitis vaccine is recommended in foci in which the population had undergone immunization by formolvaccine.

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KOZLOV, L. F., Institute of Hydromechanics, Academy of Sciences Ukrainian SSR, Kiev

"The Hydrodynamic Function of the Swordfish Rostrum"

Moscow, Biofizika, Vol 18, No 3, May-Jun 73, pp 571-572

Abstract: The swordfish (Xiphias gladius) is known for its swimming speed and it is widely thought that the shape of its snout has a large effect on this phenomenon. Aleyev, for example, suggested that the rostrum acts as a cavitator and reduces drag by the artificial formation of a cavern, but a closer examination of experimental data shows that this does not occur. An earlier article by the author and I. V. Leonenko demonstrated that affixing a sword-shaped point to a sphere greatly reduces its hydrodynamic drag, but this does not necessarily apply to a streamlined shape such as the swordfish body. By means of theoretical formulations it is possible to show that the greatest reduction in drag possible due to the rostrum of the swordfish is 10-12%. Thus it can be said that, in addition to its biological functions, the rostrum does serve to reduce drag, but this factor by itself is not sufficient to explain the great speed of the swordfish.

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