USSR

KOSHECHKIN, V. V., Tekhn. nauki. Vyp. 10, Alma-Ata, 1970, pp 176-178

since it is a trivial consequence of the equations of state

$$s = R \ln\left(cT^{\frac{1}{\gamma-1}}\right) + \text{const}, \quad pv = RT$$

and occurs for any two states. At the jump the ratios T_1/T_2 and p_1/p_2 are not independent and are related by a known relationship which should be added to (7) in calculating the increment in entropy. Therefore, in calculating the entropy jump it is not necessary to assign simultaneously two ratios T_1/T_2 and p_1/p_2 as the author does in the supplement. There are also other defects in the article. T. Ya. Galin.

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USSR

UDC 547.341.07

KAABAK, L. V., VARSHAVSKIY, S. L., MYAGKAYA, M. YE., KOSHECHKINA, L. A., KALITINA, M. I., and KABACHNIK, M. I.

"Process for the Preparation of Tri-Secondary-Alkylphosphine Oxide"

USSR Author's Certificate No 362024. Filed 18 Jan 71, published 13 Dec 71 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 2, 1873, p 54)

Translation: This process is improved in that white phosphorous reacts with secondary halide alkyls and magnesium or zinc while being heated, with the subsequent treatment of the reaction mixture with alkali. The desired product can be separated by known methods.

2. The process in number 1 is improved in that the mixture is heated to a temperature of 120-210°C.

3. The processes described in number 1 and 2 are improved in that the treatment of the reaction mixture with alkali is carried out at 270°C.

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USSR

UDC 51:155.001.57:612.82

KOSHEL', G. D., LOVITSKIY, V. I.

"Algorithm of Learning of Model of Certain Processes in Verbal Memory System. I."

Kibernet. i Vychisl. Tekhn. Resp. Mezhved. Sb. [Cybernetics and Computer Engineering, Republic Interdepartmental Collection], No 7, 1970, pp 32-34, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V670 by the authors).

Translation: A model is studied of certain processes in the verbal memory system, called EVIVS, and a description of the algorithm used to study this model is presented.

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USSR

UDC 621.35.035.2

KOSHEL', N. D., KSENZHEK, O. S.

"Possibility of Using Electrodes with Regular Structural Porosity"

Khim. Tekhnologiya Resp. Mezhved. Temat. Nauch-Tekhn Sb. [Chemical Technology, Republic Interdepartmental Thematic Scientific and Technical Collection], 1971, Vol 23, pp 125-130. (Translated from Referativnyy Zhurnal Khimiya, No 4, Moscow, 1972, Abstract No 4L227 from the resume).

Translation: Various models of porous structures of cellular, fibrous and granular types are studied. For each model, the dependence of the internal surface, effective conductivity and productivity on porosity are determined. It is demonstrated that the use of regular structures with unbranched pores can increase the dimensional productivity of electrodes by 50-80% (by improving transfer conditions) and decrease the weight of electrodes by 1 or 2 orders of magnitude. The use of regular structures with evenly distributed electrolyte area on the internal surface with the electrode operating in the diffusion mode can increase productivity by 20-50%.

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1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--BENZODIAZINES. XII. QUINOXALONES CONTAINING METHYL GROUPS ON THE BENZENE RING -U-

AUTHOR-(02)-KOSHEL, N.G., POSTOVSKIY, I.YA.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (5), 684-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC AZINE COMPOUND, AROMATIC KETONE, EXOTHERMIC REACTION, IR SPECTRUM, HETEROCYCLIC NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0945 STEP NO--UR/0409/70/000/005/0684/0686

CIRC ACCESSION NO--AP0134667

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0134667
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MIXT. OF 2.07 G 4,5,DIAMINO,OXYLENE, 1.5 G CLCH SUB2 CO SUB2 H, AND 1.2 G SOLID NAOH WAS TRITURATED, TRANSFERRED TO A FLASK, AND SLIGHTLY HEATED TO START THE REACTION. THE EXOTERMIC REACTIO SUBSIDED IN 10 MIN, TO GIVE A SOLID MASS, WHICH WAS WORKED UP TO GIVE 1.6 G 6,7,DIMETHYLETETRAHYDRO,2,QUINOXALONE, M. 173-5DEGREES. THIS HEATED 1 HR WITH 10 ML 2N NAOH AND 1.5 ML 30PERCENT H SUB2 O SUB2, AND ACIDIFIED WITH 2N HCL TO PH 4 GAVE 1.3 G 6,7,DIMETHYL,2(3H),QUINOXALONE (I) (R EQUALS R PRIME1 EQUALS ME, R PRIME2 EQUALS H), M. 291-2DEGREES (SUBLIMATION). SIMILARLY PREPD. WERE I (R EQUALS R PRIME1 EQUALS R PRIME2 EQUALS H) AND I (R EQUALS ME, R PRIME1 EQUALS R PRIME2 EQUALS H) FROM THE CORRESPONDING O,PHENYLENEDIAMINES. TO 13.3 G 3,4,DIAMINOTOLEUNE IN 20 ML HOT H SUB2 O WAS ADDED AT 85-90DEGREES A SOLN. OF 11.4 G ACETYLENEDICARBOXYLIC ACID (II) IN 50 ML H SUB2 O AND THE MIXT. REFLUXED 30 MIN TO GIVE 12.5 G I (R EQUALS R PRIME2 EQUALS ME, R PRIME1 EQUALS H), AND 0.6 G I (R EQUALS H, R PRIME1 EQUALS R PRIME2 EQUALS ME), M. 238-9DEGREES (SUBLIMATION). AN EQUIV. AMT. II IN 30 ML H SUB2 O ADDED TO 13.8 G 4,5,DIAMINO,O,XYLENE IN 400 ML HOT H SUB2 O AT 80-5DEGREES, AND THE MIXT. REFLUXED 30 MIN GAVE 15 G I (R EQUALS R PRIME1 EQUALS R PRIME2 EQUALS ME), M. 278-9DEGREES. SIMILARLY PREPD. WAS I (R EQUALS R PRIME1 EQUALS H, R PRIME2 EQUALS ME). THE EFFECT OF INTRODUCTION OF ME GROUPS IN I ON THE IR SPECTRA WAS DISCUSSED.
FACILITY: URAL. POLITEKH. INST. IM. KIROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC: None

VORONTSOV, V. A., GRUDNISTYY, V. V., KAMENKO, V. F., KOSHELENKO, V. V., REZNICHENKO, Yu. T., and YASKEVICH, E. P.

"Device for Determining the Coordinates of an Aerodynamic Shadow Contour on Bodies of Complex Form in Free Molecular Flux"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 27, 1971, p 141, No (11)351113

Abstract: A parallel light beam is used to model the flux such that the model can be fixed in any position. For ease of adjustment, there is a manual indicator showing a thread tied to a movable carriage. The scale of this indicator is used to measure the coordinates of points difficult of access. A diagram of the device is shown.

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USSR

UDC 517.948

KOSHELEV, A. I., Leningrad

"On the Convergence of an Iteration Process in Strong Norms for Ordinary Differential Equations"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 4, Apr 72, pp 78-83

Abstract: The article considers the differential equation

$$L(y) \equiv \frac{d}{dx} F(x, y, y') - f(x, y, y') = 0 \qquad (1)$$

with the boundary condition

$$y(0) - y(1) = 0. \qquad (2)$$

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KOSHELEV, A. I., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 4, Apr 72, pp 78-83

It is assumed that F and f are continuous in all arguments; F twice and f once are continuously differentiable with respect to the arguments y and y'. It is also assumed that derivatives of the functions F, F_x, and f with respect to the arguments y and y' are bounded for all values of x, y, y'. It is also assumed that for any $y \in C^{(1)}$ the following inequalities are valid:

$$\text{I.}\quad \nu(\xi_1^2+\xi_2^2)(1+y^2+y'^2)^{(\gamma-1)/2} \le \frac{\partial F}{\partial y'}\xi_1^2+\left(\frac{\partial F}{\partial y}+\frac{\partial f}{\partial y'}\right)\xi_1\xi_2+$$
$$+\frac{\partial f}{\partial y}\xi_2^2 \le \mu(\xi_1^2+\xi_2^2)(1+y^2+y'^2)^{(\gamma-1)/2} \qquad (3)$$

where ξ_1, ξ_2 are arbitrary real numbers; γ, μ, and ν are fixed positive

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KOSHELEV, A. I., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 4, Apr 72, pp 78-83

constants, and $0 < \gamma \leq 1$;

II. $|F(x, y, y')| < k_2(1 + y^2 + y'^2)^{\gamma/2}$; $|F'_y| < k_2(1 + y^2 + y'^2)^{(\gamma-1)/2}$;

III. $|F'_x - f| < k_3(1 + y^2 + y'^2)^{(2\gamma+\gamma-1)/4}$ $(0 < |s < (1 + \gamma)/2)$;

IV. $|f'_{y'}| < k_3(1 + y^2 + y'^2)^{(2\gamma+\gamma-3)/4}$;

V. $|f'_y| < k_4(1 + y^2 + y'^2)^{(2\gamma+\gamma-3)/4}$;

VI. for any $y, z \in C^{(1)}$ there is satisfied the inequality

$$|F(x, y, y') - F(x, z, z')](y' - z') + [f(x, y, y') - f(x, z, z')](y - z) \geq$$
$$\geq \rho\{[F(x, y, y') - F(x, z, z')]^2 + [f(x, y, y') - f(x, z, z')]^2\}.$$

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KOSHELEV, A. I., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 4, Apr 72, pp 78-83

In equalities (II)-(VI) k_i ($i = \overline{1,4}$), s, and ρ are certain positive constants.

As was shown by N. M. MIKHAYLOVA-GUBENKO, in this case the iteration process

$$y_{n+1} = y_n - \varepsilon L(y_n), \qquad (4) \qquad y_n(0) = y_n(1) = 0, \qquad (5)$$

which was suggested by the author of the present article, converges in $\|y\|_1^{(0)}$ beginning with an arbitrary $y_0 \in C^{(2)}$ and given a sufficiently small $\varepsilon > 0$. In addition, for successive approximations there occurs the inequality

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USSR

KOSH ELEV, A. I., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 4, Apr 72, pp 78-83

$$|y_n| + |y_n'| + |y_n''| < An^{1/2(1-\sigma)}, \qquad (6)$$

where A is a positive constant which does not depend on n. It was also shown by MIKHAYLOVA-GUBENKO that the convergence of process (4),(5) has the order of convergence of the series

$$\sum_{n=2}^{+\infty} (1 - \delta 2^{-\tau})^{1/2} (1 - \delta 3^{-\tau})^{1/2} \dots (1 - \delta n^{-\tau})^{1/2},$$

where $\tau = (1 - \gamma)/2(1 - \sigma) < 1$ and δ is a certain sufficiently small

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USSR

KOSHELEV, A. I., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 4, Apr 72, pp 78-83

positive quantity. On the basis of Raabe's test, it can be seen that this series converges more rapidly than a harmonic series with the general term $n^{-\sigma}$, where $\sigma > 1$ is any arbitrarily large number. Thus, for all n the inequality

$$\|y_n - y_{n-1}\|_{W_2^{(1)}} < B(1-\delta 2^{-1})^{1/2} \dots (1-\delta n^{-1})^{1/2}, \qquad (7)$$

will be satisfied where B is a positive quantity which does not depend on n.

The present article shows that method (3) and (4) also converges in stronger spaces, method (4) and (5) converges in $C^{(2)}$ and, given additional assumptions, also in $C^{(k)}$, where k is any natural number.

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UNCLASSIFIED

TITLE--CONCAVE DIFFRACTION GRATINGS WITH VARIABLE SPACING -U-

PROCESSING DATE--27NOV70

AUTHOR-(04)-GERASIMOV, F.M., YAKOVLEV, E.A., PEYSAKHSON, I.V., KOSHELEV, B.V.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(4), 790-5

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DIFFRACTION GRATING, ASTIGMATISM, SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1266

STEP NO--UR/0051/70/028/004/0790/0795

CIRC ACCESSION NO--AP0124917

UNCLASSIFIED

013 UNCLASSIFIED

CIRC ACCESSION NO--AP0124917 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES OF CONCAVE DIFFRACTION GRATINGS WITH LINEARLY CHANGING LINE DISTANCE ARE DISCUSSED IN RELATION TO THE IMAGE STIGMATISM. A METHOD IS GIVEN FOR THE PREPN. OF GRATINGS WITH VARIABLE SPACING FOR REDUCING ASTIGMATISM IN THE WAVELENGTH REGION USED IN SPECTROSCOPY.

UNCLASSIFIED

USSR

KOSHELEV, E. A., SHER, YE. N., Novosibirsk

UDC 532.593

"Bubble Development in the Case of Explosion on the Water Surface"

Novosibirsk, Fizika goreniya i vzryva, Vol 8, No 3, 1972, pp 441-443

Abstract: An experimental study was made of the movement of a liquid when a charge is exploded on its free surface up to the time of fill-in of the bubble; a simulation law is proposed. A characteristic feature of a surface explosion is that the detonation products shoot into the atmosphere and the cavity of the explosion bubble is at all times joined to the atmosphere. When the charge is deeper, on movement for some critical density liquid begins to cut off part of the explosion products forming an underwater bubble. The movement of the underwater bubble depends sharply on atmospheric pressure, but the surface bubble does not. The law of movement of the free surface can be written in the form

$$R/R' = f(t/t', \phi).$$

Where R, ϕ are the surface coordinates of the liquid (the angle ϕ is reckoned from the free surface of the liquid) and t is time. For a fuse charge

$$R' = (E/\rho g)^{1/3}, \quad t' = (E/\rho g^4)^{1/6}$$

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KOSHELEV, E. A., et al., Fizika goreniya i vzryva, Vol 8, No 3, 1972, pp 441-443

where E is the energy of the explosion, ρ is the liquid density, g is the gravitational acceleration. For a concentrated charge

$$R' = (E/\rho g)^{1/4}, \quad t' = (E/\rho g^5)^{1/8}.$$

The fuse charge was studied in more detail. E can be considered the TNT equivalent of the explosion of the experimental wire. E increases with the depth and is 50-70% of the energy stored in the charge condenser. The data for both types of charges confirm the presented mathematical descriptions.

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USSR

UDC 621.372.827:621.317.343.2

KOSHELEV, G. P., KORCHEMKIN, Yu. B., and SHAMAYEV, S. I.

"Determination of Critical Wave-Length Constant and Wave Resistance of Coaxial Line Having an Inner Conductor of Cruciform Section"

Moscow, Antenny, No 13, 1971, pp 18-27

Abstract: The recent tendency is to use waveguides of complex cross-section. Such waveguides are smaller, lighter and suitable for a wider frequency band than the waveguides of simple (rectangular, round) cross-section).

This article investigates the waveguide having a cylindrical outer conductor and an inner conductor consisting of a rod provided with four longitudinal ribs.

Graphs are presented showing the critical wave-length constants (solid lines) and the wave resistance (dashed lines) for various proportions of the subject waveguide.

Experimental results agree with the theoretical ones essentially within the experimental errors.

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USSR

KAZANSKIY, A. G., KOSHELEV, O. G. UDC 621.315.592

"Cyclotron Electron Resonance in Silicon Generated by Impurity Brightening from a CO_2 Laser"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 254-260

Abstract: A study was made of the cyclotron resonance of electrons in silicon in the case of impurity excitation of the free carriers by CO_2-laser erission. In the case of impurity excitation the relative cyclotron resonance line width ($\Delta\omega$) of the electrons is basically determined by their scattering in the charged impurity. The scattering time in the charged impurity (at a concentration of $6 \cdot 10^{13}$ cm^{-3}) depends weakly on the temperature in the 1.95-4.2° K range. In the vicinity of fields corresponding to a microwave power $P > 2$ milliwatts, $\Delta\omega \sim p^{0.4}$ was obtained. This function is characteristic of strong heating of the electrons when the pulse scattering takes place by spontaneous erission of acoustic phonons. In this region, as investigation of the line width as a function of P shows, the electron capture coefficient $\alpha \sim \varepsilon^{-1.4 \pm 0.2}$, where ε is the mean electron energy.

The redistribution of the electrons between the minima of the conduction band during uniaxial compression was also investigated. When T = 4.2° K, the

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USSR

KAZANSKIY, A. G., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 254-260

time of the interline transitions (with zero compression) exceeds the electron lifetime by no more than 4 times.

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USSR

UDC 621.315.592

VAVILOV, V. S., KLYAVA, YA. G., KOSHELEV, O. G., TYAPKINA, N. D., Moscow State University imeni M. V. Lomonosov

"Effect of Temperature and Superhigh Frequency on the Conductivity of Germanium with Beryllium at Helium Temperatures"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 9, Sep 70, pp 1683-1688

Abstract: The authors investigate the temperature dependence of conductivity (σ) and the effect of superhigh frequency (λ = 3 cm) on σ in P-type germanium doped with beryllium and phosphorus at 1.45-4.2°K. In this region the relationship $\sigma(T)$ may be approximated by the formula $\sigma = \sigma_0 \exp(-\varepsilon/kT)$. Both ε and σ_0 are studied as functions of $r_A = [3/4\pi(2N_{Be} - N_P)]^{1/3}$ (N_{Be} and N_P are the concentrations of beryllium and phosphorus). With a reduction in r_A, ε decreases, disappearing when r_A = 40-50 Å. Within the limits of measurement precision, the relationship $\sigma_0(r_A)$ may be represented by the expression $\sigma_0 = C \exp(-2r_A/a_2)$, where $C \approx 3 \cdot 10^3 \Omega^{-1} \cdot cm^{-1}$, and $a_2 \approx 17$ Å. An increase in $\sigma(\Delta\sigma)$ was observed which was proportional to the SHF power. In the linear region of voltage-current characteristics, $\Delta\sigma$ is independent of the amplitude of the DC field, and $\Delta\sigma/\sigma$ changes by only an order of magnitude with a change in σ by seven orders of magnitude. The relationship

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USSR

VAVILOV, V. S., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 9, Sep 70, pp 1683-1688

between $\Delta\sigma$ and the SHF modulation frequency is studied. In low-resistance specimens, $\Delta\sigma$ decreases by half when f = 30 kHz. This inertness indicates that $\Delta\sigma$ is chiefly bolometric in nature. The authors thank V. L. Bonch-Bruyevich and N. A. Penin for interest in the work and for discussing it, T. Yu. Lisovskaya for assisting with the experiment, and V. Ye. Kuvshinova for preparing the specimens and carrying out the Hall measurements.

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USSR

UDC 621.373.421.1

KOSHELEV, P. A.

"Possibility of Constructing Generators of Nondamping Sinusoidal Oscillations Based on Impact Excitation of the Oscillatory Circuit"

Materialy Nauchno-tekhnich. konferentsii Sev.-Kavkazsk. gornometallurgich. in-ta, 1968 (Materials of the Scientific and Technical Conference of the Northern Caucasus Mining and Metallurgical Institute, 1968), Ordzhonikidze, 1970, pp 103-104 (from RZh-Radiotekhnika, No 3, Aug 70, Abstract No 8 D310)

[No abstract]

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USSR

UDC 669-973:669.295'296

KOSHELEV, P. F., MIKHEYEV, V. S., NIKITIN, P. N., Institute of the Machine Studies, Academy of Sciences USSR

"Strength and Plasticity at Low Temperatures of Titanium Alloys With Zirconium"

Moscow, Metallovedeniye, No 10, 1971, pp 30-33

Abstract: The mechanical properties of titanium alloys with zirconium (up to 30%) and their stress concentration sensitivities at 20°C, -196°C, and -269°C were investigated. The principles of the change of strength and plasticity, as a function of Zr-content, were experimentally determined using iodide zirconium and TG-110 titanium. The results are discussed by reference to diagrams showing the mechanical properties of alloys of the system Ti-Zr at 20°C, -196°C, and -269°C, stress-strain diagrams of Ti-alloys with 5% Zr and 20% Zr, and their stress concentration sensitivities. The ultimate strength and yield point of the investigated alloys increase smoothly with increasing Zr-content. By alloying Ti with Zr, alloys of sufficient strength and without significantly increased stress concentration sensi-

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USSR

KOSHELEV, P. F., et al, Metallovedeniye, No 10, 1971, pp 30-33

tivity can be obtained. Titanium alloys with up to 15% Zr are not susceptible to stress concentrations, possess satisfactory plasticity, and can be recommended for use in cryogenic technology. 3 illustrations, 4 bibliographic references

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USSR

UDC 669.295'28

MIKHEYEV, V. S., NIKITIN, P. N., and KOSHELEV, P. F., Moscow

"The Mechanical Properties of Ti-Mo Alloys at Low Temperatures"

Moscow, Izvestiya Akademii Nauk USSR, Metally, No 4, Jul-Aug 72, pp 216-219

Abstract: The alloying of titanium with molybdenum in combination with zirconium in the α-solid solution range makes it possible to produce alloys with high mechanical properties at low temperatures. The rules of the variation of mechanical properties of Ti-Mo alloys and the effects of the structure and stress concentrations on these alloys were investigated at +20 and -269°C. The strength properties of the alloys increased with increasing Mo contents, but the plasticity decreased at both temperatures. Ti-Mo alloys with $\sim$4.0 wt% Mo are of practical interest in cryogenic technology, because they are plastic at sufficiently high strength and have low susceptibility to stress concentration over a large low-temperature range. A significant heterogenization of the structure in alloys with Mo content $>$ 4.0-5.0 wt% results in decreased plasticity and increased susceptibility to stress concentrations. Three illustrations, four bibliographic references.

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USSR

UDC 539.4

MIKHEYEV, V. S., KOSHELEV, P. F., NIKITIN, P. N., Institute of Metallurgy imeni A. A. Baykov

"The Mechanical Properties of Alloys AT3 and AT6 at Low Temperatures"

Kiev, Problemy Prochnosti, No 1, Jan 72, pp 63-65

Abstract: The behavior of alloys AT3 and AT6 at temperatures from 20 to -253°C was studied, and the following results were obtained: the standard mechanical properties were determined; the sensitivity to stress concentrations was studied; it was shown that the impact viscosity varied in relation to the test temperature and the incision sharpness. The conclusion was drawn that these alloys can be used in cryogenic-engineering structures operating at temperatures to -196°C. In the entire temperature range under investigation, alloy AT6 has definite advantages over alloy AT3; however, account must be taken of the smaller amount of work required for crack spreading during the destruction of this alloy. When these alloys are used at the temperature of liquid hydrogen, calculations should be made for strength and the permissible stresses should be specified, with account taken of a certain amount of sensitivity of the alloys with respect to stress concentrations. One table, three figures, three references.
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USSR

UDC 539.4

KOSHELEV, P. F., MIKHEYEV, V. S., NIKITIN, P. N., Institute of Machine Science

"The Influence of Tin Upon the Strength and Plasticity of Titanium at Low Temperatures"

Kiev, Problemy Prochnosti, No 2, Feb 72, pp 68-69

Abstract: A study is made of the mechanical properties, and the sensitivity to stress concentration, of alloys of titanium with tin corresponding to the structure of an alpha-solid solution, at temperatures from 20 to -253° C. Research was conducted on alloys containing 2.5, 5.0, 8.0, and 12.0% of tin by weight, with static stretching of smooth and incised cylindrical specimens. The alloys were melted in a vacuum-arc furnace with a nonconsumable tungsten electrode in a helium atmosphere. Titanium-base alloys, containing up to 5.0% of tin by weight, are plastic and possess low sensitivity to stress concentrations in a wide range of low temperatures. Increasing the tin content in the alloy above 5% by weight brings about an acute decrease of the plastic properties of the alloys and acutely decreases their deformability, particularly at low temperatures. Three figures, 2 references.

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USSR

UDC 621.785.78.9:620.17:669.295'292'293

KOSHELEV, P. F., MIKHEYEV, V. S., and NIKITIN, P. N., Institute of Metallurgy, Academy of Sciences USSR

"Mechanical Properties of Binary Titanium Alloys With Vanadium and Niobium at Low Temperatures"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972, pp 16-19

Abstract: This study concerns the mechanical properties and stress concentration sensitivity of binary Ti alloys with various contents of V and Nb at temperatures from +20 to -269°C. Discussed are the principles governing the variation of properties and optimum alloying limits for Ti with V and Nb for producing stronger multicomponent alloys suited for use in the cryogenic technology. The strength of Ti alloys with up to 12% V increases 4.7 times at temperatures as low as -253°C; but the alloy becomes brittle. In Ti alloys with up to 11% Ni, the strength increases about 3.5 times and a certain amount of plasticity is retained. For service at temperatures as low as -269°C Ti alloys with up to 6-7% Nb are recommended; Ti alloys with up to 5-6% V may be used for service at temperatures as low as -253°C. (3 illustrations, 5 bibliographic references)

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USSR

UDC 620.10:536.48

KOSHELEV, P. F.

"Mekhanicheskiye Svoystva Materialov Dlya Kriogennoy Tekhniki." Spravochnoye Posobiye (Mechanical Properties of Materials for Cryogenic Technology. Reference Manual), Publisher "Mashinostroyeniye," Moscow, 1971, 368 pages

Translation of Annotation: This reference manual presents data on the mechanical properties, stress concentration sensitivity (strength of notched specimens), strength of welded joints, and impact strength of a wide range of metal alloys at low temperatures, (as low as 20°K) depending on the type of semifinished product, sheet thickness, chemical composition, heat treatment, etc. Comparative methods of the selection of materials for working in cryogenic equipment according to different criteria of the estimate of their usefulness are also demonstrated. The manual is intended for designers, factory technologists in charge of planning materials and producing cryogenic equipment, and also for workers at scientific-research institutes and factory laboratories. One table, 384 illustrations, 44 bibliographic references.

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USSR

KOSHELEV, P. F., "Mekhanicheskiye Svoystva Materialov Dlya Kriogennoy Tekhniki." Spravochnoye Posobiye (Mechanical Properties of Materials for Cryogenic Technology. Reference Manual), Publisher "Mashinostroyeniye," Moscow, 1971, 368 pages

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USSR

KOSHELEV, P. F., "Mekhanicheskiye Svoystva Materialov Dlya Kriogennoy Tekhniki." Spravochnoye Posobiye (Mechanical Properties of Materials for Cryogenic Technology. Reference Manual), Publisher "Mashinostroyeniye," Moscow, 1971, 368 pages

1. Steels and iron-based alloys:
   45, 18Kh2N4Va, AISI1020, SAE 4320, SAE9310, 2% Ni, 9% Ni, SAE2330, Kh12N5AG8, Kh12N20T3R, Kh14G14N3T, Kh17G9AN4, Kh18N9T, Kh18N10T, OKh18N12B, Kh18N12M2, Kh21G7AN5, Kh23N18, Kh25N16G7AR, Kh15N9Yu, Kh16N6, Khn35VTYu, Kh15N5D2T, type A286, AISI202, AISI301, AISI302, AISI303, AISI304, AISI308, AISI310, AISI316, AISI317, AISI321, AISI347, A286, AM350 (AISI633), AMS5644 (AISI631), 300M, Kromark 55 — 60-132
2. Titanium alloys:
   VT1 1, VT3-1, VT5, VT5-1, VT5L, VT6, VT6S, VT14, IRM2, OT4, OT4-1, AT2-2, AT2-3, AT2-4, AT3, AT6, Rs70, 16V-2.5Al, 13V-11Cr-3Al, 4Al-3Mo-IV, 5Al-2.5Sn, A110-AT, 6Al-4V, 6.5Al-3Mo-IV, 7Al-4V, 7Al-3Mo, 7Al-4Mo, Ti-155A, RC130-B — 133-138

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USSR

KOSHELEV, P. F., "Mekhanicheskiye Svoystva Materialov Dlya Kriogennoy Tekniki." Spravochnoye Posobiye (Mechanical Properties of Materials for Cryogenic Technology. Reference Manual), Publisher "Mashinostroyeniye," Moscow, 1971, 368 pages

4/5

USSR

KOSHELEV, P. F., "Mekhanicheskiye Svoystva Materialov Dlya Kriogennoy Tekhniki." Spravochnoye Posobiye (Mechanical Properties of Materials for Cryogenic Technology. Reference Manual), Publisher "Mashinostroyeniye," Moscow, 1971, 369 pages

5/5

USSR

UDC 620.17-974

KOSHELEV, P. F., Moscow

"Low-Temperature Mechanical Properties of Materials"

Kiev, Problemy Prochnosti, No 3, March, 1971, pp 45-50

Abstract: The problems of studying low-temperature properties of materials are described in this article. The laws of variation of the properties of various materials on lowering the temperature and their inclination toward brittle structure are presented. Existing methods of obtaining the indicated data and the prospects of their development for estimation of structural strength, that is, the strength of the material in the product and also the possibilites of applying these methods and their deficiencies are demonstrated. The properties of materials under conditions of the complex stressed state and low temperatures and utilization of the principles of linear rupture mechanics in estimating the inclination of materials toward brittle fracture at low temperatures are discussed. It is pointed out that the presence of significant dependence of the variation of resistance to crack development on test conditions independently of the criterion used to estimate the tendency toward brittle fracture gives rise to the necessity for performing tests on specimens the thickness of

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USSR

KOSHELEV, L. F., Problemy Prochnosti, No 3, March, 1971, pp 45-50

which corresponds to the natural products, in the presence of natural cracks and also at a loading rate and temperature corresponding to actual conditions. Extensive data are plotted for the sensitivity of various cast and sheet aluminum alloys to stress concentration on lowering the test temperature, by the criteria of σ_{b_n}/σ_b and σ_{b_t}/σ_b where σ_{b_n} is the strength of a notched sample, and σ_{b_t} is the strength of a cracked specimen. Embrittlement, yield points and critical crack opening are among other indexes also plotted.

2/2

USSR UDC 539.4.015

IL'INA, R. I., SIDOROV, N. G., MOROZOV, B. S., NIKITINA, M. F., and KOSHELEV, P. F., Moscow

"Interrelationship of Mechanical Properties and the Structure of Aluminum and Magnesium Casting Alloys at Low Temperatures"

Kiev, Problemy Prochnosti, No 10, Oct 70, pp 108-112

Abstract: Test results of smooth and nothced specimens of aluminum and magnesium alloys in a wide range of low temperatures are presented. The $A_1$19 aluminum alloy and the VMe2 magnesium alloy showed the best combination of properties in the 293-20°K temperature range. The $VA_1$5 and Me10 alloys showed properties up to a temperature of 77°K. $A_1$27-1 and $A_1$3M aluminum-magnesium alloys and the Me5 magnesium alloy can be used safely at temperatures up to 203°K.

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USSR UDC 539.4.015

MIKHEYEV, V. S., KOSHELEV, P. F., NIKITIN, P. N., SENYREV, G. D. (Moscow), Institute of Metallurgy imeni A. A. Baykov

"The Influence of Beta-Stabilizers on the Strength and Plasticity of Titanium at Low Temperatures"

Kiev, Problemy Prochnosti, No 10, 1970, pp 115-117

Abstract: In the article is investigated the influence of beta-stabilizing metals (tantalum, vanadium, niobium) on the strength, plasticity, and sensitivity to stress concentration in titanium-based binary alloys corresponding to the structure of an alpha-solid solution, containing two atomic percent of the second component, at temperatures of 20 to -253°C. Attention is paid to the rules governing the change of the mechanical properties of alloys in the multicomponent Ti-Ta-Cr; Ti-Ta-V-Mo systems at low temperatures. 2 figures, 1 table, 2 bibliographic entries.

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USSR UDC 620.17:620.176.251.1:669.14.018.298

KOSHELEV, P. F., and GUDKOV, S. I., Institute of Mechanical Engineering, All-Union Scientific Research Institute for Cryogenic Machines

"Mechanical Properties of Structural Alloys at Low Temperatures"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1970, pp 34-36

Abstract: This work presents a study of the mechanical properties of the following nonferrous alloys used in cryogenic devices: VT1-0, VT3-1, VT5-1, LZhMts-59-1-1, LK80-3L and AMg5, as well as the sensitivity of VT3-1 and AMg5 alloys to stress concentrators at 20 to -253°C. All of the alloys studied have sufficient reserve of plasticity of all temperatures tested and are recommended for the manufacture of structures operating at temperatures between 20 and -253°C, except VT3-1, which should be used only at temperatures above -196°C, due to its increased sensitivity to stress concentration.

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Acc. Nr: A70046648 Abstracting Service: INTERNAT. AEROSPACE ABST. 5-70 Ref. Code: UR 3663

K

A70-25295 # Study of the mechanical properties of new titanium alloys at low temperatures (Issledovanie mekhanicheskikh svoistv novykh titanovykh splavov pri nizkikh temperaturakh). P. F. Kosheley, V. S. Mikheev, and P. N. Nikitin (Gosudarstvennyi Nauchno-Issledovatel'skii Institut Mashinovedenila, Moscow, USSR). *Problemy Prochnosti*, vol. 2, Feb. 1970, p. 40-45. In Russian.

Results of a study of the mechanical properties of a number of two-, three-, and higher-component titanium alloys. A promising trend in the manufacture of such alloys for use in cryogenic technology is indicated. The advantages of alloying titanium with tantalum are described. It is shown that an optimal complex of mechanical properties at temperatures down to -235 C is possessed by alloys with a Ta-V-Mo content ranging from 3.9 to 6.3%, an alpha solid solution structure, and traces of a dispersed beta phase. A.B.K.

40

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18

REEL/FRAME
19781961

AN0025935

UR0533

AUTHOR-- [redacted], DIRECTOR, TROITSK MACHINE TOOL CONSTRUCTION PLANT, CHELYABINSK OBLAST.

TITLE-- OLD TROUBLES IN A NEW INDUSTRY

NEWSPAPER-- SOTSIALISTICHESKAYA INDUSTRIYA, MARCH 14, 1970, P 2, COLS 2-8

ABSTRACT-- ACCORDING TO THE ARTICLE, IN 1959, THE TROITSK PLANT BECAME THE LEADING AND THE LARGEST PLANT MANUFACTURING TOOLS FOR MACHINING DIFFICULT TO MACHINE MATERIALS OR MATERIALS THAT COULD NOT BE MACHINED BY CONVENTIONAL METHODS. THE PLANT RECEIVES ITS BLUEPRINTS AND OTHER TECHNICAL DOCUMENTATION FROM THE ENIMS AND THE SPECIAL DESIGN BUREAU FOR DESIGNING AUTOMATED CONTROL AND ERROSION EQUIPMENT, BOTH LOCATED IN MOSCOW AND SUBORDINATE TO THE MINISTRY OF THE MACHINE-TOOL AND TOOL INDUSTRY. THE TROUBLES OF THE PLANT STEM FROM THIS DUALITY OF DIRECTIONS.

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19660856

USSR UDC: 51:621.391

KOSHELEV, V. N.

"Distribution of Input Energy Among Forward and Inverse Channels With Gaussian Noise"

Moscow, v sb. Peredacha diskretn. soobshch. po kanalam s gruppiruyushchimisya oshibkami (Discrete Information Transmission Along Channels With Grouped Errors--collection of works) 1972, "Nauka," pp 52-53 (from RZh--Matematika, No 6, 1972, Abstract No 6V333)

Translation: Exponents of error probability in decoding in the transmission of binary information are computed under the assumption that the transmission capability of forward and inverse channels is limited. The effect of the time delay in the inverse channel on the efficiency of the whole system is estimated. The author investigates the case of Gaussian channels subject to the condition that the energy source is common to the direct and inverse channels. Author's abstract.

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UDC: 51:621.391

USSR

KOSHELEV, V. N.

"On the Distribution of Input Energy Between Forward and Reverse Channels With Gaussian Noise"

V sb. Peredacha diskretn. soobshch. po kanalam s gruppiruyushchimisya oshibkami (Transmission of Discrete Messages Over Channels With Grouped Errors--collection of works), Moscow, "Nauka", 1972, pp 52-53 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V333)

Translation: Exponents of the probability of a decoding error in the transmission of binary information are computed on the assumption that the carrying capacities of the forward and reverse channels are limited. An estimate is made of the effect which the time delay in the reverse channel has on the operating effectiveness of the communications system as a whole. The case of Gaussian channels is investigated under condition that the source of energy is common for the forward and reverse channels. Author's abstract.

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USSR UDC 621.385.7.032.213.6

KOSHELEV, V.S., TSYMBALOV, G.M.

"Theory Of Computation Of The Thermal Regime Of A TWT Cathode Unit"

Elektron. tekhnika. Nauchno-tekhn. sb. Tekhnol. i organiz. proiz-va (Electronic Technology. Scientific-Technical Collection. Technology And Organization Of Production), 1970, No 2(34), pp 119-129 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A98)

Translation: A system of equations is presented which is the basis of an exhaustive analysis of the thermal regime of a traveling-wave tube heater-cathode unit. These relations make it possible to give a quantitative evaluation of the effect of various parameters of the cathode unit on the temperature of the cathode and heater, and the filament current, as well as making it possible to develop more effective methods for reduction of the heater temperature with a simultaneous regulation of the cathode temperature. The following results were obtained from computations of the basic magnitudes which determine the thermal regime of a TWT heating-cathode unit: temperature of cathode 833° C; maximum temperature of base, 1513° C; average temperature of base, 1456° C; maximum temperature of alundum surface, 1503° C; temperature drop by alundum coating, 10° C; temperature of lower shield of cathode frame, 416° C; heat flux through cross section of base at the site of the exit of the heater from the cathode, 1 watt;

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KOSHELEV, V.S., et al. Elektron. tekhnika. Nauchno-tekhn. sb. Tekhnol. i organiz. proiz-va, 1970, No 2(34), pp 119-129

heat flux from cathode through ceramic sleeves, 1.0779 watt; heat flux by radiation from oxide coating, 3.259 watt; over-all power of filament, 8.82 watt; efficiency of TWT cathode unit, 36,94 percent; thermal losses from cathode because of thermal conductivity, 34.88 percent; because of radiation, 27.06 percent; thermal losses from heater resulting from thermal conductivity, 1.13 percent. 4 ill. 2 ref. U.S.

2/2

USSR

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BASOV, N. G., GROMOV, V. V., KOSHELEV, Ye. L., MARKIN, Ye. P., ORAYEVSKIY, A. N., SHAPOVALOVA, D. S., SHCHEGLOV, V. A., Physics Institute imeni P. N. Lebedev, Academy of Sciences, USSR

"A Continuous-Action DF — CO_2 Chemical Laser"

Moscow, Pis'ma v (Letters to the) Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 13, No 9, 5 May 1971, pp 496-498

Abstract: A report is given on obtaining continuous laser emission in subsonic gas streams. Generation takes place due to CO_2 molecules excited by means of the transmission of energy from oscillatorily excited DF* molecules obtained in the process of a chain reaction of deuterium with fluorine with purely chemical initiation. 2 figures. 2 bibliographic entries.

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Graphite

USSR

UDC 546.26-162:620.17:546.31-14

KOSTIKOV, V. I., and KOSHELEV, YU. I., Moscow Institute of Steel and Alloys

"The Strength of Pyrographite in Contact with Liquid Alkali Metals"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 7, 1973, pp 18-20

Abstract: An experimental investigation was made of the influence of liquid alkaline metals on the strength of graphite. A vacuum chamber with two current-conducting electrodes was used to determine the strength in contact with the liquid metal and perpendicular to the base of P_{1950} and P_{2100} pyrographite specimens, obtained at 1950 and 2100°C precipitation temperatures. The strength of pyrographites in contact with liquid sodium is shown to decrease with increasing temperature. In liquid potassium, a stratification of pyrographite specimens into thin plates takes place at fusing temperature. The latter involves the formation of interlayer compounds of graphite. The results make possible the selection of optimum working temperatures of graphite at a given level of tension stresses in contact with liquid alkali metals. Two figures, four bibliographic references.

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USSR
CHEMISTRY
Adsorption Phenomena

USSR

UDC 532.61

KOSTIKOV, V. I., KOSHELEV, Yu. I., and DAVYDOVA, E. A., Moscow Institute of Steel and Alloys

"The Effect of a Homologous Series of Alcohols on Free Surface Energy of Pyrographite"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 47, No 8, Aug 73, p 2149

Abstract: The effect of a homologous series of alcohols on free surface energy of pyrographite was investigated, noting that with increasing alcohol effect per CH_2 group the free surface energy drops by 25 erg/cm^2, reaching a minimum with decyl alcohol.

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USSR

UDC 549.212:532.64

KOSTIKOV, V. I., KOSHELEV, YU. I., and FILIMONOV, YE. F., Moscow Institute of Steel and Alloys

"Features of Molten Titanium and Zirconium Spreading on Pyrographite"

Moscow, Neorganicheskiye Materialy, Vol 9, No 4, Apr 73, pp 592-595

Abstract: The wetting and spreading properties of molten titanium and zirconium on a substrate of pryolytic graphite were studied for two different batches of pyrolytic graphite. One batch of graphite was produced at 2100°C followed by a 3-hour anneal at 2200°C and one rate of precipitation, while the second batch was produced at the same temperature conditions but with a different precipitation rate. Surface energy was 350 erg/cm² for the first graphite batch, and 720 erg/cm² for the second batch. Temperature relationships of the kinetics of molten titanium spreading were obtained where it was noted that spreading rate decreases with increasing temperature. From these same kinetic curves the loss of free surface energy and interphase energy at the solid-liquid interface were calculated. The good coincidence of surface energy at the solid-liquid interface was shown from data on the kinetics of spreading with values of surface energy at the solid-liquid interface obtained by the method of the rise of molten metal between plane-parallel plates. 3 figures, 2 tables, 6 bibliographic references.
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USSR

UDC 669.187.26:669.018.298

ZIKINA, L. N., Candidate of Technical Sciences, TSVETKOVA, V. N., Candidate of Technical Sciences, TOPILIN, V. V., Candidate of Technical Sciences, STEPANOV, V. P., Candidate of Technical Sciences, and [redacted], Engineer, Central Scientific Research Institute of Ferrous Metallurgy and Elektrostal' Plant

"Structure and Properties of the EP487 Alloy of Different Smelting Methods"

Moscow, Stal', No 6, Jun 71, pp 547-549

Abstract: On the correlation basis of structures and properties of the EP487 heat-resisting alloy produced in an open-arc furnace (OF) and subjected to electroslag or vacuum arc remelting (VR), it was found that VR must be considered the optimum smelting technology of this alloy. After VR, a spottal liquation is absent in the metal, which produces a stability of mechanical properties, the impact ductility increases in the temperature interval of hot pressure treatment, the contents of lead, oxygen, hydrogen, and nonmetallic inclusions decrease, and strength and plasticity properties at room temperature improve. The process of dispersion hardening of the alloy after VR begins at a 50° higher temperature, the δ'-phase separation takes place in a smaller temperature interval (700-850°C), and the carbide phase of the type $Me_{23}C_6$ and

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USSR

ZIKINA, L. K., et al., Stal', No 6, Jun 71, pp 547-549

the intermetallic phase Me_7W_6 are present in smaller quantities than in the OF metal. Five illustrations, eight bibliographic references.

2/2

1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THE USE OF DIFFERENTIAL CENTRIFUGATION IN A STUDY OF HETEROMORPHIC PROPERTIES OF A SUBMERGED CULTURE OF ACTINOMYCES STREPTOMYCIN 773 -U-

AUTHOR-(03)-DMITRIYEVA, S.V., OSTRIKOVA, N.A., KOSHELEVA, G.I.

COUNTRY OF INFO--USSR

SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 5, PP 397-401

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ACTINOMYCES, STREPTOMYCIN, CULTURE METHOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0152 STEP NO--UR/0297/70/015/005/0397/0401

CIRC ACCESSION NO--AP0114548

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114546

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITH DIFFERENTIAL CENTRIFUGATION THE SUBMERGED CULTURE OF ACTINOMYCES STREPTOMYCINI 773 WAS BROKEN INTO 3 MYCELIAL AND 3 NON MYCELIAL FRACTIONS. CYTOMORPHOLOGICAL DIFFERENCES BETWEEN MYCELIA FROM FRACTIONS II, IV AND VI, AS WELL AS DIFFERENCES IN THE GROWTH AND ANTIBIOTIC PRODUCTION RATES WERE OBSERVED. THE MYCELIAL FRACTION IV IS OF THE GREATEST INTEREST. ITS EARLY APPEARANCE INDICATES A LOW LEVEL OF ANTIBIOTIC ACTIVITY. FACILITY: NATIONAL INSTITUTE FOR ANTIBIOTICS, MOSCOW.

UNCLASSIFIED

UNCLASSIFIED

(27)

SECTION III

SD: Selected Research Facilities

PCS-29
SEPT 71

Biophysics

Name: Institute of Biophysics, Pushchino

Description:

(U) During this quarterly reporting period, 23 new articles were identified from the Institute of Biophysics, Pushchino. On the basis of these articles, it was ~~possible~~ to identify 32 ~~new~~ personalities with the Institute. These personalities, the subjects of the articles, ~~and the~~ dates are given below:

All biophysics/physics

Aliyeva, S. A.	~~phosphorylation~~	1972(34)
Apikayeva, G. F.	radiation effect	1970(33)
Aripova, D. F.	radiation effect	1971(36)
Ashipa, Ye. I.	hypoxia	1969(37)
Bregadze, I. F.	radiation effect	1970(32)
Busel, Ye. P.	luminescence	1970(37)
Dmitriyeva, T. I.	radiation effect	1970(39)
Dmitriyeva, V. A.	blood plasma	1969(40)
Donareva, O. P.	radiation effect	1970(39)
Dubrov, A. [illegible]	biochemical analysis	1971(41)
Gabileva, H. A.	muscle physiology	1971(42)
Ganassi, Ye. E.	radiation effect	1970(35)
Ivkova, M. N.	serum albumin	1971(43)
Kanatkin, V. S.	phosphorylation	1971(34)
Khokhlova, G. K.	muscle physiology	1971(44)
Kiselov, A. N.	salivary gland	1970(45)
Kiyagina, V. P.	oligonucleotide	1970(46)
Korol, B. A.	radiation effect	1972(44)
Kosheleva, G. N.	biochemical analysis	1971(41)

KOSHELEVA, G. N.

UNCLASSIFIED

[illegible], S. V.	[illegible] culture	1970 (52)
Markovich, D. S.	lactate dehydrogenase	1971 (48)
Maksimova, I. F.	radiation effect	1971 (72)
Pankova, L. V.	phosphorylation	1972 (49)
Pronevich, [illegible]	antibiotic	1970 (50)
Rodionova, M. A.	mitochondrion	1971 (52)
Shchipkin, V. N.	phosphorylation	1971 (69)
Shobeyev, Ye. N.	radiation/vibration	1970 (52)
[illegible]	radiation effect	1970 (52)
Tavetkov, V. D.	blood plasma	1969 (60)
[illegible]	lactate dehydrogenase	1971 (63)
Vilenchik, M. M.	radiation effect	1969 (53)
Zamyatnin, A. A.	muscle physiology	1971 (72)

Dubrov and Kushnaryeva (41) are associated with the Laboratory of Cell Biophysics at the Institute. Reference 52 above is of special interest since it presents an investigation of combined stresses, i.e., radiation and vibration. In addition to the above articles, five of the twenty-five (54-58) were authored by persons already identified with the Institute of Biophysics, Pushchino. Reference 55 associates the authors of the article, L. F. Sizonenkina, V. L. Migushina, and A. M. Kuzin, with the Department of Radiobiology at the Institute.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--2,6,BIS,2,HYDROXY,5,CHLOROBENZYL,4,CHLOROPHENOL, A SUBSTANCE WITH ANTHELMINTHIC ACTION -U-
AUTHOR-(03)-BEKHLI, A.F., BRAUDE, M.B., KOSHELEVA, L.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(3), 32-5

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--WORM, PARASITOLOGY, CHEMICAL SYNTHESIS, GASTROINTESTINAL DRUG, DRUG PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0541 STEP NO--UR/0450/70/004/003/0032/0035

CIRC ACCESSION NO--AP0137630
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137630

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE NONTOXIC ANTHELMINTIC (I) WAS ISOLATED DURING THE COURSE OF DICHLORDPHEN (II) SYNTHESIS. A MIXT. OF 60 G P-CLC SUB6 H SUB4 OH AND 21.4 G 32PERCENT HCHO-MEOH IN THE PRESENCE OF H SUB2 SO SUB4 GAVE 76 G II, M. 172-2.5DEGREES. A BY PRODUCT RECRYSTD. FROM AQ. ETOH GAVE 2.7 G COMPD., M. 227-8DEGREES; FURTHER CRYSTN. FROM 115 ML PHME YIELDED 1.5 G I, M. 235-6DEGREES. A MIXT. OF 128.5 G P-CLC SUB6 H SUB4 OH, 46.5 G NADH IN 185 ML H SUB2 O, AND 265 ML 37PERCENT HCHO WAS STIRRED 5 HR AT 50-60DEGREES AND KEPT 3 DAYS AT ROOM TEMP. TO YIELD 68.9PERCENT 4,CHLORO,2,6,BIS(HYDROXYMETHYL),PHENOL (III), M. 164DEGREES (H SUB2 O). A MIXT. OF 151.2 G III AND 15.6 ML HCL WAS ADDED TO 800 G MOLTEN P-CLC SUB6 H SUB4 OH AND THE MIXT. HEATED 4.5 HR AT 40DEGREES TO YIELD 70.7PERCENT I, M. 235-6DEGREES (ETOH). FACILITY: INST. MED. PARAZITOL. TROP. MED. IM MARTSINOVKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 612.5-087.86

LOGUNOV, A. D., AZHAYEV, A. N., and KOSHELEVA, O. S.

"Determination of the Coefficients of Mixing for Calculation of the Average Temperature of the Human Body"

Moscow, Gigiyena i Sanitariya, No 3, Mar 73, pp 72-75

Abstract: In experiments on humans placed for 1-6 hrs into a chamber with an air temperature of -40, -10, 5, 25, 30, 35, or 40°, the heat flow between the body and the surrounding air, the temperature of the skin, and the rectal temperature were determined. The subjects on whom the experiments were carried out were nude or dressed in summer, winter, or between-season clothing. On the basis of the experimental data obtained, formulas for the coefficients of mixing corresponding to the temperature of the skin and the rectal temperature under various conditions of heat exchange were derived. Nomographs were plotted which indicate 1) the relation between the coefficient of mixing for the skin temperature and the thermal insulation of body tissues; 2) the relation between the insulation of body tissues and the inner temperature gradient of the body; 3) the relation between the coefficients of mixing for the rectal and skin temperatures and the rectal-skin temperature gradients and also between these coefficients and the

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USSR

LOGUNOV, A. D., et al., Gigiyena i Sanitariya, No 3, Mar 73, pp 72-75

thermal insulation of the body tissues. With an increasing difference between the rectal and median skin temperature, the degree of thermal insulation of the body tissues increased, while decreasing with a reduction of the inner temperature gradient. At low outside temperatures the thermal insulation of the body surface increased. It decreased at high outside temperatures.

USSR UDC 636+576.8.094.29

ORLYANKIN, B. G., RAKITSKAYA, A. YA., KOSHELEVA, R. V., SERGEYEV, V. A. and MAKAROV, V. V., All-Union Institute of Veterinary Virology and Microbiology, Pokrov, Vladimirskaya Oblast

"The Biosynthesis of Components of the Aujeszky Virus Under Nonpermissive Conditions"

Moscow, Sel'skokhozyaystvennaya Biologiya, Vol 8, No 5, Sep/Oct 73, pp 761-764

Abstract: The synthesis of nucleic components and virus-specific proteins in a chick embryo cell culture synchronously infected with Aujeszky virus, BYK strain, was studied for one cycle of multiplication under conditions excluding reproduction of infectious viruses. Nucleic acid synthesis was measured by incorporation of ^{14}C-Thymidine, while virus-specific proteins were determined by immunofluorescence. It was found that at 20° or 41°C nucleic acid synthesis is inhibited, said to be due to a virus-induced suppression of cell metabolism. At 24°C nucleic synthesis proceeds but at a slower rate. Virus specific particles were formed only at 37°, under those conditions leading to the formation of infectious viruses. These results are said to indicate the presence of a virus-induced process.

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Molecular Biology

USSR UDC 576.858:615.28

ORLYANKIN, B. G., KOSHELEVA, R. V., SERGEYEV, V. A., Doctor of Biological Sciences, and MAKAROV, V. V., Candidate of Biological Sciences (Communicated by KOVALENKO, Ya. R.), All-Union Research Institute of Veterinary Virology and Microbiology

"The Effects of Inhibitors of Macromolecular Synthesis on the Reproduction of Aujeszky's Disease Virus"

Moscow, Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokhozyaystvennykh Nauk imeni V. I. Lenina, No 2, 1973, pp 35-36

Abstract: Since little information is available on the effects of various antimetabolites and antibiotics on the multiplication of Aujeszky's disease virus (ADV), studies were undertaken to determine the effects of 5-bromo-2-deoxyurine (BDU) (100 μg/ml), mitomycin C (5 μg/ml), aurantin (an unpurified preparation of actinomycin D, 0.1 μg/ml), puromycin (1 μg/ml) and cycloheximide (10 μg/ml) on the reproduction of ADV in chick embryo tissue culture. Each preparation was found to significantly inhibit viral replication during the latent period. If administered after 8 h (6 h in the case of BDU), no inhibition was obtained since the synthesis of the viral building blocks had been completed.

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USSR UDC 539.3

KOSHILEVA, T. I., MYACHENKOV, V. I., Moscow

"Stability of Toroidal Shells Under Local Loads"

Kiev, Prikladnaya Mekhanika, Vol VII, No 4, 1971, pp 23-27

Abstract: The finite-difference method was used to obtain the solution of the problem of stability of toroidal shells under the effect of local loads: a concentrated annular force uniformly distributed with respect to the large circumference of the torus, an edge moment uniformly distributed with respect to the large circumference, a shell heated to a temperature and fastened by a quite rigid "cold" frame. The subcritical state is determined from the solution of the boundary effect equation. Formulas are presented for finding the critical value of the local loads, and the effect of the subcritical distortion of the generatrix of the shell on their magnitude is investigated.

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USSR UDC 669.15:548.526

GOL'TSOV, V. A., KOSHELEVA, V. Yu., KAGAN, G. Ye., ANDREYEVA, L. P., AINOV'YEVA, G. P., and GEL'D, P. V., Ural Polytechnical Institute imeni S. M. Kirov

"Influence of the K-State on Diffusion and Solubility of Hydrogen and Mechanical Characteristics of Kh20N80 Alloy"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 957-962

Abstract: The temperature dependence of the modulus of elasticity and internal friction (300-650°), permeability, diffusion, and solubility of hydrogen (350-900°C) in Kh20N80 alloy was studied. The effects discovered were compared with results produced earlier on the influence of long- and short-range order and the K-state in alloys on the behavior of the hydrogen dissolved in them. It was determined that the modulus of elasticity and internal friction are sensitive to the formation and disruption of the K-state in nichrome. The activation energy for formation of the K-state, calculated on the basis of results of measurements of internal friction, is 42 Kcal/mol. This value agrees well with the activation energy calculated from measurement of hydrogen permeability (about 40 Kcal/mol). It was established that the atomic regroupings resulting

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GOL'TSOV, V. A., et al, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 957-962

in formation of the K-state sharply change the diffusion coefficient D and the solubility of hydrogen S in Kh20N80 alloy. D decreases significantly, while S increases significantly, as a result of which the hydrogen permeability p = D*S is less sensitive to these changes in the structure of the alloys.

1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF THE FORMATION OF K STATE ON THE HYDROGEN PERMEABILITY OF KH20N80 ALLOY -U-

AUTHOR-(03)-GOLTSOV, V.A., GELD, P.V., KOSHELEVA, V.YU.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(2), 97-101

DATE PUBLISHED-------70

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

TOPIC TAGS--CHROMIUM NICKEL ALLOY, NICKEL BASE ALLOY, ALLOY DESIGNATION, HYDROGEN, PERMEABILITY, ACTIVATION ENERGY, FLUID PERMEABILITY/(U)KH20N80 NICKEL BASE ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1658 STEP NO--UR/0148/70/013/002/0097/0101

CIRC ACCESSION NO--AT0118637

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0118637

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TUBULAR SPECIMENS WERE STUDIED OF THE CR-NI ALLOY KH20N80 (CR 15 OR 20, C 0.08, MN 0.3, AND SI 0.5 WT. PERCENT) WITH DIAM. 20 MM AND PROVIDED WITH A MEMBRANE IN THE MIDDLE 1.5-2 MM THICK. THESE SPECIMENS WERE HEATED PRELIMINARILY IN VACUUM TO 1100DEGREES, HELD 1 HR, AND QUENCHED IN WATER. THE H PERMEABILITY OF THE ALLOY ANNEALED AT 550-850 (WHEN DETD. AT 650DEGREES) WAS A FACTOR OF SIMILAR TO 3 LESS THAN THAT OF THE SAME ALLOY AFTER ANNEALING AT 330-500DEGREES. THIS LOWERING IS ASCRIBED TO THE REDISTRIBUTION OF THE ALLOYING ELEMENTS OWING TO THE FORMATION OF THE K STATE. THE ACTIVATION ENERGY OF THE K STATE FORMATION WAS DETD. AS 40 KCAL-MOLE, WHICH IS MUCH LOWER THAN SIMILAR ACTIVATION ENERGIES DETD. FROM ELEC. COND. (57-80 KCAL-MOLE). FACILITY: URAL. POLITEKH. INST., SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC 621.373.029.7

KOSHEL'KOV, V.A., KROCHIK, G.M.

"Concerning Use Of A Four-Approach Helix As The Sorting System Of A Maser"

Radiotekhnika i elektronika, Vol XVII, No 5, May 72, pp 1095-1098

Abstract: The results are presented of a calculation of the structure of the electrostatic field of a four-approach spiral, and its advantages over known sorting systems are shown. Use of a four-approach spiral for sorting can lead to a reduction of the generation threshold of a beam-type maser, to an increase of its power, and also to an increase of the sensitivity of a spectroscope to the active molecular beam. 3 fig. 6 ref. Received by editors, 7 April 1971.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--INCREASING GYROTRON EFFICIENCY AT THE FUNDAMENTAL GYRORESONANCE BY WAY OF CORRECTING THE MAGNETOSTATIC FIELD DISTRIBUTION -U-
AUTHOR-(03)-GLUSHENKO, V.N., KOSHEVAYA, S.V., PRUS, V.A.

COUNTRY OF INFO--USSR

SOURCE--IZV VUZ. RADIOELEKTRONIKA, VOL. 13, JAN. 1970, P. 12-17

DATE PUBLISHED----JAN70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--MAGNETIC RESONANCE, GYRO, MAGNETORESISTANCE, TRANSVERSE MAGNETIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0142 STEP NO--UR/0452/70/013/000/0012/0017

CIRC ACCESSION NO--AP0110108
UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0110108

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL AND EXPERIMENTAL STUDY OF A PHASE METHOD OF INCREASING GYROTRON EFFICIENCY AT FUNDAMENTAL GYRORESONANCE, BASED ON THE USE OF AN MAGNETOSTATIC DIRECTIVE FIELD WHICH VARIES ALONG THE LENGTH OF THE INTERACTION SPACE. IT IS SHOWN THAT THE MAXIMUM TRANSVERSE ELECTRONIC EFFICIENCY OF A GYROTRON WITH CORRECTED MAGNETOSTATIC FIELD DISTRIBUTION IS ABOUT 70PERCENT. THE MAXIMUM ELECTRONIC EFFICIENCY OF AN EXPERIMENTAL GYROTRON REACHED 40PERCENT, DEMONSTRATING THAT THE DEVICE OPERATED IN A NONOPTIMAL REGIME. THE OPTIMAL REGIME COULD BE ACHIEVED BY INCREASING THE VOLTAGE (WHICH WAS NOT FEASIBLE DUE TO TECHNICAL CONSIDERATIONS) OR BY USING LONGER RESONATORS. THE BEST IMPROVEMENTS IN EFFICIENCY WERE OBTAINED WHEN THE MAXIMUM OF THE SUPPLEMENTARY MAGNETOSTATIC FIELD WAS 0.7L FROM THE FRONT OF THE RESONATOR, WHERE L IS THE RESONATOR LENGTH.

UNCLASSIFIED

USSR

UDC 619:616.988.43:576.807.7

SORKO, A. I., PROKHOROV, V. N., SOKOLOV, L. N., and KOCHETSYAN, E. G., All-Union Scientific Research Institute of Foot-and-Mouth Disease

"Antigenic Properties of Foot-and-Mouth Disease Virus Concentrated by Means of Polyethyleneglycol"

Moscow, Veterinariya, No 5, May 73, pp 67-68

Abstract: On being concentrated by precipitation with 10% polyethyleneglycol (mol. wt. 6000), lapinized foot-and-mouth disease virus of types O, A, and C and subtypes O_1 and A_{22} retained its antigenic properties. Upon inactivation of the concentrated virus with 0.2% beta-propiolactone, highly effective type-specific complement-fixing and precipitating antigens of types O, A, and C and subtypes O_1 and A_{22} were obtained. These antigens were suitable for the complement fixation and diffuse precipitation reactions.

1/1

USSR

UDC: 681.333

KOSHEVOY, A. A., STEKLOV, V. K., MISHCHENKO, R. K., MANZHULO, A. P.

"A Device for Modeling Automatic Control Systems"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 36, Dec 72, Author's Certificate No 360673, Division G, filed 4 Jan 71, published 28 Nov 72, p 126

Translation: This Author's Certificate introduces a device for modeling automatic control systems which contains in addition to a model of an automatic control system operational amplifiers, a nonlinearity module, and a model of system sensitivity. As a distinguishing feature of the patent, the device is simplified by connecting the input of the nonlinear module of the automatic control system model to the inputs of two parallel-connected operational amplifiers with limitation of the positive and negative parts of the input signal. The outputs of these operational amplifiers are connected through an adder to the input of one of the two parallel-connected amplifier units of the system sensitivity model.

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USSR UDC 62-501.7-501.12:621.3.089.52

KOSHEVOY, A. A., STEKLOV, V. K., MANZHULO, A. P., MISHCHENKO, R. K.

"A Device for Determining the Sensitivity of Nonlinear Automatic Control Systems"

USSR Author's Certificate No 317046, filed 25 Jun 70, published 10 Jan 72 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 9, Sep 72, Abstract No 9A179 P)

Translation: The proposed device relates to the field of automatic regulation and control and can be used for determining sensitivity functions in automatic control systems containing nonlinear links with nonlinearity of the saturation type. Devices are known for experimental determination of functions [of sensitivity] of the dynamic characteristics of nonlinear automatic control systems to variations in parameters: e. g., a device which realizes the structural method of analysis of the sensitivity of nonlinear systems. Such devices contain a model of the system with a nonlinear element, and a sensitivity model of the system with linear elements. However, such devices are characterized by difficulty of hardware realization of the partial derivative of the output of the nonlinear

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USSR

KOSHEVOY, A. A. et al., USSR Author's Certificate No 317046

element with respect to its input. In the proposed device, the input of the nonlinear element in the model of the system is connected to the input of a linear amplification element in the sensitivity model of the system through two parallel-connected operational amplifiers -- one with clipping of the positive part of the input signal, and the other with clipping of the negative part. The amplitude of the compensation signal arriving at the inputs of the operational amplifiers is equal to the saturation level, and the gain of the linear amplification element in the sensitivity model of the system is equal to the gain of the linear part of the nonlinear element in the model of the system. This design simplifies the hardware realization of the device and improves its reliability.

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USSR

UDC 62-503.53-501.14

STEKLOV, V. K., MISHCHENKO, R. K., KOSHEVOY, A. A., MANZHULO, A. P.

"A Tracking System With Nonlinear Correction"

USSR Author's Certificate No 318907, filed 23 May 70, published 28 Jan 72 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 9, Sep 72, Abstract No 9A187 P)

Translation: The invention relates to the field of automatic control and can be used in tracking systems where nonlinearity of the backlash type is undesirable. The conventional tracking system is made up of a preamplifier, power amplifier, motor with speed reducer, control object connected in series and covered by feedback, and a relay element connected through an amplifier and differentiating element to the input of the preamplifier. The proposed system also contains a model of a power amplifier with a motor. This model is connected to the input of the power amplifier in the tracking system. The input of the model is connected to the output of the preamplifier, and the motor is connected through a converter to a subtractor whose second input is connected to the output of the relay element, while the subtractor output is connected

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USSR

STEKLOV, V. K. et al., USSR Author's Certificate No 318907

to the input of the power amplifier. This improves the accuracy of the tracking system by completely linearizing linearity of the backlash type in the case of slowly changing controlling actions and by eliminating the static error.

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USSR UDC 681.327.11

ANTONOVA, T. N., BABKIN, V. YA., IOFFE, M. G., KOSHEVOY, L. I., SHLYAKHTER, D. M.

"A Device for Recording Information"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 23, 1970, Author's Certificate No 276514, Filed 18 Mar 69, p 137

Abstract: This author's certificate introduces a device for recording information and contains memory units, distributors, a master oscillator, an electronic clock, a control module, a printout and logic circuits. As a distinguishing feature of the patent, speed is increased and reliability is improved by introducing an inhibitor connected between the master oscillator and the distributor counter. One of the inputs of this counter is connected to the outputs of the flip-flops in the cells of the memory units, while its other input is connected through an OR gate to the outputs of the coincidence circuits of these cells. Also incorporated in the device is a printout control module which contains a coincidence whose inputs are connected to the outputs of the coincidence circuits in the memory units and to one of the inputs of the coincidence circuits of the control module. A flip-flop is also added with its input connected to the output of the coincidence circuit

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USSR

ANTONOVA, T. N., et al., Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 23, 1970, Author's Certificate No 276514, Filed 16 Mar 69, p 137

and its output connected to one of the inputs of the other coincidence circuits in the control module, which are connected through OR circuits to the output amplifiers.

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KOSHILEV, N.A.

RAN/ / K-760/5-MAR-73
Dec 1972

Alinovskiy, N. I., A. T. Altyntsev, and N. A. Koshilev. Heating of plasma ionic component by a collisionless shock wave. ZhETF, v. 62, no. 6, 1972, 2121-2128.

The energy spectra of plasma ions heated by a collisionless shock wave are obtained by passive corpuscular diagnosis. When an aperiodic shock front with resistive dissipation is formed in the plasma, ion heating appears as a small group of ions (about 10%) with a mean energy of the order of the electron temperature; the remaining ions are cold. Experimental results agree with a theoretical model, in which the origin of this group of particles is explained by the linear Landau damping of ion-acoustic vibrations in resonance ions located in the "tail" of the distribution function, induced in the shock front.

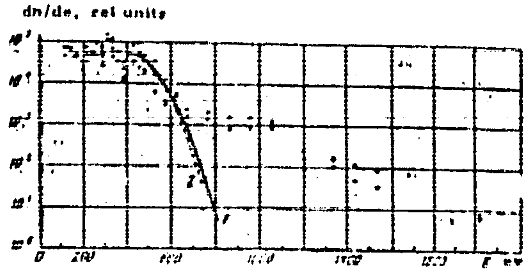

Fig. 1. Typical ion energy spectrum for low Mach numbers ($M < M_{cr}$). Parameters: M = 1.8, h = 2; n = 1.4×10^{13} cm^{-3}, H_0 = 520 oe. 1. Calculated approximation for constant ion velocity, T_i = 6 ev, $E_{H\,max}$ = 4.08 ev. 2. Calculated approximation for increasing ion velocity, T_i = 7.5 ev; E_{Hmax} = 480 ev.

USSR UDC 621.384.6

KOSHKAREV, D. G., Institute of Theoretical and Experimental Physics, Moscow

"Ring Accelerator With Monoenergetic Beam"

Moscow, Pribory i Tekhnika Eksperimenta, No. 6, Nov/Dec 70, pp 13-14

Abstract: It is shown that it is possible to develop a ring accelerator which has an almost monoenergetic beam of charged particles at the output. This is accomplished through the use of a slow output based on quadratic resonance. With a slow output, only the portion of the beam that has a narrow betatron frequency spectrum and, consequently, a narrow pulse spectrum goes into quadratic resonance. The portion of the beam held in resonance swings and upon reaching a special output device, an electrostatic channel with a thin wall, is drawn from the chambers. The remaining portion of the beam slowly goes into resonance with the aid of a device which slowly and continuously changes the energy of beam particles. A vortex accelerating or moderating field acting only during beam withdrawal can be used as such a device. During the acceleration cycle, the particles can be accelerated in the ordinary manner by applying a variable high-frequency field which is

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KOSHKAREV, D. G., Pribory i tekhnika eksperimenta, No. 6, Nov/Dec 70, pp 13-14

switched off when a given energy is reached. It is calculated that the energy spread in the withdrawn beam does not exceed $\pm 1 \cdot 10^{-4}$ for an average beam current of several microamps.

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USSR

UDC 539.4.016.2+535.561+535.391.2+535.15

DIDRIKIL', L. N., SHKLYAR, A. N., KOSHKAREV, Ye. A., Physicotechnical Institute imeni S. U. Umarov of the Academy of Sciences Tadzhik SSR

"Study of the Effect of Treatment on the Surface Structure of Quartz by the IR Spectroscopy Method"

Dushanbe, Izvestiya Akademii Nauk Tadzhikskoy SSR, Otdeleniye Fiziko-matematicheskikh i Geologo-Khimicheskikh Nauk, No. 4, 1970, pp 10-14

Abstract: The infrared reflection spectra from the AT-cut of a quartz surface (the shear plane is parallel to the x-axis and forms an angle of 35° 15' with the z-axis) after cutting and polishing were investigated in the region 1300-900 cm^{-1}. The reflection spectrum of a polished surface, which in this range of wavelengths coincides with the spectrum of the pickled surface, was used as a comparison spectrum. A graph is given showing the reflection spectrum of quartz with various treatments of the surface in polarized light. The polished sample has maximum reflections at 1115 cm^{-1} and 1180 cm^{-1} and a trough at 1160 cm^{-1}. Small displacements in the trough for different samples are attributed to residual stresses in the surface layer. The reflection curves in unpolarized light practically coincided

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USSR

DIDRIKIL', L. N., et al, Izvestiya Akademii nauk Tadzhikskoy SSR, Otdeleniye fizikomatematicheskikh i geologo-khimicheskikh nauk, No. 4, 1978, pp 10-14

with the corresponding curves in polarized light. It was concluded from analysis of the data that a thin anisotropic layer of α-crystobalite is formed on the surface of α-quartz under cutting and polishing.

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USSR

UDC 621.375.421.13

BARZHIN, V. YA., KOSHKAREV, YE. A., KUL'KIN, G. A., SHKLYAR, A. N.

"Superhigh Frequency Quartz Oscillator"

Elektron. tekhnika. Nauchno-tekhn. sb. (Electronic Engineering. Scientific and Technical Collection), 1970, ser. 9, vyp. 2, pp 62-63 (From RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D270)

Translation: This article contains a description of a quartz oscillator assembled from a transistor and elements with lumped parameters according to the "capacitive Hartley oscillator circuit."

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1/2 007 UNCLASSIFIED

TITLE--SODIUM SULFIDE PRODUCTION -U-

PROCESSING DATE--27NOV70

AUTHOR-(02)-OKUNEV, A.I., KOSHKAROV, V.YA.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,362

REFERENCE--OTKRYTIYA, IZOBRET, PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(9)

DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, SODIUM SULFIDE, COKE, SODIUM SULFATE

CONTROL MARKING--NO RESTRICTIONS

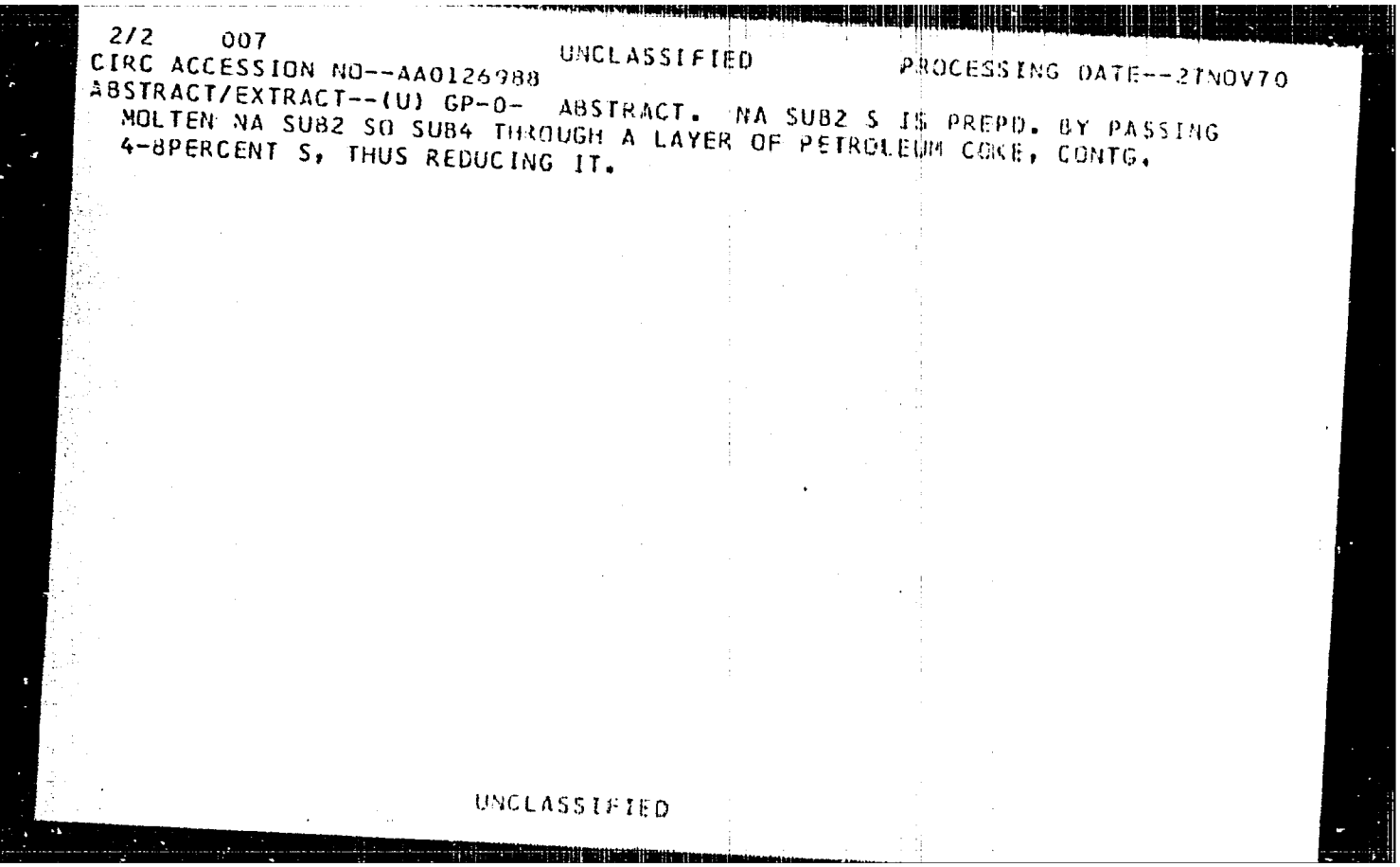
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1457

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0126988

UNCLASSIFIED



2/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0126988
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NA SUB2 S IS PREPD. BY PASSING MOLTEN NA SUB2 SO SUB4 THROUGH A LAYER OF PETROLEUM COKE, CONTG. 4-8PERCENT S, THUS REDUCING IT.

UNCLASSIFIED

USSR

UDC 583.285(252.33:575.4)

KOSHKELOVA, Ye. N., and DZHURAYEVA, Z., Institute of Botany, Academy of Sciences Turkmen SSR

"The Species Composition and Some Biological Properties of Rust Fungi in Central Karakum"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Biologicheskikh Nauk, No 5, 1971, pp 23-26

Abstract: Fourteen species of rust fungi infesting plants in Central Karakum were identified and investigated. They belong to the genera Melampsora, Puccinia, and Aecidium, family Melampsoraceae, order Uredinales, and class Basidiomycetes. In Turkmenia, a new host plant, Euphorbia cheirolepis Fisch. et Mey., harboring Melampsora euphorbiae, was discovered. The growth cycle and the distribution as well as the damage done by each of these species are described. In the various regions of Central Karakum, 5 to 54% of plants are affected with this fungus disease, creating a serious danger to pastures.

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USSR

UDC 633.51:582.288:(324)

GLAZOVSKIY, V. A., and KOSHKELOVA, Ye. N., Institute of Botany, Academy of Sciences, Turkmen SSR

"Wintering Stage of the Agent of Fusarium Wilt of Cotton"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Biologicheskikh Nauk, No 1, 1972, pp 78-79

Abstract: Research results on the wintering stage of the agent of Fusarium wilt of cotton are given. In the wintering stage, the population of Fusarium oxysporum f. vasinfectum grows progressively, increasing the infectiousness of the soil, with a tenfold increase in the quantity of chlamydospores. Removal of infected cotton stems and bolls remains one of the most essential measures for controlling this disease.

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USSR

UDC 621.372.85

KOSHKIN, L. I., GORDEYEV, V. A., STRYGIN, YU. F., NAGORNOV, A. I., VASIL'YEV, V. P.

"Small Wave Guide Devices"

Issled. po fiz., metodike fiz. i astron. -- V sb. (Research in Physics and Physics and Astronomy Procedures -- collection of works), Kuybyshev, 1970, pp 43-44 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B177)

Translation: The development of a number of small wave guide devices is reported: a ferrite rectifier weighing 80 grams, a "nonmagnetic" ferrite circulator with unidirectional anisotropy and some ferrite devices with induced anisotropy.

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USSR

UDC: 532.782+541.6

KOLUPAYEV, V. F., KOSHKIN, N. I.

"Concerning the Problem of the Speed of Ultrasound in Supercooled Liquids"

V sb. Primeneniye ul'traakust. k issled. veshchestva (Application of Ultra-acoustics to the Study of Matter--collection of works), vyp. 25, Moscow, 1971, pp 246-248 (from RZh-Fizika, No 6, Jun 72, Abstract No 6Ye163)

Translation: The temperature dependence of the speed of ultrasound in thymol and salol is measured. Inaccuracies in previous measurements by Labovskiy and Silivinskiy are noted (RZh-Fiz 1968, 11Ye145). The temperature coefficient of velocity does not change in thymol as the temperature passes through the melting point, whereas a slight break is observed in the case of salol which is attributed to development of small crystals in the supercooled state. T. Kh.

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USSR

UDC 621.382.002

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

"Ion Implantation Of Single Crystals Of Cadmium Sulfide"

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

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

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USSR

UDC 537.1.074

GAL'CHINETSKIY, L.P., [redacted], KULAKOV, V.M., KOLIN, V.N., RUDENKO, A.I., RYABKA, P.M., ULMANIS, U.A., SHAKHOVTSOV, V.I.

"Study Of The Possibility Of Use Of Type In_2Te_3 Semiconductors As Detectors Of Reactor Radiation"

V sb. Metrol.neytron.izlucheniya na reaktorakh i uskoritelyakh (Metrology Of Neutron Radiation At Reactors And Accelerators--Collection Of Works), Moscow, 1971, p 56 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2B275)

Translation: During irradiation of $A^{III}B^{VI}$ compounds of the In_2Te_3 type by fast neutrons with fluxes up to 5×10^{16} cm^{-2}, electrons with an energy of 100 Mev with fluxes up to 10^{19} cm^{-2}, and gamma quanta with an energy of 1.2 Mev with fluxes up to 10^{18} cm^{-2}, a marked radiation sensitivity is discovered. An irreversible change of the electrophysical properties after irradiation is not established. The possibility is studied of the use of these materials as the basis for radiation-resistant detectors. A.M.

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USSR

GAL'CHINETSKIY, L. P., KOSHKIN, V. M., KUMAKOV, V. M., KULIK, V. N., RUDENKO, M. I., RYABKA, P. M., ULMANIS, U. A., SHAKHOVTSOV, V. I., and SHINDICH, V. L.

"Radiation Stability Effect in Semiconductors With Stoichiometric Vacancies"

Leningrad, Fizika Tverdogo Tela, vol 14, No 2, 1972, pp 646-648

Abstract: Because such lattice defects as impurity atoms have no effect on the electrical characteristics of semiconductors of the $A^{III}_2B^{VI}_3$ type, such as In_2Te_3, Ga_2Te_3, and Ga_2Se_3, the authors were led to the assumption that irradiation of these crystals by high-energy particles would have little effect on their electrical characteristics as well. To test this assumption, they subjected crystals of In_2Te_3 and Ga_2Te_3 to irradiation by gamma quanta, fast electrons, and fast neutrons in a pulse reactor, as well as by mixed reactor radiation. Tables of the characteristics of these crystals before and after the irradiation are presented. The authors of this brief communication thank V. S. Vavilov and V. L. Vinetskiy for their helpful discussions of the results.

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UDC 546.48'22:548.55:539.4

USSR

ATROSHCHENKO, L. V., SYSOYEV, L. A., OBUKHOVSKIY, YA. A., and KOSHKIN, V. M., All-Union Scientific Research Institute of Single Crystals

"Effect of the Orientation of the Second Phase on the Anisotropy of Brittle Failure in Single Crystals of CdS Alloyed With Lithium"

Moscow, Neorganicheskiye Materialy, Vol 6, No 11, Nov 70, pp 1917-1921

Abstract: A study was made of the anisotropy of brittle failure in single crystals of cadmium sulfide alloyed with lithium as a function of concentration. A metallographic investigation of sections, the cleavage structure structure, and the pattern of brittle failure of the crystals around the impressions made by microindentor loading showed that at Li concentrations of the order of $0.5 \cdot 10^{-2}$ wt% the cleavage plane of cadmium sulfide is modified. If nonimpurity CdS single crystals undergo cleavage only along the {100} or {110} planes, then brittle failure can occur in cadmium sulfide strongly alloyed with lithium only along the basal planes {001}. This effect is associated with the segregation of the second phase as plates arranged [illegible] parallel to the {001} planes of the matrix crystal. It was experimentally shown that the plates are the compound Li_2S.

USSR

UDC 548.55

GAL'CHINETSKIY, L. P., ATROSHCHENKO, L. V., [illegible]
SYSOYEV, L. A., All Union Scientific Research Institute of
Single crystals, Khar'kov

"Single Crystals of In_2Te_3 With a Progressively Varying Magnitude of Deviation From Stoichiometry"

Moscow, Neorganicheskiye Materialy, Vol 6, No 5, May 70, pp 860-863

Abstract: The authors studied alloys in the area of In_2Te_3 homogeneity using single crystal samples and compared the results obtained with data from polycrystalline materials. Single crystal samples were obtained by zone melting. The results corroborated the composition diagram plotted from earlier data for the In-Te system, close to the compound In_2Te_3. It was further determined that physical properties of single crystals in the entire range of the existence of In_2Te_3 are identical with the properties of polycrystalline samples. Deviations from stoichiometry show practically no effect on the electric properties of the defective phase of In_2Te_3.

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UDC 537.311.33:536.7

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"Thermodynamic Study of Solubility of Impurities in Semiconductors With Stoichiometric Vacancies"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 4, Apr 70, pp 714-719

Abstract: The article presents experimental data on the solubility of a number of impurities (Bi, Sb, Mg, Cd, Zn, Cn) in Ga_2Te_3, as well as new data on In_2Te_3-impurity constitution diagrams. The experimental findings on the solubility of impurities in the alpha phase of In_2Te_3 and in Ga_2Te_3 were compared quantitatively with the thermodynamic model constructed by the authors et al. for the solubility of impurities and deviations from stoichiometry. The results confirm the thermody-

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KOSHKIN, V. M., and ATROSHCHENKO, L. V., Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 4, Apr 70, pp 714-719

namic model. It is shown that the maximum solubility of the impurities, as well as constitution-diagram peculiarities are determined by the size factor of the impurity. The characteristic size of the impurity is determined by its atomic radius, which corresponds to the nonionized state. Impurities in crystals with stoichiometric vacancies are localized in the latter, remaining in a nonionized state.

One of the measurements was made by V. K. KOMAR'.

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1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ELECTRICAL AND OPTICAL PROPERTIES OF ALLOYS OF THE (CUINTE SUB2) SUB3(INEGATIVEX)-(IN SUB2 TE SUB3) SUB2X AND (CUGATE SUB2)

AUTHOR-(05)-KOSHKIN, V.M., NESTEROVA, T.N., GALCHINETSKIY, L.P., SKLOVSKAYA, I.L., KARAS, V.R.

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SUBJECT AREAS--MATERIALS, PHYSICS

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELEC. COND. SIGMA, MOBILITIES MU, CONCN. OF THE MAIN CARRIERS N, AND THE OPTICAL ENERGY GAP (E SUB0) OF SEMICONDUCTING ALLOYS OF THE (CUINTE SUB2) SUB3(NEGATIVEX) -(IN SUB2 TE SUB3)SUB2X AND (CUGATE SUB2)SUB3(NEGATIVEX) -(GA SUB2 TE SUB3) SUB2X SYSTEMS WERE INVESTIGATED. VALUES FOR BAND BAND TRANSISTIONS ENERGY WERE DETD. THE METHOD CONSISTS OF BUILDING THE DIFFERENTIAL CURVES DK-D EPSILON (EPSILON) AND D(1-K)-D EPSILON (EPSILON), WHERE K IS THE ABSORPTION COEFF. AND, EPSILON IS THE PHOTON ENERGY. APPLICATION OF THIS METHOD PERMITS SPLITTING THE VALENCE BAND IN THE ALLOYS WITH THE CHALCOPYRITE LATTICE TO BE FOUND. ALL TRANSITIONS ARE CONSIDERED DIRECT AND ALLOWED. PERCULARITIES IN THE CURVES E SUB0 (X) AHE CONNECTED WITH THE CHANGE IN THE CRYSTAL STRUCTURE FROM CHALCOPYRITE TO SPHALERITE. THE DEPENDENCE OF N, SIGMA, E SUB0 IN THE ABOVE SYSTEMS SHOWS THEIR DEVIATION FROM THE PSEUDOBINARITY. THIS INCREASES N AND SIGMA IN THE ALLOYS WITH SMALL VALUES OF X COMPARED TO THAT N AND SIGMA IN THE WITH X EQUALS 0. THE RISE OF N CAUSES DEGENERATION OF THE FREE CARRIER GAS AND RESULTS IN THE BURSTAINE EFFECT. FACILITY: VNII MONOKRIST., KHARKOV, USSR.

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018

TITLE--SINGLE CRYSTALS OF IN SUB2 TE SUB3 WITH A PROGRESSIVELY VARYING MAGNITUDE OF DEVIATION FROM STOICHIOMETRY -U-

PROCESSING DATE--04DEC70

AUTHOR-(04)-GALCHINETSKIY, L.P., ATROSHCHENKO, L.V., KOSHKIN, V.M., SYSOYEV, L.A.

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CIRC ACCESSION NO--AP0133461

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDIED ALLOYS IN THE AREA OF IN SUB2 TE SUB3 HOMOGENEITY USING SINGLE CRYSTAL SAMPLES AND COMPARED THE RESULTS OBTAINED WITH DATA FROM POLYCRYSTALLINE MATERIALS. SINGLE CRYSTAL SAMPLES WERE OBTAINED BY ZONE MELTING. THE RESULTS CORROBORATED THE COMPOSITION DIAGRAM PLOTTED FROM EARLIER DATA FOR THE IN-TE SYSTEM, CLOSE TO THE COMPOUND IN SUB2 TE SUB3. IT WAS FURTHER DETERMINED THAT PHYSICAL PROPERTIES OF SINGLE CRYSTALS IN THE ENTIRE RANGE OF THE EXISTENCE OF IN SUB2 TE SUB3 ARE IDENTICAL WITH THE PROPERTIES OF POLYCRYSTALLINE SAMPLES. DEVIATIONS FROM STOICHIOMETRY SHOW PRACTICALLY NO EFFECT ON THE ELECTRIC PROPERTIES OF THE DEFECTIVE PHASE OF IN SUB2 TE SUB3. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF SINGLE CRYSTALS, KHAR'KOV.

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