"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC 541.121.536.7

UDOVSKIY, A. L., VAMBERSKIY, YU. V., and IVANOV, O. S., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR, Moscow

"Calculation of the Concentration Functions of the Excessive Entropy and Enthalpy of Mixing U-Mo Systems at 1100°K"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 6, Apr 73, pp 1377-1380

Abstract: Calculation of the concentration function of excessive entropy and enthalpy of mixing has been carried out for the U-Mo system at 1100°K, and compared with experimental data, looking for the properties of atomic interaction of the component in these solid solutions. The unordered solid solution can be viewed as a solid body changing its physical properties in a continuous fashion through the entire range of concentrations and temperatures of the existence of the solution. It can also be viewed as an additive system consisting of noninteracting subsystems. Formulas were developed and curves obtained from them compared in a qualitative fashion with experimental data. It is noteworthy that the calculation was carried out without using any thermodynamic data for cumulative entropy of for the enthalpy of mixing solid solutions.

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RAN/ /R-760/5-ARR-73
Dec-72

(3)

$$Fo^* = \frac{\sigma_0 \tau^*}{h^2_{(\tau)}}, \quad \text{or } Fo^* = \frac{\sigma_0 (T^* - T_0)}{b h^2_{(\tau)}}$$

is the coefficient of temperature conductivity at $T_0 = 293^\circ$ K, τ^* is the heating duration, and b is the temperature rise rate on the surface of the carrying portion) permits a relationship to be established between F_0^* and σ_{bend} (the bending strength of the asbotextolite sheet). The required initial thickness of the protective covering can be determined using this relationship and taking the aerodynamic heating conditions into account.

Udovskiy, A. L., N. O. Gusman, and V. N. Barabanov. Effect of test temperature on the energy of destruction of graphite. Problemy prochnosti, no. 5, 1972, 83-84.

To assess the effect of test temperature upon local characteristics of the energy of destruction, bending tests were conducted on specimens of fine-grain, homogeneous 8 x 8 x 40 mm graphite. The graphite was mechanically practically isotropic. The intensity of the elastic deformation energy release (the destruction ductility) was determined within the temperature range 20° to 2000° C. A lateral crack was simulated in each specimen by incision with a fret saw and tapering with a razor blade. The experiment was conducted on a test machine equipped with a low-lag resistance furnace. The high-temperature tests were conducted in an argon atmosphere. In the first stage of operation, at 20° C, the relationship of destruction ductility G to the relative incision size c/d was determined. More than 90 specimens were tested under conditions of

UDOVSKIY, A.L.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

UDRIS, O.

MEDICINE

28 May 71

81

FPD:SOVIET SCIENCE

11. USSR

"Riga Medical Institute"

Moscow, Meditsinskaya Gazeta, 26 Mar 71, p 3

O. Udris -- Candidate of Medical Sciences, head of the Department of Leukemia

1/1

12. USSR

"Saratov Medical Institute"

Moscow, Meditsinskaya Gazeta, 23 Mar 71, p 3

Prof Ye. Babichenko -- head of the Chair of Neurosurgery

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC 537.521

SIROTA, S.M., UDRIS, YA.YA.

"Cathode Units For High-Voltage Shunting Rectifier"

USSR Author's Certificate No 262277, filed 26 Jan 68, published 2 June 70 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1A117P)

Translation: The design is proposed for a rectifier [вентиль] which assures an increase of its short-duration load capacity. This is achieved by implementation of a cathode unit with a catch, the length of which does not exceed half of the cathode diameter. Creation of the vapor regime necessary to assure short-duration flow of large direct (uninterrupted) currents is attained with the help of an evaporator of the mercury trickle which is emitted by the cathode spot. In contrast to ordinary rectifiers which are used as shunting rectifiers in multibridge converter circuits, the boiler [котел] of the proposed rectifier has a small condensation surface and a general "geometry." The latter eliminates the necessity for installation of special hoods [зонт] in the boiler. V.M.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

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USSR

UDC 621.382.002

LOZOVSKIY, V. N., NIKOLAYEVA, Ye. A., POPOV, V. P., UDYANSKAYA, A. I., GERSHANOV, V. Yu.

"Concerning the Dimensions and Configuration of Electrically Heterogeneous Structures Obtained by the Zone Melting Method With a Temperature Gradient"

V sb. Vopr. mikroelektroniki (Problems of Microelectronics -- Collection of Works), Kiev, "Nauk. dumka," 1971, pp 163-167 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B429)

Translation: The geometrical characteristics are considered of electrically heterogeneous structures obtained in Si by the zone melting method with a temperature gradient as a function of the dimensions and form of the liquid zone, and also the form of its path. It is shown that zone melting with a temperature gradient makes it possible to form microstructures with diversified dimensions and form: multilayer, perpendicular surfaces of rectangular form; grid structures; cylindrical channels; and others. Using metal sputtering and subsequent photolithography, it is possible to obtain structures of practically any configuration. 1 ill. 5 ref. I.M.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC 536.421.4+536.421.1

LOZOVSKIY, V. N., GERSHANOV, V. Yu., KALINYUK, A. I., NIKOLAYEVA, Ye. A., POPOV, V. P., and UDYANSKAYA, A. I.

"Basic Laws of Silicon Crystallization for a Zone Melt With a Temperature Gradient"

V sb. Kristallizatsiya i faz. prevrashcheniya (Crystallization and Phase Transformations -- collection of works), Minsk, "Nauka i tekhn." 1971, pp 91-97 (from RZh-Fizika, No 9, 1971, Abstract No 9E382)

Translation: The kinetics of a zone melt with a temperature gradient are experimentally investigated in Si-Al, Si-Ag, Si-Au, Si-Fe, Si-Cu, Si-Ni, Si-Sn, Si-Pt systems. Curves expressing the dependence of the liquid zone migration rate on its thickness and temperature are obtained for these systems, the values of the activation energy of zone movement are found, and the effect of the third component on the zone velocity is determined; it is established that, in the region of fine zones and small temperature gradients, the stability of the zone movement is independent of the anisotropy of the solution and the crystallization; in the opposite case the morphology of the zone is determined by slowly dissolving planes of the (111) type. Author's abstract

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC 621.382.002

LOZOVSKIY, V.N., NIKOLAYEVA, YE.A., UDYANSKAYA, A.I., GERSHANOV, V.YU.

"Forming Of Electrically Heterogeneous Microstructure In Crystals By The Zone Melting Method With A Temperature Gradient"

V sb. Vopr. mikroelektroniki (Problems Of Microelectronics--Collection Of Works), Kiev, "Nauk.dumka," 1971, pp 167-172 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B428)

Translation: In the volume of low-resistance Si, microregions are produced with resistivities equal to (1-2) . 10^5 ohm.cm; p-n junctions are easily obtained with the aid of linear aluminum zones in n-Si, and zones of complex composition make it possible to introduce certain impurities into the crystal; zone melting with a temperature gradient makes it possible to create p-n junctions with an inverse impurity gradient, and others.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC: 621.378.9:533.9.02

YAMANAKA, S., YAMANAKA, T., KANG, H., SASAKI, T., YOSHIDA, K., UEDA, K., HONGYO, M., WAKI, M., Electrical Engineering Department, Osaka University, Institute of Plasma Physics, Nagoya University, Japan

"Plasma Generation and Heating by Lasers"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 45-52

Abstract: The paper gives the results of research on destruction of laser glasses by powerful radiative emission, on using liquid lasers as light amplifiers, and also on using powerful lasers for heating a plasma. A method is proposed for high-speed measurements of plasma temperature and density based on the Thomson scattering of light. A complex structure is detected in the central ion peak in the scattered radiation spectrum. The recording equipment shows twenty neutrons occurring in a burst. [The paper is an abbreviated version of an article presented to the editors by the organizational committee of the International

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

YAMANAKA, S. et al., Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 45-52

Conference on Laser-Produced Plasma held in Moscow in 1970. Translation by V. A. Gribkov]. Six illustrations, bibliography of ten titles.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

2

USSR UDC 621.762.01(088.8)

POGODIN-ALEKSEYEV, G. I., GAVRILOV, V. M., KHRAMOV, S. P., KHAVROSHKIN, O. B., SYRKIN, V. G., and UEL'SKIY, A. A.

"Method of Producing Dispersed Materials"

USSR Authors' Certificate No 301379, Cl. C 23c 11/02, B 22 f 1/00, filed 7 Apr 66, published 2 Jun 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1C263P)

Translation of Abstract: A method is suggested for producing dispersed materials by the application of refractory metal compounds to powders through thermal decomposition of vapor of the metal-containing component, with the powder with enhanced mechanical properties, delivery of a layer of powder of the refractory compound is alternated with vapor of the metal-containing component in amounts sufficient to grow a layer of metal, with the metallic component that forms during thermal decomposition undergoing treatment by ultrasonic vibrations through a gaseous medium.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

1/2 038 UNCLASSIFIED

TITLE--PREPARATION OF TUNGSTEN COATINGS BY A CARBONYL METHOD -U-

PROCESSING DATE--11DEC70

AUTHOR-(02)-SYRKIN, V.G., UELSKIY, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 788-94

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CARBONYL COMPOUND, METAL COATING, TUNGSTEN, THERMAL DECOMPOSITION, METAL CARBONYL, CHEMICAL REACTION RATE, THERMAL EFFECT, METAL MICROHARDNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3C04/0962 STEP NO--UR/0080/70/043/004/0788/0794

CIRC ACCESSION NO--AP0131547

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

UNCLASSIFIED

PROCESSING DATE--11DEC70

2/2 036

CIRC ACCESSION NO--AP0131547

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SPECIALLY CONSTRUCTED APP. IS DESCRIBED IN DETAIL FOR OBTAINING W COATINGS ON BASES OF VARIOUS FORMS BY THE PROCESS OF THERMAL DISSOCN. OF W(CO) SUB6. INCREASING THE TEMP. OF THE SUBSTRATE 400-700DEGREES INCREASED THE SPEED OF COATING FORMATION, WHILE HIGHER TEMPS. CAUSED A DECREASE. THE CARBONYL DECOMPN. METHOD RESULTED IN COATINGS WITH MICROHARDNESSES OF 400-1800 KG-MM PRIME2, CORRESPONDING TO A C CONTENT OF 0.02-1.00 WT. PERCENT. AR AS THE CARRIER GAS WAS PREFERABLE TO HE OR H.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UFIMTSEV, G. V.

"Four-Burn Flight with Return"

Mekh. Upravlyayem. Dvizheniya i Probl. Kosmich. Dinamiki [Mechanics of Controlled Motion and Problems of Space Dynamics -- Collection of Works], Leningrad University Press, 1972, pp 41-57 (Translated from Referativnyy Zhurnal Mekhanika, No 5, 1973, Abstract No 5A99, by F. I. Yereshko).

Translation: A four-burn flight between points located on coplanar circular orbits and moving evenly in one direction is studied. Two burns are used in the flight from the first point to the second, two burns in the return flight. The problem is set of determining the energetically optimal transfer if the total flight time is limited, while the time spent in the assigned orbit should be no less than a certain minimum. The power expenditures for transfer are estimated by a certain function which is dependent on the total flight time and the force applied in the burns. Thus, the optimization problem is reduced to the problem of the conditional extreme of a function of many variables. Considerable attention is given to symmetrical transfers,

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UFIMTSEV, G. V., Mekh. Upravlyayem. Dvizheniya i Probl. Kosmich. Dinimaki, Leningrad University Press, 1972, pp 41-57.

When the flight "their" and "back" occurs over equivalent arcs of the corresponding transfer ellipses. One particular case of a symmetrical transfer is the Homan transfer, the orbits of which are Homan half ellipses. First order corrections are presented for calculation of near-Homan orbits.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

1/2 013

UNCLASSIFIED

TITLE--ASYMPTOTIC SOLUTION OF THE PROBLEM OF DIFFRACTION ON A STRIP IN THE CASE OF DIRICHLET BOUNDARY CONDITIONS -U-

PROCESSING DATE--30OCT70

AUTHOR--UFIMTSEV, P.YA.

COUNTRY OF INFO--USSR

U

SOURCE--RADIOTEKHNIKA I ELEKTRONIKA, VOL. 15, MAY 1970, P. 914-923

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ASYMPTOTIC SOLUTION, DIRICHLET PROBLEM, ELECTROMAGNETIC WAVE DIFFRACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1185

STEP NO--UR/0109/70/015/000/0914/0923

CIRC ACCESSION NO--AP0124839

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

2/2 013

UNCLASSIFIED

CIRC ACCESSION NO--AP0124839 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ASYMPTOTIC INVESTIGATION OF THE PROBLEM OF DIFFRACTION ON A STRIP IN THE CASE OF DIRICHLET BOUNDARY CONDITIONS, USING A METHOD PREVIOUSLY DEVELOPED FOR THE CASE OF NEUMANN BOUNDARY CONDITIONS. THIS METHOD CAN BE BRIEFLY CHARACTERIZED AS A SYNTHESIS OF THE METHOD OF BOUNDARY WAVES, THE FACTORIZATION METHOD, AND WATSON'S GENERALIZED LEMMA CONCERNING ASYMPTOTIC EXPANSIONS FOR MULTIPLE INTEGRALS. FORMULAS ARE DERIVED FOR THE CURRENT DENSITY EXCITED IN THE STRIP AND FOR THE SCATTERED FIELD PATTERN IN THE FAR ZONE. THESE FORMULAS ARE APPLICABLE AT ARBITRARY ANGLES OF INCIDENCE OF A PLANE WAVE AND ACCURATELY SATISFY THE BOUNDARY CONDITIONS AND THE RECIPROCITY PRINCIPLE.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UFIMTSEV, V.B., SHUMILIN, V.P., KOSTIN, G.V., KRESTOVNIKOV, A.N.

UDC 621.315.592

"Concerning The Character Of The Change Of Composition Of The Vapor Phase Above Type $A^{III}B^{V}$ Compounds"

Sb.nauch.tr.po probl. mikroelektron. Mosk. in-ta elektron. tekhn. (Collection Of Scientific Works On Problems Of Microelectronics. Moscow Institute Of Electronics Technology), 1972, Issue 8, pp 131-136 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B100)

Translation: The paper considers the inverse character of the vapor phase during replacement of the condensate of the element B^{V} by the condensate of the compounds $A^{III}B^{V}$. From thermodynamic data the temperature dependences are calculated of the vapor pressure of 2- and 4-atom molecules of component B^{V} above the six compounds: InSb, GaSb, InAs, GaAs, InP, and GaP. Calculations are made for the reactions

$$A^{III}B^{V}_{cond} \rightleftarrows A^{III}_{cond} + \frac{1}{n} B^{V}_{n\,gas}.$$

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC 621.315.592:546.688'.86

VIGDOROVICH, V.N., UFIMTSEV, V.B., SHUMILIN, V.P.

"Isobaric-Isothermic Potential And Width Of Forbidden Zone Of Semiconductor Solid Solutions Of Type $A^{III}BY$--$A^{III}BY$"

Sb. nauch.tr. po probl. mikroelektron. Mosk.in-t elektron.tekhn. (Collection Of Scientific Works On Problems Of Microelectronics. Moscow Institute Of Electronics Technology), 1972, Issue 8, pp 137-143 (from RZh:Elektronika i yeye primeniye, No 9, Sept 1972, Abstract No 9B98)

Translation: The values are calculated of the isobaric-isothermic potentials of the formation of solid solutions of InSb-GaSb, InAs-GaAs, and InP-GaP at a temperature of 298° K, and of the pressure of the saturated vapors of the corresponding compounds. The values of ΔG^{mix} for solid solutions are determined from the results of a study of the vapor pressure above the solid solutions and from a calculated analysis of phase diagrams. A good fix is shown of the calculated values of the isobaric-isothermic potentials of the formation of compounds and solid solutions at T = 298° K and P = P_{AB} saturated with the values of the width of the forbidden zone. 15 ref.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

JPRS 59268

6-73

4

VI-5b. DISTRIBUTION COEFFICIENTS OF TELLURIUM AND ZINC FOR CRYSTALLIZATION OF GaSb-InSb MELTS

[Article by M. S. Mirzalovskaya, L. A. Strel'nikova, A. S. Timoshin, V. B. Ufimtsev, Moscow; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Kuzelan, 12-17 June, 1971, p 78]

Experimental studies were made of the distribution coefficients of Te and Zn in GaSb-InSb solutions under the conditions of drawing crystals by the Crochralski method. It was demonstrated that in contrast to the GaAs-InAs system, the dependance of the distribution coefficients of both alloying elements on the composition of the GaSb-InSb melts is characterized by strong negative deviation from the additive straight line. In the case of tellurium the curve passes through a minimum. This behavior of tellurium and zinc is obviously connected with the appearance of intermolecular interaction in the GaSb-InSb solutions leading to the formation of ordered structures.

Experimental studies were made of the viscosity and the electrical conductivity of liquid solutions of GaSb-InSb. The existence of singular peaks corresponding to compositions of 33.3 and 66.6 mole percent GaSb and stable in a broad temperature range was detected. The latter indicates the defined degree of ordering for these compositions. It was established that the concentration dependance of the molar volume is characterized by negative deviation from the laws of ideal solutions which makes the formation of associates of atoms in the GaSb-InSb solutions thermodynamically possible.

ZUFIMTSEV, V. B.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

UNCLASSIFIED

1/2 029 PROCESSING DATE--20NOV70

TITLE--TOPOLOGY AND THERMODYNAMICS OF THE P,T,X DIAGRAMS OF SEMICONDUCTING SYSTEMS -U-

AUTHOR-(03)-VIGDOROVICH, V.N., KRESTOVNIKOV, A.N., UFIMTSEV, V.B.

U

COUNTRY OF INFO--USSR

SOURCE--IZVEST. AKAD. NAUK SSSR, NEORG. MATERIALY, APR. 1970, 6, (4), 708-13

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--THEORETIC PHYSICS, THERMODYNAMIC ANALYSIS, GALLIUM ARSENIDE SEMICONDUCTOR, INDIUM ARSENIDE SEMICONDUCTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0363/70/006/004/0708/0713

PROXY REEL/FRAME--3004/0913

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

2/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131499

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GENERAL THEORETICAL ANALYSIS OF THE TEMP., PRESSURE, COMPOSITION DIAGRAMS OF SEMICONDUCTING SYSTEMS OF THE A PRIMEIV A PRIMEIV AND A PRIMEIII B PRIMEV-A PRIMEIII B PRIMEV TYPES SUCH AS GAAS-INAS AND ITS ANALOGUES IS PRESENTED. THE THEORY OF REGULAR SOLUTIONS MAY BE VALIDLY APPLIED TO THE ANALYSIS OF THE THREE PHASE EQUILIBRIUM CURVES OF THESE SYSTEMS. PHASE EQUILIBRIA IN SYSTEMS HAVING A CONTINUOUS SERIES OF SOLID AND LIQUID SOLUTIONS ARE DISCUSSED FROM THE THERMODYNAMIC POINT OF VIEW.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

Inorganic Compounds

UDC 541.11

USSR

UFIMTSEV, V. B., SHUMILIN, V. P., KRESTOVNIKOV, A. N., and VIGDOROVICH, V. N., Moscow Institute of Steels and Alloys

"Dissociation Pressure of Indium and Gallium Phosphides"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 4, Apr 70, pp 1120-1122

Abstract: An experimental study of the dissociation pressure of indium and gallium phosphides in the solid state using Knudsen's effusion method is described. lg p=-A/T+B-type equations were derived and heats of sublimation determined. Tables in the original article show the rated characteristics of the vapor phase for indium phosphide and data on the temperature dependence of the dissociation elasticity of indium and gallium phosphides. Evaluation of the experimental data by the method of least squares yielded equations describing the temperature dependence of phosphorus vapor pressure. The heats of sublimation derived from these equations are:

$\Delta H_{945}=49.691\pm1.675$ (for InP) and $\Delta H_{1126}=65.750\pm0.819$ kcal/mole (for GaP).

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

Semiconductor Technology

USSR

UDC 537.311.33:536.7

VIGDOROVICH, V. N., KRESTOVNIKOV, A. N., and UFIMTSEV, V. B., Moscow Institute of Electronic Engineering, Moscow Institute of Steel and Alloys, Moscow, Ministry of Higher and Secondary Specialized Education RSFSR

"Questions of the Topology and Thermodynamics of p-T-x Constitution Diagrams of Semiconductor Systems"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 4, Apr 70, pp 708-713

Abstract: The article considers results of a generalized theoretical analysis of heterogeneous equilibria in semiconductor systems. The heterogeneous equilibria of decomposing semiconductor compounds and phase equilibria at the point of congruent crystallization of semiconductor compounds are considered. It is shown that the theory of regular solutions is applicable to an analysis of the curves for the three-phase equilibrium: $AB_{sol.} \rightleftarrows$ (solution A and B)$_{liq.} \rightleftarrows$ component $B_{vap.}$. The thermodynamics of phase equilibria in systems with continuous series of solid and liquid solutions are considered, as well as changes in vapor-phase composition in the replacement of condensate $B_{sol.}$ by condensate $AB_{sol.}$.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INVERSION OF VAPOR PHASE COMPOSITION OVER A PRIMEIII B PRIMEV TYPE SEMICONDUCTOR COMPOUNDS -U-

AUTHOR-(04)-UFIMTSEV, V.B., KRESTOVNIKOV, A.N., KOSTIN, G.V., SHUMILIN, V.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(5), 1360

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SEMICONDUCTOR MATERIAL, INDIUM, GALLIUM, ANTIMONY, ARSENIC, PHOSPHORUS, VAPOR STATE, PHASE COMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0890 STEP NO--UR/0076/70/044/005/1360/1360

CIRC ACCESSION NO--AP0136324

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136324

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EQUIL. VAPOR PRESSURES OF B SUB2 PRIMEV AND B SUB4 PRIMEV OVER A PRIMEIII B PRIMEV SOLIDS WERE CALCD. FROM KNOWN THERMODYNAMIC PROPERTIES AND CORRELATED BY THE EQUATION LOG P EQUALS MINUS (A-T) PLUS B FOR A PRIMEIII EQUALS IN OR GA AND G PRIMEV EQUALS SB, AS, OR P. THE VALUES OF A ARE GREATER FOR B SUB4 THAN FOR B SUB2 OVER A PRIMEIII B PRIMEV WHILE WITH PURE SOLID B, THE REVERSE IS TRUE. FACILITY: MOSK. TEKHNOL. INST. STALI SPLAVOV, MOSCOW, USSR.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DISSOCIATION PRESSURE FOR INDIUM PHOSPHIDE AND BALLIUM PHOSPHIDE -U-

AUTHOR-(04)-UFIMTSEV, V.B., SHUMILIN, V.P., KRESTOVNIKOV, A.N., VIGDOROVICH, V.N.

COUNTRY OF INFO--USSR

U

SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 1120-2

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDIUM COMPOUND, PHOSPHIDE, DISSOCIATION, PRESSURE, GALLIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1171 STEP NO--UR/0076/70/044/004/1120/1122

CIRC ACCESSION NO--AP0123148

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

2/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123148

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISSOCN. PRESSURES OF INP AND GAP WERE STUDIED BY THE KNUDSEN EFFUSION METHOD AT T 879-1011DEGREES K FOR INP AND 1030-1223DEGREESK FOR GAP. THE RESULTS ARE TABULATED. APPLICATION OF THE LEAST SQUARE METHOD TO THE EXPTL. DATA PRODUCED THE FOLLOWING EQUATIONS THAT DESCRIBE THE TEMP. DEPENDENCE OF P VAPOR PRESSURE OVER SOLID INP AND GAP: LOG P (MM HG) EQUALS (MINUS10,859 PLUS OR MINUS 366-T) PLUS (9.9241 PLUS OR MINUS 0.0699) FOR INP; LOG P (MM HG) EQUALS (MINUS 14,150 PLUS OR MINUS 179-T) PLUS (11.0000 PLUS OR MINUS 0.0722) FOR GAP. THE HEAT OF SUBLIMATION DERIVED FROM THESE EQUATIONS IS DELTAH SUB945DEGREES EQUALS 49.691 PLUS OR MINUS 1.675 FOR INP AND DELTAH SUB1126DEGREES EQUALS 65.750 PLUS OR MINUS 0.819 KCAL-MOLE FOR GAP. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

UNCLASSIFIED PROCESSING DATE--11SEP70

1/2 018

TITLE--PREPARATION OF AGLOPORIT GRAVEL FROM HEAT AND ELECTRIC POWER PLANT ASHES BY GAS ROASTING -U-

AUTHOR--CHEBUKOV, M.F., UFIMTSEV, V.M.

COUNTRY OF INFO--USSR

SOURCE--STROIT. MATER. 1970, (2), 13-14

DATE PUBLISHED--------70

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

TOPIC TAGS--GRAVEL, POWER PLANT, ALUMINA, INDUSTRIAL WASTE TREATMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0228/70/000/002/0013/0014

PROXY REEL/FRAME--1987/0146

CIRC ACCESSION NO--AP0103825

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

2/2 018 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103825

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WERE MADE WITH COAL ASH 85, WASTE FROM ALUMINA PRODUCTION 10, AND LIME 5PERCENT. THE CHARGE WAS ARRANGED IN LAYERS BY FRACTIONS; INCREASE IN FRACTION SIZE WAS FROM BOTTOM TO THE TOP. THE CHARGE WAS GAS FIRED. HOT AIR IS DRAWN THROUGH THE CHARGE TO REDUCE THE MOISTURE CONTENT. THE STRENGTH OF THE GRAVEL WAS AS HIGH AS 75-80 KG-CM PRIME2; BULK WT. WAS 650 KG-M PRIME3.

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1/2 018 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--PREPARATION OF AGLOPORIT GRAVEL FROM HEAT AND ELECTRIC POWER PLANT ASHES BY GAS ROASTING -U-

AUTHOR--CHEBUKOV, M.F., UFIMTSEV, V.M.

COUNTRY OF INFO--USSR

SOURCE--STROIT. MATER. 1970, (2), 13-14

DATE PUBLISHED-------70

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

TOPIC TAGS--GRAVEL, POWER PLANT, ALUMINA, INDUSTRIAL WASTE TREATMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REFL/FRAME--1987/0146 STEP NO--UR/0228/70/000/002/0013/0014

CIRC ACCESSION NO--AP0103825

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2/2 018 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103825

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WERE MADE WITH COAL ASH 85, WASTE FROM ALUMINA PRODUCTION 10, AND LIME 5PERCENT. THE CHARGE WAS ARRANGED IN LAYERS BY FRACTIONS; INCREASE IN FRACTION SIZE WAS FROM BOTTOM TO THE TOP. THE CHARGE WAS GAS FIRED. HOT AIR IS DRAWN THROUGH THE CHARGE TO REDUCE THE MOISTURE CONTENT. THE STRENGTH OF THE GRAVEL WAS AS HIGH AS 75-80 KG-CM PRIME2; BULK WT. WAS 650 KG-M PRIME3.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

1/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--IMMUNOMORPHOLOGY OF EXPERIMENTAL GLOMERULONEPHRITIS IN THE LIGHT OF GENERAL PATHOLOGIC PROCESSES -U-

AUTHOR-(05)-SEROV, V.V., MITIN, K.S., VARSHAVSKIY, V.A., UFIMTSEVA, A.G., TOMILINA, N.A.

COUNTRY OF INFO--USSR

SOURCE--ARKH. PATHOL. 1970, 32(1), 29-40

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IMMUNOLOGY, NEPHRITIS, RAT, SERUM PROTEIN, ALBUMIN, URINE, MITOCHOWDRION, ENZYME ACTIVITY, DEHYDROGENASE, CYTOPLASM, PHOSPHATASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0474 STEP NO--UR/9056/70/032/001/0029/0040

CIRC ACCESSION NO--AP0117710

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

2/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0117710

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IMMUNOMORPHOL. OF NEPHROTOXIC NEPHRITIS WAS STUDIED ON 75 YOUNG RATS AT VARIOUS STAGES OF THE DISEASE BY BIOCHEM., HISTOCHEM., ELECTRON MICROSCOPIC, AND IMMUNOFLUORESCENT METHODS. TOTAL BLOOD SERUM PROTEIN IN INTACT RATS WAS 6.38 G PERCENT, IN RATS ON THE 2ND-3RD DAYS OF THE ACUTE STAGE 3.8 G PERCENT, ON THE 4TH-12TH DAYS 5.2 G PERCENT, AND IN RATS WITH CHRONIC NEPHRITIS (31-122 DAYS) 5.65 G PERCENT; ALBUMIN WAS 38.86, 25.1, 27.8, AND 31.1PERCENT, RESP. PROTEIN IN THE URINE WAS 0, 2.27, 260, AND 0.097PERCENT, RESP. ELECTRON MICROSCOPY SHOWED STRONGLY VACUOLIZED CYTOPLASMA IN THE PROXIMAL TUBULES AND SWOLLEN MITOCHONDRIA WITH DESTRUCTED CRISTS AND VACUOLES. DESTRUCTION OF MITOCHONDRIA WAS ACCOMPANIED BY DECREASED ACTIVITIES OF SUCCINIC AND MALIC DEHYDROGENASES, NAD AND NADP DIAPHORASES, AND INCREASED ACTIVITY OF LACTIC DEHYDROGENASE. OTHER HISTOL. ALTERATIONS WERE ACCOMPANIED BY DECREASED ALK. PHOSPHATASE AND ITS DIFFUSION INTO THE CYTOPLASMA. LYSOSOMIC ACTIVITY WAS PROVEN BY A STRONG INCREASE OF HYDROLASES, ESP. ACID PHOSPHATASE. ALTERED ENXYMIC ACTIVITIES OF THE TUBULAR EPITHELIUM GAVE EVIDENCE OF SUPPRESSED CELLULAR RESPIRATION AND ACTIVATION OF GLYCOLYSIS AND HYDROLYSIS. IT WAS EMPHASIZED THAT THE GENERALLY ACCEPTED TERM GLOMERULONEPHRITIS DOES NOT REFLECT THE NATURE OF THE PHENOMENON. FACILITY: MOSK. MED. INST. IM. SECHENOVA, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR UDC 542.995:546.182.5-36

ALEKSANDROVA, I. A., and UFIMTSEVA, L. I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Addition Reactions of Hypophosphorous Acid Derivatives to Unsaturated Compounds"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71, pp 1315-1316

Abstract: For a study of the addition reaction of sodium hypophosphite to unsaturated compounds, the authors staged addition reactions of sodium hypophosphite to allyl cyanide and allyl acetate. Chlorination of the reaction products with PCl_5 in CCl_4 yielded γ-acetoxypropylphosphinic acid chlorides. The reaction of sodium hypophosphite with allyl cyanide yielded only γ-cyanopropylphosphonic acid chloride. Butyl hypophosphite reacts with allyl alcohol to give γ-chloropropylphosphonic acid chloride and bis-(γ-chloropropyl)phosphinic acid chloride, and reacts with allyl acetate to give butyl ester of bis-(γ-acetoxypropyl)phosphinic acid.

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USSR

UDC 621.355.8.035.2

KAMINSKAYA, YE. A., UFLYAND, N. YU., and ROZENTSVEYG, S. A.

"The Influence of Increased Temperature on the Behavior of Nickel Oxide Electrodes"

Sb. rabot no khim. istochnikam toka. Vses. n.-n akkumulyator. in-t (Collection of Works on the Chemical Source of Current. All-Union Scientific Study Institute for Storage Batteries) Vyp 7, 1972, pp 107-112 (from Referativnyy Zhurnal -- Khimiya No 8(II), 1973, Abstract No 8L234 by V. S. Levinson)

Translation: A study was made of the influence of temperature in the region 20-80°C on the processes occuring in nickel oxide electrodes of metallo-ceramic construction and containing beta and gamma NiOOH. During an increase in temperature from 20° to 50-80°, the coefficient of the utilization of the charging current decreased, especially if the charging voltage at the increased temperature resulted from the discharge at that same temperature. The electrode was discharged deeper and consequently, its strength was increased. The decrease in the strength of the electrode during alternations of high temperature and normal temperature cycles was significantly reduced. After storage at a higher temperature, the depth of discharge of the electrode increased. The presence in hermatically sealed NiCd batteries of excess

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

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KAMINSKAYA, YE. A., et al., Sb. rabot no khim. istochnikam toka. Vses. n.-n akkumulyator. in-t, Vyp 7, 1972, pp 107-112

metallic Cd providing a greater depth of discharge of the nickel oxide electrode leads to an improvement in the characteristics of the battery, intended for use under high temperature conditions.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR UDC 621.355.8.035.2

KUZ'MIN, YU. A., MASHEVICH, M., UFLYAND, N. YU., and FROLOVA, F. P.

"The Influence of Cobalt on the Characteristics of the Nickel-Oxygen Laminar Electrodes, Operating in a Zincate Electrolyte"

Sb. rabot no khim. istochnikam toka. Vses. n.-n akkumulyator, in-t (collection of Works on the Chemical Source of Current. All-Union Scientific Study Institute for Storage Batteries), Vyp 7, 1972, pp 163-167 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L245 by V. S. Levinson)

Translation: The possibility was examined for the construction of Nickel-Zinc batteries using a nickel-oxygen electrode having laminated structure with specific characteristics close to those of nickel-cadmium and nickel-iron batteries. The introduction of the 3% impurity of cobalt in the form of a solution of $CoSO_4$ into the active part of the cathode contributes to the increase in depth of discharge, and in long range cycles to the depth of discharge of the electrode, owing to which the time of operation of the batteries reached 70-80 cycles and the average voltage was 40% greater than the voltage of the nickel-cadmium and nickel-iron batteries.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR UDC 541.136

KAMINSKAYA, YE. A., UFLYAND, N. YU., ROZENTSVEYG, S. A. (deceased)
Scientific Research Institute of Storage Cells, Leningrad

"Behavior of Higher Nickel Oxides in KOH Solutions Containing Lithium"

Moscow, Elektrokhimiya, Vol 7, No 12, Dec 71, pp 1839-1841

Abstract: The activating action of lithium towards the nickel oxide electrode at room temperature increases with increased quantity of the adsorbed lithium, until the atomic ratio of Li/Ni approaches 0.05-0.06. With higher lithium content in the electrode, lithium nickelate is formed. The appearance of this new structure decreases the depth of the charge on nickel oxides, lowering the coefficient of the utilization of nickel. The electrochemical behavior of nickel oxide electrodes in KOH solutions containing lithium depends basically on the quantity of lithium adsorbed by the higher nickel oxides. Lithium ion adsorption rate increases with the increase in the concentration of KOH and LiOH in the electrolyte.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

UNCLASSIFIED PROCESSING DATE--11DEC70

1/2 015

TITLE--ON THE THEORY OF A TRUNCATED HYPERBOLOID -U-

AUTHOR-(02)-BELOVA, N.A., UFLYAND, YA.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIKLADNAYA MATEMATIKA I MEKHANIKA, NO 2, 70, PP 349-353

DATE PUBLISHED-------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--ELLIPSOIDAL SHELL STRUCTURE, ELLIPTIC FUNCTION, ELLIPTIC INTEGRAL, INVERSE PROBLEM, INTEGRAL TRANSFORM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/6C5041/C02 STEP NO--UR/0040/70/000/002/0349/0353

CIRC ACCESSION NO--AP0142724

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

2/2 015 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0142724

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CERTAIN TORSIONAL PROBLEMS READILY SOLVED IN ELLIPSOIDAL COORDINATES ARE DISCUSSED. THE CASE OF A TWO CAVITY TYPE ROTATION HYPERBOLOID TRUNCATED ON TOP BY AN ELLIPSOIDAL SURFACE IS INVESTIGATED FOR SOME PARTICULAR AND THE MORE GENERAL CONDITIONS USING A SPECIAL EXTENSION OF THE MELER-FOK (TRANSLITERATED) TRANSFORMATION FOR THE CASE OF A PARTIAL INTERVAL. THE FINAL SOLUTION IS FOUND ON THE BASIS OF A DEVELOPED INVERSION FORMULA. THE FORMULA MAY ALSO BE USEFUL FOR A SOLUTION BY THE METHOD OF INTEGRAL TRANSFORMATION IN A PARTIAL CASE OF NOT UNIFORM BOUNDARY CONDITIONS ON THE TOP OF THE HYPERBOLOID. THE DISCUSSION IS ILLUSTRATED BY AN EXAMPLE.

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USSR

UDC 517.9:539.3

UFLYAND, YA. S.

"Mixed Problems on Twisting of a Paraboloid"

Leningrad, V sb. Probl. mekhan. tverd. deformir. tela (Problems in the Mechanics of a Solid Deformable Body -- collection of works), "Sudostroyeniye," 1970, pp 453-458 (from RZh-Matematika, No 7, July 1970, Abstract No 7B470)

Translation: Consideration is given to the mixed axisymmetric problem of twisting of a paraboloid of revolution by means of a rigid die connected to it. By using Hankel's integral transform the problem is reduced first to paired integral equations, and then to a Fredholm integral equation. A relationship is found between the angle of turn of the die and the twisting moment applied to it. A simple approximate solution to the problem is found for the case of a weakly twisted paraboloid. It is shown that the proposed method is applicable to the corresponding contact problem for the exterior of a paraboloid and also to the problem of twisting of a

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UFLYAND, YA. S., V sb. Probl. mekhan. tverd. deformir. tela, "Sudostroyeniye," 1970, pp 453-456

two-layered medium weakened by a paraboloidal slot. Author's abstract.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

UDC 612.743

USSR

UFLYAND, Yu. M., and POLYAK, S. B., Chair of Physiology, Sanitation Hygiene Medical Institute, Leningrad

"Electromyographic Characteristics of the Antagonistic Muscles of Extremities During Adequate Vestibular Stimulation:

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 56, No 2, 1970, pp 191-196

Abstract: Experiments were conducted to determine the effect of vestibular stimulation on the electrical activity of skeletal muscles. At the beginning of rotation, all the studied antagonistic muscles showed increased bioelectrical activity. During five minutes of uniform rotation, gradual decrease in the excitation of motor centers was noted, which on occasions reached complete electrical "silence", indicating adaptation of the neuromotor centers. Comparison of the electromyographs of antagonistic muscles of anterior and posterior extremities taken after rotatory stimulation of the vestibular apparatus (centrifugal acceleration in the head--feet direction) showed higher excitation and a more clearly expressed excitation process in the case of the triceps and anterior tibial muscles,

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as compared to the biceps and gastrocnemius muscles, respectively. After the rotation was stopped, the bioelectrical activity of antagonistic muscles increased again sharply, but only for a short period, followed by complete arrest. These phenomena are most probably a reflexive compensatory reaction directed to maintain a stable position of the animal during stimulation of the vestibular apparatus.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

Acc. Nr: AP0037008 Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskiy Zhurnal SSSR, 1970, Vol 56, Nr 2, pp 191-196

ELECTPOMYOGRAPHIC CHARACTERISTIC OF THE LIMBS' ANTAGONISTIC MUSCLES DURING PROPER VESTIBULAR STIMULATION

Uflyand, Yu. M.; Polyak, S. B.

Dept. of Physiology, Sanitary Hygienic Medical Institute, Leningrad

Regular increase of the bioelectric activity of the limbs' antagonistic muscles was shown to occur during rotation of an animal in the horizontal plane. Excitation of the anterior tibial muscle always surpassed that of the gastrocnemius muscle while the excitation of the triceps always surpassed that of the biceps, regardless the direction of the rotation.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

UGAROVA, K. F.

UDC 551.524.3

EFFECT OF CONVECTIVE CLOUDS ON THE TEMPERATURE GRADIENT IN THE GROUND LAYER OF THE AIR

[Article by I. A. Rudneva, Candidate of Geographic Sciences K. F. Ugarova, Institute of Applied Geophysics; Moscow, Meteorologiya i Gidrologiya, Russian, No 2, 1972, submitted 21 April 1971, pp 32-37]

The statistical characteristics were obtained for the behavior of the air temperature gradient in the 1-4 meter layer and the turbulent heat fluxes corresponding to various gradations of intramass convective cloudiness were also obtained. It is demonstrated that on changing the radiation conditions of the underlying surface, clouds essentially decrease the turbulent heat flux in the ground layer of the air and, at the same time, create prerequisites for variation of the conditions of its development.

It is known that clouds significantly change the radiation conditions of the underlying surface [5]. This cannot but be felt in the energy conditions of the ground layer of the atmosphere, which, in turn, must have an effect on further development of the clouds. Thus, an interaction of the regulator type with feedback must be set up between the clouds and the underlying surface. The possibility of such interaction has been noted, in particular, in reference [6]. The clearest example of the occurrence of feedback in atmospheric processes is intramass cumulus cloudiness since its development is directly related to the heat flux from below, and consequently, to the radiation conditions of the underlying surface.

The relation of cumulus clouds to the solar radiation fluxes at the Earth's surface is obvious, and it has been investigated in detail in a number of papers, for example, in [7]. We have stated as our goal the pursuit of further discovery of the effect of cumulus clouds on the state of the ground layer of the atmosphere and, namely, the effect of cumulus clouds on the variation of the temperature and turbulent heat flux gradients in the 1-4 meter layer which can serve as an approach to solving the problem of feedback in the system made up of convective clouds and the underlying surface.

JPRS 55,893
4 May 72

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

JPRS 60622

26 November 1973

(2)

INVESTIGATION OF MUTUAL DIFFUSION IN NICKEL-TUNGSTEN AND PALLADIUM-TUNGSTEN SYSTEMS

/Article by V. N. Pimenov and Yu. E. Ugaste; Sverdlovsk, Fizika Metallov i Metallovedeniye, Russian, Vol 35, No 3, 1973, signed to the press 17 February 1972, pp 590-596/

Mutual diffusion was investigated in nickel- and palladium-base solid solutions in Ni-W and Pd-W systems. The correlation of the concentration relationship of the mutual diffusion parameters with the solidus line path is shown on phase diagrams of the investigated systems.

In works /1-3/ the mutual diffusion was studied in nickel and palladium solid solutions in systems Ni-Cr /1/, Pd-Cr /2/, and Ni-Mo and Pd-Mo /3/ for the purpose of revealing certain principles of diffusion processes in limited solid solutions. This work is a continuation of these studies for the Ni-W and Pd-W systems.

Experiments for the Ni-W system were conducted in the 1100-1400°C interval and for the Pd-W system--in the 1250-1450°C interval. According to the phase diagrams of these systems /4, 5/, the region of solubility in the indicated temperature intervals amounts to (0~15) at. % W. The method of experimentation was analogous to works /1-3/. The initial materials for the diffusion pairs were electrolytic nickel, zone-purified tungsten, and metallic palladium (99.8% pure), as well as a Ni-W alloy containing (in at. %): 87.5 Ni and 12.5 W. The following diffusion pairs were used here: for the Ni-W system--pure nickel and tungsten as well as the alloy and nickel; for the Pd-W system--pure palladium and tungsten. Concentration curves of component distribution in the diffusion zone, obtained by local x-ray-spectral analysis on an MS-46 unit, were determined on the basis of calibration curves as calculated in accordance with /6/ with considerations of corrections for the difference in

[I - USSR -I]

UGASTE, Yu. E.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC 669.27-14:620.183

SAVITSKIY, Ye. M., POVAROVA, K. B., MAKAROV, P. V., and UGASTE, Yu. E., Moscow

"Metallography of Cast Tungsten"

Moscow, Akademiya Nauk SSSR. Izvestiya. Metally, No 6, Nov-Dec 72, pp 177-185

Abstract: The structure of cast tungsten is determined by the presence of introduced and displaced impurities and also by the rate of quenching during crystallization. The introduced impurities, of which carbon is the principal one, belong to the group of nonmetallic impurities of the carbide, oxide, and complex types. The morphology and distribution of the impurities depends on the rate of metal quenching during crystallization. The nonmetallic impurities and, to some degree, carbides, distributed along the grain boundaries, initiate the origin of cracks at the boundary. The general nature of fracture of cast tungsten is combined with the prevalence of transcrystallite spalling. Alloying and increased rate of quenching during crystallization affect the fine structure of tungsten while contributing to the formation of a most distinctly expressed polygonal structure, i.e., increased density of dislocations in metal and particularly the share of screw dislocations,

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USSR

SAVITSKIY, Ye. M., et al., Akademiya Nauk SSSR. Izvestiya. Metally, No 6, Nov-Dec 72, pp 177-185

a fact which in turn expands the work in propagating cracks during spalling while increasing the resistance of material to spalling failure. The authors are grateful to associates of the Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences of the USSR D. V. IGNATOV, M. M. KANTOR, and N. N. BOKAREVA for conducting electron microscopic investigations and to YE. V. KUNENKOVA, L. I. KRADINA, M. V. NIKITINA and V. T. BURTSEV for conducting the chemical analysis of alloys.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR UDC 669.2.935;539.376

LAZAREV, E. M., UGASTE, Yu. E., Moscow

"Influence of Molybdenum on High Temperature Creep of Niobium"

Problemy Prochnosti, No 3, 1972, pp 54-56.

Abstract: Methods of measurement of long term hot hardness, twisting and extension are used to study the high temperature creep of alloys of niobium with molybdenum (from 15 wt.% Mo) in the 1,100-1,500°C temperature interval in a vacuum of approximately $5 \cdot 10^{-4}$ mmhg. The activation energy of high-temperature stable creep is determined and it is demonstrated that its value correlates well with the activation energy of diffusion in the niobium-molybdenum system. It is established that the dependence of creep rate of the alloys studied on stress is an exponential dependence. Direct experiments indicate that throughout the entire range of concentrations studied, alloying of niobium with molybdenum increases the creep resistance of the solid solutions.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--LOCAL X RAY SPECTRAL ANALYSIS OF MUTUAL DIFFUSION IN BINARY SYSTEMS FORMING CONTINUOUS SERIES OF SOLID SOLUTIONS. III. CONCENTRATION

AUTHOR-(03)-BOROVSKIY, I.B., MARCHUKOVA, I.D., UGASTE, YU.E.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL METALLOVED. 1970, 29(2), 308-17

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--BINARY ALLOY, DIFFUSION COEFFICIENT, SOLID SOLUTION, X RAY SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0341 STEP NO--UR/0126/70/029/002/0308/0317

CIRC ACCESSION NO--AP0129573

UNCLASSIFIED

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UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 015

CIRC ACCESSION NO--AP0129573

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GENERAL LAWS GOVERNING THE CONCN. CHANGE OF THE MUTUAL DIFFUSION COEFF. IN BINARY SYSTEMS FORMING A CONTINUOUS SERIES OF SOLID SUBSTITUTIONAL SOLNS. ARE EXAMD. THE ANAL. OF THE RESP. CURVES IS PERFORMED ON THE BASIS OF THE L. S. DARKEN RELATION (1948). THE PROBLEM CONCERNING THE CONCN. CHANGE OF THE DIFFUSION COEFFS. OF THE COMPONENTS IS EXAMD. EXPTL. AND THEORETICALLY.

FACILITY: INST. MET. IM. BAIKOVA, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CONCERNING THE METHOD OF CONSTRUCTING DIAGRAMS OF STATE BY MEANS OF LOCAL X RAY SPECTRUM ANALYSIS -U-

AUTHOR-(03)-BOROVSKIY, YU.B., MARCHYKOVA, I.D., UGASTE, YU.E.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, TEORETICHESKIYE I EKSPERIMENTAL'NYE METODY ISSLEDOVANIYA
REFERENCE--REF. ZH. METALLURGIYA, NR 3, 1970, ABSTR. NR 3I26ORETICAL AND
DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TERNARY ALLOY, X RAY SPECTROSCOPY, ALLOY PHASE DIAGRAM, CONSTITUTION DIAGRAM, METAL DIFFUSION, BINARY ALLOY, X RAY SPECTRUM, HIGH PURITY METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/0966 STEP NO--UR/0000/69/000/003/0166/0172

CIRC ACCESSION NO--AR0122985

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

2/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AR0122985

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECIFIC NATURE OF THE CONSTRUCTION OF DIAGRAMS OF STATE OF BINARY AND TERNARY METAL SYSTEMS BY THE METHOD OF DIFFUSION LAYERS, WITH THE USE OF LOCAL X RAY SPECTRUM ANALYSIS, IS CONSIDERED. ON THE BASIS OF AN ANALYSIS OF THE LITERATURE DATA, AS WELL AS OF THEIR OWN RESEARCH, THE AUTHORS SHOW THAT DIAGRAMS OF STATE FOR BINARY METAL SYSTEMS CAN, IN PRINCIPLE, BE COMPLETELY CONSTRUCTED BY THE DIFFUSION LAYER METHOD IF DIFFUSION ZONES OF SUFFICIENT WIDTH ARE CULTIVATED NOT ONLY BETWEEN PURE METALS, BUT ALSO BETWEEN SINGLE PHASE ALLOYS. IT IS ALSO SHOWN THAT IN ORDER TO INCREASE THE PRECISION OF THE CONCENTRATION BOUNDARIES OF PHASE EXISTENCE, IT IS USEFUL TO STUDY TWO PHASE EQULIBRIUM ALLOYS BY THE METHOD OF LOCAL X RAY SPECTRAL ANALYSIS. ATTENTION IS DRAWN TO THE NECESSITY FOR STUDYING THE CONCENTRATION DEPENDENCE OF THE COEFFICIENT OF MUTUAL DIFFUSION, SINCE THE KINETICS OF THE GROWTH OF THE DIFFUSION LAYERS ARE, OTHERS CONDITIONS BEING EQUAL, DETERMINED BY THE VALUE OF THE COEFFICIENT OF MUTUAL DIFFUSION. CONSIDERATION IS GIVEN TO THE PRINCIPLES AND PROSPECTS OF USING THE METHOD OF DIFFUSION LAYERS FOR CONSTRUCTING DIAGRAMS OF STATE OF TERNARY METAL SYSTEMS.

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JPRS 59208
6-73

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II-14. STUDY OF THE CRYSTALLIZATION CONDITIONS OF TIN DIOXIDE

[Article by V. V. Lavrov, Ya. A. Ugay, V. Z. Anokhin, Voronezh; Novosibirsk, III Simpozium po Protsessam Rosta i Sintezu Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 24]

A study was made of the crystallization conditions and transport kinetics of tin dioxide in water vapor. It was established that the defining role is played by water dissociation. The hydrogen released in the dissociation of the water promotes reduction of the tin dioxide to elementary tin or to tin monoxide. The last-mentioned product is responsible for transport of the substance during the course of growing tin dioxide crystals.

ZLGAY, YA. A.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

JPRS 59208
6-73

VII-8. OBTAINING EPITAXIAL FILMS OF InP ON GaAs SUBSTRATES

[Article by Ya.A. Ugay, V. S. Kavetskiy, Kh S. Dzampayev, N. G. Tatsenko, Voronezh; Novosibirsk, III Simpozium po Protsessam Rosta i Sintezu Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 98]

Epitaxial films of InP were obtained on gallium arsenide substrates oriented along the (111) and (100) planes.

The growth was realized by the method of transport chemical reactions in an open system using In, PCl_3 and H_2 as the gas carrier.

A study was made of the effect of the substrate temperature and the indium source temperature, the phorphorus trichloride velocity and the spacing between the indium source and the substrate on the structure, the growth rate and the electrophysical properties of the films.

The structure of the films was investigated by the electron diffraction and x-ray diffraction methods and the method of optical microscopy.

It was discovered that at substrate temperatures of 400-500°C polycrystalline films are grown, at 500-600°C, textured films, and at 600-750°C, monocrystalline films.

UGAY, Ya. A.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

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XI-15. STUDY OF THE CRYSTALLIZATION CONDITIONS OF ZINC DIPHOSPHIDE

[Article by V. I. Simonov, K. B. Alexnikova, V. P. Synorov, Ye. A. [illegible], Voronezh State University; Novosibirsk, III Simpozium po Proizvodstvu Rosta i Sintezu Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 161]

A study was made of the conditions of crystallization of zinc diphosphide in a broad temperature range (640-1050)°C under the pressure of a volatile component-phosphorus — (0.1-45) atmospheres. Under the selected optimal conditions, single crystals of the black version of ZnP_2 to 30 mm in length and (6-13) mm in diameter were obtained by crystallization from the melts. In the gas phase, monocrystalline plates of the tetragonal (red) version of α-ZnP_2 more than 100 mm^2 in area and (0.3-2) mm thick and also individual single crystals of the black version of ZnP_2 were obtained.

X-ray structural and chemical analyses demonstrated that the single crystals of ZnP_2 of the black version obtained by crystallization from a melt (1) and in the gas phase (2) differ somewhat with respect to composition and structure. The crystals of the first type belong to the monoclinic syngony described earlier. The crystals (2) have rhombic symmetry which occurs as a result of insignificant rearrangement of the monoclinic structure caused by variation of the chemical composition.

ZGAY, YA. A.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR UDC: 621.396.6-181.5

UGAY, Ya. A.

"Semiconductor Materials and Microelectronics"

Tr. Voronezh. un-ta (Works of the Voronezh University), 1971, 74, pp 3-6 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V169)

Translation: The paper shows the mutual relationship between modern chemistry and current problems of microelectronics. In turn, ways are pointed out for solving chemical problems on the basis of advances in microelectronics. Bibliography of one title. Resumé.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

UDC: 621.396.6-78.5

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UGAY, Ya. A., ZAVAL'SKIY, Yu. P., SHAPOSHNIK, K. I.

"The Problem of Gas Etching the Surface of Semiconductor Materials in Microelectronics"

Elektron. tekhnika. Nauchno-tekhn. sb. Upr. kachestvom i standartiz. (Electronic Technology. Scientific and Technical Collection. Quality Control and Standardization), 1970, vyp. 4, pp 50-57 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V188)

Translation: The authors discuss the timeliness of gas etching as a method of preparing the surface of semiconductor plates in the planar and epitaxial processes. A survey is given of methods of gas etching with the use of halogens, hydrogen halides and water vapor. Conditions are discussed which favor successful realization of gas etching, and a possible mechanism is presented for chemical reactions during etching of silicon by water vapor and hydrogen halides. Resumé.

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UGAY, YA. A., LAVROV, V. V., ANOKHIN, V. Z., and AVERBAKH, YE. M., Voronezh State University, Voronezh, Ministry of Higher and Secondary Specialized Education, RSFSR

"Growth of SnO_2 Single Crystals"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 4, Apr 70, pp 750-752

Abstract: A method is suggested for the growth of SnO_2 crystals which is more convenient than known methods for the growth of SnO_2 crystals from the gas phase. The transporting agent is water in the vapor state, continuously fed to the "evaporation" zone. A cylindrical specimen of pressed and annealed stannic oxide (diameter 22 mm) is placed in a high-temperature zone ($t = 1570^{\circ}$ C) created by carborundum heaters inside a high-alumina ceramic tube (diameter 22 mm). A stream of water vapor from a quartz boiler is continuously fed into the furnace. The rate of water vapor feed into the SnO_2 evaporation zone does not exceed 4 mol/hr. Intensive growth of SnO_2 crystals is ob-

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UGAY, YA. A., et al., Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 4, Apr 70, pp 750-752

served in the furnace zone with a temperature ~ 1450-1520° C. The color and faceting of the freely growing crystals vary greatly according to the temperature of the crystallization zone. The article considers the growth mechanism and the attendant chemical interactions.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

Acc. Nr. AP0105553 Abstracting Service: CHEMICAL ABST. Ref. Code UR0449

6-70

126935p Infrared reflection and transmission spectra of boron. Averbakh, E. M.; Ugai, Ya. A.; Vatsenko, O. B.; Solov'ev, N. E. (Voronezh. Gos. Univ., Voronezh, USSR). *Fiz. Tekh. Poluprov.* 1970, 4(3), 623-5 (Russ). The ir reflection and transmission spectra of B in the β-rhombohedral form were investigated in the range 1–15 μ. Instrumentation and sample prepn. are described for reflectance and transmission studies. Spectra are presented. Transmittance of B single crystals decreases sharply at wavelengths >4.5 μ and increases beyond 13 μ. Reflectance and transmission spectra show considerable agreement. A band at 8.15 μ is assigned as a result of crystal lattice vibration. Bands at 7.2 and 2.7 μ are the result of crystal impurities.

Edward F. King

EGB

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC: 539.3

SANKIN, Yu. N., ARNAUT, V. P., GORSHENINA, G. N., UGLEVA, O. N.

"Concerning a Numerical Method in the Nonlinear Theory of Thin-Walled Elastic Shells"

Tr. Ul'yanovsk. politekhn. in-ta (Works of the Ul'yanovsk Polytechnical Institute), 1972, 8, No 2, pp 191-202 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9V73)

Translation: It is proposed that Newton's iteration process be used to solve nonlinear equations of equilibrium of shells of revolution which can not be considered flat, and whose stressed state is described by modified Reissner equations (E. L. Aksel'rad, Izv. AN SSSR. Otd. tekhn. n. Mekhan. i mashinostr., 1960, No 4, pp 84-92 -- RZhMekh 1961, 6V41). The effectiveness of this method is evaluated on the example of solution of a system of nonlinear equations for a flat diaphragm. As a result of intercomparison of initial approximations and the behavior of discrepancies in differential operators, it is concluded that the given iteration process converges satisfactorily. L. A. Shapovalov.

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METALLURGY

JPRS 61321, 26 Feb. 74

(5)

THERMOPHYSICS OF PLASMA METAL SPRAYING, FACING, CUTTING AND SPHEROIDIZE ANNEALING

[Article by N. N. Rykalin, I. V. D. Kulagin, M. Kh. Shorshorov, V. V. Kudinov, Yu. L. Krasulin, V. A. Petrunichev and A. A. Uglov; Moscow, Plazmennyye Protsessy v Metallurgii i Tekhnologii Neorganicheskikh Materialov, Russian, 1973, pp 66-82]

Introduction

The development of the technique of generating low-temperature plasma placed in the hands of technologists an extremely flexible tool, in terms of thermal properties, for processing solids. Plasma heating quickly found application for cutting, coating, melting, welding, spheroidize annealing of powders and for other purposes. The range of application of low-temperature plasma for research and industrial purposes continues to expand apace.

The primary problems that are solved during plasma processes are those that involve interaction of plasma with a solid. These include local heating, melting of the base and applied metal, directional removal of molten metal from a cut, or melting, spraying and acceleration of particles by the plasma during the application of coatings. The specific power which modern technological plasmatrons are capable of developing on a solid surface is 10^5-10^6 W/cm^2 during plasma arc processing and 10^3-10^4 W/cm^2 during plasma jet processes. The specific power of the plasma jet may be decreased virtually without bound, depending on the requirements of the process, and can be spread over a large area, insuring "soft", uniform heating of a surface. This property of the plasma jet is used for melting and metal spray coating.

Most plasma treatment processes, even with the highest concentration of energy, may be described on the basis of the theory of concentrated heat sources, developed by N. N. Rykalin [1].

Certain aspects of thermal physics of the most commonly used plasma processes and ways of controlling them are discussed in the article.

UGLOV, A. A.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC: 621.375.82

ZHIRYAKOV, B. M., RYKALIN, N. N., UGLOV, A. A., and FANNIBO, A. K.

"Some Principles of the Erosion of Material from the Action Zone of Laser Radiation"

Moscow, V sb. Kvant. elektronika (Quantum Electronics--collection of works) "Sov. radio," No 1(13), 1973, pp 119-121 (from RZh--Fizika, No 7, 1973, Abstract No 7D1050)

Translation: Experimental data is presented concerning the erosion of material from the action zone of quasi-stationary laser pulses in the radiation density range close to the threshold. A qualitative interpretation is given of the formation of teardrop-shaped fractions in the decay products, which is based on representations of explosion-type destruction of material due to overheating in the melt. Bibliography of nine. Authors' abstract

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RAN / / R-760 / 5-ANP-73

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Dec 72

(5)

Uglov, A. A., A. A. Zhukov, A. N. Kokora, M. A. Krishtal, and M. Kh. Shorshorov. "Shift" of critical points under laser heating of carbon-iron alloys. FIKhOM, no. 2, 1972, 3-8.

The "shift" of critical points in steel heated by a laser beam is analyzed. Allowance is made for nonuniform distribution of specific heat flux on the metal surface, and hence different volumetric heating rates. Under conditions of rapid heating and cooling rates, as in metal treatment by a laser beam, "shift" of critical points becomes important in micrographic determination of temperature within the metal after cutoff of the laser pulse. Using a theoretical formula, numerical data were obtained for heating rates $dt/d\tau$ in ShKh15 perlitic steel at various depths z and distances r from the center of a beam spot on the metal surface. Concentration coefficient $k = 80\ cm^{-2}$ was used in calculations of power density distribution on the surface. The calculated $dt/d\tau$ versus r plots (Fig. 1) show that, at $q_o = 0.92 \times 10^5\ w/cm^2$, $dt/d\tau =$

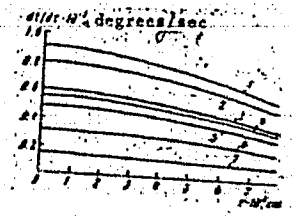

Fig. 1. Heating rate of ShKh15 steel by laser pulses of 0.5 millisec width versus r at z(cm) = 3.10^{-3} (1), 2.10^{-3} (2), 1.10^{-3} (3), 5.10^{-3} (4), 0 (5), 6.10^{-3} (6), and 7.10^{-3} (7).

UGLOV, A.A.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR UDC 621.791.85

ZUYEV, I. V., RYKALIN, N. N., and UGLOV, A. A., Moscow

"Evaluation of the Fusion Depth by Electron-Beam Welding"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan-Feb 72, pp 9-14

Abstract: The processes in the cavity in electron-beam welding are investigated on the basis of concepts of the role of explosive actions in forming a narrow cavity. According to experimental data, the diameter of the cavity can be determined in first approximation by the energy of a single thermal explosion, although its size increases somewhat during the process of the development of the cavity for which approximately 5-10% of the input energy is used up. The rest of the energy is used for smelting the cavity walls and heating the sample. The electron-beam total exposure time is summed up by the cavity vaporization time and the residual time of the electron-beam dispersal in the cavity by blown-out products. A relationship between the electron-beam parameters and the fusion depth was established which satisfactorily with experimental data. One table, 20 formulas, 15 bibliographic references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR UDC 535.21

RYKALIN, N. N., UGLOV, A. A., and MAKAROV, N. I., Moscow

"Calculation of Heating of Films by Laser Radiation"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 3-8.

Abstract: A number of problems are studied on the heating of 2-layer materials by a local surface heat source, such as a laser beam. For thin films, the solution of the problem is found using integral transforms with respect to time and coordinates and a limit transfer as λ_1 and $a_1 \to \infty$ (λ_1 and a_1 are the heat conductivity and temperature conductivity coefficients of the upper layer), since when this condition is fulfilled the temperature through the thickness of the upper plate will be unchanged. In particular, the two-dimensional problem of heating of a 2-layered plate is studied on the assumption that the upper plate is thin, and a solution of the one-dimensional problem of heating of a film is found, considering heat emission from the surface.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR UDC 621.791.011

RYKALIN, N. N., and UGLOV, A. A. Moscow

"The Heating of Heterogeneous Materials in Butt Welding With a Surface Heat Source"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70, pp 23-28

Abstract: A previous article by the authors considered the problem of the temperature field of heterogeneous materials heated in the butt region by a surface heat source. The present article considers limiting cases of the heating of heterogeneous materials, the contact between which is ideal, corresponding to the initial heating stage and a stationary temperature field. The present article, unlike the earlier one, considers the length of the materials to be unlimited in the y direction and, like the earlier article, considers the case where the source intensity is maximum at the contact and is described by the Gauss law. Formulas describing the temperature field of the materials are obtained by means of cosine transforms in space variables and Laplace

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RYKALIN, N. N., and UGLOV, A. A., Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70, pp 23-28

transforms. An analysis is given of the heating process under varying thermophysical and optical material characteristics. Numerical temperature-field calculations are given for a copper-steel pair in ideal contact.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--POSSIBLE EFFECT OF GAS CONTENT IN METALS ON THE ZONE ACTION OF A LASER BEAM -U-

AUTHOR-(03)-REKHOVSKIKH, V.F., RYKALIN, N.N., UGLOV, A.A.

COUNTRY OF INFO--USSR

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SOURCE--AKADEMIIA NAUK SSSR, DOKLADY, VOL. 190, FEB. 11, 1970, P. 1059-1062

DATE PUBLISHED--11FEB70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--NEODYMIUM LASER, METAL IMPURITY, COPPER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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CIRC ACCESSION NO--AT0112997

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

2/2 029 UNCLASSIFIED

CIRC ACCESSION NO--AT0112997 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE EFFECT OF CERTAIN FACTORS, SUCH AS DEGREE OF MATERIAL PURITY, GAS CONTENT, AND POROSITY, ON THE NATURE AND SIZE OF THE MATERIAL ZONE AFFECTED BY LASER BEAM TREATMENT. IN THIS INVESTIGATION SPECIMENS OF VARIOUS BRANDS OF COPPER WERE SUBJECTED TO THE ACTION OF A NEODYMIUM GLASS LASER. IT IS FOUND THAT AT LASER PULSE ENERGIES OF ABOUT 2 J THE DEEPEST CRATERS ARE FORMED IN POROUS AND CRUDE COPPER, WHILE THE MOST SHALLOW ONES FORM IN CATHODIC AND ANODIC COPPER. THIS SAME SITUATION IS NOTED IN THE CASE OF PULSE ENERGIES IN EXCESS OF 4 J, BUT THE DIFFERENCE BETWEEN THE DEEPEST AND MOST SHALLOW CRATERS IS LESS GREAT. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT METALLURGII, MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7"

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USSR

UDC 669.017:535.241.4

RYKALIN, N. N., UGLOV, A. A., and KOKORA, A. N., Moscow

"Effect of Laser Radiation on Iron Alloys"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 6, Nov-Dec 72, pp 14-21

Abstract: A study was made on the failure of iron alloys (steels ShKh15, KhVG, Kh12M, and 45) when subjected to laser radiation with a specific force of approximately 10^5 v/cm^2 on steels. Features of the crystallization zone in the alloys were studied and the principles of impurity distribution and dislocation structure in the irradiated zone were examined. Five figures, 21 bibliographic references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC 629.7.036.3:536.46:531.7

IVLIYEV, A. V., KSHNYAKIN, N. A., LUKACHEV, V. P., and UGLOV, B. A.

"Measurement of the Normal Combustion Rate by Means of an Automatic Electronic Device"

Tr. Kuybyshev. Aviats. In-t, No 56, 1973, pp 17-23 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 10, 1973, Abstract No 10.34.26. Resume)

Translation: On the basis of a procedure developed by the authors for determining the surface area of the front of a flame propagating in a horizontal tube open at the end at which the combustible mixture is ignited, an automatic electronic device is proposed which permits measurement of the apparent rate of movement of the flame in relation to the length of the tube wall, as well as the length of projection of the flame front along the tube axis, and makes it possible, by means of a stipulated procedure, to calculate the normal rate of combustion. An estimate of the measurement error was conducted, which showed that the proposed device decreases the measurement errors by two orders of magnitude in comparison to the method of slow-motion photography. With the use of this method, the labor intensity of determination of the normal rate of flame propagation is considerably decreased. 4 figures. 10 references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

1/2 031 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--SOME ACTUAL PROBLEMS OF THE LUNG CANCER SURGERY -U-

AUTHOR--UGLOV, F.G.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 3, PP 8-15

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LUNG, CANCER, SURGERY, DIAGNOSTIC METHODS, PROPHYLAXIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0848 STEP NO--UR/0589/70/104/003/0008/0015

CIRC ACCESSION NO--AP0102809

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2/2 031 UNCLASSIFIED

CIRC ACCESSION NO--AP0102809 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE PAPER THE CONDITONS OF DIAGNOSIS AND TREATMENT IN PULMONARY CANCER AND THE POSSIBILITIES OF THEIR IMPROVEMENT ARE BEING CONSIDERED.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

1/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--HEMODYNAMICS OF THE MINOR CIRCULATORY CIRCUIT IN PATIENTS WITH ACUTE PULMONARY ABSCESSES TREATED BY A METHOD OF REGIONAL INFUSION OF

AUTHOR-(05)-UGLOV, F.G., SMIRNOV, A.D., DANILOV, L.N., YEGIAZARYAN, V.F., GUSAROV, G.V.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 5, PP 13-17

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEMODYNAMICS, RESPIRATORY SYSTEM DISEASE, LUNG, ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1023 STEP NO--UR/0589/70/104/005/0013/0017

CIRC ACCESSION NO--AP0109174

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2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AP0109174 PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEMODYNAMIC CHANGES IN THE MINOR CIRCULATORY CIRCUIT IN PATIENTS WITH PULMONARY ABSCESSES TREATED BY A METHOD OF REGIONAL INFUSION OF ANTIBIOTICS IN THE PULMONARY ARTERY TRUNK OR ITS CORRESPONDING BRANCH HAVE BEEN STUDIED, USING A METHOD OF THERMODILUTION. TOWARD THE END OF TREATMENT MINUTE VOLUME IN THE RIGHT VENTRICLE RETURNED TO VALUES COMMON FOR SUCH PATIENTS. WHILE OTHER HEMODYNAMIC INDICES IN THE MINOR CIRCULATORY CIRCUIT TO THE LAST DAY OF THERAPY USING THIS METHOD ALSO REDUCED OR SHOWED A TENDENCY TO NORMALIZATION. THE MENTIONED CHANGES IN HEMODYNAMIC INDICES CORRESPONDED TO CONSIDERABLE IMPROVEMENT OR COMPLETE ABORTION OF THE LOCAL PROCESS. FACILITY: VSESOYUZNOGO N-I INSTITUTA PULMONOLOGII MINISTERSTVA ZDRAVOOKHRANENIYA SSSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--DETERMINATION OF THE ANGLES OF ROTATION OF OPTICALLY PURE 2,HALOHEXANES -U-

AUTHOR-(03)-UGLOVA, E.V., KHROMOV, V.N., REUTOV, O.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 655-7 (RUSS)

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HALOGENATED ORGANIC COMPOUND, HEXANE, CALCULATION, OPTIC PROPERTY, ORGANIC SULFUR COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2041

STEP NO--UR/0366/70/006/004/0655/0657

CIRC ACCESSION NO--AP0125629

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2/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125629

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STEREOSPECIFIC REACTIONS METHOD (M. R. HOFFMANN, 1964) WAS USED TO CALC. THE MAX. OPTICAL ROTATION ANGLES (SHOWN ON MICROFICHE). THE REACTIONS OF I WITH ETSNA GAVE MEBUCHSET (II) WITH INVERSION. THE CALCD. (ALPHA) PRIME20 SUBDMAX. OF II IS 17.8DEGREES. THESE DATA DIFFER CONSIDERABLY FROM THE REPORTED (ALPHA) SUBD PRIMET VALUES.

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Acc. Nr: AP0047344 U

Ref. Code: UR0589

PRIMARY SOURCE: Vestnik Khirurgii imeni I. I. Grekova, 1970, Vol 104, Nr 1, pp 14-20

A CLASSIFICATION OF CHRONIC PNEUMONIA

By F. G. Uglov, S. N. Sokolov and Ye. K. Seleznev

The elaboration of the most rational classification of chronic pneumonia is an essential task of the science of pneumology. Therefore, principal efforts of the authors were directed toward the selection of a better approach to treatment of various forms of chronic pneumonia both by conservative and surgical methods, new conceptions of etiology and pathogenesis being taken into consideration. The pulmonary lesion usually starts from impairment of the drainage function in $B_{4,5}$ that results from constriction of the bronchus by enlarged and consolidated perihilar lymph nodes. The classification is based on stage development of chronic inflammatory process. The first stage involves the affection of $B_{4,5}$ and partly B_7, the second — $B_{3,5,7,8}$ (or all basal segments), the third stage — also B_6, and the fourth stage includes the cases when the affection involves the upper lobe. The classification considers only the acquired pulmonary lesions.

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Aerology

Source: CPRS #56831 22 Aug '72

(3)

UDC 551.501.8

STUDY OF VERTICAL MOVEMENTS IN CLOUD SYSTEMS BY DECIMETER-BAND PULSE-COHERENT RADAR

[Article by Doctor of Physical and Mathematical Sciences A. G. Gorelik, M. V. Kayazev, L. S. Uglova, Central Aerological Observatory; Moscow, Meteorologiya i Gidrologiya, Russian, No 6, 1972, pp 89-96]

The results of studying the structure of vertical movements in clouds by decimeter-band pulse-coherent radar are discussed. A block diagram of a device for recording the echo and statistical processing of it by means of an optical spectral analyzer is presented. The results are presented in the form of time-altitude sections.

At this time pulse-coherent radar is widely used in meteorological practice. By means of this radar and studying the statistical characteristics of the echo, it is possible rapidly and with sufficient accuracy to obtain data on the wind, turbulence and vertical movements. The utilization of pulse-coherent radar to investigate the fields of vertical air movements determining the development and basic parameters of cumulus congestus is especially prospective. Such work has been performed abroad beginning in 1961 [7, 12]. The results obtained during vertical sounding of the clouds are analyzed in these papers.

Two methods of estimating the velocities of the vertical air movements are used. First, let us consider the method of estimating these velocities with respect to the left-hand edge of the doppler spectrum. It is proposed that this edge is caused by the presence of light particles with gravitational velocities of about 1 m/sec in the dispersion medium the echo from which somewhat exceeds the noise level [5, 12]. The second method is by the data from simultaneous measurements of the mean doppler shift of the frequency and power of the echo [2, 13]. As is demonstrated in [9], the measurement errors by each of these methods can be significant (to 3-4 m/sec).

Recently, a number of new papers [10, 11, 14] have appeared on the structure of vertical movements in precipitation. Thus, the measurements described in [10] and performed simultaneously by two radars permitted maps of the vertical and horizontal movements of the diffusers in a shower to be obtained and the area of primary growth of graupel to be isolated.

UGLOVA, L. N.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

UGLOVA, N. N.

SU:JPRS 54435
9 Nov 71

UDC: 612.766.2.014.464

THE EFFECT OF AN ALTERED GAS ENVIRONMENT ON SOME PHYSIOLOGICAL EFFECTS OF PROLONGED HYPOKINESIA (EXPERIMENTS ON ANIMALS)

[Article by P.V. Vasil'yev, V.B. Malkin, A.I. Volozhin, Ye.V. Loginova, V.Ya. Potkin, N.A. Rozhchina, N.N. Uglova, Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 9, 1971, PP 78-83]

In the course of investigating the effect on the organism of prolonged hypokinesia the conception of a hypodynamic syndrome was formed which is characterized by specific functional disturbances which diminish the organism's adaptive capabilities (A.R. Kotovskaya et al., 1964; L.I. Kakurin et al., 1966; L.I. Kakurin, 1968; Miller and Loverett, and others).

Various measures have been proposed to prevent development of the hypodynamic syndrome: physical exercise (A.V. Yeremin et al., 1969; V.I. Stepantsov and A.V. Yeremin; Brannon et al., Miller et al., and others), use of arm and leg cuffs (Z.D. Peszov, Vogt; Stevens et al., and others), use of pharmacological preparations (P.V. Vasil'yev and B.Yu. Lapinskaya; Bohn et al.; McCally et al.) and, finally, use of an "active" gas environment. The purposefulness of special gases as a means of preventing development of deconditioning phenomena was theoretically substantiated in the works of Soviet and foreign researchers (V.B. Malkin et al.; P.V. Vasil'yev and N.N. Uglova, and others).

These studies are indicative of the effectiveness of using "hypoxic" gas environments, and our authors called serious attention to a regimen of "hypoxic" training. Their studies established that optimum effectiveness is observed with step-by-step elevation to increasing altitudes, staying there for 6-8 hours and descending for 28-16 hours every day [sic]. Such a regimen of training for hypoxia is most effective for development of compensatory reorganization on the molecular and cellular levels (F.Z. Meyerson et al.).

The purpose of the present work was to investigate the possibility of using various gas environment receptors as a means of preventing development of the hypodynamic syndrome.

Method. The investigations were conducted in four series of experiments on 900 mongrel albino male rats, weighing 120 to 200 grams. The distribution of animals in groups and experimental conditions are shown in Table 1.

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1/2 025

UNCLASSIFIED

TITLE--THE USE OF NEEDLELESS SYRINGE FOR TULAREMIA VACCINATION -U-

PROCESSING DATE--13NOV70

AUTHOR-(02)-OLSUFYEV, N.G., UGLOVOY, G.P.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 4, PP 93-95

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TULAREMIA, VACCINATION, MEDICAL LABORATORY INSTRUMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1470

STEP NO--UR/0016/70/000/004/0093/0095

CIRC ACCESSION NO--AP0109530

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2/2 025 UNCLASSIFIED

CIRC ACCESSION NO--AP0109530 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRIAL ON LABORATORY ANIMALS AND MAN OF NEEDLESS SYRINGE DERMO JET DEMONSTRATED THAT IS COULD BE SUCCESSFULLY USED FOR VACINATION WITH THE LIVE TULAREMIA VACCINE. IN COMPARISON WITH THE SCARIFICATION METHOD APPLIED AT PRESENT THE NEEDLELESS METHOD HAS CONSIDERABLE ADVANTAGES MORE PRECISE DOSAGE, AND LESSER EXPENDITURE OF THE VACCINE PER PERSON. THE MANIPULATION IS ALSO MUCH QUICKER AND PAINLESS. VACCINE DILUTIONS 20 AND 40 TIMES LESS THAN THE COMMONLY EMPLOYED CAUSED A DISTINCT LOCAL SKIN VACINATION REACTION WITH AN IMMUNOLOGICAL RECONSTRUCTION OF THE ORGANISM. FURTHER WIDER TRIALS WITH THE USE OF SOVIET INSTRUMENTS ARE RECOMMENDED FOR INTRODUCTION OF NEEDLELESS SYRINGE INTO ROUTINE PRACTICE OF TULAREMIA VAC VACINATION.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

Immunology

UDC 616.981.455-084.47:615.473.3

USSR

OLSUF'YEV, N. G. and UGLOVOY, G. P., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR

"Use of a Needleless Syringe for Vaccination Against Tularemia"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1970, pp 93-95

Abstract: Tests of the French needleless hypodermic syringe Dermojet in immunization of laboratory animals and man with live tularemia vaccine showed that it is superior to the routine scarification procedure in several respects - greater economy in use of the vaccine, more precise dosage, speed and painlessness. Two days after the vaccine was administered to 58 subjects (1:20 and 1:40 dilutions of the usual concentrations), a pronounced local inflammatory reaction occurred, but the zone of hyperemia, edema, and intensity of inflammation decreased within three days. Only a small minority of subjects experienced mild and transient systemic effects - headache, malaise, and slight enlargement of the regional lymph nodes. Serological examination 1-1/2 months after vaccination revealed an adequate specific antibody accumulation in all the subjects.

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USSR

UDC 539.3

BAZHENOV, V. G., UGODCHIKOV, A. G., SHVETSOV, A. V.

"A Solution to the Problem of Stress Concentration in a Region Bounded on the Outside by a Circle and from Within by a Curve of Complex Shape Under Force and Temperature Effects"

Sb. nauch. tr. Perm. politekhn. in-t (Collection of Scientific Works of Perm' Polytechnical Institute), 1971, No. 98, pp 3-10 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V65)

Translation: A conformal mapping method was used to obtain a solution of the plane statics problem of thermoelasticity and the first boundary value problem of elasticity theory for a symmetric doubly connected region subject to the action of a steady-state temperature drop and uniform pressures from within and without. The solution is constructed in complex form using a Laurent expansion. The problem is reduced to the solution of an infinite system of linear algebraic equations. The reflection of a circular ring on the given region is achieved by power polynomials. It is noted that the best convergence of the solution occurs when the reflecting function is taken in the form of Lagrange interpolation polynomials. A numerical example of the solution of a thermoelasticity problem under isothermal boundary conditions is considered. 10 ref. N. T. Glazunova.

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USSR UDC 539.3

UGODCHIKOV, A. G., KOROTKIKH, Yu. G.

"Some Methods of Solving Physically Nonlinear Problems From the Theory of Plates and Shells by Digital Computer"

Nekotorye Metody Resheniya na ETSVM Fizicheski Nelineynykh Zadach Teorii Plastin i Obolochek [English Version Above], Naukova Dumka Press, Kiev, 1971, 219 pages.

Translation of Annotation: Several methods for numerical solution of physically nonlinear problems for plates, thin slabs, and shells by digital computer are presented, allowing the heterogeneity and anisotropy of the material, creep on the basis of the theory of aging, the influence of temperature and radiation effects and changes in mechanical properties during cyclical loading to be considered.

General algorithms are presented for the solution of physically nonlinear problems, and the principles of automation of the computational process are described from the composition of finite difference operators to determination of fields of stresses and deformations, zones of plasticity, etc.

The book is designed for scientific workers and engineers working in the area of investigation of the stress and deformation state of structural elements (plates, slabs, and shells). It can also be used as a text for students

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USSR
UGODCHIKOV, A. G., KOROTKIKH, Yu. G., Nekotorye Metody Resheniya na ETSVM Fizicheski Nelineynykh Zadach Teorii Plastin i Obolochek, Naukova Dumka Press, Kiev, 1971, 219 pages.

and graduate students of the corresponding specialties in universities and higher technical schools.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

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UGODCHIKOV, A. G., KOROTKIKH, Yu. G., Nekotorye Metody Resheniya na ETSVM Fizicheski Nelineynykh Zadach Teorii Plastin i Obolochek, Naukova Dumka Press, Kiev, 1971, 219 pages.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UGODCHIKOV, A. G., KOROTKIKH, Yu. G., Nekotorye Metody Resheniya na ETSVM Fizicheski Nelineynykh Zadach Teorii Plastin i Obolochek, Naukova Dumka Press, Kiev, 1971, 219 pages.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC 631.42:546.18

MUROMTSEV, G. S. and UGODINA, T. S., All-Union Institute of Agricultural Microbiology

"Isolation of Soil Microorganisms That Mobilize Organophosphorus Compounds"

Moscow, Doklady Vsesoyuznoy Akademii Sel'skokhozyuystrennykh Nauk, No 5, 1973, pp 9-11

Abstract: A direct method is proposed for isolating microorganisms that dissolve phytin, a soil organophosphate. The microorganisms are isolated on a medium containing 1 liter of tap water, 10 g of glucose, 1 g of asparagine, 0.2 g of $MgSO_4$, 0.2 g of K_2SO_4, 20 g of agar, and 0.02% corn extract. Phytin is added to the medium, which is plated on agar and then incubated for 48 hours at 37°. Clear zones appear around some colonies, an indication that phytin has been dissolved.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420001-7

USSR

UDC 612.273+612.6

ROZANOVA, V. D. and UGOLBAYEVA, I. S., Laboratory of Age Physiology and Pathology, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR

"Physiological Substantiation of Criteria of Resistance to and Tolerance for Hypoxia at Different Ages"

Leningrad, Fiziologicheskiy Zhurnal SSSR, No 10, 1971, pp 1,531-1,539

Abstract: The response of dogs of four different age groups (1 to 15 days, 18 to 60 days, 2-1/2 to 3 months, adults) to hypoxia was studied in pressure chamber experiments involving elevating the animals gradually or rapidly to simulated altitudes of 1 to 13 km. Resistance, as measured by the duration of maintenance of homeostasis, was found to be higher in the two oldest age groups, especially when hypoxia was created gradually. However, the "altitude ceiling" and survival time there (tolerance criteria) were lower in the older dogs than in the 1- to 15-day-old puppies. The authors suggest that a distinction be made between resistance (duration of maintenance of homeostasis) and tolerance (difference in "altitude ceiling" and survival time in a state of collapse).

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TITLE--ORGANIZATION AND REGULATION OF MEMBRANE DIGESTION AND TRANSPORT PROCESSES -U-

AUTHOR--UGOLEV, A.M.

COUNTRY OF INFO--USSR

SOURCE--FIZIOL. ZH. SSSR IM. I. M. SECHENOVA 1970, 56(4), 651-62

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AMYLASE, ENZYME ACTIVITY, GLUCOSE, CELL PHYSIOLOGY

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PROXY REEL/FRAME--3004/0656 STEP NO--UR/0239/70/056/004/0651/0662

CIRC ACCESSION NO--AP0131261

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MODEL SYSTEM EXAMD. CONSISTED OF MALTASE AND AMYLASE AND THE GLUCOSE CARRIERS AND ALSO SEVERAL FREE GLUCOSE CARRIERS ASSOCIATED WITH OTHER ENZYMES. IT IS SUGGESTED THAT THE MONOMERS FORMED IN THE PROCESS OF HYDROLYSIS PASS DIRECTLY INTO THE TRANSPORT SYSTEM BYPASSING THE AQ. PHASE. THE HIGH SENSITIVITY EXHIBITED IN MALTASE GLUCOSE TRANSPORT COMPARED WITH THAT OF GLUCOSE AND PHLORIZIN OCCURS ONLY IN THE EVENT THAT THE BINDING BY THE GLUCOSE CARRIER IN THE PROCESS OF MALTASE HYDROLYSIS IS MORE EFFECTIVE THAN THAT BY THE CARRIER OF FREE GLUCOSE.

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USSR

UDC: 537.312.62

KUKHARCHUK, V. G., MOISEYEV, A. J., UGOL'NIKOVA, T. A.

"Producing Diffusion Layers of the Compound V_3Ga on Vanadium Wire"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconducting Alloys and Compounds--collection of works), "Nauka", 1972, pp 29-34 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D569 [résumé])

Translation: A study was made of the conditions of synthesizing a superconductive layer of the compound V_3Ga on vanadium wire when it is treated in molten gallium at temperatures from 100 to 500°C and subsequent annealing at temperatures from 800 to 1100°C. The specimens were subjected to radiographic and metallographic analysis. Temperature-time conditions were determined for formation of the diffusion layer of compound V_3Ga. Specimens gallium-plated at 400°C showed an unknown gallium-vanadium phase whose composition and structure were not determined. The maximum temperature of transition to the superconductive state for V_3Ga layers produced by the diffusion method is 15.2 K. Two illustrations, one table, bibliography of 13 titles.

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UDC 621.165-762.001.45

USSR

FEDORCHENKO, I. M., Academician of the Academy of Sciences Ukrainian SSR; KOSYAK, YU. F., LAZARENKO, A. V., MIROSHNIKOV, V. N., Candidated of Technical Sciences; KONTEMIR, A. D., and USOL'NIKOVA, L. A., Engineers

"Full-Scale Tests of Bronze-Graphite Powder Metallurgy Sealing Materials in PVK-150 Turbine"

Leningrad, Energomashinostroyeniye, No 12, Dec 71, pp 27-29

Abstract: In high- and intermediate-pressure cylinders designed by the Khar'kov Turbogenerator Plant, minimum clearance over the moving blades is provided by sealing strips in the stator. Certain heat-resistant materials should not be used for the strips, e.g. nickel, German silver, Kh18N9T steel. New turbine designs use seals with the strips made in conjunction with the shroud. Until recently such designs used only cast materials, chiefly iron alloyed with 6% chromium. Full-scale tests of the nickel-graphite sealing material UG-1 in VK-50, VK-100 and K-300 turbines showed that this nickel-base material is not promising for high-parameter turbines because of intercrystalline corrosion. Copper-base materials have proved more promising in this respect.

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USSR

FEDORCHENKO, I. M., et al., Energomashinostroyeniye, No 12, Dec 71, pp 27-29

Full-scale tests were made of bronze-graphite materials in the PVK-150 turbine at the Beresovskaya State Regional Electric Power Station. The experimental materials contain aluminum, iron and manganese as the principal alloying elements, as well as graphite as an antifriction addition. The results indicate satisfactory performance for 10,500 hours. The best materials are brands 43, 53 and 71, which should be used for sealing inserts for high-parameter turbines. The graphite content of the sealing materials should not exceed 3% (by weight). The average clearance was found to increase from 0-0.3 mm in the initial state to 0.8-0.9 mm after the tests. Assembly of the seal unit requires nonconcentric radial clearance. The condition of the rotor strips is satisfactory. The use of bronze-graphite sealing materials can be recommended after check tests in a K-500-240 type turbine.

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Ref. Code: UR 0114

USSR

UDC 621.165-226.001.5:539.376

A.E. UGORSKIY

"Stress Concentrations in Discs With Eccentric Holes"

Leningrad, Energomashinostroyeniye (Power Machinery Construction), 1970, No 1, pp 40-41

Translation:

Relations are established for estimating the stress concentrations for steady-state creep on the contour of eccentric holes of turbine discs. One table, two figures, seven references.

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USSR UDC: 621.381.41

ANTSIFEROV, V. V., DERZHI, N. M., PIVTSOV, V. S., UGOZHAYEV, V. D., FOLIN, K. G.

"Selection and Retuning Ruby Laser Frequencies in the Giant Pulse Mode"

Novosibirsk, Avtometriya, No 5, 1972, pp 94-97

Abstract: Results are given of an experimental investigation of three-mirror and four-mirror variants in a superregenerative laser amplifier using an industrial ruby crystal with sapphire terminations, 12 or 18 cm long and 7 mm in diameter. In a second laser, also part of the experimental apparatus, the active element was also a ruby crystal with a sapphire envelope 12 cm long and a diameter of 7 or 9 mm. The basic idea of the apparatus is that the radiation of the first laser is applied to the second to produce a giant pulse. Radiation under this system was recorded with a photoelement type FEK-15, a type I2-7 oscillograph, and a Fabry-Pérot standard with a limited resolution of $2 \cdot 10^{-3}$ A. A diagram of the apparatus is given, together with an oscillogram of the giant pulse and an interferogram of the combined spectra of the two lasers. It is noted that the possibility of controlling the

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