"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UL'YANOV, S. V. and SHTOL', A. T. UDC: 539.4:624.011

"Statistical Analysis of Stability, and an Estimate of the Reliability of a Parametric System in Seismic Action"

V. sb. Materialy V Nauchno-tekhn. konferentsii molodykh spetsialistov. TsNII stroit. konstruktsiy (Materials V of the Scientific Technical Conference of Young Specialists, Central Scientific Research Institute of Building Construction-- collection of works) Moscow, 1970, pp 54-57 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2V952)

Translation: A short report devoted to the problem of forced structural oscillations in a movable system of coordinates, which moves ahead relative to an inertial coordinate system. The forward motion of the movable system is determined by functions which can be considered as stationary noncorrelated functions of time with zero average values and known statistical parameters (the law of distribution and the correlation functions are known). The problem of oscillations of rod construction in horizontal and vertical seismic motion of the foundation reduces to such a model. The hypothesis is assumed of stationary seismic action. The design

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UL'YANOV, S.V., et al, V. sb. Materialy V Nauchno-tekhn. konferentsii molodykh spetsialistov. TsNII stroit. konstruktsiy, 1970, pp 54-57 (from RZh-Mekhanika, No 2, Feb 71, Abstract No 2V952)

system is a rod of constant cross section and rigidity, with the mass concentrated at the end. It is assumed that: 1) The hypothesis of nonlinear viscous drag is valid; 2) The longitudinal forces of the inertial mass of the rod can be neglected; 3) The linear mass inertia to the end of the rod and the exponential nonlinear elasticity are taken into account; 4) Only the first form of the bending oscillations is considered. The problem is solved by two methods: 1) To the first approximation, by the method of stochastic differential equations, and 2) By using the apparatus of the Markov processes and the Fokker-Planck-Kolmogorov equations. The conclusion is that to estimate the motion of the system for small values of the excitation coefficient and to determine the stability of the system in the region of its parameters, it is convenient to use the first method; for a more complete statistical analysis, however, the second method must be used. V. A. Bykhovskiy

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 621.791.754'264

UL'YANOV, V. I., Engineer, PARFESSA, G. I., Candidate of Technical Sciences, VYSOTSKIY, G. A., Engineer, Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR, and SUDAVTSOVA, V. S., Engineer, Kiev State University imeni T. G. Shevchenko

"Influence of Titanium on the Technological Properties of Type Sv-08G2S Wire"

Kiev, Avtomaticheskaya Svarka, No 6 (243), Jun 73, pp 59-62

Abstract: The authors studied the influence of titanium on the technological properties of type Sv-08G2S wire during welding in carbon dioxide. They showed that doping 0.3-0.4 percent Ti permits reducing the sputtering during CO_2 welding and improving the mechanical properties of the seam metal. They suggest studying additional measures to increase the resistance of the seam metal to crystallization cracks. The article contains 2 tables, 4 figures, and 7 bibliographic references.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

1/2 019 UNCLASSIFIED

TITLE--DETERMINATION OF THE DIMERIZATION, DISTRIBUTION, AND ACID DISSOCIATION CONSTANTS OF DIALKYL HYDROGEN PHOSPHATES AND THE PROCESSING DATE--20NOV70

AUTHOR-(02)-ULYANOV, V.S., SVIRIDOVA, R.A.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 47-64

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DIMERIZATION, DISSOCIATION CONSTANT, ORGANIC PHOSPHATE, PERCHLORATE, OCTANE, HEXANE

CONTROL MARKINGS--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1203

STEP NO--UR/0136/70/012/001/0047/0064

CIRC ACCESSION NO--AP0124821

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 015

CIRC ACCESSION NO--AP0128621 UNCLASSIFIED PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. VALUES OF THE DISSOCN. CONSTS. (IN AQ. PERCHLORATE SOLNS.), THE DIMERIZATION CONSTS., AND THE DISTRIBUTION COEFFS. (BETWEEN HCLO SUB4 NACLO SUB4 SOLNS. AND N OCTANE, ISOOCTANE, N HEXANE, OR CHLOROFORM) OF (EIO) SUB2 P(O)OH (DEPA), (BUO) SUB2 P(O)OH (DBPA), DIHEXYL H PHOSPHATE (DHPA), DIOCTYL H PHOSPHATE (DOPH) AND BIS(2,ETHYLHEXYL) H PHOSPHATE (DEHPA) ARE TABULATED AS A FUNCTION OF THE PH AND THE DIALKYL H PHOSPHATE CONCN. THE DISSOCN. CONSTS. DECREASE WITH INCREASING MOL. WT., AND GENERALLY INCREASE WITH BRANCHING; THE DIMERIZATION CONSTS. AND DISTRIBUTION COEFFS. DEPEND BOTH ON THE MOL. WT. (OF THE ACID) AND THE NATURE OF THE EXTRACTANT. THE VALUES OF LOG K SUBB (WHERE K SUBB IS THE ASSOCN. CONST.) FOR THE ASSOCN. OF DBPA, DHPA, DOPA, AND DEHPA WITH TRIOCTYLPHOSPHINE OSICE ARE 4.89, 4.45, 4.25, AND 3.9, RESP., AND LOG K SUBB FOR THE ASSOCN. OF THOSE ACIDS WITH TRIBUTYL PHOSPHATE ARE 3.4, 2.66, 1.85, AND 2.46, RESP.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 666.113.621'431'47'41'33'32'28

KOSTANYAN, K. A., SARINGYULYAN, R. S., KHERUNTSYAN, V. I., BELOV, N. I., OGANEZOVA, R. S., and IL'YANOV, V. V.

"Glass"

USSR Author's Certificate No 366157, Filed 29 Jan 71, Published 16 Jan 73 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar (a) 73, Claim No 1620354/29-33)

Translation: A glass including SiO_2, CaO, ZnO, Na_2O, Al_2O_3, BaO and K_2O, distinguished by the fact that in order to decrease the spectral absorption in the ultraviolet region it contains the above components in the following quantities, weight %: SiO_2 67-76, CaO 1.5-1.2, ZnO 1-4, Na_2O 7-15, Al_2O_3 0.5-5, BaO 0.5-5, K_2O 2-12 and furthermore SnO 0.2-2.0.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

LUKATSKAYA, M. L., UL'YANOVA, G. P. UDC: 8.74

"System of Programs for Statistical Economic Analysis (PrEStA System)"

V sb. Vopr. postroyeniya i primeneniya statist. modeley ekon. pokazateley predpriyatiy. Ch. 2 (Problems in the Construction and Use of Statistical Models of the Economic Indices of Enterprises. Ch. 2), Novosibirsk, 1971, pp 225-287 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V563)

Translation: The authors describe a system of programs of statistical economic analysis (the PrEStA system) which embraces the principal problems of correlation-regression multifactor analysis and analysis of dynamic series. The system utilizes the alpha-translator input language for the M-220 computer. The system is based on the principle of minimum time expenditure on the work of the program. All algorithms for statistical economic data processing are broken down into elementary algorithms and stored on magnetic tape in the computer. Provision is made for locating tags of various length on the tape, for motion with respect to this length, for appending new tags to those recorded, and for erasing some or all of the recorded tags. The system consists of the following modules:

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC: 518.5:681.3.06

BORODKIN, F. M., UL'YANOVA, G. P.

"A System of 'One-Dimensional Statistic' Programs"

V sb. Vopr. ekon.-statist. modelir. i prognozir. v prom-sti (Problems of Economic and Statistical Modeling and Prediction in Industry--collection of works), Novosibirsk, 1970, pp 285-288 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V760)

[No abstract]

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

Heat Treatment

USSR

(2)

UDC 669.14.018.298:
:621.78:621.17

DOLOTOVA, T. S., KUCHERYAVYY, V. I., REVYAKINA, O. K., RYZHAK, S. S., SACHKOV, V. V., and UL'YANOVA, N. V., Moscow Higher Technical School imeni N. E. Bauman, All-Union Scientific Research Institute of Aviation Materials

"Influence of the Conditions of Heat Treatment on the Properties of 000Kh11N10M2T Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 12, 1973, pp 9-13

Abstract: The conditions developed for the heat treatment of 000Kh11N10M2T steel make it possible to produce on the initial large-grained metal properties close to those of semi-finished goods of small section with low temperature at the end of hot deformation and possessing small grains and sufficient high plasticity and viscosity at up to -70°C temperatures. After the heat treatment according to the schedule 1220°C for

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

(2)

DOLOTOVA, T. S., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 12, 1973, pp 9-13

2 hr, water + threefold austenitization at 1010±10°C for 1-3 hr, water + 600°C for 15 hr, air + 850°C for 1 hr, air + 500°C for 2 hr, the following satisfactory complex of mechanical properties could be obtained: at 20°C - tensile strength σ_t=155 kg/mm2, specification yield point $\sigma_{0,2}$=149.5 kg/mm^2, residual relative elongation δ=12%, relative narrowing ψ=56.5%, impact ductility a=5.5 kg·m/cm^2, and at -70°C - σ_t=179 kg/mm^2, ψ=43%, a=3.5 kg·m/cm^2. Six figures, three bibliographic references.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

Mechanical Properties

USSR UDC 669.14.018.8:620.18:620.17

VOZNESENSKAYA, N. M., IZOTOV, V. I., UL'YANOVA, N. V., POPOVA, L. S., and POTAK, YA. M.

"Structure and Properties of High-Strength 1Kh15N4AM3 Stainless Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, 1971, pp 32-35

Abstract: The article describes results of a study of the effect of tempering temperature on the structural state and mechanical properties of 1Kh15N4AM3 (EP-310) stainless steel of the transition austenitic-martensitic class. Industrial electroslag-refined steel was used for the study. It was found that after tempering at 200° C the steel has higher mechanical properties (ductility, impact strength, and crack propagation energy) than widely-used structural high-strength steels (30KhGSNA) or maraging steels. The high strength is determined by a high dislocation density, the presence of twins, and the retention of a sufficient quantity of carbon and nitrogen in the solid solution. Tempering at 300-350° C causes a certain decline in strength and an increase in ductility and impact strength as a result of reduced car-

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

VOZNESENSKAYA, N. M., et al., Metallovedeniye i Termicheskaya Otrabotka Metallov, No 1, 1971, pp 32-35

bon and nitrogen content of the solid solution, with retention of high dislocation density and distortions of the second kind. No precipitations are found with the decrease in the number of interstitial atoms in the solid solution. At 450-500° C there is secondary hardening, consisting in the formation of highly dispersed particles of the chromium carbonitride M_2X, accompanied by a slight reduction in ductility and impact strength and a significant decrease in crack propagation energy. The structure is characterized by a decrease in the dislocation density and a significant decrease in distortions of the second kind. At 550-650° C there is reverse $\alpha \rightarrow \gamma$ transformation. The transformation begins at about 575° C, with the maximum amount of stable austenite forming after heating to 625-650° C for 1-2 hours. At 650-700° C there is a decrease in strength, with formation of the carbides $M_{23}C_6$ along grain body and boundaries.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

Acc. Nr. AP0049968 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code UR0051

105497g Energy differences of 2-chlorobutane rotational isomers. Ul'yanov, G. D.; Pentin, Yu. A. (USSR). *Opt. Spektrosk.* 1970, 28(1), 198-9 (Russ). Av. difference in energy of optical isomers of 2-chlorobutane is 760 in the liq. phase and 810 cal/mole in the vapor phase. The values were detd. spectrophotometrically. HMJR

1/1

REEL/FRAME
19801906

7 N

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ADDITIONAL EXPERIMENTAL DATA ON THE VIBRATIONAL SPECTRA OF 2,HALOBUTANES -U-

AUTHOR-(03)-KERESTURI, G., ULYANOVA, O.D., PENTIN, YU.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 787-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--VIBRATION SPECTRUM, CHLORINATED ORGANIC COMPOUND, BROMINATED ORGANIC COMPOUND, BUTANE, RAMAN SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1630 STEP NO--UR/0076/70/044/003/0787/0788

CIRC ACCESSION NO--AP0125252

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 020

UNCLASSIFIED

CIRC ACCESSION NO--AP0125252 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VIBRATIONAL SPECTRA OF 2,CHLORO, AND 2,BROMO BUTANES WERE OBTAINED AT 230-450 CM PRIME NEGATIVE1. THE RAMAN SPECTRA IN LIQ. AND CRYST. PHASES WERE SCANNED, AND THE DEGREE OF DEPOLARIZATION OF THE BANDS WAS DETD.

FACILITY: KHIM. FA., MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 615.214.32.099

MITROFANOV, V. S., RUNOVA, M. F., UL'YANOVA, O. V., and PORFIR'YEVA, R. P.,
Institute of Pharmacology, USSR Academy of Medical Sciences, Moscow

"Evaluation of the Toxicity of Fluoracisine"

Moscow, Farmakologiya i Toksikologiya, No 5, Vol XXXIV, Sep-Oct 71, pp 540-542

Abstract: Fluoracisine (hydrochloride 10 (β -diethylaminopropionil)-2-trifluoromethylphenothiasine) is an antidepressant whose possible undesirable side-effects is of medical interest.

Heart action, respiration, liver function and blood sugar were tested in groups of dogs administered 2.5 mg/kg fluoracisine daily for 30-45 days followed by an increase to 5.0 mg/kg for the next 25-35 days. A group of rats was also tested.

No effect on the cardiovascular system or liver was observed. However, skin lesions and a tendency to weight loss, as well as increased excitability, were produced. It is concluded that long-term administration of fluoracisine in effective dosages produces little or no toxic effect.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 008 UNCLASSIFIED

CIRC ACCESSION NO--AA0127700 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPD. (I), HAVING PSYCHOTROPIC PROPERTIES, WAS PREPD. BY TREATMENT OF 2 TRIFLUOROMETHYLPHENOTHIAZINE WITH CLCH SUB2 CH SUB2 COCL, AND CONVERTING THE RESULTING 10 (BETA CHLOROPROPIONYL) 2 TRIFLUOROMETHYLPHENOTHIAZINE WITH NHET SUB2 INTO I. FACILITY: INSTITUTE OF PHARMACOLOGY AND CHEMOTHERAPY, ACADEMY OF MEDICAL SCIENCES, U.S.S.R.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 547.759.3:543.422.25

DVORYANTSEVA, G. G., UI'YANOVA, T. N., SHEYNKER, Yu. N., and YAKHONTOV, L. N., All-Union Scientific Research Chemico-Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Study by the PMR Method of the Protonation of Derivatives of 5-Azaindole"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 73, pp 767-772

Abstract: The protonation of 5-azaindole (I), 5-azaindoline (II), 1-phenyl-5-azaindole (III), 1-phenyl-5-azaindoline (IV), 1-acetyl-5-azaindoline (V), and 4-aminopyridine (VI) by trifluoroacetic acid in solutions with various dielectric constants was studied by the PMR method. Protonation took place at 5-N in the pyridine ring. Spin-spin interaction with 1-N - H was indicated by the PMR spectrum of the monocation of VI. In the monocations of I, II, III, and IV there was a considerable contribution of a quinoid structure with a transfer of the positive charge to N of the pyrrole ring. On the basis of the relations between the chemical shifts of protons of III and IV and the concentration of trifluoroacetic acid in methylene chloride, acetonitrile, and deuteracetone, a mechanism of protonation is proposed according to which the transfer of a proton from the donor to the acceptor in solvents with a low polarity takes place over an initially formed base-acid complex to which hydrogen is bound.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

UNCLASSIFIED PROCESSING DATE--04DEC70

1/2 022

TITLE--CYTOPHOTOMETRIC DETERMINATION OF DNA IN PLASMOCYTIC NUCLEI OF THE SPLEEN IN RATS WITH HORMONE DEPENDENT TUMORS -U-

AUTHOR-(05)-UMANSKIY, YU.A., ANTONYUK, R.D., GUDIMLEVKOVICH, K.A., LYSYUK, L.P., ~~ULYANOVA, T.N.~~

COUNTRY OF INFO--USSR

SOURCE--VOP. ONKOL. 1970, 16(5), 61-5

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DNA, SPLEEN, RAT, TUMOR, HORMONE, SPECTROPHOTOMETRIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605007/F07 STEP NO--UR/0506/70/016/005/0061/0065

CIRC ACCESSION NO--AP0139929

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 022

UNCLASSIFIED

CIRC ACCESSION NO--AP0139929 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FEMALE RATS (STRAIN WISTAR) WERE CASTRATED AT AGE 2 MONTHS AND A PART OF THE OVARY WAS IMPLANTED IN THE SPLEEN. IN 10 MONTHS AFTER THE IMPLANTATION, TUMORE OF VARIOUS LOCALIZATION AND SIZE DEVELOPED; THE RATS WERE THEN KILLED AND THE DNA CONTENT IN THE NUCLEI OF PLASMATIC CELLS OF THE SPLEEN WAS DETD. CYTOSPECTROPHOTOMETRICALLY. THE DNA CONTENT DEPENDED ON TUMOR LOCALIZATION WITH RESPECT TO THE SPLEEN. IN THE CONTROL ANIMALS, ANIMALS WITH TUMORS IN THE SPLEEN, ANIMALS WITH TUMORS DEVELOPED IN OTHER ORGANS BUT NOT IN THE SPLEEN, AND ANIMALS IN WHICH TUMORS DID NOT DEVELOP, THE DNA CONTENT IN EACH NUCLEUS OF SPLEEN PLASMATIC CELLS WAS 2.84, 2.41, 5.09, AND 5.72 ARBITRARY UNITS, RESP.

FACILITY: RES. INST. EXPTL. CLIN. ONCOL., KIEV, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC: 531.7.087.92

KACHKACH'YAN, A. M., UL'YANTSEV, S. A.

"A Photoelectric Pickup of Linear Displacements"

USSR Author's Certificate No 251417, filed 31 May 68, published 23 Jan 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A126 P)

Translation: This Author's Certificate introduces a photoelectric pickup of linear displacements with highly stable output signal slope and low output impedance. The pickup has two alternately switched pulse emitters, a screen which interrupts the flux from one of the emitters, and a common photoreceiver connected to an amplifier which acts on the pulse amplitude of one of the emitters in accordance with the imbalance. The amplified mismatch signal acts to balance the light fluxes from the two emitters. Voltage pulses proportional to the commutated emission signals are fed to two windings of a three-winding transformer whose third winding is the output winding. Two illustrations. T. R.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

Electrochemistry

USSR

UDC 66.094.1:546.791

VLASOV, V. G., PIS'MENKO, V. T., ULYASHEV, S. P., SHALAGINOV, V. N., and BEKETOV, A. R.

"Electroconductivity of Uranium β-Dioxide Modified With Admixtures of MgO, SrO, and Nb_2O_5"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 46, No 1, Jan 73, pp 36-40

Abstract: Specific electroconductivity expressed as a function of temperature for the pure uranium β-dioxide as well as one with admixtures of MgO, SrO, and Nb_2O_5 show three discrete segments: low temperature straight line segment of contaminated conductivity, the middle segment of proper conductivity and a high temperature segment with probably complete conductivity. Presence of impurities alters not only the absolute values of electroconductivity of uranium β-dioxide, but also the transition temperatures of the above three segments. This is due to concentration changes and mobility of basic current carriers. The experimentally established functions of electroconductivity are explained by the defects generated by the admixtures when they are dissolved in the lattice of U_4O_9.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

SELYUTIN, V. A., ULYBIN, B. N. UDC: 681.32.001

"Approximation Methods of Solving the Arrangement Problem"

Skaisiavimo technika. Vychisl. tekhnika. T. 1 (Computer Engineering, Vol 1), Kaunas, 1970, pp 269-274 (from Rzh-Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 9, Sep 70, Abstract No 9B199)

Translation: The efficiency of various algorithms for solving arrangement problems is evaluated. A special algorithm of the sequential type is proposed which leads, on the average, to smaller values of the criterial function by comparison with known sequential algorithms. The bibliography has five entries.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

1/2 020 UNCLASSIFIED

TITLE--DENSITY OF SULFUR HEXAFLUORIDE IN THE MINUS 40 TO PLUS 200DEGREES RANGE AT PRESSURES TO 500 BARS -U-

PROCESSING DATE--30OCT70

AUTHOR-(02)-ULYBIN, S.A., ZHERDEV, YE.P.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191 (3), 572-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECIFIC DENSITY, FLUORIDE, SULFUR COMPOUND, THERMAL EFFECT, HIGH PRESSURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/2066

STEP NO--UR/0020/70/191/003/0572/0573

CIRC ACCESSION NO--AT0122295

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 , 020

CIRC ACCESSION NO--AT0122295 UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE D. OF SF SUB6 WAS DETD. WITH 18 ISOTHERMS AT 4-500 BARS IN AN APP. BASED ON THE METHOD OF KIRILLIN AND SHEINDLIN (1963) WITH AN ERROR OF 0.25PERCENT FOR THE GASEOUS AND 0.15PERCENT FOR THE LIQ. PHASES. THE SATD. VAPOR PRESSURE FROM MINUS 40.0 TO 45.0DEGREES WAS DETD.

FACILITY: MOSK. ENERG. INST., MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

Construction

USSR

UDC 624.131.43+539.21.084-492.3

KUZNETSOV, G. V., ULYBIN, V. P., SHALAYEV, Yu. I.

"Providing Seismic Protection for Buildings and Equipment on Permafrost During Massive Explosions"

Kolyma, 1972, No. 3, pp 34-36 (from RZh-Mekhanika, No 8, Aug 72, Abstract No 8V536)

Translation: Results of an experimental study of seismic oscillations during explosions conducted under permafrost conditions are presented. A relationship was established between the maximum rate of vibration of the ground and the distance, weight of the charge and the retardation time under group explosions. It is noted that the rate increases with a decrease in the retardation time. The dynamic characteristics of buildings constructed on piles are determined and recommendations are made for determining the seismically safe conditions for conducting explosions. V. N. Kostyuchenko.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR UDC: 539.3/5:678

UMANSKIY, E. S., KRYUCHKOV, V. V., VEREMCHUK, S. S., Kiev

"Creep and Recovery of Composite Films at High Temperatures"

Kiev, Problemy Prochnosti, No 7, Jul 72, pp 111-115.

Abstract: Results are presented from a study of the creep and recovery of six types of magnetic media based on lavsan under isothermal conditions at temperatures of 20, 40, 60 and 80° C. The instantaneous viscoelastic and residual deformation was studied as a function of temperature, load and time. A linear integral hereditary equation with a kernel in the form of the diffractional-exponent function of Yu. M. Rabotnov is used to describe the creep curves of the class of materials studied. Calculation values of creep deformation are produced at working stress levels which coincide with the experimental results with accuracy sufficient for practice.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

Instrumentation and Equipment

USSR

UDC: 620.17:62-416

UMANSKIY, E. S., Engineer, SVIRIDOVSKIY, Yu. M., Engineer, ALEKSYUK, M. M., Engineer, KARPINOS, D. M., Engineer, KADYROV, V. Kh., Engineer, Institute of Problems of Strength, Academy of Sciences UkrSSR

"An Installation for Studying the Mechanical Properties of Metal Foil Materials"

Kiev, Tekhnologiya i Organizatsiya Proizvodstva, No 4, Jul/Aug 72, pp 108-109

Abstract: The paper describes an installation for studying the strength and deformability characteristics of foils and fibers over a wide temperature range. The device is basically a water-cooled vacuum chamber mounted on a special table. A control panel is provided with instrumentation for various kinds of tests. A vacuum of 10^{-6}-10^{-5} mm Hg ($1.33 \cdot 10^{-4}$-$1.33 \cdot 10^{-3}$ $N \cdot m^{-2}$) is produced by the exhaust system. Micromechanical tests are done on a precision breaking machine with maximum breaking force of 250 kgf (2450 N). A diagram of the unit is given and its operation is described. Test results are given for the mechanical properties of aluminum foil of two different thicknesses as a function of temperature.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 539.3/5:678

UMANSKIY, E. S., KRYUCHKOV, V. V., DEBRIVNYY, I. Ye., IL'CHENKO, V. I., and TINYAKOV, V. G., Kiev Polytechnic Institute

"Stand for the Investigation of Creep and Fatigue Strength of Composition Films of Magnetic Carrier Type at Raised Temperatures"

Kiev, Problemy Prochnosti, No 5, May 73, pp 103-107

Abstract: A twelve-sectional experimental stand for creep and fatigue strength investigations, developed on the Chair of the Strength of Materials of Kiev Polytechnic Institute, is described by reference to its general view and electromechanical and functional schemata. The stand can also be used for testing short-term strength and relaxation. The instrumentation of the stand includes an automatic servomechanism for temperature control and registration (exactness ±1°C) and also a multichannel system for recording deformations on prolonged mechanical tests. Investigation methods of creep and fatigue strength of composition films of magnetic carrier type in the interval of working temperatures are discussed. The described stand and the developed method make it possible to study the rules of accumulation and diminishing not only of the total but also of the reversible (elastic and high-elastic) deformations. Four figures, five bibliographic references.

1/1

- END -

CSO: 1861-W

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 539.315:678

UMANSKIY, E. S., DEBRIVNYY, I. Ye., KRYUCHKOV, V. V., Kiev

"Study of the Strength and Deformation Capacity of Thin Composite Materials Such as Magnetic Information Carriers. Report 2. Strength and Deformation Capability at Low Temperatures"

Kiev, Problemy Prochnosti, No 12, Dec 1972, pp 50-54.

Abstract: A cryogenic chamber and system for holding and regulating the temperature of specimens of thin composite materials such as magnetic information carriers subjected to monaxial extension over a broad range of below-freezing temperatures are described. The short-term strength and deformation capability of 5 types of magnetic information carriers are studied at temperatures of 0, -20, -40, -60 and -80°C. Peculiarities of the deformation capacity diagrams of the materials studied are analyzed over the temperature range indicated; it is found that the elastic, strength, and deformation properties of magnetic information carriers are dependent on temperature.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 539.3/5:678

UMANSKIY, E. S., KRYUCHKOV, V. V., DEBRIVNYY, I. Ye., IL'CHENKO, V. I., and TINYAKOV, V. G. (Kiev)

"An Installation for Investigation of Creep and Long-Term Strength of Film Materials at Reduced Temperatures"

Kiev, Problemy Prochnosti, No 9, Sep 73, pp 107-111

Abstract: A description is given of an installation and a procedure for the study of creep and restoration, at static and pulsed loads, of composition films at reduced temperatures (plus 30 to minus 120°C). A distinguishing feature of the installation is the use of semiconductor thermoelectric batteries for cooling the working volume of the chamber.

Corresponding devices and appliances were developed with semiconductor sensors, which permitted the accuracy of measurement of the forces and deformations to be considerably increased in comparison to the existing methods. Typical diagrams of creep and restoration at static and subsequent pulsed loads are presented. 4 figures. 6 references.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

RAN/ / R-760 / 15 MAR 73
Dec 72

fractional exponent equal to -1/2, an integral kernel representation is derived, and time dependencies of the real and imaginary parts are computed and plotted. A graphical analysis shows that the representation of an elastic modulus by a complex Q^{+} operator assures an energy decrease with tension relaxation in agreement with the second law of thermodynamics.

Karpinos, D. M., L. I. Tuchinskiy, M. L. Gorb, E. S. Umanskiy, and V. Ya. Fefer. Mechanical properties of titanium reinforced by unidirectional molybdenum wires, Problemy prochnosti, no. 6, 1972, 28-32.

The mechanical properties of type VT 1-0 titanium, reinforced with unidirectional wires of molybdenum M4, were investigated. Reinforcement wires 0.8 mm in diameter were wound unidirectionally on titanium matrix plates 0.08 mm thick. The wire volumetric content was regulated by the winding pitch, and comprised 10, 20, 32, and 44% by volume. Tensile strength and impact viscosity tests were conducted. Non-reinforced titanium plates were tested for comparison. The tensile strength was tested at 20, 400, 600, and 800° C: five specimens for each volumetric content of the reinforcement wire were tested at each temperature. At all investigated temperatures, a practically linear relationship was observed between the short-term tensile strength and the volumetric wire content V_w. An increase of titanium strength due to reinforcement is characterized by the strengthening coefficient K, which represents the ratio of the composition strength to the titanium strength at a specific temperature.

UMANSKIY, E.S.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 539.4

1

KARPINOS, D. M., TUCHINSKIY, L. I., GORB, M. L., UMANSKIY, E. S., FEFER, V. Ya., Kiev

"Mechanical Properties of Titanium Reinforced with Unidirectional Molybdenum Wires"

Kiev, Problemy Prochnosti, No 6, 1972, pp 28-32.

Abstract: This work presents a study of the mechanical properties of reinforced titanium-based materials. Compositions based on type VT-1-0 alloy reinforced with unidirectional M4 molybdenum wires were studied. The specimens were made by vacuum dynamic hot pressing. The volumetric content of wire was adjusted by the winding step and amounted to 10, 20, 32 and 44 vol.%. Each specimen consisted of 20 to 30 plates with wound wires. The dependence of tensile strength, yield point, $\sigma_{0.2}$, Young modulus and impact toughness on molybdenum content was studied. It was found that the tensile strength and modulus of elasticity of compositions increased linearly with increasing volumetric content of wire, which agrees with the additive rule. It is demonstrated that as temperature rises, the strengthening factor of the compositions increases significantly. Impact toughness was found to be dependent on composition and orientation of reinforcing elements.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

1/2 037 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--MECHANICAL PROPERTIES OF POLY,VINYL CHLORIDE, FILMS DURING BIAXIAL EXTENSION -U-

AUTHOR-(02)-VEREMCHUK, S.S., UMANSKIY, E.S.

COUNTRY OF INFO--USSR

SOURCE--PROBL. PROCH. 1970, (3), 51-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYVINYL CHLORIDE, PLASTIC FILM, PHTHALATE, PLASTICIZER, TENSILE STRENGTH, LOW TEMPERATURE EFFECT, MATERIAL DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0798 STEP NO--UR/3663/70/000/003/0051/0054

CIRC ACCESSION NO--AP0136232

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 037 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136232

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLY(VINYL CHLORIDE) FILMS PLASTICIZED WITH DIOCTYL PHTHALATE WERE STRETCHED IN 2 PERPENDICULAR DIRECTIONS SIMULTANEOUSLY. THE RATIO OF THE APPLIED STRESSES (SIGMA SUBY-SIGMA SUBZ) WAS VARIED FROM 0 TO INFINITY. DECREASE OF THE TEMP. FROM 0 TO MINUS 40DEGREES INCREASED THE TENSILE STRENGTH AT BREAK (TAKEN AS SIGMA SUBY OR SIGMA SUBZ, WHICHEVER THE GREATER) OF THE FILMS. FROM MINUS 40DEGREES (GLASS POINT) TO MINUS 60DEGREES THERE WAS LITTLE CHNAGE. GRAPHS SHOW SIGMA SUBY OR SIBMA SUBZ VS. DEFORMATION AND SIGMA SUBY VS. SIGMA SUBZ IN THE MINUS 60 TO 0DEGREES RANGE. FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

1/2 039 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EVALUATION OF THE INTERACTION BETWEEN THE MATRIX AND FIBERS DURING EXTENSION OF A UNIDIRECTIONAL COMPOSITE MATERIAL -U-

AUTHOR--UMANSKIY, E.S.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, APR. 1970, P. 59-66

DATE PUBLISHED----APR70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--STRESS DISTRIBUTION, COMPOSITE MATERIAL, FIBERGLASS, FIBER COMPOSITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2104 STEP NO--UR/0198/70/006/000/0059/0066

CIRC ACCESSION NO--AP0125688

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 039

UNCLASSIFIED

CIRC ACCESSION NO--AP0125688 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE STRESS DISTRIBUTION IN THE ELEMENTS OF A UNIDIRECTIONALLY (FIBERGLASS) REINFORCED COMPOSITE MATERIAL UNDER UNIAXIAL TENSION, ASSUMING THE PRESENCE OF FRICTIONAL AND WEAK ELASTIC COUPLINGS BEWTEEN THE FIBERS AND THE MATRIX. APPROXIMATE EXPRESSIONS ARE OBTAINED FOR THE REGION OF TANGENTIAL STRESS CONCENTRATION AT THE CONTACT SURFACES, THE DISTRIBUTION OF THESE STRESSES, AND THE DISTRIBUTION OF AXIAL, RADIAL, AND TANGENTIAL STRESSES IN THE MATRIX AND FIBERS. THE INFLUENCE OF ELASTIC COUPLINGS (RESISTANT TO LONGITUDINAL DISPLACEMENTS) ON THE NATURE OF THE MATRIX FIBER INTERACTION IS STUDIED, TOGETHER WITH THE INFLUENCE ON THIS INTERACTION OF THE INITIAL PRESSURE AT THE CONTACT SURFACES, AND OF THE DIFFERENCE IN THE POISSON RATIOS OF THE MATRIX AND FIBERS.

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

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

KARPINOS, O. M., UMANSKIY, E. S., RUDENKO, V. N., TUCHINSKIY, L. I.

UDC 539.4

"The High-Temperature Strength of Copper Reinforced With Tungsten Fibers"

Problemy Prochnosti, No 5, May, 1970, pp 33-37

Abstract: A promising method recently developed for the reinforcement of metals is the dynamic hot pressing of compositions. This method has been used with compositions of nickel and copper, reinforced with tungsten fibers and networks. The results of research on the short-term strength and plasticity of nickel, reinforced with tungsten networks, have been presented in a previously published communication. The present work deals with the mechanical properties of copper reinforced with tungsten fibers, oriented along the axis of elongation, as well as with specially woven tungsten networks. All the materials were obtained by dynamic pressing at a temperature of 950-1000° C. It is found that the nature of the destruction of compositions depends mainly upon their constituents and upon the strength of the alloy between the strands and the matrix. With respect to short-term strength, such materials surpass the best modern copper heat-resistant alloys. This is particularly noticeable at high temperatures. Furthermore, the employed regimes of dynamic hot pressing did not provide for a sufficiently firm bond between the copper matrix and the unidirectional fibers if

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

KARPINOS, O. M., et al, Problemy Prochnosti, No 5, May, 1970, pp 33-37

the volumetric content of such fibers is in excess of 20 percent. In such cases, the matrix is not completely reinforced by the fibers. However, such compositions possess increased plasticity, and in combination with sufficiently high strength can prove useful for a number of structural elements.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

U

UMANSKIY, K., Professor

"Influenza and the Nervous System"

Alma-Ata, Kazakhstanskaya Pravda, 21 Mar 70, p 4

Abstract: Although one can recover uneventfully from influenza, complications sometimes occur: the flu virus affects the epithelial cells of the respiratory passages, particularly in the nasal cavities, and it directly affects individual parts of the nervous system. All flu patients are urged to follow their doctor's orders, particularly with respect to returning to work and resuming normal activities. Two examples are cited of "heroes" who participated in sports before they were completely recovered, and suffered severe, permanent complications. Patients who have had meningitis, arachnoiditis, and encephalitis should take every precaution against catching influenza, as it is especially dangerous for them.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

TARSHIS, M. A., and UMANSKIY, S. P., Radiatsiya i chivaya kletka (Radiation and the Living Cell), Moscow, Atomizdat, 1971, 96 pp

Translation: Annotation: The book examines in a lively and interesting manner the contemporary status of the study of the effect of ionizing radiation on the processes which regulate cell metabolism. This is a new topic and therefore many assumptions still remain unsolved for radiobiologists. A popularized account is given of the structure of the cell and the regulatory mechanisms acting at various levels of biological organization. The effect of radiation on many of the most important regulatory systems, including the transfer of hereditary information, the production of energy, and so forth, is examined.

Table of Contents:

	Page
Introduction	3
The cell — a unique biological structure	6
How is the cell constructed?	10
Biological membranes	20
Nucleus	23
Cytoplasm	32

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

TARSHIS, M. A., and UMANSKIY, S. F., Radiatsiya i chivaya kletka, Moscow, Atomizdat, 1971, 96 pp

	Page
Cell division	40
Regulation -- the basis of the vital activity of the cell	44
From cell to organism	53
Regulation in multicellular organisms	62
Radiation invades the life of the cell	64
Radiation and macromolecules	69
Irradiation and cell metabolism	77
Radiation disturbance of regulatory processes	85
Radiation disturbance of cell energetics	90
The role of membranes in radiation injury of the cell	93
Conclusion	95

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 629.196.4

UMANSKIY, S. P.

"Man in Space"

Moscow, Voyennoye Izdatel'stvo, Ministry of Defense USSR, Moscow, 1970

Translation: Table of Contents: FOREWARD

CHAPTER 1. TTHE SOLAR SYSTEM 3
1. Sun - head of the planetary family 7
2. Earth - a station for departure 10
3. Moon - first station on the space routes 13
4. Mars, Venus, Mercury 24
5. Giant planets 26
6. Meteor bodies 28
CHAPTER 2. SOME SPACEFLIGHT FACTORS AND THEIR EFFECTS ON THE HUMAN BODY 29
1. Respiration during spaceflight 33
2. Man's thermal balance -
3. Acceleration, vibration, and noise 39
4. Ionizing radiation 42
CHAPTER 3. SPACEFLIGHT ROUTES 57
59

1/8

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMANSKIY, S. P., Voyennoye Izdatel'stvo, Ministry of Defense USSR, Moscow, 1970

1. General information about spaceflight trajectories -
2. Possible flight trajectory to the moon 61
3. Flight trajectory to Mars and Venus 65

CHAPTER 4. SOME PROBLEMS IN SPACE FLIGHT 67
1. Space vehicles -
2. Protection against meteor bodies 96
3. Protection against radiation 98
4. Thermoregulation 101
5. Artificial gravity 103
6. Sources of energy 106
7. Problems of sterilization 114

CHAPTER 5. COSMONAUT'S EQUIPMENT 116
1. Flight clothing -
2. Suite 121
3. Emergency-Safety equipment 141

CHPATER 6. LIFE-SUPPORT SYSTEMS 144
1. Life-support systems with supplies -
2. Life-suppory systems on spacecraft 152
3. Life-support systems with regeneration of oxygen and water 163

2/8

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMANSKIY, S. P., Voyennoye Izdatel'stvo, Ministry of Defense USSR, Moscow, 1970

4. Closed life-support systems 172

APPENDIXES

1. Basic information on space flights in the USSR 182
2. Some physical and astronomical values 185
3. Velocities and durations of flights to planets of the solar system 186

BIBLIOGRAPHY 187

Foreward: No branch of modern science is developing as rapidly as space exploration. A little over 12 years have passed since the first space body created by man appeared in the universe - the first Soviet artificial earth satellite.

The flight of Yuriy Gagarin on Vostok on 12 April 1961 heralded the beginning of the space age. An equally arduous task confronted the crew of Voskhod 2 in March 1965 when Aleksey Leonov stepped from the lock into outer space. In doing so he proved that man can leave his craft, feel himself not confined to its walls, live in free space, and do whatever work in necessary.

The many Soviet sputniks performed, and still are performing, a great variety of scientific and research missions in their flights around the earth. The region of space adjacent to the earth can be considered thoroughly

3/8

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMANSKIY, S. P., Voyennoye Izdatel'stvo, Ministry of Defense USSR, Moscow, 1970

habitable. Sputniks of the Kosmos series are tirelessly carrying out a very braod, comprehensive scientific research program.

On 3 February 1966 at 21 hours 45 minutes 30 seconds, the automatic station Luna 9 made a soft landing on the moon and the next day, on a command from the earth, began to survey the lunar landscape and transmit its picture to the earth. A soft landing on the moon is one of the most difficult technical problems in space science because the vehicle can be slowed before landing only by carefully coordinated actions of the engines due to the lack of atmosphere on the moon.

On October 1967, on the even of the 50th anniversary of the Revolution, the automatic station Venera 4 made the world's first smooth descent in the atmosphere of Venus and obtained highly valuable information about the planet.

On 30 Octover 1967, for the first time in the history of space science there was an automatic docking in orbit of the artificial earth satellites Kosmos 186 and Kosmos 188. On 15 April 1968, this experiment was successfully repeated by Kosmos 212 and Kosmos 213. Thus, this most difficult of technical problems was brilliantly solved.

The Soyuz series of space ships were launched to investigate further the circumterrestrial space. They provide for a broad program of scientific and technical studies and are aimed at the eventual creation of inhabitable

4/8

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMANSKIY, S. P., Voyennoye Izdatel'stvo, Ministry of Defense USSR, Moscow, 1970

orbital stations. Repeated maneuvers involving the use of automatic and manual control systems were carried out during the 4-day flight of Soyuz 3. There were also 2 approaches to the unpiloted Soyuz 2.

Major scientific and technical problems were solved by the Soviet automatic stations Zond 5 and Zond 6, which flew around the moon and returned to earth. During these flights two variations of landing a space vehicle and returning to earth at the second cosmic velocity were specifically tested. The problem was solved for the first time by Zond 5 during the return via the earth-moon-earth route. The released vehicle of Zond 5 went through a comparatively narrow "corridor" into the earth's atmosphere, and traveling along a ballistic trajectory, landed in the predetermined region of the Indian Ocean, delivering the results of the scientific experiments to the scientists. An even more difficult scientific and technical problem was solved for the first time during the flight of Zond 6 - controlled release of a vehicle that flew around the moon. The released vehicle approaching the earth at a velocity close to the second cosmic and using the lift-drag ratio flew more than 9,000 km with 2 plunges into the atmosphere, landing in the predetermined region of the Soviet Union.

In January 1969, Soyuz 4, piloted by Cosmonaut V. A. Shatalov, went into

5/8

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMANSKIY, S. P., Voyennoye Izdatel'stvo, Ministry of Defense USSR, Moscow, 1970

orbit and was followed a day later by Soyuz 5 with the 3 cosmonauts B. V. Volynov, A. S. Yeliseyev, and Ye. V. Khrunov. The 4 brave men succeeded in docking the vehicles manually, creating the world's first experimental space station. Two of them walked through space from one vehicle to another.

An important event of 1969 was the flight of the American Apollo 11 to the moon with cosmonauts N. Armstrong, E. Aldrin, and M. Collins. Armstrong and Aldrin were the first persons in history to step on the moon. The Soviet people followed the experiment with great interest and greeted with satisfaction the news of its successful completion. The valor of the American cosmonauts is worthy of respect.

There is no need to say how long the moon and Mars have been attracting attention. It has been one of man's dreams that a son of the earth should walk on these heavenly bodies.

The moon, our natural and eternal satellite, differs in significant respects from the earth. There is, for example, no atmosphere on the moon or perceptible magnetic field or radiation belts. These extraordinary conditions found only on the moon provide vast opportunities for scientific research that cannot be performed on earth.

Only the first steps have been taken. More complete and systematic study

6/8

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMANSKIY, S. P., Voyennoye Izdatel'stvo, Ministry of Defense USSR, Moscow, 1970

of space and the planets will undoubtedly require long-term explorations with man participating. The creation of permanent orbital stations and facilities to enable man to remain in them a long time will open up immense possibilities for scientific and practical purposes.

One of the most important and fundamental problems that have to be solved to carry out spaceflights and explore outer space is the creation of systems enabling man to survive for weeks, months, and years. A host of difficulties are involved, many of them still unsolved because the present level of technology is still insufficiently advanced.

No less important is the creation of a protective outfit in which a cosmonaut will be able to step into space or onto the surface of another planet to study it/

This book consists of 6 chapters. The first 2 present brief information on the space surrounding us and on the effects it has on the human body. Chapter 3 contains essential data on the routes that spaceships may fly. Chapter 4 describes the various kinds of space vehicles. Chapter 5 and 6 describe protective outfits and life-support systems.

The book is based on extensive material drawn from Soviet and foreign publications. No special knowledge is required to read it. It is designed for a wide range of readers and will interest all those who keep up with

7/8

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMANSKIY, S. P., Voyennoye Izdatel'stvo, Ministry of Defense USSR, Moscow, 1970

scientific progress. The information included in the book will also be useful to specialists.

S. M. Alekseyev, Hero of Socialist Labor

88

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMANSKIY, S. Sh. Candidate of Medical Sciences, Tallin

"Chief Stomach Functions of Healthy Persons under Water"

Moscow, Teoriya i Praktika Fizicheskoy Kulturi, No 6, Jun 70, pp 46-47

Abstract: Stomach secretion under high-pressure conditions and underwater is an important clue to the problem of human respiration under biologically unfavorable conditions. Stomach secretion in deep-sea divers is affected by the equipment used, the water temperature, high barometric pressure, and natural apprehension prior to the descent. All of these factors affect the acid-forming and enzyme-forming functions of the stomach. In the present study, the stomach secretion of 42 well-trained deep-sea divers ranging from 21 to 24 years of age was observed during repeated diving to depths of 100 to 160 m. Some of the subjects had been given polyvitamin capsules for 1 month. It was found that increased atmospheric pressure has a significant effect on stomach secretion in a decompression chamber as well as underwater. The amount of uropepsin and ascorbic acid is increased and that of quinine drops. The polyvitamins appeared to have a normalizing effect on the gastric juice of some divers. It was reconfirmed that diuresis was enhanced when the pressure increased to 4-5 atm.

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMANSKIY, S. Sh., Teoriya i Praktika Fizicheskoy Kulturi, No 6, Jun 70, pp 46-47

Stomach secretion analysis using ion-exchange resins and the uropepsin test were found to be extremely useful in this study.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

1/2 018 UNCLASSIFIED

TITLE--USE OF ION EXCHANGE RESINS FOR INVESTIGATION OF THE ACIDITY OF THE GASTRIC JUICE -U-

PROCESSING DATE--09OCT70

AUTHOR--UMANSKIY, S.SH.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 3, PP 14-18

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GASTROINTESTINAL SYSTEM, HYDROGEN ION CONCENTRATION, ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0816

STEP NO--UR/0504/70/042/003/0014/0018

CIRC ACCESSION NO--AP0102778

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 018

UNCLASSIFIED

CIRC ACCESSION NO--AP0102778

PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF INVESTIGATION OF THE ACIDITY OF THE GASTRIC JUICE BY MEANS OF ION EXCHANGE RESINS ARE DESCRIBED. ADVANTAGE OF SOVIET MADE ION EXCHANGERS ARE EMPHASIZED AS COMPARED TO AMERICAN ONES. ION EXCHANGE RESIN HELPED OBTAIN INFORMATION WHICH COULD NOT BE OBTAINED IN ANY OTHER WAY, NAMELY IT BECAME POSSIBLE TO STUDY THE ACIDITY OF THE GASTRIC CONTENTS IN SOME OUTSTANDING CONDITIONS (IN DIVERS DEEP UNDER THE WATER). THE AUTHOR DEEMS IT EXPEDIENT AND TIMELY TO ARRANGE SERIAL PRODUCTION OF THE SOVIET MADE PREPARATION OF ION EXCHANGE RESIN TO INVESTIGATE THE ACIDITY OF THE GASTRIC JUICE.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

Oscillators and Modulators

USSR

UDC: 621.373.42.029.64:621.385.64(088.8)

UMANSKIY, V. S., KUZ'MIN, L. V.

"A Device for Automatic Frequency Control of Magnetron Oscillators"

USSR Author's Certificate No 259175, filed 15 Feb 67, published 28 Apr 70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12D388 P)

Translation: This Author's Certificate introduces an AFC device for magnetron oscillators which contains a waveguide channel, a directional coupler, attenuators, a thermocompensated reference cavity, video detector, video amplifier, paraphase inverter, peak detectors, DC amplifier, magnetic amplifier, reversible actuating motor and mechanical frequency tuning system. To improve the stability of the frequency of oscillations generated by the magnetron, two self-contained peak detectors are connected to the output of the video amplifier through the paraphase inverter. The outputs of these peak detectors are connected through DC amplifiers to the control windings of the magnetic amplifier, which are interconnected in series opposition. The magnetic amplifier is connected to the reversible actuating motor of the system for mechanical frequency tuning of the magnetron. V. P.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 51:155.001.57:612.82

GORODETSKIY, B. V., UMANSKIY, V. V.

"The Problem of Optimization of the Volume of Tested Parameters"

Regiyonal'n. Nauch.-tekhn. Seminar po Statist. Analizu., Modelir. i Avtomatiz. Kontrolya Ob'yektov s Konstruktivno-slozhn. Strukturoy. Vyp. 2 [Regional Scientific and Technical Seminar on Statistical Analysis, Modeling and Automation of Testing of Objects with Structurally Complex Structure, No 2 -- Collection of Works], Taganrog, 1970, PP 61-68, Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V849).

NO ABSTRACT.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

4

UDC 539.374

VERETENNIKOV, S. V., KRASIKOV, K. I., NOVOBRATSKIY, R. L., PEPPER, E. A., POLYAK, S. M., UMANSKIY, YA. S., USIKOV, M. P., EPSHTEYN, G. N.

"Effect of an Impact of a Part of a Matrix Under Impulse Distortion"

V sb. Vysokoskorostn. deformatsiya (High-Speed Deformation -- Collection of Works), Moscow, "Nauka", 1971, pp 108-109 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V653)

Translation: The structure and mechanical properties of nickel, nichrome (NKh7) and Kh18N10T steel after hydraulic impulse stamping with impact and without impact of the parts of the matrix were investigated. It was established that collision occurs in a closed matrix and the central zone of the part undergoes the strongest impact. The impact of a part of thickness 2 mm causes strengthening of the material in the middle of the thickness of the part and weakening in the zone of a depth up to 0.3 mm from the side of the surface of the part contacting the matrix which is connected with nonuniform plastic deformation in the impact process. The weakening effect is supported by results of studying parts of thickness 0.3 mm that have first undergone collision with the matrix. Authors abstract.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

UMANSKIY, Ya. S.

JPRS 55942
9 May 72

UDC 669.017.3

EFFECT OF TUNGSTEN ON THE LAVES PHASE STRUCTURE IN THE CO-NB-W SYSTEM

[Article by K. V. Varli, N. P. D'yakonova, N. V. Orlova, Ya. S. Umanskiy, Moscow Steel and Alloy Institute, Department of Roentgenography and Physics of Metals; Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, Russian, No 1, 1972, submitted 2 July 1971, pp 115-117]

In the Co-Nb-W ternary system, the following crossections were investigated: 1A -- Co_2Nb -- Co_2W -- the section runs along the boundary of the region of homogeneity of the Laves phase ($MgCu_2$ type) from the Nb side; section 1B is parallel to section 1A and passes through the middle of the region of homogeneity of the Co_2Nb phase [1], that is, it is shifted toward higher Co content; section 2 -- Co_3Nb ($MgNi_2$ type) [1] -- Co_3W (Mg_3Cd type) [2]; section 3 -- Co_3Nb -- Co_3Nb -- Co_2W. The compositions of the investigated alloys are presented in Table 1.

Table 1
Composition of the investigated alloys

		at. %		
		Co	Nb	W
1A	1	66.7	33.3	—
	2	66.7	28.3	5.0
	3	66.7	23.3	10.0
	4	66.7	18.3	15.0
	5	66.7		33.3
1Б	6	70	30.0	—
	7	70	25.0	5.0
	8	70	21.0	10.0
	9	70	15.0	15.0
2	10	75	25.0	—
	11	75	20.0	5.0
	12	75	15.0	10.0
	13	75	10.0	15.0
3	10	75	25.0	—
	14	71	25.0	4.0
	15	71	23.0	6.0
	16	71	19.0	12.0
	17	71	16.0	13.0
	18	66.7	—	33.3

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

UMANSKIY, Ya. S.

JPRS 55392
9 Mar 72

UDC 669.24':292:620.183.48

NEUTRON DIFFRACTION ANALYSIS OF NIOBIUM NITRIDE Nb_4N_3

[Article by A. Yu. Chervyakov, V. A. Somenkov, Ya. S. Umanskiy, S. Sh. Shil'ştein, V. P. Yanchur, Moscow Steel and Alloys Institute, Department of Roentgenography and the Physics of Metals; Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, Russian, No 5, 1971, submitted 3 February 1971, pp 140-144]

In recent years, a large number of phase transitions of the order-disorder type have been detected in solid interstitial solutions accompanied by the formation of MeX [1], Me_2X [2], Me_4X_3 [3], and other superlattices. This fact offers the possibility of stating the problem of whether some of the interstitial phases with a composition close to stoichiometric for the mentioned superlattices are ordered deduction solid solutions on a chemical compound base. A series of data are in favor of this point of view. For example, in reference [3], the neutron diffraction method was used to detect a high-temperature phase transition in Me_4C_3 carbides (Me - Nb, Ta), which permits consideration of the lattices of these compounds as superlattices occurring from a disordered deduction solid solution on the basis of the chemical compound MeC with an NaCl type lattice. These superlattices have cubic symmetry and are antiisomorphic to Mn_4N. It is of interest to discover to what degree the indicated arguments are also valid for other interstitial phases with close stoichiometry.

In particular, Brauer and Jander [4] demonstrated by the x-ray method for Nb_4N_3 that the metal atoms in the Nb_4N_3 form a tetragonal lattice with $c/a \approx 0.98$. Terao [5] used electron diffraction to discover the existence of superlattice peaks, and on the basis of analysis of the extinguishing law, he proposed an Nb_4N_3 model. The experimental and theoretical values of the intensity were not compared in [5]. Accordingly, the purpose of this experiment was more precisely to define the lattice of Nb_4N_3 and study its possible variation with a rise in temperature by means of neutron diffraction — the most reliable method of localizing the light atoms in the presence of heavy atoms.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 669.24-12:548.7

SIKOROV, V. N., UMANSKIY, Ya. S., and EPSHTEYN, G. N., Moscow Institute of Steel and Alloys

"Reduction of Some Properties of Nickel by Annealing After Cold Deformation "

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 11, 1971, pp 143 -147

Abstract: The reduction after deformation of the electric resistance, microhardness, and the physical line broadening $(311)_\alpha$ in Ni (purity 99.98 %) was investigated. The presence of the 3rd and the 5th stages of annealing was established. The 5th stage is dependent on the recrystallization. The microhardness of specimens does not change before beginning recrystallization. The activation energy of the 3rd stage $E_a^{3rd} = 1.03 \pm 0.05$ ev , corresponding to 60 % of the reduction of electric resistance of the 3rd stage, is characterized by the function $\Delta R_{3rd} / \Delta R = e^{k\sqrt{\tau}}$. The further change complies

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

SIKOROV, V. N., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 11, 1971, pp 143-147

with kinetics of the 2nd order. It is supposed that the 3rd stage is effected by annealing of complexes of inter-lattice points of atoms by means of annihilation with monovacancies and on dislocations. Four illustr., nine biblio. refs.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

Instrumentation and Equipment

USSR

UDC 536.62

SIKOROV, V. N., UMANSKIY, Ya. S., and EPSHTEYN, G. N., Moscow Institute of Steel and Alloys

"High-Temperature Microcalorimeter for Studying Thermal Phenomena in Metals and Alloys"

Moscow, Zavodskaya Laboratoriya, Vol 36, No 9, 1970, pp 1132-1134

Abstract: A number of models of heat-conducting differential microcalorimeters of the Calvet type designed for operation at 20-300°C are known. However, in studying thermal phenomena in many metals and alloys, heating to higher temperatures is required. The authors have built and used a Calvet microcalorimeter for operation under isothermal conditions in the temperature range of 20-800°C. The structure and operating characteristics of this device are discussed.

The microcalorimeter can be used to study the thermal effects of the processes of recrystallization, recovery, aging, phase conversions, and other physical and physico-chemical phenomena. The diameter of the calorimetric cell is 28 mm, which permits samples of large cross section to be used. The ratio

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

SIKOROV, V. N., et al, Zavodskaya Laboratoriya, Vol 36, No 9, 1970, pp 1132-1134

of the cell diameter to the height is 1:2.5 instead of the ratio of 1:8 recommended by Calvet, but the sensitivity of the calorimeter is very high for platinum rhodium and gold palladium or chromel-alumel thermopiles. The accuracy of determining the thermal effects is 2-2.5%.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--STUDY OF ELEMENTARY ACTS OF DIFFUSION ,IN AN IRON ALUMINUM ALLOY, BY DIFFUSE X RAY SCATTERING -U-

AUTHOR-(03)-NAUMOVA, M.M., SEMENOVSKAYA, S.V., UMANSKY, YA.S.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA TVERDOGO TELA, APR. 1970, 12, (4), 975-982

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--METAL DIFFUSION, X RAY SCATTERING, METAL CRYSTAL, IRON ALLOY, ALUMINUM CONTAINING ALLOY, CRYSTAL VACANCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1808 STEP NO--UR/0181/70/012/004/0975/0982

CIRC ACCESSION NO--AP0129176

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 025 UNCLASSIFIED

CIRC ACCESSION NO--AP0129176 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTENSITY OF DIFFUSE X RAY SCATTERING IN A DISTORTED FE, 16 AT. PERCENT. AL SINGLE CRYSTAL WAS MEASURED AT VARIOUS POINTS OF RECIPROCAL SPACE WITHIN THE LIMITS OF THE FIRST BRILLOUIN ZONE, USING MONOCHROMATIC CO,K SUBALPHA RADIATION AND IONIZATION RECORDING, AFTER QUENCHING FROM 570DEGREESC AND AGAIN AFTER TEMPERING AT 320DEGREESC FOR 2-30 H, AND THE RESULTS WERE INTERPRETED IN TERMS OF THE MECHANISMS RESPONSIBLE FOR THE ELEMENTARY ACTS OF DIFFUSION OF THE COMPONENT ATOMS IN THIS ALLOY. THE RESULTS INDICATED THAT THE VACANCY MECHANISM OF DIFFUSION WAS PREDOMINANT.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

1/2 027 UNCLASSIFIED

TITLE--NEAR ORDER IN REFRACTORY COMPOUNDS -U- PROCESSING DATE--18SEP70

AUTHOR-(02)-UMANSKIY, YA.S., MYULLER, A.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(1), 128-31

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--REFRACTORY MATERIAL, CRYSTAL STRUCTURE, TITANIUM CARBIDE, TUNGSTEN CARBIDE, NIOBIUM CARBIDE, VANADIUM COMPOUND, TANTALUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0961 STEP NO--UR/0148/70/013/001/0128/0131

CIRC ACCESSION NO--AT0105830

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 027 UNCLASSIFIED

CIRC ACCESSION NO--AT0105830 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SMALL ANGLE DIFFUSION SCATTERING INTENSITIES OF TI-TA, TIC-TAC, V-W, VC-WC, TIC-NBC, V-NB, VC-NBC, AND TIC-WC ALLOYS ARE COMPARED AND DISCUSSED. HIDEO KUROE

UNCLASSIFIED

89

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

1/2 022 UNCLASSIFIED

TITLE--SHORT RANGE ORDER IN URANIUM AND NIOBIUM SOLID SOLUTIONS -U- PROCESSING DATE--18SEP70

AUTHOR-(03)-STRELOVA, S.V., UMANSKIY, YA.S., IVANOV, O.S.

COUNTRY OF INFO--USSR

SOURCE--J. NUCL. MATER. 1970, 34(2) 160-4

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--URANIUM ALLOY, NIOBIUM ALLOY, SOLID SOLUTION, CRYSTAL LATTICE, X RAY DIFFUSION, ORDERED ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0382 STEP NO--NE/0000/70/034/002/0160/0164

CIRC ACCESSION NO--AP0100868

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 022

UNCLASSIFIED

CIRC ACCESSION NO--AP0100868

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SHORT RANGE ORDER IN MUTUAL ARRANGEMENT OF AT. COMPONENTS IN A U-NB SOLID SOLN. OF EQUIAT. COMPN. WAS STUDIED BY AN X RAY DIFFUSION SCATTERING METHOD. THE ATOMS OF U MAINLY SURROUND ATOMS OF NB AND ATOMS OF NB SURROUND ATOMS OF U. AFTER ISOTHERMAL TREATMENT OF THE ALLOY FOR 1 HR AT 1400DEGREES OR 24 HR AT 1050DEGREES, THE SHORT RANGE ORDER PARAMETERS WERE MEASURED FOR 3 SHELLS, AND THE STATIC DISTORTION PARAMETERS OF THE CRYSTAL LATTICE DUE TO DIFFERENCES IN THE AT. VOLS. OF THE COMPONENTS WERE DETD. THE PARAMETERS WERE GREATER FOR THE LOWER TEMP. TREATMENT.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 621.787:620.178.3

UMANSKIY, YA. S., GRINCHENKO, I. G. and SHCHENNIKOVA, A. YE. (Moscow Institute of Steels and Alloys)

"The Dependence of Fatigue Strength on Metal Surface Hardening"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 29-31

Abstract: An investigation was made to select the physical parameters for controlling metal surface hardening. The relationship among fatigue strength, magnitude and depth of hardening, and properties of Δ a/a thin crystal structure was studied for this purpose. Tests were conducted on the AD33T1 alloy and 30KhGSA steel. The test procedure is briefly described. The fatigue strength of the samples was determined on Sidorin's apparatus at symmetrical flexure and 10^7 cycles. The characteristics of a thin crystal structure (the Δ a/a microstress and the magnitude of D blocs) were determined by the method of harmonic analysis of X-ray (β) lines, while the dislocation density was obtained from $1/D^2$. The first-order residual stresses were determined by the $\sin^2 \varphi$ method. The results show that to evaluate the quality of surface hardening of the AD33T1 alloy, it is necessary to use the residual microstresses, the physical widening of β lines measured on the surface, and the depth of the hardened layer. The residual microstresses measured on the surface can be used to control the hardening of 30KhGSA steel. 1 figure, 3 tables, 9 references.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

NAUMOVA, M. M.; SEMENOVSKAYA, S. V.; UMANSKIY, Ya. S. (Moscow Institute of Steels and Alloys)

"Study of Elementary Diffusion Events by a Method of Diffusion Scattering of X-Rays"

Leningrad, Solid State Physics; April, 1970; pp 975-82

ABSTRACT: The results of a study by A. G. Khachaturyan in a previous issue of the same journal (September, 1967; p 2594) were used by the authors of this article to determine the probabilities of jumps of atoms of iron in elementary diffusion events in an Fe-Al alloy with a temperature of 320°C. Measurements were made of the intensity of diffusion scattering at various points of an opposite space within the limits of the first Brillouin zone around the point (110) from a single crystal of a disordered solid solution with 16 at. % aluminum. The measurements were carried out on CoK_{α} by means of monochromatic radiation with ionization monitoring.

The intensity of the diffusion scattering was measured after thorough hardening at 570°C and also for subsequent drawings at 320°C during the course of 2, 4, 7, 12, 13, 15, 18, 26, and 30 hours.

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

NAUMOVA, M. M., et al., Solid State Physics, April 1970, pp 975-82

The time for the evolution of the intensity of diffusion scattering was determined and this was used to calculate the probabilities of jumps of atoms of iron across the five shortest distances during a temperature of 320°C. The probability that an atom of iron will jump is a nonmonotonic function of the distance.

Also calculated were the coefficients of diffusion and self-diffusion of iron during a temperature of 320°C. According to the experimental data it is also possible to draw a conclusion regarding the predominance of the vacancy mechanism of diffusion in the solid solution studied.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CYTOPHOTOMETRIC DETERMINATION OF DNA IN PLASMOCYTIC NUCLEI OF THE SPLEEN IR RATS WITH HORMONE DEPENDENT TUMORS -U-

AUTHOR-(05)-UMANSKIY, YU.A., ANTONYUK, R.D., GUDIMLEVKOVICH, K.A., LYSYUK, L.P., ULYANOVA, T.N.

COUNTRY OF INFO--USSR

SOURCE--VOP. ONKOL. 1970, 16(5), 61-5

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DNA, SPLEEN, RAT, TUMOR, HORMONE, SPECTROPHOTOMETRIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605007/F07 STEP NO--UR/0506/70/016/005/0061/0065

CIRC ACCESSION NO--AP0139929

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 022

CIRC ACCESSION NO--AP0139929 UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- PROCESSING DATE--04DEC70

ABSTRACT. FEMALE RATS (STRAIN WISTAR) WERE CASTRATED AT AGE 2 MONTHS AND A PART OF THE OVARY WAS IMPLANTED IN THE SPLEEN. IN 10 MONTHS AFTER THE IMPLANTATION, TUMORE OF VARIOUS LOCALIZATION AND SIZE DEVELOPED; THE RATS WERE THEN KILLED AND THE DNA CONTENT IN THE NUCLEI OF PLASMATIC CELLS OF THE SPLEEN WAS DETD. CYTOSPECTROPHOTOMETRICALLY. THE DNA CONTENT DEPENDED ON TUMOR LOCALIZATION WITH RESPECT TO THE SPLEEN. IN THE CONTROL ANIMALS, ANIMALS WITH TUMORS IN THE SPLEEN, ANIMALS WITH TUMORS DEVELOPED IN OTHER ORGANS BUT NOT IN THE SPLEEN, AND ANIMALS IN WHICH TUMORS DID NOT DEVELOP, THE DNA CONTENT IN EACH NUCLEUS OF SPLEEN PLASMATIC CELLS WAS 2.84, 2.41, 5.09, AND 5.72 ARBITRARY UNITS, RESP.

FACILITY: RES. INST. EXPTL. CLIN. ONCOL., KIEV, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

Inorganic Compounds

USSR

(1)

UDC 548.52

PORTNOY, K. I., GRIBKOV, V. N., SHCHETANOV, B. V., UMANTSEV, E. L., SILAYEV, V. A.

"On the Mechanism of Growth and Etching of Aluminum Nitride Whiskers"

Moscow, Kristallografiya, Vol 18, No 3, May/Jun 73, pp 599-604

Abstract: An investigation is made of the influence of iron impurities on the growth of aluminum nitride whiskers in the process of carbon reduction of aluminum oxide in a nitrogen atmosphere in accordance with the reaction $Al_2O_3 + 3C + N_2 = 2AlN + 3CO$. It is established that the presence of iron is a decisive factor in growth of the crystals. While it does not participate in the process of aluminum oxide reduction, the iron promotes whisker growth by the vapor - liquid - solid phase mechanism, acting as an aluminum and nitrogen solvent. It is shown that with insufficient aluminum in the gaseous phase, the reverse process of nitride whisker evaporation may take place by the solid phase - liquid - vapor mechanism with the iron acting as a solvent.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

Aluminium and Its Alloys

UDC 548.522:546.621.21

GRIBKOV, V. N., ISAYKIN, A. S., UMANTSEV, E. L., and SHCHETANOV, B. V.

"Growth of α-Al_2O_3 Whiskers During Oxidation of Aluminum"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 7, 1972, pp 1249-1255

Abstract: Although the method of production of α-Al_2O_3 whiskers during oxidation of aluminum in moist hydrogen has been known for some time, a great deal remains unclear in the process. It has been assumed that mass transfer is conducted by the oxides Al_2O or AlO, formed by interaction of liquid aluminum with moisture. Later it was found that growth occurs only in mullite ceramic, containing SiO_2. It was therefore assumed that the aluminum is oxidized not by moisture, but by silicon monoxide. However, no experimental proof has been conducted. Therefore, this work studied the role of SiO_2 and its influence on growth, composition, and many other parameters. Whiskers were grown at 1,000-1,500°C in hydrogen with dew point between between 0 and - 55°C. Aluminum chips with purity 99.9999% were used. It was found that the growth of α-Al_2O_3 whiskers in the process of oxidation of aluminum in moist hydrogen, when grown in mullite ceramic, occurs by the mechanism vapor-liquid-solid phase by crystallization of aluminum oxide from liquid drops of alloys of aluminum with silicon and iron.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 548.52

GRIBKOV, V. N., SILAYEV, V. A., SHCHETANOV, B. V., UMANTSEV, E. L., and ISAYKIN, A. S.

"Peculiarities of the Growth Mechanism of Silicon Nitride Whiskers"

Moscow, Kristallografiya, Vol 16, No 5, Sep-Oct 71, pp 982-985

Abstract: The authors studied the growth conditions and mechanism of α-Si_3N_4 whiskers grown by the reaction of silicon dioxide with silicon at 1350-1480° C in an atmosphere of nitrogen containing about 1 percent hydrogen, with special emphasis on the role of mullite. It was found that mullite is the best substrate for α-Si_3N_4. In the absence of mullite, whisker growth occurs only if iron or aluminum impurities are present in the initial charge or are introduced into the growth zone. Under these conditions deposition proceeds by a vapor-liquid-solid phase mechanism with the participation of drops consisting of aluminum-silicon, iron-silicon, or iron-aluminum-silicon alloys, while crystallization from the liquid phase proceeds by an axial screw dislocation mechanism.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

Optical

USSR

NEZHEVENKO, YE. S., SALOV, G. I., TVERDOKHLEB, P. YE., [redacted], G. D., Novosibirsk

UDC 621.391.19

"Linear Adaptable Optical Pattern Classifier"

Novosibirsk, Avtometriya, No 3, 1971, pp 82-84

Abstract: One of the urgent problems of automating a scientific experiment is the problem of creating devices to classify optical patterns with respect to random variation of the parameters with incomplete a priori information. Usually the patterns subject to analysis are represented on photographic film or a photographic plate so that their transmission coefficient is a function of two variables s and t. Classification is realized by calculating the discriminate function (functional) of the pattern and using it to decide the classification of the pattern. The pattern $x(s, t)$, $a \leq s, t \leq b$ is a realization of one of k classes of patterns $\xi_i(s, t)$, $i = 1, \ldots, k$. Then there are probabilities of the occurrence of each of the $\xi_i(s, t)$ (possibly unknown). The linear functional of the pattern $x(s, t)$ has the form

$$(x, h) = \int_a^b \int_a^b x(s, t)h(s, t)dsdt,$$

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

NEZHEVENKO, YE. S., et al, Avtometriya, No 3, 1971, pp 82-84

and the problem consists in finding the weight function $h(s, t)$ suitable for classification. It is demonstrated that by using relatively new material -- photochrome material [K. M. Savost'yanova, Optiko-mekhanicheskaya promyshlennost', No 5, 1968] it is possible comparatively easily to obtain $h(s, t)$ experimentally using a recurrent procedure investigated previously [G. I. Salov, Avtometriya, No 6, 1970]. The linear functional in this case is an estimate of the mean square approximation to the ideal functional assuming a value of $d = d_i$ if $x(s, t)$ belongs to $\xi_i(s, t)$. The initial data for realizing the mentioned recurrent procedure is the unknown sample $x_1(s, t), \ldots, x_N(s, t)$ $(N > k)$ from the set of patterns of the classes $\{\xi_i(s, t)\}$ insofar as possible indicative for the entire set and also the known series of values of $d_{i_1}, \ldots, d_{i_N}$ and the ideal functional corresponding to this sample. The procedure for constructing $h(s, t) = h_N(s, t)$ was implemented in an optical version of the classifier the schematic of which is given. The adaptive process based on the photochrome material is described and some experimental results are presented.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 536.421/422/423:620./8

GRIBKOV, V. N., ISAYKIN, A. S., SHCHETANOV, B. V., UMANTSEVA, E. L., and MUKASEYEV, A. A., Moscow

"Vapor-Liquid-Solid Mechanism of Filamentary Crystal Growth of High-Melting Metals"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May/Jun 73, pp 62-67

Abstract: Growing SiC whiskers from $SiCl_4$ or $SiHCl_3$ at 1300-1500°C showed that whiskers are produced only in those cases when free silicon is condensed within the growth zone. If changes in temperature or in the composition of mixtures $SiCl_4:H_2$ or $SiHCl_3:H_2$ were such that the condensation of Si was prevented, whiskers were not produced. When temperature decreased below 1430°C (i.e., below the m.p. of Si) the whisker growth was terminated. Metal-like drops were observed at the top of all whiskers when the ratio of F_{Si}-$F'_{Si}/F_C - F'_C$ was sufficiently large (F and F' represent the concentration of atoms of corresponding elements in the gaseous phase and those evaporating from the liquid metal drop, respectively). X-ray diffraction analysis of these drops showed that they consisted of silicon. When the above ratio was optimal, whiskers up to 30 mm long and from 0.1 to 0.3 μm in diameter were grown. In the presence of aluminum, SiC whiskers were grown successfully at 1250-1600°C

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

GRIBKOV, V. N., et al, Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May/Jun 73, pp 62-67

and were 20-30 mm long and 1-5μm in diameter. Droplets at the end of these whiskers consisted of Al-Si; in many cases the concentration of Al was 95-100%. The addition of Fe and Ni also intensified the growth of SiC whiskers. Droplets at the ends of these whiskers consisted of Fe-Si and Ni-Si. In the presence of these elements, whiskers were grown successfully at temperatures above 1350°C for nickel and 1400-1420°C for iron. In experiments with α-Al_2O_3 whiskers the necessary condition for growth was the presence of Si, SiO_2, or Fe_2O_3 in the reaction zone. Thus, aluminum, iron, and nickel can serve as additives for the growth of SiC whiskers. In the case of α-Al_2O_3 additives can be either silicon or iron.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

STOTSKIY, A. A. and UMARBAYEVA, N. D.

UDC: 621.396.67.3.012.12

"Width of the Average Radiation Pattern of a Linear Antenna in a Turbulent Atmosphere"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No 9, 1970, pp 1787-1790

Abstract: The authors calculate the radiation pattern spread for a linear antenna resulting from the effect of atmospheric turbulence. Statistical spread conditioned by a shift of the pattern as a whole is not considered. Calculations are given for the smallest average radiation pattern spread for the earth's atmosphere along with the necessary antenna dimensions for achieving such a pattern. Thus the minimal value of the average radiation pattern spread for an earth-based radio-telescope is $(2\bar{\theta}0.5)$ min~1" where the dimension of the antenna should be S opt~$2.10^2\lambda$. For optical telescopes these values are $(2\bar{\theta}0.5)$ min~2" and S opt~5 cm. The following estimates were obtained for the value $(2\theta_{0.5})$ min≈a, ~3" in the radio frequency region and ~6" in the optical region. The original article has seven figures, one formula, and four bibliographic entries.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 632.9546.631.472

UMAROV, A. A., Candidate of Agricultural Science, LOY, N. P., and TSOY, Z. I., Candidates of Biological Science Institute of the Chemistry of Plant Material, Academy of Sciences Uzbekistan SSR

"Detoxification and Removal of the Herbicide SKHIB in the Soil"

Moscow, Khimiya v Sel'skom Khozyzystne, No 7, Vol 11, 1973, pp 65-67

Abstract: In field experiments the herbicide SKHIB (5-chloro-N-isopropenyl-benzimidazolone) was effective against annual weeds when applied to cotton fields prior to the germination of the cotton seeds. The time required for the deactivation of SKHIB is 2 to 5 months. During fixation in the soil and during its application in higher doses, its toxicity increases. A high water content of the soil accelerates the deactivation of the herbicide being almost completely deactivated after 8 weeks. Dose of 5 and 10 kg/hectare on soils containing a normal humidity were deactivated in 18 and 22 weeks respectively. Deactivation was determined by a biological method. The herbicide is only weakly leached from the soil. The major part remains in the surface layer.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMAROV, A. A., ROZHKOVA, N. K., IMAMALIYEVA, A. I., ZAKIROV, T. S., LOY, N. P., MIRAKHDAROV, KH., Institute of Chemistry of Plant Substances, Academy of Sciences of the Uzbek SSR

UDC 632.96

"A Defoliant"

USSR Author's Certificate No 325967, filed 23 Sep 70, published 25 Feb 72 (from RZh-Khimiya, No 22, Nov 72, Abstract No 22N479 P)

Translation: A defoliant is proposed which contains $Mg(CO_3)_2$. The herbicide is distinguished by the fact that the severity of its effect is reduced by using 2-butylthiobenzthiazole (butylcaptax). The $Mg(CO_3)_2$ and butylcaptax are taken in a ratio of 1:1 or 2:1. The proposed mixture is tested for defoliating the thin-fiber grade of cotton plant. Application is done in the phase when 4-5 bolls have opened. On the 12-th day, leaf fall-off reached 82.5-93.7%; dry leaf content was 1.8%. T. A. Belyayeva.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMAROV, B.

"Tracer on the Trail"

Moscow, Sotsialisticheskaya Industriya, 14 Jun 1972, p 4

Abstract: The tagging of viruses with carbon or tritium isotopes in order to study their vital activity, reproduction and movements is discussed briefly. The attack of the cell, breakdown of the RNA shell and conversion of the cell to production of the virus itself can be studied by the tagging technique. New compounds formed during the process of reproduction of the virus can be useful in discovering means of controlling it. The fact that no immunity to the influenza virus is formed is the result of the continuing appearance of the influenza pathogen with new "equipment and in a new form."

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 621.791.856

ABRALOV, M. A., UMAROV, B. V., SOTNIKOV, E. A., CHERKASOV

"Microplasma Welding of Envelopes of Type Kh18N10T Steel"

Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Tekhnicheskikh Nauk, No 5, 1971, pp 26-28.

ABSTRACT: Workers at the Tashkent Polytechnical Institute have developed a method of microplasma welding of Kh18N10T steel envelopes (wall thickness 0.3 mm, length 430 mm, diameter 60-120 mm), designed to replace argon-arc welding. The plasma is produced in the shape of a needle, and can thus weld a narrow seam. The microplasma can be extended to 8-9 mm in length with currents of 10 a. Since the arc is insensitive to changes in its length, the welding process is more stable, seam quality is improved and the welding rate increases. Welding is performed using direct current from a A-1255 power supply. Metallographic studies have shown that microplasma welding by this method produces seams with finer grain structure than with argon arc welding. The microplasma welding method can also be used for correction of defects such as cracks and pores.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

1/2 024 UNCLASSIFIED

TITLE--A METHOD OF HARDENING THE METAL OF A SEAM AS THE JOINT IS BEING FORMED -U-

PROCESSING DATE--16OCT70

AUTHOR-(03)-SULTANOV, U.T., UMAROV, B.V., ABRALOV, M.A.

COUNTRY OF INFO--USSR

SOURCE--TASHKENT, IZVESTIYA AKADEMII NAUK UZSSR: SERIYA TEKHNICHESKIKH NAUK, NO 1, 1970, PP 60-63

DATE PUBLISHED--------70

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

TOPIC TAGS--ELECTROSLAG WELDING, WELD JOINT, SEAM WELDING, MECHANICAL PROPERTY, GRAIN SIZE, ELECTROMAGNETIC MIXING, METAL HARDENING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1177

STEP NO--UR/0167/70/000/001/0060/0063

CIRC ACCESSION NO--AP0118266

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 024

CIRC ACCESSION NO--AP0118266 UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PROCEDURE IS PROPOSED FOR IMPROVING THE STRENGTH OF JOINTS DURING THE WELDING PROCESS. THE METHOD IS BASED ON THE PRINCIPLE THAT A FINE GRAINED STRUCTURE WILL SLIGHT CHEMICAL NONHOMOGENEITY GIVES A METAL HIGH STRENGTH AND DUCTILITY. TO PRODUCE THIS KIND OF STRUCTURE IN WELDED JOINTS, AN ELECTROSLAG PROCESS IS SUED WITH ELECTROMAGNETIC AGITATION OF THE MOLTEN METAL. THE PROCEDURE IS REALIZED ON A SPECIAL MECHANISM IN WHICH AN ELECTROMAGNETIC COIL FOLLOWS THE WELDING ELECTRODE ON THE BACK SIDE OF THE JOINT BEING FORMED. THE FIELDS SET UP TO BE THE COIL INTERACT WITH THE WELDING CURRENT TO PRODUCE INTENSE AGITATION OF THEMETAL PARTICLES IN THE MELT. THE LOCATION OF THE CONTROLLING FIELD ON THE OPPOSITE SIDE OF THE SEAM ELIMINATES ANY EFFECT ON THE STABILITY OF THE ARC PROCESS, AND CRYSTALLIZATION TAKES PLACE WITHOUT DIRECT CONTACT BETWEEN CONTROL EQUIPMENT AND THE METAL BATH. A SPECIAL TRANSFORMER FEEDS THE CONTROL COIL TO PRODUCE FIELD PULSES OF ALTERNATING POLARITY AND CONTROLLABLE DURATION. STRUCTURAL ANALYSIS AND MECHANICAL TESTS SHOWED THAT ELECTROMAGNETIC TREATMENT DURING THE WELDING PROCESS PRODUCES A FINE GRAINED STRUCTURE IN THE SEAM METAL AND IMPROVES THE MECHANICAL PROPERTIES OF THE RESULTANT JOINTS.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

JPRS 58686
9 April 73

SOLAR ENERGY TECHNOLOGY IN UZBEKISTAN

[Article by Corresponding Member Giyas Umarov of the AS Uzbek SSR; Moscow, Znaniye -- Sila, Russian, No 12, December 1972, pp 36-39]

Brittle Solar Glass

The old residents of Tashkent probably still remember well the gigantic reinforced-concrete sunflower, turned toward the sun over the buildings of the local canning plant. A bowl in the form of a ten-meter paraboloid, covered with square mirrors, it stood here for many years. A strange structure, erected as it were on the basis of a picture from a science-fiction story. That concentrator of solar rays was constructed in the first postwar years by F. Molero, a co-worker of the solar installation, which existed then in Tashkent, of the Moscow Power Engineering Institute imeni G. M. Krzhizhanovskiy. The concentrator was intended to supply thermal energy to the canning plant. For that time it was a unique installation, without an equal in the world in its dimensions and precision of concentration of solar rays. At the focus of the concentrator the temperature exceeded 1000 degrees.

However, as was discovered later, in the creation of that engineering structure a slight difference of the coefficients of linear expansion of the glass and the adhesive fastening it to the reinforced concrete was not taken into account. This destroyed an excellent installation; the glass of the concentrator mirrors cracked due to enormous internal strains. Glass is a brittle material and one cannot apply force to it. A completely different approach was needed in order to subdue it. Which approach?

We decided to do completely without adhesive in its design. But how would the mirrors be held? On a free mounting. The idea was elementarily simple. Plates of ordinary window glass covered with amalgam on one side were taken. The length of each plate was about 2 meters, and the width was 10 cm. If such plates are placed on two supports, then, sagging under their own weight, they form a mirror surface with a definite curvature.

GIYAS

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

It proved to be an easy matter to fasten those plates to the body of the concentrator and obtain a concave surface with them. And, and this is especially important, the pieces of glass on such a mounting now have not cracked because of thermal expansion.

Solar energy technology has become my main work. In the Physico-technical Institute of the Academy of Sciences of the republic a large heliophysics section has been created. Incidentally on the basis of the development of designs of solar concentrators and other solar thermal installations the Academy of Sciences Uzbek SSR has been designated the head, leading scientific center in the country, called upon to coordinate the investigations of Soviet scientists in that area.

Film Variable as a Cloud

All the shortcomings of glass have not yet been successfully overcome, however. It is a heavy material, and so in the creation of large concentrators of glass it is necessary to assemble rather solid metallic structures. Such solar reflectors are unwieldy, weigh tons and, consequently, cost a great deal. Of course, when a certain size has been attained it will be disadvantageous to use such concentrators.

But what if polymeric films are used? We have tested lavsan. Metallized film of that material is light and is less significantly inferior to glass in its optical properties. Such film was tested on the roof the Physico-technical institute of the AS Uzbek SSR. It turned out that the film preserves its initial qualities only one summer. A graduate student of the Institute suggested covering the film with lacquer with special additives. And even the first tests showed that in that form it serves considerably longer.

Rays are collected at the focus. How can concentrated energy be better used? Here investigations are also being conducted in several directions. Co-workers of the Physico-technical Institute of the AS Uzbek SSR suggest converting luminous into electrical energy by means of a Stirling engine.

At the end of the last century Stirling engines were widely applied, especially on motorcycles. And yet that engine did not withstand competition from the internal combustion engine, which proved to be cheaper. However, the specialists have not forgotten the merits of the Stirling engine -- they operate without noise, are not exacting as regards fuel quality, and have high efficiency. It also is important that gas enclosed in a hermetically sealed space is the working medium, and so the engine has no effect on the environment. It can work successfully in a vacuum, under water and in other unusual conditions.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC: 662.997:621.316.544.4

NOVIKOVA, I. A., VIL'KOVA, S. N., and UMAROV, G. Ya.

"Investigating the Filtering Action of Light-Stabilized Coatings"

Tashkent, Geliotekhnika, No. 4, 1971, pp 56-59

Abstract: This article is the continuation of an earlier paper (Novikova, I. A., Geliotekhnika, 1971, No. 3) in which it was shown that the mechanism in light stabilizers of protective lacquer coatings reduces principally to transfer of the excitation energy from the polymer molecules to the light stabilizer molecules. The present paper considers the filtering action of light-stabilized coatings in the screening of solar light and the artificial light of a PRK-2 lamp in the wavelength range of 220-400 mμ, the range that is most harmful to most polymers. The authors found the intensity values of the light passing through the filter by computing the reduction of the relative intensity, for a particular wavelength, due to the absorption by the light stabilizer. Tables of the relative intensity distributions of the light emitted by the lamp and the sun, and the ratio of the radiation of the light source through

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

NOVIKOVA, I. A., et al., Geliotekhnika, No 4, 1971, pp 56-59

coatings of three different types to the full flux, are given. The research showed that, by using the light-stabilized lacquer screen, the light stabilizer concentration can be regulated at will depending on the depth of photochemical transformations. The authors are associated with the Physico-Technical Institute, imeni S. V. Starodubtsev, Uzbek Academy of Sciences.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMAROV, G. YA., and TRUKHOV, V. S.

UDC 533.95:538.4

"Experimental Study of Physical Processes Accompanying a Pulsed Electric Discharge in a Liquid"

V sb. Teplofiz. svoystva nizkotemperaturn. plazmy (Physical Properties of a Low-Temperature Plasma -- Collection of Works), Moscow, "Nauka", 1970, pp 146-148 (from RZh-Fizika, No 4, Apr 71, Abstract No 4G35)

Translation: The results of an experimental study of the dynamics of the formation of a pulsed electric discharge in water are presented. Slit photographs of the discharge in a liquid and their qualitative interpretation are given. Authors abstract.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UDC 662.997:662.9

AVEZOV, R. R., ZAKHIDOV, R. A., UMAROV, G. YA., MINCHUK, V. I., Physicotechnical Institute, Academy of Sciences, Uzbek SSR imeni S. V. Starodubtsev

"Results of Experimental Research on the Combined Operation of a Heat-Pump Solar Power Installation With a System of Radiation Heating and Cooling of a Building"

Tashkent, Geliotekhnika, No 5, 1970, pp 56-59

Abstract: The combination of solar water heaters with a heat pump and a radiation system of heating and cooling permits the development of an efficient system for the use of solar energy for heating. In summer, the hot water produced by the solar water heater may be used for household needs, and the glassed surface of the solar installation can be used at night for removal of the heat of condensation. Thus, the same equipment can serve for cooling as well as for heating. In 1968-1970 the Physicotechnical Institute of the Academy of Sciences, Uzbek SSR jointly with the Tashkent Zonal Scientific Research Institute

1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

AVEZOV. R. R., et al, Geliotekhnika, No 5, 1970, pp 56-59

of Experimental and Standard Planning conducted experimental research on the heating and cooling of buildings by means of a solar-installation and heat-pump combination. It was demonstrated that the combined operation of a solar heater, a heat pump, and a system of radiation heating permits the use of comparatively low heat-carrier temperatures; this increases the conversion factor of the heat pump and the efficiency of the solar installation. 2 figures, 6 bibliographic entries.

2/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

UNCLASSIFIED

TITLE--INVESTIGATION OF THE INJECTION PROCESS OF A PLASMA HELIX IN A TRANSVERSE MAGNETIC FIELD -U-

PROCESSING DATE 20NOV70

AUTHOR-(03)-GAZIYEV, U.KH., UMAROV, G.YA., ALIMOV, A.K.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK UZBEKSKOI SSR, IZVESTIIA, SERIIA FIZIKO-MATEMATICHESKIKH NAUK, VOL. 14, NO. 1, 1970, P. 75-77

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--TRANSVERSE MAGNETIC FIELD, PLASMA INJECTION, BETATRON, OSCILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1253

STEP NO--UR/0166/70/014/001/0075/0077

CIRC ACCESSION NO--AP0124904

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

032

UNCLASSIFIED

CIRC ACCESSION NO--AP0124904 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE EQUILIBRIUM AND STABILITY OF A PLASMA HELIX IN A BETATRON MAGNETIC FIELD IN A VACUUM OF 0.000005 MM HG. THE EQUIPMENT EMPLOYED CONSISTED OF THE VACUUM AND MAGNETIC SYSTEMS, A MAGNETIC PROBE, A ROGOVSKII COIL, A DISCHARGER, AN ACTUATOR, A CAPACITOR BANK, AND A RECTIFIER. OSCILLOGRAMS SHOWING THE FORMATION AND OSCILLATIONS OF THE PLASMA HELIX AS A FUNCTION OF THE MAGNETIC FIELD STRENGTH FOR EACH HALF PERIOD OF OSCILLATION ARE PRESENTED. IT IS SHOWN THAT THE MAGNETIC FIELD OF THE PLASMA HELIX DECREASES WITH DECREASING EXTERNAL MAGNETIC FIELD, AND THAT THE HIGH FREQUENCY OSCILLATIONS ARE RAPIDLY DAMED DUE TO OHMIC HEATING OF THE PLASMA HELIX. FACILITY: AKADEMIIA NAUK UZBEKSKOI SSR, FIZIKO TEKHNICHESKII INSTITUT, TASHKENT, UZBEK SSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

2/2 032
CIRC ACCESSION NO--AP0124904 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0
AND START

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4

USSR

UMAROV, Kh. S., ISMAILOV, Z. F., and YUNUSOV, S. Yu., Institute of Plant Chemistry, UzbekSSR Academy of Sciences

UDC 547.944:945

"Thalictrum Flavum Alkaloids. The Structure of Thalflavin"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 4, 1970, pp 444-446

Abstract: Two alkaloids were isolated from Th. flavum L. roots. The new alkaloid thalflavin was obtained in the form of prismatic crystals melting at 132-133°. Its structure, as derived from spectral analysis is most probably 1-oxy-N-methyl-5-methoxy-6,7-methylenedioxy-tetrahydroisoquinoline. The other alkaloid was obtained in the form of a yellow, amorphous powder, melting at 105-106°C. It was found to be thalicarpine.

1/1

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420004-4"