"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC 537.533.2+537.534

KIRSANOVA, T. S., ZHUKOVSKIY, A. N.

"Investigation of the Thermal Stability of Films"

Tr. Leningr. politekhn. in-ta (Works of Leningrad Polytechnical Institute), 1970, No 311, pp 59-62 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12Zh630)

Translation: The thermoemission current and the work function of the Ba-Au system on a Re substrate were measured. It was observed that the behavior of the system under heating at various temperatures and for different durations depends on the proportion of the quantities of Ba and Au. When this proportion corresponded to the combination $Ba\text{-}Au_5$, the work function of the Ba-Au-Re system remained constant under heating over a wide range of temperature, 850-1500°K. Vaporization of system components began only at temperatures above 1500°K. To explain the experimental data it is hypothesized that a stable intermetallic compound of Ba with Au is formed as the result of heating. Authors abstract.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC 621.371.332.4

ALEKSEYEV, G.V., VOLKOVSKIY, S.A., ZHUKOVSKIY, A.P., ONOPRIYENKO, YE.I., TROFIMOV, V.D. [Moscow Aviation Institute]

"Experimental Investigations Of The Effective Width Of The Surface Back Scattering Patterns And The Distribution Of Reflected Signals In The Meter And Decimeter Range"

Izv.VUZ: Radiofizika, Vol XV, No 2, Feb 1972, pp 200-210

Abstract: An account is given of a method of determining back scattering patterns (BSP) with the aid of the Doppler effect. The special features of the equipment for processing the signal are shown. Experimental values of the effective width O_{op} were obtained at wavelengths of 2 m, 68 cm, 34 cm, and 11.3 cm, and for various surfaces (sea, plowed fields, sandy-solonchak terrain with large crescent-shaped sand dunes, sparse forrest [summer]). The flights were horizontal at heights from 500--2000 m and at speeds from 200-400 km/hr. The results of conversion of O_{op} into the angle of slope are close to data obtained by the optical method. The experimentally obtained distribution confirmed the theoretical concepts concerning the signal structure and made it possible to determine the level of the mirror components as a function of the radiation frequency and the type of reflecting surface. It is concluded that experimental determinations of the effective width of the BSP are feasible in practice on the base of the Doppler effect with possible modulation of the probing signal. 4 fig. 10 ref.Received by editors,11 Aug 69; after consolidation, 11 Oct 71.

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USSR UDC 621.371.332.4

ALEKSEYEV, G. V., VOLKOVSKIY, S. A., ZHUKOVSKIY, A. P., ONOPRIYENKO, E. I., TROFIMOV, V. D., Moscow Aviation Institute

"Experimental Studies of the Effective Backscattering Pattern Width of Surfaces and the Distribution of Reflected Signals in the Meter and Decimeter Wave Ranges"

Gor'kiy, Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 2, 1972, pp 200-210

Abstract: A study was made of a procedure for determining the backscatter pattern of a surface using the doppler effect. Results are presented from experimental studies in the waverange from 11 cm to 2 meters above different types of surfaces (the sea, plowedfields, forest and sand dunes). Results are presented also from measuring the ratios of the levels of the reflected and scattered components of the echo on the basis of the distribution laws obtained. The possibility of remote determination of the statistical characteristics of the surface is indicated.

In practice, experimental determinationsof the effective width of the backscatter pattern on the basis of the doppler effect considering possible modulation of the sounding signal are possible. Experimental values of $\Theta_{backscatter}$ [the effective width of the backscatter pattern] are presented in

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USSR

ALEKSEYEV, G. V., et al., Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, Vol XV, No 2, 1972, pp 300-210

a broad wave range and for the various mentioned surfaces. The results of recalculating $\Theta_{backscatter}$ in the mean square value of the angle of inclination $\beta_{mean\ square}$ are close to the data obtained by the optical method. The demonstrated characteristic nonstationarity of the echo has a significant effect on the shape of the experimental distributions. The method of synchronous processing permits consideration of the mentioned characteristic. The experimentally determined distributions confirmed the theoretical principles of signal structure and they permitted determination of the level of the reflected component as a function of the radiation frequency and type of reflecting surface.

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USSR UDC: 538.574.2

ZHUKOVSKIY, A. P.

"Matrix of a Coherent Signal Scattered by a Rough Surface"

Moscow, Radiotekhnika i elektronika, No. 11, 1970, pp 2273-2281

Abstract: On the basis of the electrodynamic theory of the scattering of elliptically polarized waves from a statistically rough surface of finite conductivity, initial formulas and, in Gaussian statistics, working formulas for the matrix of field coherence are obtained. These permit the computation of the real signal power in the receiver antenna with the wave depolarization during reflection taken into account. Expressions are found for the degree of polarization and the depolarization coefficient of the waves. Since all relationships are obtained with ensembles of random surfaces averaged, the results may be considered as the mean values for identical forms of ground or water surfaces with specified electrical and statistical characteristics.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

Welding

USSR UDC 621.774.2.01:621.797.7

VELIGIN, S. A., ZHUKOVSKIY, B. D., Doctor of Technical Sciences, and ZIL'BERSHTEYN, L. I., Candidate of Technical Sciences

"Determining Technically Possible One-Hour Productivity of Electric Pipe-Welding Stands"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-Oct 70, pp 32-34

Abstract: A method for determining the one-hour productivity of electric pipe-welding stands with separate rolls, stands which stop at the time of separate roll junction, as well as continuous stands, is described. Expressions are derived from which the technically feasible one-hour productivity can be determined. The minimum admissible strip length compatible with continuous welding is given by a formula. The possible increase in productivity was determined for the case of continuous welding stands with continuous welding. Data on pipe external diameter, and on the length, width, and thickness of strip used at the Dnepropetrovsk Plant are given in tables. The relationship between the increase in productivity and the strip length in a roll is presented in a graph.

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ZHUKOVSKIY, G.S.

MEDICINE

[illegible]

[illegible]

USE OF PROPORTIONAL TYPOLOGICAL SCREENING IN STATISTICAL [illegible] STUDIES

[Article by G.S. Zhukovskiy, I.V. Chashechkina, All-Union Scientific Research Institute of Social Hygiene and Public Health Organization (head N.A. Semashko and chair of hospital pediatrics (headed by Professor V.A. Tabolin), Second Moscow Medical Institute (ment N.I. Pirogov; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 4, 1972, submitted 4 November 1971, pp 21-25]

One of the main tasks of any statistical study is to obtain intensive indices reflecting the relation of a given phenomenon to the total size of the population group studied that would be comparable to analogous indices in other studies.

Our objective was to determine the index of incidence of hemolytic disease among neonates due to Rh incompatibility and ABO incompatibility [blood types] in one of the country's major cities in 1967. According to the data of different authors, based on information from different institutions, in some cases for several years, the incidence of erythroblastosis neonatorum ranges from 0.1 to 9.9 percent due to Rh incompatibility, and from 0.5 to 7.1 percent due to ABO incompatibility (Hellman and Hertig; Potter; Rubinount et al.; Preisler et al.; V.A. Tabolin et al.; S.K. Tygiste; K.G. Sokolova-Akulova; Z.Ya. Igonets; M.Ya. Dingelis).

Some authors deal with the effect of mother's age and birth order on incidence of hemolytic disease. Thus, Cluszecki cites the data of Koller according to which the incidence of erythroblastosis of neonates increases as birth order grows higher, ranging from 0.05 percent in primipara to 1.1-1.2 percent for those giving birth for the 5th or more time. We tried to establish the effect of maternal age and birth order on incidence of birth of children with hemolytic disease.

We excerpted from primary medical documents of the city's maternity homes, the parturition and neonate development charts, referable to 1967, data concerning the course and outcome of pregnancy and parturition and condition of the newborn on specially developed cards. The sample method was used. In order to obtain representative data we used proportional typological screening.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--INVESTIGATING THE TEMPERATURE FIELDS OF BRAKING IN THE TURBINE STAGE -U-

AUTHOR-(02)-ZHUKOVSKIY, G.V., DOLGOPLOSK, YE.B.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, ENERGOMASHINOSTROYENIYE, NO. 2, 1970, PP 12-15

DATE PUBLISHED--------70

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

TOPIC TAGS--TURBINE STAGE, BIBLIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1635 STEP NO--UR/0114/70/000/002/0012/0015

CIRC ACCESSION NO--AP0120390

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120390

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION IS PRESENTED FOR AN EXPERIMENT ON STUDYING THE TEMPERATURE FIELDS OF BRAKING IN A FLOW, WHICH PASSES THROUGH A TURBINE STAGE. THE EXPERIMENTS WERE CONDUCTED IN AN EXPERIMENTAL AIR TURBINE AND THEY SHOWED THAT IN BREAKING AWAY ZONES, EDGE WAKES, EDDIES OF SECONDARY CURRENTS AND IN BUTT WALLS, THE TEMPERATURE OF BRAKING IS LOWERED, WHEN IN ADJACENT REGIONS SECTORS OF HIGHER COMPLETE TEMPERATURE ARE POSSIBLE. AS THE CAUSE OF THIS PHENOMENON INTERNAL ENERGY EXHANGE IS INDICATED, WHICH EXCHANGE TAKES PLACE IN A REAL NONUNIFORM FLOW. FOR THE STAGE BEING STUDIED AN EVALUATION OF THE INTEGRAL EFFECT OF THE INTERNAL ENERGY EXCHANGE IS CONDUCTED. THE ENERGY EXCHANGE WAS APPROXIMATELY THREE PERCENT. IT IS SHOWN THAT THE EFFECT FIELDS BEYOND THE TEST STAGE ARE NOTICEABLY DIFFERENT FROM THE PICTURE, WHICH SHOULD APPEAR FROM THE DESIGNS ACCORDING TO THE EQUATIONS FOR A ONE DIMENSIONAL FLOW. FIVE ILLUSTRATIONS; BIBLIOGRAPHY CONTAINS FIVE CITATIONS.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CHANGES IN THE ORGAN OF VISION IN TUMOURS OF THE ADRENAL MEDULLA PHEOCHROMOCYTOMAS IN CHILDREN -U-

AUTHOR-(02)-MIKHAYLOVA, N.A., ZHUKOVSKIY, M.A.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OFTAL'MOLOGII, 1970, NR 3, PP 16-19

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADRENAL GLAND, MEDULLA, PEDIATRICS, HYPERTENSION, TUMOR, EYE, VISUAL DEFECT, RETINA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0126 STEP NO--UR/0357/70/000/003/0016/0019

CIRC ACCESSION NO--AP0129382

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

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UNCLASSIFIED

CIRC ACCESSION NO--AP0129382 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HYPERTENSIVE SYNDROME COMMON TO PHEOCHROMOCYTOMA DETERMINES THE NATURE OF CLINICAL MANIFESTATIONS OF OCULAR PATHOLOGY IN THE RETINA AND VESSELS, AND THIS OFTEN RESULTS IN THE DECLINE OF VISUAL FUNCTION, UP TO COMPLETE BLINDNESS. SURGERY PERFORMED IN THE EARLY COURSE OF THE AFFECTION CAN BRING ABOUT COMPLETE RESTORATION OF THE SIGHT WITH THE EYE FUNDUS ASSUMING ITS NORMAL SHAPE. AT LATER DATES, THE VISION MAY CONTINUE TO BE REDUCED OWING TO SECONDARY DEGENERATIVE PHENOMENA DEVELOPING IN THE RETINA. IT IS POSSIBLE THAT PHEOCHROMOCYTOMA IS NOT RECOGNIZED IN GOOD TIME. IN PHEOCHROMOCYTOMA OCULAR SYMPTOMS, HOWEVER, BECOME DEMONSTRABLE PRIMARILY. THE OCULIST SHOULD BE ON THE ALERT AS TO THE POSSIBLE OCCURRENCE OF THE DISEASE AND REFER SUCH PATIENTS FOR A COMPETENT SPECIAL EXAMINATION.

FACILITY: MOSKOVSKIY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT GLAZNYKH BOLEZNEY IM. GEL'MGOL'TSA, INSTITUT EKSPERIMENTAL'NOY ENDOKRINOLOGII I KHIMII GORMONOV AMN SSSR, MOSKVA.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC 538.3:530.145

ZHUKOVSKIY, V. Ch., KHOLOMAY, B. V., Moscow State University imeni M. V. Lomonosov

"Quantum Theory of Motion of Relativistic Electrons in Crossed Magnetic and Electric Fields of the Focusing Type"

Tomsk, Izvestiya VUZov: Fizika, No 12(127), Dec 72, pp 32-37

Abstract: The Dirac equation is solved in the harmonic oscillation approximation for a weak electric field which focuses electrons in the axial direction in a homogeneous magnetic field. The resultant wave functions are used to investigate the influence of an electrostatic field on radiation polarization of electron spin. The results show that an electrostatic field does not change the degree of radiation polarization of electron spin, although it extends somewhat the time during which the spins of electrons are oriented contrary to the magnetic field. The stability of spin orientation due to radiation depends on the smallness of the amplitude of axial oscillations.
The authors thank A. A. Sokolov and I. M. Ternov for discussion and constructive criticism.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

Theoretical Physics

USSR

UDC: 539.1.01

ZHUKOVSKIY, V. Ch., SHISHANIN, O. Ye., Moscow State University imeni M. V. Lomonosov

"Emission of an Electron Moving in a Weakly Focusing Magnetic Field. (Quantum Theory)"

Tomsk, Izvestiya VUZov: Fizika, No 4(131), 1973, pp 60-64

Abstract: The authors investigate quantum transitions when an electron radiates in a weakly focusing magnetic field with regard to betatron oscillations. An expression is found for the intensity of synchrotron radiation. The influence of betatron oscillations on the polarization properties of electron emission is studied. It is found that inhomogeneity of the magnetic field has an appreciable effect only on angular and spectral-angular distributions of emission. The authors thank A. A. Sokolov for continued interest in the work.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SINGLE PHOTON TRANSITION FROM THE METASTABLE LEVEL OF THE HYDROGEN ATOM WITH CONSIDERATION FOR SPIN STATES -U-

AUTHOR-(04)-ZHUKOVSKIY, V.CH., KOLESNIKOVA, M.M., SOKOLOV, A.A., HERRMANN, I.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(4), 622-6

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HYDROGEN, TRANSITION PROBABILITY, ELECTRON TRANSITION, ELECTRON SPIN, METASTABLE STATE, PHOTON EMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1067 STEP NO--UR/0051/70/028/004/0622/0626

CIRC ACCESSION NO--AP0136487

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 022 UNCLASSIFIED

CIRC ACCESSION NO--AP0136487 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBABILITY WAS DETD. OF THE SPONTANEOUS SINGLE PHOTON TRANSITION FROM THE METASTABLE LEVEL 2S SUBONE HALF OF THE H ATOM WITH AN ACCOUNT OF THE SPIN STATES. THE BREIT TELLER FORMULA WHICH DESCRIBES THE ANALOGOUS PROCESS WAS CORRECTED. THE PROBABILITY WAS ALSO CALCD. OF THE STIMULATED TRANSITION FROM THE SAME LEVEL.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC: 621.396.69:621.319.4

ANDREYEVA, N. A., ZHUKOVSKIY, V. I., MIKHAYLOVA, I. P.

"Effect of Technological Design Factors on the Stability of the Capacitance of Condensers Made From Materials Based on the $BaTiO_3$-$Bi_4Ti_3O_{12}$ System"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1 (18), pp 15-19 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V353)

Translation: Data are given which show that monolithic capacitors made from materials based on the system $BaTiO_3$-$Bi_4Ti_3O_{12}$ differ with respect to capacitance stability from disc and plate capacitors made from these same materials. In monolithic capacitors, the degree of difference increases with a reduction in dielectric thickness. It is shown that the basic cause for the observed changes in capacitance stability is the effect of the platinum black used for forming the electrodes of the monolithic capacitors. Bibliography of 5 titles. Ye. M.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CONCERNING ANALYTIC DESIGN OF OPTIMAL STRATEGIES IN CERTAIN DIFFERENTIAL GAMES. I -U-

AUTHOR--ZHUKOVSKIY, V.I.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 4, PP 26-30

DATE PUBLISHED--------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--DIFFERENTIAL EQUATION, LINEAR DIFFERENTIAL GAME THEORY, MATRIX FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0605 STEP NO--UR/0103/70/000/004/0026/0030

CIRC ACCESSION NO--AP0121274

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 011 UNCLASSIFIED

CIRC ACCESSION NO--AP0121274 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIFFERENTIAL GAMES WITH AN INTEGRAL PAY AND A FREE END ARE CONSIDERED (1-6). THE NECESSARY AND SUFFICIENT CONDITIONS OF THE EXISTENCE AS WELL AS THE TYPE OF OPTIMAL STRATEGIES ARE SHOWN. THE METHODS SUGGESTED IN (7-8) FOR THE SOLUTION OF THE OPTIMAL CONTROL PROBLEM ARE USED. THE MAIN DIFFICULTY OF THE SOLUTION OF THIS PROBLEM IS THE DETERMINATION OF THE SOLUTION OF A MATRIX EQUATION OF THE RICATI TYPE. THEREFORE THE METHOD OF SEQUENTIAL APPROXIMATION IS GIVEN IN SECTION 3.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC: 669.822.053.2

VLASOV, V. G., ZHUKOVSKIY, V. M., SEMAVIN, Yu. N., REVEBTSOV, V. V.

"Some Singularities in the Reduction of Uranium Oxides"

V sb. Mekhanizm i kinetika vosstanovl. met. (Mechanism and Kinetics of Metal Reduction--collection of works), Moscow, "Nauka", 1970, pp 126-131 (from RZh-Metallurgiya, No 10, Oct 70, Abstract No 10 G187)

Translation: An investigation is made into the kinetic singularities of reduction of uranium oxides (UO_3 in various modifications, U_3O_8, U_4O_9, and UO_2) by the gases CO, H_2, NH_3, H_2+N_2, CH_4 and also by C. The adsorption-catalytic theory is taken as a basis for a detailed examination of the mechanism of interaction of oxides with gaseous reducing agents. The mechanism of high-temperature interaction of UO with C is discussed. One illustration, bibliography of nine titles. Authors' abstract.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC: 621.317.77

KHOZYAINOV, S. A., ZHUKOVSKIY, V. T., GOYZHEVSKIY, V. A.

"Analysis and Experimental Determination of Amplitude Errors in an SHF Phase Meter"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 118-121 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A329)

Translation: The authors analyze errors in a two-channel phase meter with transfer of phase displacements in the input SHF signal to an intermediate frequency, where amplifiers with AGC which do not introduce phase distortions are used to obtain high precision in the low-frequency indicator of the phase meter. The amplitude-phase error of the phase meter, i. e. the change in its readings when the phases of the input signals are constant while the amplitudes are variable is due to a number of causes in the general case: input signal spectrum, heterodyne voltage, etc. The amplitude-phase distortions in SHF mixers and amplifiers with AGC are analyzed. It is shown that in order to reduce the error of the mixer, the intermediate frequency should be taken at about 1-100 kHz, and the input impedance should be matched to the frequency band maximum. A specific analysis is given for

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

KHOZYAINOV, S. A. et al., Dokl. Vses. nauchno-tekhn. konferentsii po radio-tekhn. izmereniyam. T. 2, Novosibirsk, 1970, pp 118-121

errors of an amplifier with AGC. In amplifiers with AGC having a gain of 60-70 DB, the amplitude-phase error was no greater than 0.05° in a frequency band of 1-100 kHz. Bibliography of one title. E. L.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC 621.378.32

BURAKOV, V. S., BOKHONOV, A. F., and ZHUKOVSKIY, V. V., Institute of Physics, Academy of Sciences of the Belorussian SSR

"Determining the Parameters of a Ruby Laser by the Time Characteristics of the Discharge"

Minsk, Vestsi Akademii Navuk BSSR, Series on Physical-Mathematical Sciences, No 473, pp 73 - 76

Abstract: In optimizing laser operation, it is useful to know the coefficient of maximum amplification of the active elements, the coefficient of internal losses, and the absolute value of the rate of optical pumping. Several techniques have been suggested for determining these values, but the majority of these methods are based on measuring the energy values of the laser at the threshold of discharge or during discharge. Such measurements are subject to large experimental error, while methods based on measuring the time characteristics of the discharge are more promising. In ZhPS, Volume 3, page 171, Burakov, Zhukovskiy, and Samson reported the results of determining the parameters of a neodymium laser from the discharge start time. Similar techniques have now been applied to the ruby laser, although different methods of treating the results of the measurements were required. The investigation was also extended to cover another important time characteristic, the lag interval of the laser pulses.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

BURAKOV, V. S., et al., Minsk, Vestsi Akademii Navuk BSSR, Series on Physical-Mathematical Sciences, No 473, pp 73 - 76

The frequency of laser pulsation is found to be a linear function of the useful loss value, so that this frequency can be used to determine the probability of pumping radiation and the coefficient of maximum amplification. If the coefficient of amplification is known, the maximum probability of radiation and the coefficient of internal losses can be determined from the data of laser discharge build-up time. In a number of cases it is possible to combine both methods to determine these laser parameters accurately.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

GOLUBEV, N. A., ZHUKOVSKIY, Ye. L., POKROVSKIY, N. L.

"Study of Surface Tension of Solutions in the System Indium-Bismuth"

Issledovaniye Poverkhnostnogo Natyazheniya Rastvorov Sistemy Kidiy-Vismut [English Version Above], Moscow, 1971, 9 pages (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1357 Dep. by the author's).

Translation: The method of maximum pressure in a drop is used to measure the surface tension σ of solutions in the system In-Bi in the range of concentrations from 0 to 100% of both components and in the temperature interval 200-500°. It was discovered that the isotherms do not experience any anomalies in the area of concentrations corresponding to the intermetallic compounds In_2Bi, InBi and the eutectic. The equation of Shishkovskiy is used for analytic description of the isotherm. This equation was solved on the M-20 computer. It was found that it describes the course of the isotherm σ for the entire area of concentrations of In-Bi solutions well. The polytherms of σ for these solutions are linear and have a negative temperature coefficient.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR UDC 53.083

ZHUKOVSKIY, YE. YE., and MANDEL'SHTAM, S. M., Candidates of Technical Sciences

"Errors of Linear Interpolation During Discrete Measurements of a Random Process by an Inertial Instrument"

Moscow, Pribory i Sistemy Upravleniya, No 5, May 1973, pp 36-38

Abstract: General formulas are obtained for calculating the current and mean error dispersion of the linear interpolation of a steady random process on the basis of discrete readings of an inertial instrument. These relationships are given specific form in application to the problem of the linear interpolation of a steady process with an exponential autocorrelation function. It is shown that with a known discretization interval of an exponentially correlatied process, such a lag of the measuring instrument can be found, at which the mean dispersion of the error of linear interpolation is minimal. At small intervals of the discretization of an exponentially correlated process, use of the readings of the less inertial of any two comparable instruments permits a higher accuracy of linear interpolation to be obtained; at discretization intervals which exceed a critical value, higher accuracy of linear interpolation is attained with the use of measurements obtained by means of the more inertial of two comparable instruments. 3 figures.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC: 577.4

ZHUKOVSKIY, Yu. V., STASHEVSKAYA, V. V.

"Construction of a 2^n-Valued Logic Algebra"

Sb. nauch. tr. Khar'kov. in-t mekhaniz. i elektrifik. s. kh. (Collected Scientific Works. Khar'kov Institute of Mechanization and Electrification of Agriculture), 1971, vyp. 20, pp 157-166 (from RZh-Kibernetika, No 4, May 72, Abstract No 5V353)

[No abstract]

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

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UDC 681.3(07)

KSENOFONTOV, I. S., LEMBERG, V. M., PUCHKO, A. N., ZHUKOVYEMEL'YANOV, O. D., and YAKOVLEV, K. A.

Elektronnyye Tsifrovyye Vychislitel'nyye Mashiny (Dopushcheno Ministerstvom Vysshego i Srednego Spetsial'nogo Obrazovaniya SSSR v Kachestve Uchebnogo Posobiya dlya Tekhnikumov) (Electronic Digital Computers [Authorized by the USSR Ministry of Higher and Secondary Specialized Education as a Textbook for Tekhnikums]), Moscow, "Mashinostroyeniye," 1970, pp 369-371

Translation:

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KSENOFONTOV, I. S., et al., Elektronnyye Tsifrovyye Vychislitel'nyye Mashiny (Dopushcheno Ministerstvom Vysshego i Srednego Spetsial'nogo Obrazovaniya SSSR v Kachestve Uchebnogo Posobiya dlya Tekhnikumov) (Electronic Digital Computers [Authorized by the USSR Ministry of Higher and Secondary Specialized Education as a Textbook for Tekhnikums]), Moscow, "Mashinostroyeniye," 1970, pp 369-371

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

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KSENOFONTOV, I. S., et al., Elektronnyye Tsifrovyye Vychislitel'nyye Mashiny (Dopushcheno Ministerstvom Vysshego i Srednego Spetsial'nogo Obrazovaniya SSSR v Kachestve Uchebnogo Posobiya dlya Tekhnikumov) (Electronic Digital Computers [Authorized by the USSR Ministry of Higher and Secondary Specialized Education as a Textbook for Tekhnikums]), Moscow, "Mashinostroyeniye," 1970, pp 369-371

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR UDC 678.01:539.376

SVIRIDENOK, A. I., STARZHINSKIY, V. Ye., and ZHULEGO, V. T., Institute of the Mechanics of Metal-Polymer Systems, Academy of Sciences, Belorussian SSR

"Some Engineering Applications of Contact Problems in the Theory of Visco-elasticity"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 1, 1972, pp 57-65

Abstract: In this article, which deals with some engineering applications of contact problems, an effort is made to provide a solution of a contact problem for linear viscoelastic solids of the simplest shape (a sphere, a cylinder). To describe the process of change of the contact parameters with respect to time, there has been selected a law of deformation in differential form with an exponential time function. Calculation relationships are presented for determination of the contact parameters. Satisfactory coincidence of the experimental and calculation data is obtained. 2 figures, 32 bibliographic entries.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

AA0044658 ZHULEGO, V. T.

Soviet Inventions Illustrated, Section III Mechanical and General; Derwent, UR 0482

12/69

238956 GEAR WHEEL consisting of hub 1, toothed rim 2 and spokes 3, and designed for improved heat exchange, greater strength and longer life by having the spokes with aerodynamic section and set at an angle of attack of 5-45°. The shape and size of the spokes' section are determined by the strength and rigidity required, and the surfaces A and B of the hub and rim may be either cylindrical or conical. The air flow created along the axis when the gear wheel rotates cools the wheel.

16.2.68 as 1219457/25-27. V.A. BELYI et al. POLYMER MECHANISATION DEPT. OF THE BELORUSSIAN ACAD. OF SCIENCES. (4.8.69) Bul 10/10.3.69. Class 47b. Int.Cl. F 16c.

AUTHORS: Belyy, V. A.; Shcherbakov, S. V.; Starzhinskiy, V. Ye.; Zhulego, V. T.; Sviridenok, A. I.

Otdel Mekhaniki Polimerov AN Belorusskoy SSR

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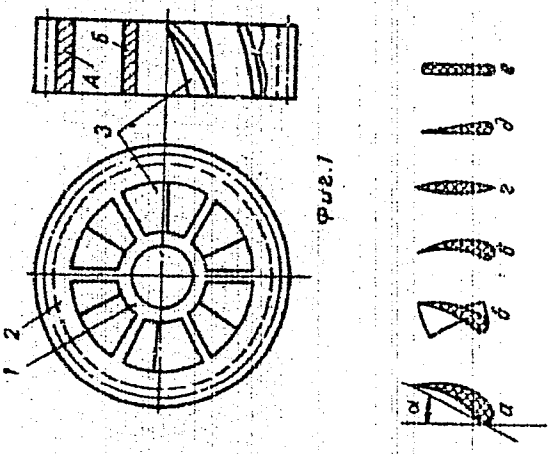

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR UDC: 51

ZHULENEV, S. V.

"Normal Model in Stochastic Programming Problems. Special Case"

Moscow, Mat. metody resheniya ekon. zadach--sbornik (Mathematical Methods of Solving Economics Problems--collection of works), No 3, "Nauka", 1972, pp 59-68 (from RZh-Kibernetika, No 5, May 73, abstract No 5V663 by S. Zhak)

Translation: A continuation of papers by the author (RZhMat, 1971, 2V511, 4V575) dealing with the study of a normally distributed random solution of the problem of stochastic linear programming in the space of parameters of distribution of coordinates (mathematical expectations and variances). A more precise definition is given of the asymptotic behavior of the curves generated in this space by individual limitations, curves which determine the boundaries of the sought region -- linearity of asymptotic behavior is proved in the general case; asymptotic behavior of a higher order can be obtained

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USSR

ZHULENEV, S. V., Mat. metody resheniya ekon. zadach, No 3, "Nauka", 1972, pp 59-68

by strengthening the assumptions on the form of distribution of the right-hand parts. A study is made of the convexity of the above mentioned curves (and hence of the region in the space of parameters as well) in the case of degenerate discrete distribution of the right-hand parts of the limitations. Illustrations are given of the form of the target functions and the region of a normal model for different forms of goal functions and conditions of the initial problem. It is shown that the Charns and Cooper approach to the well known stochastic problem of renting boats (1962) is close to the approach developed by the author. There are misprints, including bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC: 512.25/.26+519.3:330.115

ZHULENEV, S. V.

"Normal Model for Problems With Random Constraints. Uniform Distribution"

V sb. Modelir. ekon. protsessov (Modeling of Economic Processes---collection of works), Moscow, Moscow University, 1971, pp 403-414 (from RZh-Matematika, No 11, Nov 71, Abstract No 11V729)

Translation: A deterministic equivalent can be readily found for the problem of determining the coordinates of an unknown layout if it is assumed that the random quantities giving the coordinates are independent and conform to normal distribution. It is shown that in the case of a uniformly distributed quantity b_i (the right-hand member of the i-th constraint), the set L_i (the deterministic equivalent of the i-th constraint) is convex. An example is considered. D. Epshteyn.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR UDC: 512.25/.26+519.3:330.115

ZHULENEV, S. V.

"Normal Model for Problems With Random Limitations. Uniform Distribution"

V sb. Modelir. ekon. protsessov (Modeling Economic Processes--collection of works), Moscow, Moscow University, 1971, pp 403-414 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V729)

Translation: A deterministic equivalent of the initial problem is readily obtained on the assumption of normal distribution and independence of the random quantities which give the coordinates of the plan to be found. It is shown that in the case of a uniformly distributed quantity b_i (right-hand member of the i-th limitation), the set L_i (deterministic equivalent of the i-th limitation) is convex. An example is considered. D. Epshteyn.

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USSR UDC 536.24:537.312.51

ZHULEV, Yu. G., POTAPOV, Yu. F.

"Radiating System for Cooling of Near-Spherical or Near-Polyhedron Bodies"

Moscow, Teplofizika Vysokikh Temperatur, Vol. 9, No. 2, Mar-Apr, 71, p. 360-365.

Abstract: The problem of calculating the heat transfer capacity and optimization of conical radiating elements located on the surface of a spherical cooled body and expanding radially into space is solved. The problem is solved for the case when the radius of the sphere being cooled is such that the bases of neighboring cones contact each other at the surface of the sphere and the points of intersection of their axes with the surface of the sphere are the points of a right polyhedron inscribed in the sphere. It is assumed that the surface of the body being cooled is not great in comparison to the surface of the radiating cones, that the temperature in the cross section of a cone wall is constant, that the surfaces of the cones are grey diffuse radiators.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 039 UNCLASSIFIED

TITLE--HEAT REMOVING RADIATIVE SYSTEM FOR COOLING SHORT CYLINDRICAL BODIES -U-

PROCESSING DATE--27NOV70

AUTHOR-(02)-POTAPOV, YU.V., ZHULEV, YU.G.

COUNTRY OF INFO--USSR

SOURCE--INZHERNERNO-FIZICHESKII ZHURNAL, VOL. 18, APR. 1970, P. 737-739

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RADIATIVE HEAT TRANSFER, COOLING, CYLINDRIC SHELL STRUCTURE, RADIATIVE HEAT EXCHANGER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1384

STEP NO--UR/0170/70/013/000/0737/0739

CIRC ACCESSION NO--AP0125032

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 039 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125032

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF PREVIOUSLY DERIVED RELATIONS (ZHULEV AND POTAPOV, 1968) DESCRIBING (AS A SPECIAL CASE) A HEAT RADIATOR WHOSE RADIAL CONICAL PROJECTIONS ARE LOCATED IN ONE PLANE. THE PROBLEM OF CALCULATING AND OPTIMIZING THE RADIATOR IS ANALYZED AND SOLVED. FACILITY: TSENTRAL'NYI AEROGIDRODINAMICHESKII INSTITUT, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--MAGNETOSPHERE MODEL BASED ON TWO ZONES OF PRECIPITATING ENERGETIC PARTICLES -U-

AUTHOR-(03)-MISHIN, V.M., SAIFUDINOVA, T.I., ZHULIN, I.A.

COUNTRY OF INFO--USSR

SOURCE--J. GEOPHYS. RES. 75: 797-806, 1 FEB 1970

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MAGNETOSPHERE, MODEL, GEOMAGNETIC ACTIVITY, GEOMAGNETIC DISTURBANCE, HIGH ENERGY PARTICLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0216 STEP NO--US/0000/70/075/000/0797/0806

CIRC ACCESSION NO--AP0126005

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0126005

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTRARY TO WIDELY HELD IDEAS ON THE OVAL ZONE OF PRECIPITATION OF ENERGETIC PARTICLES INTO THE EARTH'S ATMOSPHERE, THE EXISTENCE OF TWO QUASI CIRCULAR ZONES OF PRECIPITATION WAS ESTABLISHED SEVERAL YEARS AGO ON THE BASIS OF GEOMAGNETIC ACTIVITY DATA. THE TWO ZONES WERE FOUND TO BE OF QUITE A DIFFERENT NATURE. ONE OF THESE ZONES, THE HIGHER LATITUDE ONE, HAS ITS MAXIMUM ON THE DAY SIDE (LATITUDE SIMILAR TO 77DEGREES); THE OTHER ZONE, THE LOWER LATITUDE ONE, HAS A CONSIDERABLY LONGER LATITUDINAL EXTENSION AND HAS ITS MAXIMUM ON THE NIGHT SIDE (LATITUDE SIMILAR TO 67DEGREES). THE CONCEPT OF THE OVAL ZONE AS A SINGLE UNIFIED ZONE IS NOT A NCESSARY CONCLUSION AND COULD BE A RESULT OF INSUFFICIENT DATA OR OF INCORRECT DATA REDUCTION. THE SAME CONCLUSION CAN ALSO BE REACHED ON THE BASIS OF THE ANALYSIS PERFORMED BY FELDSTEIN HIMSELF AND ON THE BASIS OF OTHER DIRECT AND INDIRECT DATA. IN THIS PAPER THE MAIN FEATURES OF TWO QUASI CIRCULAR ZONES ARE PRESENTED ON THE BASIS OF THE INSTANTANEOUS PATTERNS OF THE DISTRIBUTION OF GEOMAGNETIC ACTIVITY AS WELL AS ON THE BASIS OF THE DYNAMICS OF THESE PATTERNS. A MAGNETOSPHERE MODEL REFLECTING THESE FEATURES IS PRESENTED. THE SUGGESTED MODEL LINKS THE LOWER LATITUDE ZONE WITH PROCESSES OCCURRING IN THE MAGNETOSPHERIC TAIL, WHEREAS THE HIGHER LATITUDE ZONE IS CONNECTED WITH PARTICLE INJECTION THROUGH THE NEUTRAL POINTS.

FACILITY: IZMIRAN, IRKUTSK, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--THEORY OF THE MAGNETOSPHERE OF THE EARTH AND SOME PROBLEMS OF MAGNETO IONOSPHERIC DISTURBANCES -U-

AUTHOR--ZHULIN, I.A.

COUNTRY OF INFO--USSR

SOURCE--IN: IONOSPHERIC STUDIES. NUMBER 19 (IONOSFERNYE ISSLEDOVANIIA. NUMBER 19). (A70-32076 15-13), MOSCOW, IZDATEL'STVO NAUKA, 1970, P.

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, ATMOSPHERIC SCIENCES

TOPIC TAGS--MAGNETOSPHERE, GEOMAGNETIC DISTURBANCE, IONOSPHERIC DISTURBANCE, GEOMAGNETIC STORM, SOLAR WIND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1078 STEP NO--UR/0000/70/000/000/0053/0071

CIRC ACCESSION NO--AT0124735

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 020 UNCLASSIFIED

CIRC ACCESSION NO--AT0124735 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE SIGNIFICANCE OF THE DYNAMICS OF THE TERRESTRIAL MAGNETOSPHERE IN STUDIES OF GEOMAGNETIC AND IONOSPHERIC DISTURBANCES. THE CHARACTERISTICS OF THE INTERACTION BETWEEN THE SOLAR WIND AND THE GEOMAGNETIC FIELD ARE ANALYZED ON THE BASIS OF CLOSED AND OPEN MAGNETOSPHERE MODELS. THE DEVELOPMENTS DURING THE BUILDUP OF A MAGNETIC STORM ARE DISCUSSED, SHOWING THE ADEQUACY OF BOTH MAGNETOHYDRODYNAMIC AND CLASSICAL APPROACHES TO THE INTERPRETATION OF THE PHYSICAL MECHANISM OF THE DEVELOPMENT OF THE PRINCIPAL PHASE OF A MAGNETIC STORM. MECHANISMS OF ENERGY GAIN AND LOSS AND PLASMA CONVECTION IN THE MAGNETOSPHERE ARE ALSO CONSIDERED.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

AN0034020 I.A. Zhulin UR9008

FROM: FBIS Daily Report, Soviet Union. 13 February 1970, Vol III, Nr 31, pp D1-D2

USSR JOINT SOVIET-FRENCH EXPERIMENT DESCRIBED

Moscow RED STAR 10 Feb 70 p 31L

[L. Nechayuk interview: "Sentinels of Magnetic Storms"]

[Text] The Soviet and French scientists' new joint experiment to study near earth space and the earth's magnetic fields began on 5 February. RED STAR's correspondent asked the deputy director of the USSR Academy of Sciences Institute of Terrestrial Magnetism, the Ionosphere, and the Dissemination of Radio Waves, I.S. Zhulin--the scientific leader of the Soviet part of the experiment--to describe it. The text of the interview is published below.

Question: Igor Alexseyevich, what are the aims, significance, and features of the new research?

Answer: It may seem strange, but the program of Soviet-French research into near earth space, which has been given the name Omega, does not envisage launching any geophysical rockets or artificial statellites. The main research instrument chosen is the ballon.

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Of course it is not similar to those in which the daredevils of the last century hoped to conquer the fifth ocean, but it is a modern high altitude aerostat capable of lifting scientific instruments to the necessary height--up to 40 kilometers.

Aerostats are irreplaceable for observing radiation from space because they send up the instruments under the ideal conditions, without jolting, overloading, and other hindrances that are inevitable with the use of rockets. Particularly valuable is the fact that aerostats can drift for a long time in the region which interests us.

Question: What parameters of the environment [sreda] are being recorded by the aerostats' apparatus?

Answer: Directed spectrometers of x-ray radiation devised by both Soviet and French specialists are being fitted to the aerostats. Since our planet is continuously "blown on" by the so-called solar wind--currents of charged high-energy particles given off by the sun.

The appearance of flares and spots on the sun indicates that the solar wind is becoming gusty. It is these "gusts" that cause a multitude of varied and at times undesirable phenomena in the earth's atmosphere and magnetosphere. Magnetic storms break, and disturbances occur in radio communications and radio navigational and radar equipment. The radiation situation in near earth space changes substantially.

It is perfectly understandable that it is important to know how to forecast space "weather," give advance notice of the possible consequences of the sun's activities,

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and formulate recommendations to insure reliable radio communications, navigation, and the radiation safety of space flights. For this reason the physical processes which occur in near space and are responsible for the entire complex of geophysical distrubances must be studied in detail.

This is where x-ray radiation comes to our aid. It arises when protons and electrons from the magnetosphere collide with molecules of the atmosphere. One can ascertain the properties of the currents of energy electrons which enter the ionosphere during magnetospheric storms and establish a picture of the influence of these cosmic strangers on the earth's atmosphere from the nature of x-ray radiation. You can detect x-ray radiation only when the instruments have reached an altitude of more than 33-36 kilometers.

Question: The present experiment is being conducted simultaneously in Arkhangelskaya Oblast and on the French island of Kerguelen in the southern part of the Indian Ocean. Why these two spots precisely?

Answer: This is a very important feature of the joint work, which give it a unique character. Both points are located close to the aurora polaris zones, which create particularly favorable conditions for observations. Furthermore, they are on dry land. The Soviet-French experiment is eloquent proof that vast potential is being opened up to world science thanks to various countries joining their efforts.

Question: What is the main content of the Omega program?

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Answer: The first stage, which is essentially preparatory, has now been successfully started. It only envisages launching aerostats with scientific apparatus at the Soviet point of the experiment. Some 27 French and [illegible] Soviet aerostats of 100 kilograms to several tons carrying capacity will be launched in February and March. On the island of Kerguelen, scientific instruments will not be sent up for the time being. There aerostats will help to study wind behavior and elaborate a work procedure.

Simultaneous launchings of aerostats with scientific apparatus will be conducted in the second stage of the joint experiment, which is planned for next year.

Question: How is the research proceeding? Have any difficulties arisen?

Answer: We cannot manage to hold daily launchings. Weather conditions and high winds prevent them. Furthermore, to obtain valuable scientific information we have to wait for some significant disturbance of the magnetosphere; we seek the storm.

An aerostat needs around 2 hours to reach its ceilings--35-40 kilometers--then it drifts for approximately 8 hours under radar observation. After that a special automatic device bursts the casing and an orange and white parachute lowers the scientific instruments to the ground.

I. A. Zhulin looks at his watch: "Forgive me, I've got to talk to Arkhangelsk in [illegible] minutes."

I will say goodby now. On behalf of the readers of RED STAR I wish success to the scientists of both countries in their joint offensive on the secrets of the universe.

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Acc. Nr: AP0045016 Abstracting Service: 770 Ref. Code: US 0000

INTERNAT. AEROSPACE ABSTR

A70-21385 A magnetosphere model based on two zones of precipitating energetic particles. V. M. Mishin, T. I. Saifutinova (Akademiia Nauk SSSR, Institut Zemnogo Magnetizma, Ionosfery i Rasprostraneniia Radiovoln, Irkutsk, USSR), and I. A. [illegible] (Akademiia Nauk SSSR, Institut Zemnogo Magnetizma, Ionosfery i Rasprostraneniia Radiovoln, Akademgorodok, USSR). *International Symposium on the Physics of the Magnetosphere, Washington, D.C., Sept. 3-13, 1968.] Journal of Geophysical Research*, vol. 75, Feb. 1, 1970, p. 797-806. 48 refs.

Description of the main features of two quasi-circular zones of precipitation of energetic particles on the basis of the instantaneous patterns of the distribution of geomagnetic activity as well as on the basis of the dynamics of these patterns. A magnetosphere model reflecting these features is presented. The suggested model links the lower-latitude zone with processes occurring in the magnetospheric tail, whereas the higher-latitude zone is connected with particle injection through the neutral points. (Author)

E.B.

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REEL/FRAME
19771912

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Acc. Nr: AP0046356 Ref. Code: UR0000

PRIMARY SOURCE: Razdel V, Ionosfernyye Issledovaniya, 1970, Nr 19, pp53-71

L.A. Zhulin. Theory of magneticsphere and some questions of magnetic—ionosphere disturbances.

The paper discusses certain problems of dynamics of the Earth's magnetosphere and the necessity of their consideration in the study of geomagnetic and ionospheric disturbance. A general pattern is presented showing the interactions of the solar wind with geomagnetic field, closed and open models of the magnetosphere, general pattern of the geomagnetic storm development. The paper shows the adequacy of the magnetohydrodynamic (compression and expansion of the magnetosphere under the influence of tensions created in the magnetic field by the particles which penetrated into it or by accelerated particles) and the classical (ring outer-ionospheric current) explanation of the physical mechanism of development of the major phase of the magnetic storm. The paper discusses the mechanisms of introduction and loss of energy in the magnetosphere, effects in the ionosphere in connection with convection of plasma in the magnetosphere, the role of electric fields.

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Hydraulic and Pneumatic

USSR

UDC 534.232

ZHULDI, V. I., RIMSKIY-KORSAKOV, A. V., REKHTMAN, V. I., and YAMSHCHIKOV, V. S., Acoustics Institute of the Academy of Sciences USSR, Moscow; Moscow Mining Institute

"Hydropneumatic Low-Frequency Radiator"

Moscow, Akusticheskiy Zhurnal, Vol 19, No 1, Jan-Feb 73, pp 32-41

Abstract: A short review is presented of some works on hydroacoustic and pneumoacoustic radiators recently appeared in technical and patent literature. Their working principle is described and theoretical considerations for the calculation of their main parameters are given. Results of experimental developments and the investigation of a low-frequency hydropneumatic radiator of harmonic signal, conducted by the chair "Acoustics and Ultrasonic Technology" of the Moscow Mining Institute together with the Acoustics Institute of the Academy of Sciences USSR, are discussed. The possibility is considered of practical utilization of the hydropneumatic low-frequency radiator in the industry. Eight figures, three formulas, nineteen bibliographic references.

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USSR

UDC 621.371.029.55

ZHULINA, Ye. M.

"Investigating Propagation Conditions of Short Radio Waves With the Dynamics of Absorptive Regions Taken Into Account, and the Statistical Analysis of the Radio Wave Field Intensity Distributions at High Latitudes"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 439-442 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A342)

Translation: Results are given of a comparison of the field attenuation and the statistical characteristics of received shortwave signals during the time of development of separate auroral storms with the dynamics of the regions of anomalous absorption during these storms. One illustration. A. L.

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1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SELENOCYANATOBISMUTHATES OF SOME METALS -U-

AUTHOR-(03)-ZHUMABAYEV, A.ZH., TSINTSADZE, G.V., SKOPENKO, V.V.

COUNTRY OF INFO--USSR

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CIRC ACCESSION NO--AP0137925 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDN. COMPDS. WERE PREPD. AND THEIR IR SPECTRA AND X RAY DIFFRACTION DIAGRAMS OBTAINED. THE SPECTRAL EVIDENCE INDICATE THAT MG SUB3 (BI(SECN) SUB6) SUB2 9L AND LI SUB2 BI(SECN) SUB5 3L, WHERE L EQUALS DIOXANE. CPMTAOM BRIDGING SECN GROUPS (ABSORPTION AT 2130 CM PRIME NEGATIVE1) AND THAT THE SECN PRIME NEGATIVE IS BOUND TO THE BI VIA THE SE ATOM IN LI SUB3(BI(SECN) SUB6) 3ME SUB2 CO, NA SUB3(CI(SECN) SUB6), CA SUB3(BI(SECN) SUB6) SUB2 10L, SR SUB3(BI(SECN) SUB6) SUB2 8L, BA SUB3(BI(SECN) SUB6) SUB2 5L, MN SUB3(BI(SECN) SUB6) SUB2 10L, AND KBA(BI(SECN) SUB6) 2ME SUB2 CO.

FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

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USSR

UDC 536.46:533.6

ARTYUKH, L. Yu., ZHUMANOVA, T. Zh., LUK'YANOV, A. T.

"Solution of the Problem of Nonstationary Heterogeneous Combustion Considering Heat and Mass Exchange"

V sb. Prikl. i teor. fizika. (Applied and Theoretical Physics -- Collection of Works), No. 3, Alma-Ata, 1972, pp 195-200 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B957)

Translation: The problem of nonstationary heterogeneous combustion of a condensed fuel considering heat and mass exchange on the surface is solved by a finite-difference method. The combustion rate is a function of the temperature determined by the Arrhenius law and has a first order in terms of the oxidizer. The heating is produced by an external heater. The solution is illustrated by graphs of the temperature and concentration of oxidizer at the surface as functions of for different parameters of the problem. An approximate analytical solution is given.

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Epidemiology

USSR

ZHUMATOV, Kh., Zh., MIKHAYLOV, G. G., and ABENOVA, U. A., Kazakh Institute of Epidemiology and Microbiology

"Virological Study of Hong Kong Flu in Kazakhstan"

Alma-Ata, Zaravookhraneniye Kazakhstana, No 2, Feb 71, pp 50-52

Abstract: A program for monitoring acute respiratory diseases during the course of the year exists in Kazakhstan. It was found that the incidence of all respiratory diseases is higher among children during as well as between flu epidemics. In January 1968, there was a peak in respiratory disease among children, caused by the spread of parainfluenenza virus and adenoviruses. There was another peak in March/April. This time, A_2 virus was isolated. Thus, two outbreaks of respiratory disease within 3-4 months were observed and they were caused by different respiratory viruses. A more serious outbreak of Hong-Kong flu occurred at the end of 1968 and the beginning of 1969. An even more severe epidemic was recorded in January 1970. Hemagglutination inhibition data were recorded for the 1968-1970 period and the elution activity of strains of A_2 flu virus was recorded. Four groups of A_2 virus strains were found. It is recommended that local public health stations in various regions should cooperate in analysis and study of A_2 virus strains, so that

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USSR

ZHUMATOV, Kh., et al, Zaravookhraneniye Kazakhstana, No 2, Feb 71, pp 50-52

a modern medical network can be set up to deal efficiently with future outbreaks of Hong Kong flu in Kazakhstan.

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UDC 576.858.75.098.31

USSR

ZHUMATOV, Kh. ZH., ISAYEVA, Ye. S., CHUVAKOVA, Z. K., and SHETSENKO, O. G., Laboratory of General Virology, Institute of Microbiology and Virology, Academy of Sciences, Kazakh SSR, Alma-Ata

"Study of the Electrophoretic Mobility and Immunospecificity of Influenza Virus and Host Cell Neuraminidases"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 6, 1972, pp 68-71

Abstract: A comparative study was conducted of the electrophoretic mobility of neuraminidases from different influenza virus strains and from cells of chick embryo chorioallantois, the medium most widely used to maintain this virus. The specificity of the individual zones on the electrophoregrams of the enzyme was determined serologically. The electrophoretic mobility of neuraminidase from the A2 (Singapore/57) and A2 (Alma-Ata 397/57) strains was found to be different from that of the A2(Alma-Ata 454/65) and A2 (USSR 0467/69) strains, but the latter two strains were similar in this respect. Neuraminidase from the host cells, unlike that of the virus, was bound to a rapidly moving component in the electrical field. However, components with identical electrophoretic mobility appeared in preparations of both cellular and viral neuraminidase.

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UDC 576.858.25

USSR

ZHUMATOV, Kh. Zh., Institute of Microbiology and Virology, Academy of Sciences, Kazakh SSR, and Institute of Epidemiology and Microbiology, Ministry of Health, Kazakh SSR

"Some Biomedical Aspects of Arbovirus Infections in Kazakhstan"

Alma-Ata, Izvestiya AN KazSSR, Seriya Biologicheskaya, No 6, 1971, pp 1-4

Abstract: Arbovirus infections were systematically studied in Kazakhstan from 1961 to 1970 by large-scale scientific expeditions combining the efforts of virologists, parasitologists, ornithologists, epidemiologists, etc. Arthropod-borne viruses constitute more than one-third of the known viruses of vertebrates. The number identified increases from year to year. From 5 in 1930, over 300 are now known and about 100 have been isolated from sick persons. The expeditions in Kazakhstan have conclusively demonstrated the erroneousness of the view that natural foci of arbovirus diseases are confined to the tropical countries in the southern hemisphere. Viruses have been found in countries of the temperate zone that are similar if not identical to the strains discovered in the Congo, Nile valley, Nigeria, India, Philippines, Brazil, etc. The transcontinental routes and methods of transmission warrant intensive investigation. Other biomedical problems in Kazakhstan that should be studied include: (a) The mechanism of natural susceptibility and resistance of birds and animals

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ZHUMATOV, Kh. Zh., Izvestiya AN KazSSR, Seriya Biologicheskaya, No 6, 1971, pp 1-4

to individual arbovirus species; (b) intrazonal landscapes and groups of biotopes; (c) abundance and species composition of animals and their ectoparasites living near large rivers, lakes, and mountains; and (d) differential diagnosis of arbovirus diseases in man.

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Public Health, Hygiene and Sanitation

USSR UDC 616.9-036.21+576.8+614.47:061.3(574) "1970"

KARAKULOV, I. K., REMENTSOVA, M. M., ZHUMATOV, KH. ZH., MAKIROV. K. A., and NIKONOVA, T. N.

"Results of the First Combined Congress of Epidemiologists, Microbiologists, Specialists in Infectious Diseases, and Hygienists of Kazakhstan"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971, pp 134-137

Abstract: The above congress, held in Alma-Ata in June 1970, was attended by about 1000 persons who read over 400 papers on intestinal infections, brucellosis, tularemia, tuberculosis, leptospirosis, helminth diseases, and blood-sucking flies. Most were concerned with particularly widespread diseases in the Kazakh SSR. Several dealt with the epidemiology and control of acute intestinal infections (M. N. Yakovleva et al.), reduction of the incidence of typhoid fever in Alma-Ata Oblast (B. V. Rayushkin et al.), epidemiological geography of intestinal infections (E. P. Ka'yanova and I. A. Yalyshev), incidence of typhoid fever (B. V. Rayushkin et al.), seasonality of typhoid fever (. I. G. Kozhukhov), dysentery in Kazakhstan during the last 10 years (TE. K. Ruaaina and Ye. A. Guzeyev), epidemiology and prevention of leprosy in the Aral Sea region (Ch. A. Abdirov), diphtheria in Kazakhstan (K. A. Kostina), epidemiology of salmonellosis (P P. Popova et al.). Papers on brucellosis and tularemia included clinical and epidemiological

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USSR

KARAKULOV, I. K., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971, pp 134-137

observations in brucellosis foci after suspension of specific vaccination compaigns (Ye. A. Shnyreva and N. F. Zenkova), brucellosis and economic considerations (S. I. Rybalko), epidemiology of brucellosis (K. D. Zhalilov et al.) epizootiology and epidemiology of tularemia from the ecological and faunistic standpoint (V. I. Pakin et al.), combined natural foci of different diseases - tocoplasmosis, brucellosis, Q fever (S. A. Amireyev), leptospirosis Kazakhstan (I. P.Chernykh). One paper was read on the control of blood-sucking flies in Kazakhstan (. N. S. Zhuk). There were many reports on the clinical aspects of infectious hepatitis, brucellosis, measles, dysentery, and some other diseases.

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UDC 621.3.035.2

USSR

PEREVEZENTSEV, V. P., ZHUNDA, A. N., ZEBERIN', A. G., and SINEL'NIKOVA, L. V.

"On the Utilization of Graphites as Materials for Aluminum Evaporators"

Moscow, Tsvetnyye Metally, No 7, Jul 71, pp 40-43

Abstract: Graphites possess the most satisfactory combination of properties for use as materials for aluminum evaporators. The usefulness of three brands of graphite with different porosities, GMZ, MPG6, and V-2(2), the two first produced by electrode technology, the last by thermomechanical processing of the charge, was experimentally investigated. It was found that small boats of graphites with porosities $< 1\%$, like graphites of the type V-2(2), are close to industrial small boats of titanium diboride in their performances, but they possess a higher utilization factor. The use of graphites of the type V-2(2) without coating is recommended for parts working in the atmosphere of Al vapors but not having a direct contact with Al, e.g., for heaters. For evaporative parts, graphites of the type V-2(2) with carbide coatings are recommended. Four illustrations, three tables, fourteen bibliographic references.

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UDC: 669.131.6-18:621.746.75

USSR

BRAYNIN, I.YE., GUTOROVA, V.L., LUTSYAK, V.G., KULINCHENKO, V.P., KUSHNIR, YA.P., ZHUNEVA, N.D., and CHURSINA, Z.S., Donets Polytechnic Institute and Donets Scientific-Research Institute of Ferrous Metallurgy

"Nature of Nonmetallic Inclusions in Titanium-Modified Cast Iron"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5, 1970, pp 141-143

Abstract: Investigations were conducted of the nature of nonmetallic inclusions in cast iron with various (from 0.05 to 0.78%) titanium supplements to determine the role of the latter in the graphitization of basic blast-furnace cast iron used for casting of large-mass ingot molds. Samples were taken from ingot molds, modified with brand TG-ChM (96-98% Ti) titanium sponge, and from cast iron ingots, remelted in an induction furnace from conversion cast iron of the following composition (%): 4.14 C, 0.67 Si, 0.42 Mn, 0.041 S, 0.074 P. M tallic titanium (99.7% pure) was introduced into the molten cast iron at a temperature of 1400°C. The nonmetallic inclusions were studied by x-ray structural analysis of electrolytically-separated deposits and also by a local x-ray method directly on slides. Metallographic investigation of the experimental samples indicated that the addition of titanium caused a whole series of inclusions, the amount of which

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USSR

BRAYNIN, I.YE., etal, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5, 1970, pp 141-143

increases with a rise in titanium content. The following compounds were detected: TiO, FeO TiO_2, TiO_2, Ti_3S_4, $TiMn_2$, Ti_2O_3, Ti (C, N); titanium nitrides in pure form were seldom encountered. The absence of contact of titanium compounds with graphite and enlargement of dimensions of the latter were established. This confirms the work of V.L. Gutorova, in which it was postulated that nonmetallic titanium inclusions are not graphitization centers. The increased resistance of large-mass ingot molds, cast from basic blast-furnace cast iron modified with titanium sponge, is associated with the enlargement of graphite flakes and with the increase in the ferrite content in the metal base caused by the indirect action of titanium, (binding oxygen and nitrogen into stable compounds) and by the action of hydrogen, introduced by the titanium sponge.

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USSR

UDC 547.75

ZHUNGIYETU, G. I., DRAGALINA, G. A., and DOROFEYENKO, G. N., Chemistry Institute of the Academy of Sciences of the Moldavian SSR, Kishinev

"Reaction of Oxindoles with β-Diketones"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 73, pp 1271-1272

Abstract: In the reaction with acetylacetone in presence of hydrogen chloride, oxindole and 1-acetyloxindole form a mixture of approximately equal quantities of 3-isopropylideneoxindole, 1-oxonia-2,4-dimethylcarbazole chloride and methyl ester of o-aminophenylacetic acid hydrochloride. In case of other 1- and 5-substituted oxindoles it was possible to isolate 3-isopropylidene derivatives.

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USSR UDC 547.752.759'924.543.422.6

~~ZHUNGIYETU, G. I. and~~ REULETS, L. M., Institute of Chemistry, Academy of Sciences Moldavian SSR, Kishinev

"Steroid Derivatives of Indolylacrylonitrile"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 2, Feb 73, pp 222-223

Abstract: It was shown that 2-cyano-3-(indolyl-3)-Δ^2-steroids are formed easily by refluxing indole and its homolog with 2 α-cyano-3-ketosteroids in acetic acid. When 2-methylindole was reacted with 2 α-cyano-17 α-methyl-dihydrotestosterone, another product was obtained in addition to the normal nitrile -- 2-cyano-3-(2-methylindolyl-3)-17 α,17 β-dimethyl-18-norandrostadiene -- evidently formed by dehydration and rearrangement of the principal reaction product.

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USSR UDC 547.759.1'753'756

ZHUNGIYETU, G. I., DRAGALINA, G. A., and DOROFEYENKO, G. N., Chemistry Institute, Academy of Sciences of Moldavian SSR, Kishinev

"Reactions of Indoles and Hydroxyindoles With Some Aldehydes"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 1, Jan 73, pp 40-44

Abstract: 3,5-Di-tert-butyl-4-hydroxybenzaldehyde (I) reacts with indole and 2-methylindole yielding derivatives of di(indolyl-3)methane; with hydroxyindole and 1-methyloxyindole (I) yields derivatives of 3-arylideneoxyindole. With salicylaldehyde hydroxyindoles form 3-(O-hydroxybenzylidene)hydroxyindoles. In reactions with arylglyoxals hydroxyindoles yield (hydroxyindolyl-3)aroylcarbinols which under the influence of acetic acid dehydrate to 3-phenacylidenehydroxyindoles. But the starting carbinols and their products in reactions with hydrazine form 3'-arylspiro(hydroxyindol-3,5')-Δ^2-pyrazolines.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR UDC 547.756.816

ZHUNGIYETU, G. I., and SUKHANYUK, B. P., Institute of Chemistry, Academy of Sciences, Moldavian SSR, Kishinev

"Pyrylium/2,3-b/indole Salts"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 8, Aug 72, pp 1030-1032

Abstract: Oxindole and 1-methyloxindole condense with hydroxymethylene ketones in presence of HCl forming pyrilium/2,3-b/indoles. The reagents taken in methanol solution were saturated under sooling with dry HCl yielding: 1-oxonium-2,3-tetramethylenecarbazole chloride, m.p. 190-192°; 1-oxonium-2,3-tetramethylene-9-methylcarbazole chloride m.p. 141°; 3-methoxy--12-methyl-5,6-dihydro-13-oxoniumindole/3,2-b/-phenanthrene chloride, m.p. 236°; and 2-(1-methyloxindolyl-3-methylene)indanone, m.p. 151°. Reacting 1-oxonium-2,3-tetramethylene-9-methylcarbazole chloride with phenylhydrazine gave 1-phenyl-3,4-tetramethylene-5-(1-methyloxindolyl-3)- Δ^2-pyrazoline, m.p.232°, while a reaction with hydroxylamine produced 3,4-tetramethylene--5-(1-methyloxindolyl-3)- Δ^2-isoxazoline, m.p. 144°.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR UDC 547.759.1

ZHUNGIYETU, G. I., SUKHANYUK, B. P., Institute of Chemistry, Academy of Sciences Moldavian SSR, Kishinev

"Formation of Diindolylmethane Derivatives From Indole Derivatives and Schiff Bases"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 71, pp 1209-1210

Abstract: Aromatic aldimines react with indole to give diindolylmethane derivatives. The reaction proceeds during prolonged boiling of components in toluene or at 20° in acetic acid. The formation of diindolylmethane derivatives by the reaction of Schiff bases with indole and its homologs does not depend on the reaction temperature, since the authors obtained the very same compounds at 20° (in acetic acid) and at -50° (in an ether-acetic acid solution).

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--STEROIDS CONTAINING HETEROATOMS IN THE NUCLEUS OR SIDE CHAIN OF THE MOLECULE -U-

AUTHOR-(03)-ZHUNGIYETU, G.I., DOROFEYENKO, G.N., SAVIN, B.M.

COUNTRY OF INFO--USSR

SOURCE--USP. KHIM. 1970, 39(4), 646-61

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL SYNTHESIS, HORMONE, CHOLESTEROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0259 STEP NO--UR/0074/70/039/004/0646/0661

CIRC ACCESSION NO--AP0120949

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120949

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 79 REFERENCES THROUGH 1966 COVERING METHODS OF SYNTHESIS OF STEROIDAL COMPDS. CONTG. N, O, AND S ATOMS. THE BIOL. ACTIVITY OF SUCH COMPDS. IS DISCUSSED BRIEFLY; COMPDS. WITH N AND O ATOMS IN THE SIDE CHAIN TEND TO INTERRUPT THE SYNTHESIS OF CHOLESTEROL AT THE 24 DIHYDROCHOLESTEROL STAGE AND LEAD TO AN ACCUMULATION OF THIS IN THE BLOOD. FACILITY: INST. KHIM., KISHINEV, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THERMODYNAMIC STUDY OF SOLID PHASE DIOPSIDE FORMATION REACTIONS -U-

AUTHOR-(03)-BASOVA, N.S., ZHUNINA, L.A., KALININA, A.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1), 164-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMODYNAMIC ANALYSIS, SILICATE, CALCIUM, MAGNESIUM, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0845 STEP NO--UR/0363/70/006/001/0164/0165

CIRC ACCESSION NO--AP0118021

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0113021

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMODYNAMIC POSSIBLITY OF DIOPSIDE FORMATION FROM VARIOUS STARTING COMPONENTS WAS INVESTIGATED. THE EQATIONS ARE SET UP SHOWING THE TEMP. DEPENDENCIES OF THE FREE ENERGY. THE UPPER TEMP. LIMIT WAS 1600DEGREESK. THE DELTA F VALUE OF THE DIOPSIDE FORMATION REACTION FROM ALK. EARTH CARBONATES AND QUARTZ GRADUALLY DECREASES WITH INCREASING TEMP., AND AT 1200-1600DEGREESK IT ACQUIRES NEG. VALUES, CHARACTERIZING THE POSSIBILITY OF THE REACTION TAKING PLACE IN THE DIRECTION OF THE DIOPSIDE FORMATION. THE ACTIVATION ENERGY OF THE PROCESS IS SIGNIFICANTLY GREATER THAN THAT OF THE DIOPSIDE FORMATION REACTION FROM METASILICATES OF CA AND MG. FACILITY: INST. KHIM. SILIKATOV IM. GREBENSHCHIKOVA, LENINGRAD, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--REACTION OF INDOLE WITH ALPHA KETO ALDEHYDES -U-

AUTHOR-(02)-ZHUNGIYETU, G.I., CHUKHRIY, F.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(3), 353-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDOLE DERIVATIVE, KETONE, ALDEHYDE, ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/C05 STEP NO--UR/0063/70/015/003/0353/0354

CIRC ACCESSION NO--AP0140266

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140266

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFLUXING 4.68 G INDOLE WITH 6.08 G PHENYLGLYOXAL HDYRATE 1 HR IN C SUB6 H SUB6 GAVE 59PERCENT 3 INDOLYL(BENZOYL)CARBINOL, M. 170-2DEGREES; WITH 5 FOLD EXCESS OF PHENYLGLYOXAL IN ACOH OVERNIGHT, THE REACTION GAVE 77PERCENT DI(3,INDLYL)BENZOYLMETHANE, M. 210DEGREES. SIMILARLY PREPD. SHOWN ON MICROFICHE. FACILITY: INST. KHIM., KISHINEV, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--REACTION OF INDOLE WITH ALPHA,DIKETONES -U-

AUTHOR-(02)-ZHUNGIYETU, G.I., CHUKHRIY, F.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 228

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDOLE, KETONE, BENZENE DERIVATIVE, ORGANIC NITRILE COMPOUND, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1162 STEP NO--UR/0063/70/015/002/0228/0228

CIRC ACCESSION NO--AP0128584

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 011 UNCLASSIFIED

CIRC ACCESSION NO--AP0128584 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFLUXING 0.585 G INDOLE AND 0.215 G AC SUB2 IN ACOH 20 MIN GAVE ON COOLING 68PERCENT 2,2,DI(3,INDOLYL),3,BUTANONE, M. 197DEGREES. BENZIL SIMILARLY GAVE 30PERCENT DI(3,INDOLYL)PHENYLBENZOYLMETHANE, M. 316DEGREES, WHILE CYCLOHEXANE,1,2,DIONE GAVE 35PERCENT 2,2,DI(3,INDOLYL)CYCLOHEXANONE, M. 186DEGREES. INDOLE AND BZCN IN ACOH GAVE ALMOST 100PERCENT 3,BENZOYLINDOLE, M. 238DEGREES, AFTER SEVERAL DAYS AT ROOM TEMP. OR AFTER BRIEF REFLUXING IN C SUB6 H SUB6. A REACTION SCHEME WAS PROPOSED.

FACILITY: INST. KHIM., KISHINEV, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC 621.785.539

ZHUNKOVSKIY, G. L., and KAPLINA, G. S., Institute of Problems of Material Science, Academy of Sciences Ukr SSR

"Some Principles of the Initial Stage of the Nitriding Process"

Kiev, Metallofizika, No 39, 1972, pp 91-96

Abstract: The mechanism of the initial stage of interaction of nitrogen-containing media with a metal was examined and the role of electron interaction in the process of nitrogen atom entrance into the sphere of reaction diffusion was shown. The mechanism of the effect of the most often encountered impurities on the interaction of nitrogen with a metal was examined in detail; the basic requirements issuing from this study were formulated and must be documented for the selection and subsequent standardization of a reaction mixture for nitriding. 2 figures, 35 bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR UDC 621.762.8

ZHUNKOVSKIY, G. L., NAVROTSKIY, B. S., and KOLOSVETOV, Yu. P., Kiev Polytechnic Institute, Institute of Problems of Material Science, Academy of Sciences UkrSSR

"Borating of Cobalt and Some Alloys Based on It"

Kiev, Poroshkovaya Metallurgiya, No 11 (119), Nov 72, pp 33-35

Abstract: A study was made of the possibility of increasing the hardness of a cobalt component of a hard-alloy instrument by means of chemico-thermal treatment. Specially prepared alloys with 0, 2, 4, 8, and 20% WC were used to investigate the dependence of the rate of interaction of the alloys with the boron-containing medium on the temperature and duration of the process and also on the concentration of the dissolved WC in the cobalt. Borating is shown to take place most rapidly in pure cobalt, during which the thickness of the boron coating considerably increases when potassium fluoborate is used as an activator. Borating of pure cobalt and its alloys with 2-20% WC results in a hardness increase to 1100 kg/mm^2. X-ray analysis revealed that the coatings on cobalt-based alloys consist of borides with a Co_2B lattice; their microhardness is analogous to that for a coating on pure cobalt. Three figures, one table, five bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

ZHUNKOVSKIY, G. L.

JPRS-56001
16 May 72

UDC 669.293:5'28

INVESTIGATION OF THE INTERACTION OF Nb-Mo ALLOYS WITH BORON

[Article by G. L. Zhunkovskiy, S. M. Brauni, Moscow, Izvestiya Akademii Nauk SSSR, Metally, Russian, No 1, 1972, signed to press 7 December, 1970, pp 188-192]

Along with the strength characteristics, one of the basic properties of Nb-Mo alloys is their capacity to resist the effect of various boron-, carbon-, nitrogen-, and oxygen-containing and other aggressive media. The interaction of pure niobium and molybdenum with boron has been studied in references [1-8], but we know of no such investigations for the alloys of these metals. Therefore it is of interest to investigate the behavior of alloys of the system Nb-Mo at high temperatures in contact with an active boron-containing medium.

Niobium and molybdenum from electron ray melting with a content of the base component of 99.9% were used as the initial components for preparing the alloys. Saturation was carried out in vacuum ($5 \cdot 10^{-3}$-$1 \cdot 10^{-3}$ mm Hg) in a medium of dry amorphous boron. According to data from preliminary investigations, this would guarantee maximum concentration of the active boron atoms on the surface of the samples and the absence of extrinsic impurities in the reaction space, which can substantially distort the final test results.

The investigation was carried out by two methods. For the preliminary explanation of the rules governing the interaction, the alloys were made by long-term annealing of carefully prepared dense samples of niobium and molybdenum, brought into contact using a tungsten vise (similar to the method described in reference [9]). This permitted us to obtain an entire set of concentrations of the binary alloys in the diffusion zone (on a small segment in fact the entire state diagram

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC 539.23

BRYNZA, A. P., KHMELOVSKAYA, S. A., and ZHUNKOVSKIY, G. L., Dnepropetrovsk, Kiyev

"Investigation of Production Conditions and Some Properties of Carbide Coatings on Titanium"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 6, Nov/Dec 71, pp 80-83

Abstract: A study was made of the growth kinetics and phase composition of carbide diffusion coatings on titanium by vacuum saturation and of their corrosion resistance in solutions of sulfuric acid, hydrochloric acid, and nitric acid. The parameters of reaction diffusion of C into titanium were calculated and the temperature dependence of the diffusion coefficient $D=77.8 \cdot \exp(-81000/RT)$ cm^2/sec and the optimum method (pressure 1.10^{-2}mm Hg column and lower, saturation time 3-5 hrs at 1,3000C) for producing a qualitative carbide coating were determined. It was found that carbide coats produced in the filling of carbon black in vacuum are more corrosion resistant than coatings obtained in an similar charge in a hydrogen resistant which is a result of the high density and purity of the developing carbide layer. Three illustrations, 12 bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

Construction

USSR UDC 539.4:624.012

ZHUNUSOV, T. Zh., BESPAYEV, A. A.

"Influence of Prestressing of Reinforced Concrete Columns on Earthquake Resistance of Multistory Rod Frames"

Seysmostoikost' Predvaritel'no Napryazhen. Zhelezobeton. Konstruktsiy [Earthquake Resistance of Prestressed Reinforced Concrete Structures -- Collection of Works], Moscow, 1972, pp 268-275, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 V954, from the Resume).

Translation: The results of studies of the prestressed state of two-span three-level frames measuring 3.5 × 4 m with reinforced concrete columns and metal beams are presented. The influence of varying degrees of prestressing of columns on strength, rigidity and distribution of forces in the system under short-term static and dynamic loading with a horizontal load was studied. The expediency of static design of reinforced concrete frames considering the variable rigidity of the elements is estimated. Information is presented on the attenuation of free oscillations of frames with various levels of external action.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--POLYCONDENSATION OF OLIGOMERS OF POLYETHYLENE TEREPHTHALATE IN THE SOLID PHASE -U-

AUTHOR-(02)-ZHUPIYEV, L.I., LYZHNIK, ZH.F.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 14-15

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYCONDENSATION, POLYETHYLENE TEREPHTHALATE, OLIGOMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0665 STEP NO--UR/0191/70/000/003/0014/0015

CIRC ACCESSION NO--AP0119573

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119573

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLY(ETHYLENE TEREPHTHALATE) OLIGOMERS OF MOL. WT. LARGER THAN OR EQUAL TO 30,000 WERE OBTAINED WITHOUT MELTING THE STARTING MATERIALS OR THE CONDENSED PRODUCTS. THE ADVANTAGES OF SOLID PHASE POLYCONDENSATION OVER POLYCONDENSATION IN THE MELT ARE DISCUSSED AND SEVERAL PRACTICAL RECOMMENDATIONS MADE.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--RATE OF SUCROSE CRYSTALLIZATION FROM GREEN SIRUP AND PRODUCTS OF ITS PURIFICATION BY ELECTRODIALYSIS -U-

AUTHOR-(03)-KLZYAVKIN, A.P., BOBROVNIK, L.D., ZHURA, K.D.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., PISHCH. TEKHNOL. 1970, (2), 171-4

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--FOOD TECHNOLOGY, SUCROSE, CRYSTALLIZATION, CHEMICAL PURIFICATION, ELECTRODIALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0793 STEP NO--UR/0322/70/000/002/0171/0174

CIRC ACCESSION NO--AT0131387

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0131387

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF ORG. AND INORG. IMPURITIES OF GREEN MOLASSES WERE STUDIED IN LAB. EXPTS. SPECIMENS OF GREEN MOLASSES WERE SUBJECTED TO ELECTRODIALYSIS WITH IONIC AND CATIONIC MEMBRANES AND ALL THE SEPN. FRACTIONS WERE USED FOR THE EXPTS. THREE GROUPS OF EXPTL. SOLNS. WERE PREPD. THE 1ST GROUP WAS PREPD. FROM GREEN MOLASSES OF CONCNS. 82.0, 85.7, 88.7, AND 92.0PERCENT. TH E2ND GROUP WAS PREPD. FROM DIALYZED MOLASSES FRACTIONS OF CONCN. 85.6, 88.8, 92.2PERCENT AND DECOLORIZED SOLN. OF CONCN. 92.8PERCENT. THE 3RD GROUP WAS PREPD. FROM THE CONCD. SOLN. FROM THE DIALYZEF AND REPRESENTED IMPURITIES RECOVERED FROM MOLASSES. THESE SOLNS. WERE FORTIFIED WITH SUCROSE SIRUP TO OBTAIN CONCNS. OF 85.7, 88.7, AND 92.0PERCENT. THE CRYSTN. OF ALL THE SOLNS. WAS CONDUCTED AT 78DEGREES FOR 2 HR. THE CRYSTALS FORMED WERE RECOVERED FROM THE MOTHER LIQUORS BY FILTERING THROUGH A SCREEN AND BY CENTRIFUGING. THE CRYSTALS RECOVERED WERE WASHED WITH A SATD. SUCROSE MEOH SOLN., A HOAC SOLN., AND ETOH SATD. WITH SUCROSE. EXPTL. DATA INDICATED THAT THE CRYSTN. RATE OF THE 2ND GROUP INCREASED WITH INCREASING DEGREE OF PURIFICATION. DECOLORIZAITON OF THE DIALYZED SOLN. INCREASED THE CRYSTN. RATE TO A HIGH DEGREE. THE CRYSTN. RATE OF THE 3RD GROUP WAS MUCH LOWER THAN THAT OF GREEN MOLASSES, PROBABLY DUE TO THE EFFECT OF ORG. SUBSTANCES.

FACILITY: KIEV. TEKHNOL. INST. PISHCH. PROM., KIEV, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

UDC: 621.9.048.4

MOROZENKO, V. N., ONUFRIYENKO, I. P., GASIK, L. N., ZHURA, V. I., MOLCHANOVA, L. V.

"Electrospark Production of Polymetallic Compositions"

Kishinev, Elektronnaya Obrabotka Materialov, No 4(46), Aug/Sep 72, pp 8-12

Abstract: The paper gives the results of experimental studies of electrospark formation of polymetallic compositions produced by the set-up shown in the figure. Hinged to rotor 1 are anode rods of tungsten, copper, chromium and silver. Swinging out as the rotor turns, the anodes periodically approach the surface of cathode 2. By properly combining the rotational velocities ω_1 and ω_2 on the one hand, and velocity ω_1 and the pulse repetition frequency of the spark oscillator on the other hand, the transfer of anode material can be regulated so as to form overlapping alloyed zones а, б, в, г. Experimental studies show that this method of alloying can be used to produce intermetallic compounds in surfacing which cannot be made in any conventional metallurgical process. By proper selection of parameters, surfaces with any desired physical properties can be produced.

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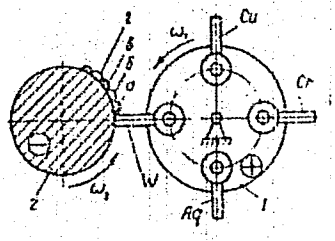
"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

USSR

MOROZENKO, V. N. et al., Elektronnaya Obrabotka Materialov, No 4(46), Aug/Sep 72, pp 8-12



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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ALUMINUM BASE CATHODIC PROTECTION ALLOY -U-

AUTHOR-(03)-FRANTSEVICH, I.N., ZHURAKHOVSKIY, A.F., PECHENTKOVSKIY, YE.L.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,158
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALUMINUM BASE ALLOY, ZINC CONTAINING ALLOY, CALCIUM ALLOY, COPPER CONTAINING ALLOY, LEAD CONTAINING ALLOY, MANGANESE CONTAINING ALLOY, ELECTROCHEMICAL PROPERTY, METALLURGIC PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1056 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130091

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810017-7

2/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0130091

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN AL BASED CATHODIC PROTECTION ALLOY WITH GOOD ELECTROCHEM. CHARACTERISTICS HAD THE FOLLOWING CHEM. COMPN.: ZN 17.5-20; CA 4.3-5.3; MN 0.25-0.4; IMPURITIES OF FE SMALLER THAN OR EQUAL TO 0.25; SI SMALLER THAN OR EQUAL TO 0.15, CU SMALLER THAN OR EQUAL TO 0.01PERCENT PB TRACES, CD TRACES; AND AL THE REMAINDER.

FACILITY: INSTITUTE OF PROBLEMS IN MATERIAL MANAGEMENT, ACADEMY OF SCIENCES, UKRAINIAN S.S.R.

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1/3 029 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--STATE DISTRIBUTION OF ELECTRONS IN HOMOGENEITY REGIONS FOR SOME REFRACTORY CARBIDES -U-

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COUNTRY OF INFO--USSR

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TOPIC TAGS--REFRACTORY COMPOUND, CARBIDE, VANADIUM COMPOUND, CHEMICAL BONDING, METAL BONDING

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE 2 KNOWN CARBIDES IN THE V-C SYSTEM, VC SUB1-X AND V SUB2 C SUB1-X, WERE INVESTIGATED. THE BACKGROUND, THE PROPERTIES, AND THE BONDING IN THESE CARBIDES ARE DISCUSSED AND COMPARED WITH SIMILAR PROPERTIES AND THE BONDING IN OTHER TRANSITION METAL CARBIDES. THE EMISSION L SUBII,III BANDS, IN WHICH THE TRANSITION FROM THE D STATES (D YIELDS P) IS A DIPOLE ONE AND STRONG, WERE STUDIED IN ADDN. TO THE K BETA AND THE K ALPHA EMISSION BANDS OF C IN HOMOGENEOUS VC SUB1-X AND V SUB2 C SUB1-X, WITH THE SIMULTANEOUS INVESTIGATION OF THESE SAMPLES OF ELEC. COND., HALL COEFF., AND THERMAL EMF. IDENTICAL CONDITIONS FOR THE EXCITATION OF THE L ALPHA SUB1.2 BANKDS WERE PRODUCED BY NORMALIZING THEIR INTENSITY RELATIVE TO THE INTENSITY OF THE L SUB1 LINE. IN BOTH V CARBIDES THERE TAKES PLACE A 3 LAYER STRUCTURE OF THE ENERGY SPECTRUM, WHICH CONSISTS OF: (A) A RELATIVELY NARROW HYBRID 3D GAMMA 2P SIGMA BAND, THE STATES OF WHICH ARE LOCALIZED ON THE POLARIZED COVALENT M-C BONDS; (B) A DIFFUSED 4S, 3D EPSILON, 2P PI CONDUCTION BAND (THE M-M BONDS); AND (C) A LOW ENERGY 2S BAND LOCALIZED PRIMARILY AROUND THE IONIC CORES OF THE CARBON (C PRIME POSITIVE) ATOMS AND, TO THE LESSER DEGREE, AT THE V PRIME NEGATIVE IONS. UPON THE TRANSITION FROM THE LOWER TO THE HIGHER CARBIDE THERE TAKES PLACE A REDISTRIBUTION OF THE ELECTRON D., ACCOMPANIED BY A CHANGE IN THE NATURE OF THE BOND FROM THE PREDOMINANTLY METALLIC BONDING IN V SUB2 C TO THE COVALENT METALLIC BONDING IN VC SUB1-X, ALSO INSIDE THE HOMOGENEITY REGIONS OF BOTH CARBIDES IN PROPORTION TO THE FILLING UP BY THE C VACANCIES.

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3/3 029 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118642

ABSTRACT/EXTRACT--WITH INCREASING C CONCN. THE CONTRIBUTION OF THE 3D ELECTRONS TO THE M-M BONDS GRADUALLY DIMINISHES AND THEIR PARTICIPATION IN THE M-C BONDS INCREASES. THE SHORTWAVE DISPLACEMENT OF THE C K ALPHA BAND AND THE LONGWAVE DISPLACEMENT OF THE V K BETA SUB5 AND THE V L ALPHA SUB1.2 BANDS INDICATES, ACCORDING TO PREVIOUS CALCNS., THAT THE CHARGE D. DECREASES IN CASE OF THE C ATOM, WHEREAS IT INCREASES IN CASE OF THE V ATOM. THE CLOSENESS BETWEEN THE POSITION OF THE C K ALPHA BAND IN THE CARBIDE VC SUB1-X AND THAT IN DIAMOND (THE DIFFERENCE BEEN 0.35 EV) MAKES IT POSSIBLE TO PRESUME A CERTAIN SIMILARITY OF THE ENERGY STATES FOR THE C ATOM IN THESE PHASES. WITH INCREASING NO. OF C VACANCIES PRESENT IN THE CARBIDES THE SHAPE OF THE FERMI SURFACE EXPERIENCES A CERTAIN SIMPLIFICATION. FACILITY: INST. PROBL. MATERIALOVED., KIEV, USSR.

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Acc. Nr. A70102939 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code UR0139

116195h X-ray absorption spectra of cobalt in ferromagnetic borides. Zhurakovskii, E. A.; Shashkina, T. B.; Kotlyar, V. I. (Odess. Pedinst. im. Ushinskogo, Odessa, USSR). *Izv. Vysish. Ucheb. Zaved., Fiz.* 1970, 13(1), 24-8 (Russ). The x-ray absorption *K*-spectra (7700-40 eV) of Co_2O_3, CoB (m. 1460), Co_2B (m. 1280), Co_3B (m. 1125°), and pure Co were measured and compared with magnetic properties of the compds. The [1340] plane of the quartz single crystal (curvature diam. 500 mm) was used as an analyzer. The resoln. was ~14,000; the Ni $K\alpha_1$ and Ni $K\alpha_2$ lines were used as stds. for the energy scale. With increasing content of B in Co borides, a redistribution of the valence-active electrons between the Co-Co, Co-B, and B-B bonds occurs, which results mainly in an increase of strength of the B-B bonds. With increasing no. of B atoms in the borides, absorptivity of the initial absorption region shows practically a linear decrease; it indicates a considerable absorption ability of the 3*d* level of Co as related to the valence-active *p* electrons of the B atom. The intensity decrease is ended by appearance of diamagnetism for CoB, where the complete spin satn. and filling of vacancies in the 3*d* level is supposed. The steepest concn. dependence of the intensity of the initial absorption region is related to the transitions of B *sp* electrons, preferentially, into the region of Co 3*d* states.

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ZHURAKOVSKIY, L. A., ZEYNALLY, A. KH., KOLOMIYETS, B. T., KRASIL'NIKOVA, V. A.

"Frequency Characteristics of Diode Structures of the Metal-Chalcohalide Glass-Metal Type"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 5, No 10, October 1971, pp 1917-1919

Abstract: A study was made of diode structures of the metal-chalcohalide glass-metal type (SbSI and AsTeI glass was used as the interstitial layer) with gold, silver, copper and antimony electrodes. These structures have static volt-ampere characteristics described by power functions with the exponent n varying from 1 to 3-5. The Au-SbSI-Au structure which has a static volt-ampere characteristic containing a segment of N-type negative resistance constitutes and exception. The frequency dependencies of the conductance and susceptance were measured in the frequency range from 0 to 10 megahertz. In the low-frequency range the conductance does not depend on the frequency, but in the high frequency range the conductance depends approximately linear on frequency. The capacitance of the diode structures is constant at low frequencies, and it decreases with an increase in frequency.

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