USSR

UDC 539.192/.194+535.33/.34.01

ZURBA, V. B., BOLOTIN, A. B.

"Quasimechanical Calculation of Para-, Meta-, and Ortho-Toluidine"

Lit. fiz. sb. (Lithuanian Physics Collection), 1972, Vol. 12, No. 2, pp 245-252 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D139)

Translation: Single-electron functions and energy levels of para-, meta- and ortho-toluidine were found using the simplest version of the molecular orbital-linear combination of atomic orbitals method. The methyl group was considered as one atom of fluorine giving one electron to the π-electron system. The molecular orbitals obtained were used to calculate electron density in atoms, binding orders, and free valence indices and also the Coulomb interval α_C and the affinity of toluidine molecules for the electron. Authors abstract.

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USSR

UDC 669.15'26'74-194:620.186

KARTASHOVA, L. I., BANNYKH, O. A., and ZURIN, L. F., Institute of Metallurgy imeni A. A. Bavkov

"Structure and Properties of Kh12G14 Steels With Nickel and Aluminum"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No. 2, 1971, pp 37-40

Abstract: This work presents a study of the influence of combined alloying with nickel and aluminum on the structure and mechanical properties of type-Kh12G14 low-carbon Cr-Mn steel. Four groups of alloys were studied, each characterized by a constant nickel content (0, 1.5, 3.0, and 4.7%) and 0.5-3.0% aluminum, plus 0.048-0.068% C; 12-13.8% Cr; 12.6-14% Mn; 0.5-0.62% Si; 0.012-0.017% S; 0.01-0.018% P; 0.01% Co; 0.005% B. The solubility of aluminum in the austenite increases with decreasing hardening temperature from 1250 to 1100°C and depends on the nickel content. Increasing the nickel content to 4.7% increases the limiting concentration of aluminum by more than two times. The compositions studied showed high plasticity and ductility. These properties were retained after holding at 630°C for 1000 hours. Work hardening decreases with increasing nickel content and aluminum content. The yield point of the steels depends on δ-ferrite content, varying between 21 and 40 kg/mm^2.

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USSR

UDC 678.742.3-137.462.2:613.632

SMUROVA, YE. V., ZURLOVA, O. N., SOSIN, S. L., ANTIPOVA, E. A., NOVIKOVA, S. P., KARPINSKAYA, V. M.

"Interaction of Modified Polypropylene with Blood"

Moscow, Plasticheskiye Massy, No 4, 1972, pp 60-61

Abstract: The results of studying polymers with antithrombogenic properties are described. Data are presented on obtaining a sulfonated inoculated copolymer of polypropylene and polystyrene, and a study is made of the conditions permitting the polymer to be obtained which prevents the coagulation of blood on contact. With an increase in the active group content, the given copolymers cause significant hemolysis of the blood corpuscles. Iron ions must introduced into the copolymer to eliminate this phenomenon. The presence of iron ions in the sulfonated inoculated copolymer polypropylene+polystyrene+polyvinylferrocene promotes a noticeable reduction in the hemolysis of the red blood corpuscles on contact of the blood with copolymers without changing the antithrombogenic properties.

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USSR

UDC: 621.762:669.018.29

MNATSAKANYAN, S. A., ZURNACHAYAN, M. K.

"Investigation of Technological and Physical-Mechanical Properties of Fe-Cr-C-Type Powder Alloys"

Tr. Arm. N.-I. i Proyekt. In-ta Tsvet. Metallurgii [Works of Armenian Scientific Research and Planning Institute for Nonferrous Metallurgy], 1972, No 1(10), pp 189-195 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G416, by S. Krivonosova).

Translation: In order to produce an Fe-Cr-C alloy, type AMG-10 oil was introduced to reduced Fe-Cr powder in a quantity of 1% of the weight of the powder and mixed for 2-2.5 hr in drum mixers. Then, powdered C type GMZh was introduced to the mixture and mixed for 5-6 hours. With a porosity of 20%, σ_b of the alloy reaches 55.2 kg/mm^2, HB 170 kg/mm^2. The powders produced correspond to the requirements of the state standard. A compact material with high mechanical properties (σ_b 87 kg/mm^2, HB 265 kg/mm^2) was produced by extruding the alloy. Microspectral analysis showed that Cr and C are distributed evenly in the alloy. 3 figures, 3 tables, 1 biblio. ref.

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1/2 026 UNCLASSIFIED PROCESSING DATE--020CT70

TITLE--PRINCIPLES UNDERLYING THE CHOICE OF THE BLEPHAROPLASTY METHOD -U-

AUTHOR-(02)-ZAYKOVA, M.V., ZUS, G.S.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OFTAL'MOLOGII, 1970, NR 2, PP 68-72

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EYE DISEASE, PLASTIC SURGERY, PEDIATRICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0676 STEP NO--UR/0357/70/000/002/0068/0072

CIRC ACCESSION NO--AP0102660

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0102660

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANALYSIS OF LATE OUTCOMES FOLLOWING APPLICATION OF DIFFERENT METHODS OF BLEPHAROPLASTY IN 186 PATIENTS, WHO UNDERWENT 690 OPERATIONS OF STAGE WISE PLASTIC REPAIR, FURNISHED THE NECESSARY GROUNDS FOR CONSIDERING BASIC PRINCIPLES GOVERNING THE CHOICE OF THE PROPER METHOD. REMOTE OUTCOMES WERE VERIFIED OVER PERIODS FROM 6 MONTHS TO 20 YEARS. REASONS FOR UNSATISFACTORY OUTCOMES OF THE OPERATIONS, RELATED TO THE METHOD OF BLEPHAROPLASTY CHOSEN, ARE DESCRIBED. THE AUTHORS ARRIVE AT A CONCLUSION THAT IN CHOOSING THE METHOD OF BLEPHAROPLASTY OF PRIME IMPORTANCE IS INDIVIDUAL APPROACH, WITH DUE ACCOUNT FOR THE PECULIARITIES OF THE EYELID DEFECT AND FOR THE STATE OF THE PERIOCULAR REGION. EACH ONE OF THE BLEPHAROPLASTY METHODS SHOULD BE ADOPTED IN CONFORMITY WITH DEFINITE INDICATIONS. THE ARTICLE CITES INDICATIONS FOR THE USE OF BASIC METHODS OF BLEPHAROPLASTY.

UNCLASSIFIED

USSR

UDC 621.892.8

PANOK, K. K., TRET'YAKOV, P. P., ZUSEVA, R. S., GRIGOR'YEV, P. F., KULIKOV, I. N., GLAVATI, O. L., GORDASH, Yu. T., RABINOVICH, I. L.

"New Aviation Oils with Dipole Type Additives"

Neftepererabotka i Neftekhimiya. Resp. Mezhved. sb. [Oil Refining and Petrochemistry, Republic Interdepartmental Collection], No 5, 1971, pp 38-41, (Translated from Referativnyy Zhurnal Aviatsiyonnye i Raketnye Dvigateli, No 12, 1971, Abstract No 12.34.9, from the Resume).

Translation: The results of studies of the physical, chemical and operational properties of a new aviation oil containing a Dipole-type additive by laboratory methods, and the results of 50 hours tests of this oil in a Type EU-82T one-cylinder installation indicate that this oil is significantly superior to Type MS-20 oil without additives, presently used for piston aviation engines, and is equal to and in some respects superior to aeroshell oil W-100, a foreign type. 3 Tables; 3 Biblio. Refs.

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USSR

UDC: 621.791.753.5.037-52:62-413:669.715

KORNEYEV, A. D., Candidate of Technical Sciences, ZUSIN, V. YA., Engineer, FILIPPOV, V. K., Engineer, BAGRYANSKAYA, S. K., Engineer, and MOLCHANOV, A. F., Engineer, Zhdanov Metallurgical Institute

"Automatic Hidden Arc Welding of Thick-Walled Aluminum"

Moscow, Svarochnoye Proizvodstvo, No 6, Jun 73, pp 48-49

Abstract: Aluminum 40mm thick was welded with a hidden arc (under ceramic flux) using the VDM-1601 rectifier as the power source. Two parallel connected VKSM-1000 rectifiers were used for metal thicker than 40mm. The butt joint welding of plates made from A5 aluminum was conducted with two electrode wires, perpendicular to the weld seam axis. A plate made from low-carbon steel with a milled groove was used in forming the reverse side of the seam. Specimens 40, 50, and 62mm thick, consisting of two plates, were welded in testing the one side, single pass method. Analyses of the macro- and microstructure of the seam metal show high density and the absence of pores and slag inclusions both in seam cross section and in places where the plates join the seam. The results show that single pass, one sided welding of sheets up to 70mm is possible without preheating and edge shaping.

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USSR

UDC 621.791.753.045.053.01:669.71

BAGRYANSKIY, K. V., Doctor of Technical Sciences, KORNEYEV, A. D., Candidate of Technical Sciences, and ZUSIN, V. YA., Engineer, Zhdanov Metallurgical Institute

"Seam Metal Refining During Welding Aluminum with a Closed Arc"

Moscow, Svarochnoye Proizvodstvo, No 2, Feb 74, pp 32-33

Abstract: The effect of the welding method on seam metal refining was studied in the welding of aluminum with a closed arc using different fluxes with flux ZhA-64A providing deep refining of the seam metal due to its high activity and good weld-bath insulation from the surrounding medium. Duration of preservation of the flux and electrode wire does not render a substantial effect, when welding with a closed arc, on the Al_2O_3 content in the seam, which remains lower than in the metal being welded. The presence of up to 3% sand in the composition of flux ZhA-64 does not cause any significant lowering of the refining capacity of the fluxes. The high metallurgical activity of ceramic flux ZhA-64 for closed-arc welding of aluminum insures a high cryolite content in the flux composition. Two figures, six bibliographic references.

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USSR UDC 621.791:669.71:615.45

OLEYNICHENKO, K. A., Engineer, KORNEYEV, A. D., Engineer, ZUSIN, V. YA., Engineer, (Zhdanov Institute of Metallurgy), and KAZAKOV, M. P., Engineer (Zhdanov Heavy Machinery Plant)

"Ozone Concentration in the Working Area During Aluminum Welding"

Moscow, Svarochnoye Proizvodstvo, No 7, Jul 70, pp 48-49

Abstract: A study was made of ozone contamination of the working area during automatic welding of aluminum. The study was made under laboratory and plant conditions. The procedure for determining the ozone concentration is based on the ozone-potassium iodide interaction ($2\ KI+H_2O+O_2= I_2+2KOH+O_2$). The ozone concentration under plant conditions was determined in welding 25-mm-thick panels of railroad containers made of A5 aluminum, and also in welding annular joints inside containers. Experimental procedures are briefly described, and averaged results of 10 experiments are presented in a table. With the relative instability of ozone taken into account, measurements were taken in order to determine its concentration at various distances from the arc, in the vertical and horizontal directions. A schematic experimental setup and the dependence of concentration on distance in both directions are presented. Ozone concentration at

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OLEYNICHENKO, K. A., et al, Svarochnoye Proizvodstvo, No 7, Jul 70, pp 48-49

the welder's respiratory level was found to be 0.44 mg/m^3 (under the shield) and 0.52 mg/m^3 (in front of the shield) in panel welding, and 2.26 mg/m^3 and 4.16 mg/m^3 in welding inside the container. These figures are substantially higher than the admissible level (0.1 mg/m^3). Local exhaust ventilation is recommended for the reduction of contamination. 1 figure, 1 table, 4 references.

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USSR UDC: 8.74

ZUSMAN, I. Kh.

"Running of Programs Written for the D-68 and T-71 in OS IPM"

Teoriya Yazykov i Metody Postroyeniya Sistem Programmir. [Theory of Languages and Methods of Construction of Programming Systems--Collection of Works], Kiev-Alushta, 1972, pp 325-328 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V570, by V. Mikheyev)

Translation: The different forms of data organization used in the D-68 and T-71 supervisory programs and in OS IPM and the different interpretations of extracodes makes these supervisors incompatible with OS IPM. It is demonstrated that this incompatibility can be defeated if the programs are emulated in OS IPM in the mode modeling the capabilities provided by the supervisors. An emulator refers to a task in OS IPM which is an intermediate between the OS task and the emulated task. The emulator processes the description of the task and acquires the necessary resources, inputs the program and initial data considering the input words and controlled symbols, interprets the operation of the extracodes and assures the reaction to errors called for in the task. Emulator consists of two sequentially operating parts. The first part inputs and processes the description of the task being emulated. The second part consists of subroutines

USSR

Zusman, I. Kh., Teoriya Yazykov i Metody Postroyeniya Sistem Porgrammir., Kiev-Alushta, 1972, pp 325-328

for input, processing of errors and interpretation of extracodes. From one to three files must be prepared to start the emulator. The first file is the description of the emulated task, its program and initial data. The second file contains information on magnetic tapes used by the task. The third file is fixed in emulation of translators called by D-68 and T-71 from a magnetic drum, and contains the name of the translator with which the names of the sections of the translator begin in storage.

USSR

UDC 534-8

ROKHLIN, L. L., ZUSMAN, L. L.

"Effect of Recovery and Recrystallization on the Attenuation of Ultrasound in Magnesium"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Nonferrous Alloys -- Collection of Works), Moscow, "Nauka", 1971, pp 68-71 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh521)

Translation: The effect of recovery and recrystallization on the damping of ultrasound in polycrystalline magnesium which was subjected to various degrees of cold deformation (from 1 to 50%) was studied. The damping of ultrasound was determined by a pulse method for longitudinal waves, and the measurement frequency was 10 and 20 MHz. Three stages of the measurement occur in this temperature interval: the first is characterized by a drop in the damping of ultrasound upon recovery; the second is characterized by an increase in damping upon recovery; and the third stage is the recrystallization of the process, during which attenuation of ultrasound drops considerably. Depending on the degree of preliminary deformation of the samples, the individual stages of change in the damping coefficient have a different development: in samples deformed by

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USSR

ROKHLIN, L. L., ZUSMAN, L. L., Struktura i svoystva legk. splavov, Moscow, "Nauka", 1971, pp 68-71

1 and 2% the three stages were noted; in samples deformed by 5 and 10% the damping is relatively little dependent on the annealing temperature; in the most deformed samples (30 and 50%) only recrystallization of the sample was clearly displayed and damping of ultrasound is reduced. Authors abstract.

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USSR

ROKHLIN, L. L., ZUSMAN, L. L., and BOCHVAR, N. R.

"Light Alloys with Specific Acoustic Properties"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 199-202, resume

Translation: Data are presented on the effect of alloying and structural factors (grain size, degree of cold hardening, and the decomposition degree of supersaturated solid solution) on the ultrasound damping factor of magnesium and lithium alloys. The effect of these factors on both kinds of alloys is compared. Acoustic properties of some alloys of optimum composition for use as materials in sound-conducting devices are presented. Six figures, eight bibliographic references.

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USSR

ZUSMAN, M. I.; MANESHIN, N. K.; PARYGIN, V. N. (Chair of the Physics of Oscillations)

"Modulation of 10-μ Radiation by Means of Ultrasound"

Moscow, Vestnik Moskovskogo Universiteta: Fizika, Astronomiya; March-April, 1972; pp 190-4

ABSTRACT: The authors present results of an experimental study of a modulator of 10.6-μ radiation using the photoelastic effect in a germanium crystal. The effective percentage modulation at an ultrasonic frequency of 13 Mc and equal to 20% for double refraction and 70% for diffraction, with a power consumption of 2.2 watts by a piezoelectric driver, was obtained. The modulation band comprised 1%.

The article includes three equations and three figures. Figure 1 shows (a) the equivalent circuit of a piezoelectric converter and (b) the schematic diagram of matching a piezoelectric converter with an electric oscillator. Figure 2 shows the theoretical and experimental dependence of the effectiveness of a double refraction modulator on the voltage fed to a piezoelectric converter. Figure 3 shows the theoretical and experimental dependence of the effectiveness of a diffraction modulator on the voltage fed to a piezoelectric converter.

There are two bibliographic references.

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1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--MANIFESTATION OF STRUCTURAL FEATURES OF AQUEOUS ORGANIC MIXTURES IN THE KINETICS OF THE REACTION BETWEEN IRON II IONS AND

AUTHOR-(03)-ZUSMAN, R.I., LEVINA, A.S., MOLIN, YU.N.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(5), 1060-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SULFONE, BENZENE DERIVATIVE, HYDRAZINE ORGANIC COMPOUND, IRON, REACTION KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0788 STEP NO--UR/0020/70/191/005/1060/1062

CIRC ACCESSION NO--AT0132886

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0132886

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC DATA WERE SHOWN GRAPHICALLY FOR REACTION OF FE PRIME2POSITIVE WITH SULFONATED DIPHENYLPICRYLHYDRAZYL STABLE RADICAL IN AQ. MEOH, ETOH, PROH, ME SUB3 COH AND DIOXANE SYSTEMS IN THE 15-25DEGREES INTERVAL. GENERALLY THE RATE CONST. DECLINED IN THE REGION OF HIGH CONCNS. OF THE SUBSTRATE, POSSIBLY OWING TO DECLINING CHARGE ON THE REACTANTS AS A RESULT OF THEIR ASSOCN. WITH COUNTERIONS IN MEDIA OF LOW DIELEC. CONST. A MIN. IN THE RATE CONSTANT WAS OBSD. AT SIMILAR TO 0.1 MOLE FRACTION CONCN. OF THE ORG. COMPONENT OF THE SYSTEM AND THE LIKELY REASONS FOR THIS WERE BRIEFLY DISCUSSED. FACILITY: INST. KHIM. KINET. GORENIYA, NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC: 533.6.011.8

ZUSMAN, V.B. and NAGORNYKH, YU.D.

"Forming High-Velocity Molecular Beams by Ion Beam Recharging Method"

Novosibirsk, Sb. Vzaimodeystviye Gaza I Poverkhnust'yu Tverd. Tela (Symposium on Interaction of Gas with Solid Body Surface), 1971, pp 87-92 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2B263 by A.A. Pyaripun)

Translation: Results are given of an investigation of high-velocity molecular beams obtained by a known electrophysical method, based on ionization of gas followed by acceleration and recharging of ions at the gas target. A variety of this method with an ion beam, where ions are extracted from plasma by an electrostatic field, is investigated. It is shown that the deceleration of high-velocity nitrogen atoms on dense gas targets is independent of the kind of atoms of the target and that its intensity decreased by one order of magnitude with the change of velocity by 14 Km/sec. It is claimed that the method of ion beam recharging can be used to obtain neutral nitrogen flow at 10-20 Km/sec velocity.

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USSR

UDC 681.327.12

ZUSMAN, V. G. KRITSKIY, D. R., BITT, V. V., Experimental Scientific Research Institute of Metal-Cutting Machine Tools

"A Device for Reading out Information from a Punched Tape"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, 1970 p 138, Patent No 264818, filed 9 Mar 67

Abstract: This Author's Certificate introduces a device for reading out information from a punched tape. The unit contains feed and take-up cartridges, readout photocells, and a drive. As a distinguishing feature of the patent, the device is simplified and provision is made for operation with either a ring-type or oepn punched tape. The take-up cartridge contains a split spring ring with a diameter equal to that of the inner ring of the feed cartridge. Pressed against this ring from the inside is a roller with its axle connected to two levers. One of these levers is connected by its axis to the cartridge housing, while the other lever is connected to a spring-return rod and is located in a cavity perpendicular to the axis of rotation of the cartridge.

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USSR

UDC 616.13-002.18-085.835.3-032:611.13

OL'SHANETSKIY, A. A., Professor, and ZUSMANOVICH, F. M., Candidate of Medical Sciences, Faculty Surgical Clinic of the Clinical Faculty of the Dnepropetrovsk Medical Institute of the First Municipal Clinical Hospital

"Treatment of Obliterative Diseases of the Extremities by Intraarterial Infusion of Oxygen in Conjunction With Barotherapy"

Leningrad, Vestnik Khirurgii, Vol 107, No 12, Dec 71, pp 33-36

Abstract: Since intraarterial administration of oxygen, followed by local barotherapy in some cases, dilates arterioles and increases blood flow, this treatment was applied to 85 patients with endarteritis obliterans or atherosclerosis. No improvements were observed in 13 patients, and their necrotic limbs were amputated. Good results (disappearance of pain at rest, increased skin temperature, and restoration of ability to work) were attained in 39 out of 44 patients in the second stage of the disease, and satisfactory results (disappearance of pain at rest and arrest of the progress of the disease) were achieved in 22 out of 46 patients in the third and fourth stages. The remission lasted from 6 months to over one year, and equally good results were gained after the second treatment. It is believed that in some patients relapses were precipitated by wearing tight shoes and socks and abusing nicotine and alcohol. The method is recommended as an effective adjunct to conservative treatment.

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USSR

UDC 613.6-07:612.143

ZUSMANOVICH, V. A., Institute of Labor Hygiene and Occupational Diseases, Krivoy Rog

"Type of Work and Arterial Pressure"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 3, 1970, pp 16-19

Abstract: The effect of physical and mental work on the incidence of arterial hypertension was studied in 6000 workers employed in the mining industry. The subjects were subdivided into groups according to their diurnal energy expenditures. It was determined that arterial hypertension occurred significantly more often among workers engaged in mental work than among those doing physical work. Subjects performing hard and medium-hard labor showed more arterial hypertension than those doing light physical work. The desirability of transferring miners with elevated blood pressure, operating within the "danger zone" or those with arterial hypertension to light physical work is questioned.

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USSR

UDC: 621.372.413

ZUSMANOVSKIY, S. A., ZIMIN, S. F., SIMONOV, K. G.

"Coefficient of Interaction and Electronic Conductivity of a Two-Gap Resonator"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. 1, pp 55-57 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7B139)

Translation: Expressions for the coefficient of interaction and the components of electronic conductivity with regard to space charge forces are given for a two-gap resonator in the case of an arbitrary phase shift for the fields in the gaps. Two-gap resonators with both plane and gridless gaps are considered. The given relationships may be used to determine the geometric dimensions of the field of interaction of a two-gap resonator which give maximum interaction for any phase shift of the fields in the gaps. Bibliography of four titles. Resumé.

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USSR

UDC 621.385.623.4 (088.8)

ZUSMANOVSKIY, S. A., ZIMIN, S. F., SIMONOV, K. G.

"Two-Gap Resonator"

USSR Author's Certificate No 253884, filed 11 Mar 68, published 29 Jun 70 (from RZh-Elektronika i yeye primeneniye, No 2, Feb 71, Abstract No 2A172P)

Translation: A two-gap resonator for microwave devices is patented, with two interaction regions, bounded by each end of the drift tube and by the intervening wall with apertures, perpendicular to the direction of the electrons, and which differs in the fact that with the object of matching the velocity modulation of the electron stream with respect to its cross section and increasing the efficiency, the distance between the ends of the drift tube forming the overall interaction space is selected so as to exceed by not less than 1.5 times the diameter of the apertures for passage of the electron stream.

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USSR

UDC 621.3/3.42.64:621.385.6(088.8)

GINZBURG-PRESNOV, V. S., DEVYATKIN, I. I., ZUSMANOVSKIY, A. S., TSEYTLIN, A. M.

"Superhigh Frequency Magnetron Generator"

USSR Author's Certificate No 251016, Filed 23 May 67, Published 5 Nov 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D295P)

Translation: In order to improve the reliability of a superhigh frequency magnetron generator (see RZh-Radiotekhnika, 1968, 4D366), it is proposed that the primary winding of the heater transformer of the first magnetron be connected in series to the primary winding of the heater transformer of the second magnetron.

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USSR

UDC 621.352

ROMANOV, V. V., ZUYATLY, V. D., and AGAGUSEYNOV, K. YU.

"Determining the Components of Internal Resistance of Chemical Sources of Current"

Uch. zap. Azerb. in-t nefti i khimii (Scientific Notes. Azerbaydzhan Institute of Petroleum and Chemistry), 1972, ser. 9, No 1, pp 69-74 (from RZh-Khimiya, No 18, Sep 72, Abstract No 18L149

Translation: The author describes the calculation of components of internal resistance of chemical sources of current. Frequency dependence of internal resistance is presented for accumulators of all known electrochemical systems, as well as for cells and batteries in the manganese-zinc system. It is shown that the components of internal resistance R, x_1 and x_c can be determined from the curves for their frequency dependences as a function of the total internal resistance. Authors' abstract.

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USSR

ZUYEV, A. K.

UDC: 519.24

"Experimental Study of Statistical Systems of Estimates of the Modulus of a Gradient in a Central Field With Constant and Variable Gradient"

V sb. Zadachi statist. optimizatsii (Problems of Statistical Optimization --collection of works), Riga, "Zinatne", 1971, pp 107-119 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V405)

Translation: The paper describes the results of a study of the statistical properties of estimates of the modulus of a gradient done on the BESM-3M digital computer. A study is made of the experimental convergence to the true values of the statistical averages, and the variance of the estimates of the modulus of the gradient as a function of the number of accumulations and the distance to the target. Histograms are given for the modulus estimates in a central field with constant and variable gradient at various levels of interference with the number of accumulations for three distances to the extremum point. Author's abstract.

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USSR

UDC 621.9

KLABUKOV, Senior Instructor, KESTNER, O. Ye., Candidate of Engineering Sciences and Docent, and ZUYEV, A. M., Candidate of Physical and Mathematical Sciences and Docent, Kurgan Machine Building Institute

"Effect of Pressure on Friction and Wear of Alloy VT-14 and Steel 30KhGSA"

Moscow, IzVUZ--Mashinostroyeniye, No 12, 1972, pp 129-132

Abstract: The friction and wear between titanium alloy VT-14 and hardened steel 30KhGSA was studied with and without lubricants. Lubricants used were transformer oil, TSIATIM-201 and machine oil. A slip rate of 0.17 m/sec and pressures from 2.5 to 50 kg/cm^2 were used in the tests. It was determined that the use of lubricants does not particularly decrease friction and wear between the two metals. The specific wear of VT-14 was lower without the use of a lubricant than with it. The reason given for intensification of wear on alloy VT-14 when a lubricant was used was that the lubricant prevents oxygen and nitrogen from penetrating the friction surface which in turn prevents cold working of the surface; thus the metal never increases in microhardness at the surface layer. 4 figures, 1 table, 11 bibliographic references.

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UDC 542.61:546.212

USSR

FROLOV, Yu. G., SERGIYEVSKIY, V. V., and ZUYEV, A. P., Moscow Chemico-Technological Institute imeni D. I. Mendeleyev

"A Study of the Hydration of Certain Neutral Organophosphorus Compounds"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol XV, No 1, 1972, pp 59-62

Abstract: The role of water dissolved in the organic phase during the extraction is quite unexplained in a number of cases, though this does not negate the idea that the hydration of reagents has a strong influence on extraction equilibrium. In this connection, the dependence of water solubility, in solutions of 10 different organophosphorus compounds in toluene, on water activity, was studied. The solubility-activity relationship was determined by the isopiestic method developed by the authors (Radiokhimiya, 13, 760, 1971). Water concentration in the organic solutions was determined by electrometric titration, using Fischer's reagent. All 10 cases showed that the analytical concentration of water in the organic phase is linearly dependent on activity in an aqueous solution. Magnitudes of the distribution constants and the correlation factors calculated by the method of least squares, were determined. It is concluded that the demonstrated relationship between solubility and activity of water disproves the previously held belief in the formation of

USSR

FROLOV, Yu. G., et al., Khimiya i Khimicheskaya Tekhnologiya, Vol XV, No 1, 1972, pp 59-62

stoichiometric compounds between water and reagent molecules; also, that the logarithm of the distribution constants for water correlates linearly with the sum of the Kabachnik substituents for the 10 compounds studied.

2/2

USSR

UDC 615.371:576.851.491.036.8.074:541.24

MOSKVICHEVA, I. V., DUDKINA, M. I., ZUYEV, A. S., CHERKASOV, A. N., and SHAPIRO, N. I., Leningrad Institute of Vaccines and Sera

"Relationship Between the Immunological Properties of S. typhi Antigen Fractions and Their Molecular-Weight Parameters

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972, pp 82-86

Abstract: Antigens isolated from S. typhi cultures by tryptic proteolysis or by treatment with hydrogen peroxide were characterized by considerable polydispersity. They contained components with diffusion coefficients ranging from 0.45 - 0.6 X 10^{-7} to 10 - 11 X 10^{-7} cm^2/sec with mean square radii [$(\overline{R^2}_D)1/2$] from 560 - 590 to 30 - 40 Å. The high-molecular-weight fractions of the preparations induced the formation of O and Vi antibodies in high titers; the antigen activity of the low-molecular-weight fractions was 2 to 3 orders lower. The high-molecular-weight fraction of the peroxide preparation also induced the formation of H antibodies. A relationship was observed between the molecular-weight parameters of the antigen preparations and the level of their biological activity (protective properties, toxicity, and antigenic specificity). The high-molecular-weight components exhibited the greatest biological activity in rabbit serum.

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1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EFFECT OF THE STRUCTURE OF THE MONOMERIC UNIT ON BIREFRINGENCE IN POLYDIALLYL PHTHALATES -U-

AUTHOR--ZUYEV, B.M.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 730-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--OPTIC PROPERTY, PHTHALATE, POLYMER CROSSLINKING, ANISOTROPY, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1259

STEP NO--UR/0459/70/012/004/0730/0737

CIRC ACCESSION NO--AP0134933

UNCLASSIFIED

2/2 025 UNCLASSIFIED

CIRC ACCESSION NO--AP0134933 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BIREFRINGENCE MEASUREMENTS OF CROSSLINKED DIALLYL O, ISO, AND TEREPHTHALATE AND TETRAHYDROPHTHALATE POLYMERS SUGGESTED A CORRELATION BETWEEN CHEM. STRUCTURE AND OPTICAL PROPERTIES. INTRODUCTION OF PH GROUPS INTO THE 1,4,POSITION GAVE POLYMERS HAVING HIGH OPTICAL SENSITIVITY CONSTS. THE BIREFRINGENCE OF STRAINED POLYMERS INCREASED ON COOLING, PRESUMABLY DUE TO HINDERED ROTATION, WHICH CAUSED INACTIVE CHAINS TO BE ORIENTED SUCH THAT THE TOTAL ANISOTROPY WAS INVERSELY PROPORTIONAL TO TEMP. FACILITY: INST. ORG. FIZ. KHIM. IM. ARBUZOVA, KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 621.171.237

TRET'YAKOV, A. V., ZINOV'YEV, YE. G., ZUYEV, B. P., SHEBANITS, E. N., and NALCHA, G. I., Scientific Research Institute of Heavy Machine Building of the Urals Machine Building Plant and the Zhdanov Metallurgical Plant imeni Il'ich

"Increasing the Quality of Strip During Coiling Using an Electrohydraulic System of Working Rolls Bending"

Moscow, Stal', No 7, Jul 73, pp 628-632

Abstract: The graphic relationship of corrected height of nonplaneness to the relative difference of elongation along the strip width, having a parabolic nature, was determined. It was established that strip and sheet dimensions affect the height of the wave forming the non-planeness. Effectiveness of the action of additional bending of the working rolls on the relative difference of elongations and strip non-planeness surpasses the effectiveness of the action of the pressure device (with the exception of narrow and thin strip). Hydroshaping of the working rolls promotes improvement of the mechanical properties of low-carbon steel during finishing owing to an insignificant change of the average relative reduction along the strip width in the limits of 0.8-1.4%. Adjustment of the hydroshaping system for the initial non-planeness of strip leads to producing heterogeneous mechanical properties along the width. Therefore, it is

USSR

TRET'YAKOV, A. V., et al., Stal', No 7, Jul 73, pp 628-632

advantageous to equip continuous cold rolling mills with electrohydraulic systems of forced roll bending. Operation of the systen of hydraulic shaping of the working rolls on a 1700 finishing mill made it possible to, along with a 1.5-3.0-fold reduction of rejection of cold-rolled sheet for roughness and waviness, substantially stabilize the mode of reductions and to increase the output of 1.5-2.0 mm thick sheet for very deep drawing by 10%. Six figures, two tables, six bibliographic references.

2/2

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--IMPROVEMENT IN THE PREPARATION OF PHOSPHATIDE CONCENTRATES -U-

AUTHOR-(05)-KLYUCHKIN, V.V., ZUYEV, E.I., SAVELYEVA, V.L., KONDRASHIN, N.A., PIDRIYKO, YE.V.

COUNTRY OF INFO--USSR

SOURCE--MASLO-ZHIR. PROM. 1970, 36(2), 34-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--HYDROLYSIS, CRUDE OIL, PETROLEUM PRODUCT, PHOSPHOLIPID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1559 STEP NO--UR/9085/70/036/002/0034/0037

CIRC ACCESSION NO--AP0118542

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118542

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDESIRABLE CHANGES IN PHOSPHOLIQIDS CAUSED BY THEIR SEPN. DURING HYDRATION OF OILS ARE HYDROLYSIS AND FORMATION OF DARK PHOSPHATIDES. THEREFORE, THE METHOD OF PRODUCTION MUST EXCLUDE OXION. PROCESSES AND HYDROLYSIS OF OIL. FOR THIS PURPOSE, THE CRUDE OIL FROM THE EXTN. EQUIPMENT FLOWS DIRECTLY TO HYDRATION WITH NEARLY COMPLETE ABSENCE OF CONTACE WITH AIR. THE CONTACT TIME OS OIL PHOSPHOLIQIDS WITH H SUB2 O IS CONSIDERABLE DECREASED. THE HYDRATION PPT. IS SEPD. FROM THE OIL ON A SUPERCENTRIFUGE AT 15,000 RPM. DRYING AND DEODORIZING THE PPT. TAKES PLACE AT 730 MM AND SMALLER THAN 110DEGREES IN 0.8-2.4 MM LAYERS DURING 2.5-7 MIN. THE QUALITY AND STABILITY OF THE PHOSPHOLIQIDS OBTAINED ARE VERY GOOD. FACILITY: KHABAROVSK. MASLO-ZHIR. KOMB., KHABAROVSK, USSR.

UNCLASSIFIED

USSR UDC 621.315:621.59

ASTAKHOV, YU. N., Candidate of Technical Sciences, VENIKOV, V. A., Doctor of Technical Sciences, ZUYEV, E. N., OKOLOTIN, V. S., Candidates of Technical Sciences, Moscow

"Unconventional Methods of Power Transmission Using Deep Cooling"

Moscow, Elektrichestvo, No 5, May 1971, pp 1-9

Abstract: Possible areas of research in the field of unconventional methods of electric power transmission which can be connected in one way or another with the use of deep cooling are discussed. An effort is made to demonstrate that deep cooling must be considered the only real possibility for radical improvement of the carrying capacity of a transmission unit to such values as 30-50 gigawatts per circuit available today. The general characteristics of deep-cooled line transmission and microwave transmission are discussed. The state of the art of cryogenic electric power transmission lines is presented from both Soviet and foreign data. The initial characteristics and choice of parameters of superconducting AC lines with coaxial conducting elements, the application of superconducting storage elements and cryogenic cable research are discussed.

USSR

ASTAKHOV, YU. N., et al., Elektrichestvo, No 5, May 1971, pp 1-9

Cryogenic cables for various purposes can in the next 10-20 years solve the problem of transporting large amounts of power. Accordingly, scientific research in this field must be pushed. Superconducting AC lines must be compared with DC lines using type II superconductors. When designing superconducting AC lines for long distances, schemes insuring an increase in carrying capacity with respect to stability conditions and the best use of the conducting properties of the material must be considered. The application of superconducting magnetic systems can lead to the creation of effective electric power storage elements for regulating the operating conditions of the system in the presence of low variations.

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USSR UDC: /621.3.051.025:537.312.62/.001.2.003.1

ZUYEV, E. V., Moscow

"Superconductive Alternating Current Transmission"

Moscow, Izvestiya Akademii Nauk SSSR--Energetika i transport, No. 1, January-February 1971, pp 45-54

Abstract: This article considers the transmission of alternating current only, because cryogenic and ordinary electrical transmissions of direct current, by air or cable, are identical from the viewpoint of electrical systems. Consisting essentially of a review of the work done on superconductive transmission systems for alternating current, the paper also proposes a method for computing the electrical parameters and a number of line operation characteristics under actual conditions, when the dielectric between the outer and inner conductors of a coaxial line is a vacuum or helium in liquid or gaseous form. It is shown, by analyzing the results of this method for computing a number of transmission systems capable of carrying 6-36 GV over a distance of 2500 km, that superconductive a-c transmission through elements of niobium with a vacuum

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203820014-9"

USSR

ZUYEV, E. V., Izvestiya Akademii Nauk SSSR--Energetika i transport, No 1, January-February 1971, pp 45-54

or helium as insulation is, in the first approximation, similar to lossless air lines where the propagation of electromagnetic waves is concerned.

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CSO: 1860-W

- END -

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USSR

UDC: 621.396.670.951

IVANOVA, N. S., BOGDANOV, A. A., MESROPOV, G. M., OGANOVA, L. A., ZUYEV, F. K., YEGOROV, Ye. M.

"A Fiberglass-Reinforced Polarization Material"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 30, Oct 71, Author's Certificate No 317137, Division H, filed 30 Sep 64, published 7 Oct 71, p 193

Translation: This Author's Certificate introduces a fiberglass-reinforced polarization material based on textolite for antenna reflectors. As a distinguishing feature of the patent, the weight of the reflector is reduced by adding to the glass-textolite reinforcement a layer of metallized glass fabric which contains metallized glass filaments in one of the directions of its structure (warp or weft). The glass filaments consist of elementary glass fibers coated with a layer of metal (aluminum or zinc) securely bonded to the glass fiber surface.

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USSR

UDC: 681.3.06:51

ROZENKNOP, V. D., ZUYEV, G. Ye.

"Supervisory Program for a Conditional Computer"

V sb. Primeneniye vychisl. tekhn. v elektrotekhn. prom-sti (Using Computer Technology in the Electrical Engineering Industry—collection of works), Moscow, 1971, pp 274-288 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V593)

Translation: The authors consider the functions of a controlling (supervisory) program and certain requirements for the hardware part which, when they are met, permit development of a control program enabling a time-sharing mode and also operation of several programs in a multiple-program mode. A block diagram of the supervisory program is described for a conditional computer. V. Mikheyev.

1/1

USSR

UDC 621.791.85

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

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

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

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

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USSR

Microelectronics

UDC: 621.396.6-181.5

ZUYEV, I. V.

"Technique of Hermetizing Microsystem Units by Electron-Beam Welding"

Elektron tekhnika, Nauchno-tekhn. sb. Mikroelektronika (Electronic Engineering, Scientific-Technical Collection, Microelectronics) 1970, No. 2(23), pp 132-133 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3V287)

Translation: A magazine semiautomatic device for the hermetization of units in a type A.306.05 machine with a productive capacity of up to 4500 finished parts per month. (The article is on deposit in the Institute. "Elektronika," No. DE-195). Author's abstract

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USSR

UDC 621.791.85

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

"Estimating the Critical Specific Power of Electron Beam Welding of Metals with Dagger Fusion"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 3-7

Abstract: The critical power density at which dagger fusion begins is estimated. It is shown that the volumetric power density is a more exact energy characteristic under the effect of an electron beam. The surface power density depends in this case on the magnitude of the accelerating voltage. Relations are obtained for estimating the critical parameters of the electron beam effect.

The critical volumetric power of electron beam welding with dagger fusion is calculated for certain metals. The results presented are compared with the Bas calculations of the power and specific power density for a number of metals. The estimates show that the critical specific volumetric power for a given material is a constant, is independent of the accelerating voltage, and is determined only by the thermophysical and mechanical properties of the material. Increasing the volumetric power density or the surface power density above the critical value leads to a decrease in the energy accumulation time. It is noted that in actual cases where welding is carried out with a power density of 10^6-10^7 watts/cm^2, the energy accumulation time for all materials is $\sim 10^{-6}$-10^{-5} seconds. According to the tabulated

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USSR

ZUYEV, I. V., et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 3-7

data, such materials as tungsten, copper, and gold require 10-20 times more power to obtain dagger fusion than stainless steel or titanium.

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USSR

TODUA, A. V., ZUYEV, I. N., YEREMEYEV, G. A., CHITAISHVILI, I. A.

UDC: 621.372.01-503.25

"Frequency Parameters of the Input Circuits of Electronic Devices"

V sb. Radioelektronika optich. diapazona (Radio Electronics in the Optical Band--collection of works), Moscow, 1970(1971), pp 188-193 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3A118)

Translation: The paper deals with the frequency and wave properties of a series tank circuit with auxiliary active load in parallel with the tank capacitance. An expression is found for the modulus of the transmission factor of the circuit, and an extremum analysis of this expression is given which shows the cutoff frequencies of the tank passband and the maximum transmission factor. An examination of transient processes in pericdic and aperiodic modes of conduction is made on the basis of a differential equation for the voltage across an equivalent capacitor. It is shown that the given circuit can have two types of transient characteristics: classical, where the resistance of the loop is less than the double wave impedance, and non-trivial, where the zone of periodicity is in the middle of the range of external loads relative to the capacitor. In this connection, between the

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USSR
TODUA, A. V. et al., Radiotekhnika optich. diapazona, Moscow, 1970(1971), pp 188-193

upper and lower limits of the oscillatory region is a load at which the oscillatory process has an extremum. Two illustrations, bibliography of two titles. Ye. R.

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USSR

UDC: 533.6.011.8

ZUYEV, N.D., KALUGIN, V.M. and PROCHUKHAYEV, M.V.

"Investigation of Rarefied Gas Flow Around Flat Plate With Sharp Leading Edge"

Novosibirsk, Sb. Eksperim. Issled. i Vopr. Modelir. Techeniy Razrezhennogo Gaza (Symposium on Experimental Investigation and Modeling Problems of Rarefied Gas Flow), 1971, pp 3-9 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2B267 by V.S. Galkin)

Translation: Results of investigation on the effect of the temperature factor $T_w \approx 0.11 \div 1$ on the flow field parameters around a flat model at $M_\infty \approx 4,5$ and 8, designed for $R_{\infty} \approx 40$ and 400 respectively at 1 cm in a vacuum wind tunnel, are presented. The model is a flat plate with a sharp leading edge (thickness $\bar{\varepsilon} \approx 0.05$ cm, $\bar{\varepsilon}/\lambda_\infty < 0.25$, λ -length), the half-opening angle of the wedge at the leading edge $\varphi \approx 10^0$, liquid nitrogen circulating through internal channels maintains a temperature of $T_w \approx 78^0$K at the basic part of the surface, $T_w \approx 140^0$K near the leading edge. Measurements were made by means of total pressure probes, free-molecule thermoprobe made of 10 micromm diameter wire and by the glow discharge method (see Kalugin, V.M.,

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USSR

ZUYEV, N. D., et al., Sb. Eksperim. Issled. i Vopr. Modelir Techeniy Razrezhennogo Gaza, 1971, pp 3-9

Zh. Prikl. Mekh. i Tekhn. Fiz (Journal of Applied Mechanics and Technical Physics), 1969, No 2, pp 106-109, Referativnyy Zhurnal-Mekhanika, 1969, Abs. No 11B 383).

Data on the shape and thickness of the compression jump and profiles of temperature, density and pressure are presented. Reduction of $\bar{T}_w$ from 1 to 0.11 results in appreciable reduction of shock layer thickness. The use of similarity parameter proposed by Probstin

$$M_\infty \left(\bar{T}_w^{1/2} C_\infty / R_\infty \right)^{1/2}$$

where C_∞ is the Chapman-Rubezin constant, makes it possible to correlate the effects of M_∞ and $\bar{T}_w$ on the shape of the compression jump. With $\bar{T}_w = 1$ at the surface of the model a strong temperature jump is observed. There is a considerable transversal pressure gradient in the nonviscous layer. 8 references.

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USSR UDC: 669.721.472(088.8)

MARKOV, G. S., GRIGOR'YEVA, Ye. A., KOSAREV, S. P., MUZHZHAVLEV, K. D., ZUYEV, N. M., IVANOV, A. B.

"A Magnesium Electrolyzer"

USSR Author's Certificate Number 350863, Filed 28/12/70, Published 28/09/72 (Trnaslated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G204P).

Translation: The electrolyzer is equipped with chlorine-removing anodes and diaphragms. In order to reduce the losses of Mg and Cl_2 and improve their separation, a diaphragm is placed horizontally between the anodes of the electrolytic cells, separating the zone of collection of Mg from the zone of collection of Cl_2.

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UDC 669.721.472(088.8)

USSR

ZUYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., SHARUNOVA, G. M., SVALOV, G. N., IRTEGOV, N. N., SABUROV, V. F., SHCHELKONOGOV, A. A., GRUDOVSKIY, N. P., and KISELEV, A. V., All-Union Scientific Research and Design Institute of Aluminum, Magnesium, and Electrode Industry, Bereznikovskiy Titanium-Magnesium Combine

"Method of Cutting-Off the Electrolyte Supply of a Production Line Magnesium Electrolytic Reduction Cell"

USSR Author's Certificate No 260905, filed 21 Oct 68, published 5 May 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G135 P)

Translation: A method is proposed for switching-off the electrolyte supply to a production line magnesium electrolytic reduction cell for subsequent diffusion of scum by increasing the temperature of the electrolyte and the concentration of magnesium chloride. To avert disruption of the operation of the production line electrolytic reduction cell at the input into the cathode cell of the electrolytic reduction cell, shields are placed, which separate the working space of the electrolytic reduction cell from the electrolyte flow in the distribution canal.

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UDC 669.721.472(088.8)

USSR

REZNIKOV, I. L., ZUYEV, N. M., IVANOV, A. B., POLYAKOV, YU. A., FRANTAS'YEV, N. A., TATAKIN, A. N., SOLYAKOV, S. P., and KARAVAYNYY, A. I., All-Union Scientific Research and Design Institute of Aluminum, Magnesium, and Electrode Industry, Solikamskiy Magnesium Plant

"Method of Preparing Refined Electrolyte for Magnesium Production"

USSR Author's Certificate No 259401, filed 4 Sep 68, published 15 May 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G134 P)

Translation: A method is proposed for preparing a refined electrolyte for magnesium production, which includes enrichment of a reversible electrolyte with chlormagnesium initial raw material and refining by means of electrolytic and heat treatment, and also with the help of reducing agents and gases. To increase the degree of refining of the electrolyte and improve the technological indicators, the reversible electrolyte is separated into several streams, one of which is fed to the beneficiation with chlor-magnesium raw material, and the remaining ones are added to the obtained chloride melt enriched with $MgCl_2$ after refining. The enrichment of reversible electrolyte with chlormagnesium raw material produces 25-50% concentration of $MgCl_2$ at melt temperatures of 450-650°. The concentration of $MgCl_2$ in the refined electrolyte is maintained at 10-25%. 1/1

- 30 -

UDC 669.721.372

USSR

ZUYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., SVALOV, G. I., IRTEGOV, N. N., GENKIN, Ye. N., AGALAKOV, V. A., SHCHELKONOGOV, A. A., SABUROV, V. F., and KIRILENKO, I. S.

"Flow Line for Magnesium Production"

Moscow, Tsvetnyye Metally, No 9, Sep 71, pp 36-37

Abstract: An experimental-industrial flow line which uses smelted carnallite as the raw material for the production of magnesium has been established at a Soviet plant. The operation of the flow line is described by reference to a diagram and the distribution of slime (with 20% MgO) by electrolyzers showing the maximum output of slime (up to 60% of its total amount) on the first 3-4 electrolyzers. It is shown that the centralized feeding of diaphragm-type electrolyzers provides a 3-4% increase of magnesium output. To maintain normal temperature conditions and compensate for heat lossss, it is necessary to provide for an increase of current intensity and electrolyzer output by 10-12%, in comparison with electrolyzers with individual feeding. Two illustr., three biblio. refs.

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UDC 669.721.472(088.8)

USSR

ZUYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., SHARUNOVA, G. M., KASHKAROV, A. Z., DONSKIKH, P. A., KOLESNIKOV, A. V., GOLUBEV, A. A., SPRYGIN, A. I., KOLESNIKOV, V. A., and KUZ'MIN, V. V., All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry, and Berezniki Titanium-Magnesium Combine

"Device for Conveying Liquid Electrolyte and Magnesium"

USSR Authors' Certificate No 259396, Cl. 40c, 3/02; 40c, 3/08, (C 22d), filed 21 Oct 68, published 28 Apr 70 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G250 P)

Translation: In order to utilize the heat of the exothermic reactions taking place during the mixing of reversible electrolyte with $MgCl_2$ and to preclude the consumption of electric energy for heating the main conveyer lines, a pipeline for conveying the reversible electrolyte and metallic magnesium was installed inside a trough-shaped channel to convey a magnesium chloride-enriched electrolyte, the pipeline being connected at one end with the last electrolyzer of the flow line, and at the other with a mixer, while the trough-shaped channel is connected with the lead electrolyzer and the mixer.

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UDC 669.7/.8.472(088.8)

USSR

AGALAKOV, V. A., VUKOLOV, V. V., GENKIN, YA. N., ZUYEV, N. M., IVANOV, A. B., KLABUKOVA, G. I., LUK'YANOVA, YU. V., PAVLOVA, S. A., SVALOV, G. N., SHARUNOVA, G. M., and YUMASHEV, V. D., Bereznikovskiy Titanium-Magnesium Combine, All-Union Scientific Research and Design Institute of the Aluminum, Magnesium and Electrode Industry

"Vacuum Ladle For Transporting and Proportioning Melted Salts"

USSR Author's Certificate No 255581, filed 7 Mar 67, published 30 Mar 70 (from RZh-Metallurgiya, No 11, No 70, Abstract No 11 G85 P)

Translation: A vacuum ladle is proposed for transporting and proportioning melted salts. The device is made in the form of a thermostat into which is placed a heating crucible with two tap holes with closing devices. To ensure continuous operation of the vacuum ladle and accurate proportioning of the melt, the vacuum ladle is equipped with contact units which control the level of melt in the batcher. The contact units are installed at different levels and are connected to a device which records the stability of the electrolyte level.

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Magnesium

UDC 669.721.472(088.8)

USSR

ZUYEV, N. M., KASHKAROV, A. Z., IVANOV, A. B., KOLESNIKOV, A. V., and GOLUBEV, A. A.

"Method of Transporting Electrolytes for the Production of Magnesium

USSR Author's certificate No. 263894, Filed 21/10/68, Published 8/06/70, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No. 1 G170 P)

Translation: The method includes utilization of a pipeline and pump. In order to avoid expending electric power to heat the pipelines by using the heat of the exothermic reaction occurring upon mixing of the circulating electrolyte with $MgCl_2$, the circulating electrolyte is fed to a mixer for enrichment with magnesium chloride through a pipe contained in a trough, while the electrolyte enriched with magnesium chloride is returned from the mixer to the electrolyzers through the trough.

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UDC 669.721.37

USSR

ZUYEV, N. M., VUKOLOV, V. V., and IVANOV, A. B.

"Selecting the Optimum Temperature for the Electrolysis of Magnesium Chloride"

Moscow, Tsvetnyye Metally, No 12, Dec 70, pp 33-35

Abstract: A review of earlier research indicates the lack of a concensus on the effect of temperature on current efficiency, points up the paucity of information on the effect of temperature on stuging, magnesium quality, and voltage, and demonstrates the need for a more accurate definition of relationships between the temperature of the electrolyte and technological characteristics. The current efficiency was checked as a function of temperature within 680-790°C. The experimental data on the performance of magnesium electrolyzers using a sodium-potassium electrolyte demonstrated that an increase in temperature favorably affects both current efficiency and power consumption only up to 710-720° C. A further increase in temperature

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USSR

ZUYEV, N. M., et al, Tsvetnyye Metally, No. 12, Dec 70, pp 33-35

causes a marked drop in current efficiency and a rise in power consumption. Heating the electrolyte to 720°C results in a significant increase in sludging and lowers the quality of the produced magnesium. The contents of Si, Mn, Cu, Ni, K, Ca, and Cl in crude magnesium are independent of temperature and those for Mn, Cu, and Ni are determined by their contents in the initial raw material. In feeding electrolyzers with magnesium chloride of titanium production the content of these elements in magnesium remains well below that specified by GOST.

UDC: 621.315.592

USSR

ZUYEV, V. A., LITOVCHENKO, V. G., GLINCHUK, K. D., LITOVCHENKO, N. M., SUKACH, G. A., and LINNIK, L. F.

"Current Carrier Recombination Processes on Ge and Si Surfaces Under Laser Excitation"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1936-1944

Abstract: While investigations of volume recombination processes of current carriers under laser excitation have been made and have yielded important information on the characteristics of local centers and new recombination mechanisms, investigations of surface processes have been limited to low excitation levels. The experiments described in this paper were designed to measure four effects: photoconductivity amplitude and relaxation time; absorption of infrared light by unbalanced current carriers; zone-zone recombination radiation intensity and relaxation; capacitor photo-emf. A block diagram of the experimental equipment is given. A neodymium laser operating at a wavelength of 1.06 microns and a ruby laser at 0.6943 microns, with maximum intensity of 10^{25} kW/cm^2·sec, were used to generate the unbalanced current carriers. A signal of

USSR

UDC: 621.315.592

ZUYEV, V. A., et al, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1936-1944

infrared radiation was supplied by a 300 watt incandescent lamp with a germanium filter, and the receiver of the infrared radiation was a low-inertia photoresistance using germanium with a gold impurity. The authors thank O. V. Snitko, D. Pataki, and A. V. Sachenko for their useful comments on a number of problems encountered in the course of this work.

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USSR

ZUYEV, V. A., ISAYEVA, Ye. A., PETERS, V. V., and MIRCHINK, Ye. P., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences, USSR

"The Ability of the Viruses of Smallpox Vaccine and Fowl Plague of Birds to Form Plaques Under a Semiliquid Methylcellulose Cover"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, p 491

Translation: A cover medium containing methylcellulose was used to study the ability of vaccinia viruses and fowl plaque virus of birds to form plaques. After 48-72 hours of inocubation, the viruses form distinct macroplaques with a diameter of 1.5-2.5 mm. The method requires no concentrated media, is easy to perform, and yields reproducible results.

1/1

USSR UDC 576.858.75.083.35:576.858.75.095.383

TIKHKOV, V. D., ZUYEV, V. A., and PETERS, V. V., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences, Moscow

"Latent Infection of Cell Cultures Not Sensitive to the Cytopathic Effect of a Virus. 1. Reaction of L Cell Cultures to Infection With Influenza Virus Type A"

Moscow, Voprosy Virusologii, No 3, May/Jun 71, pp 281-185

Abstract: Influenza A viruses (WSN, PR8) do not reproduce in L cells and do not produce any cytopathic effect; rather, they exert a stimulating effect. The study of the properties of L cells was undertaken to ascertain differences between intact and infected cells. In particular, the capability of L cells to adsorb WSN virus and to maintain replication of the latter was studied. It was found that L cells can adsorb 90-95% of the virus. As a rule, intact L cells did not maintain replication of WSN and PR8 influenza viruses, as shown by results obtained from a study of the infectious and hemagglutinin titers. However, differences were found between intact and infected L cells as far as their proliferation patterns and mitotic indices were concerned. WSN-infected L cells had four times the mitotic index of normal cells. The observed changes are of hereditary character. WSN-infected L cells retained a high resistance to inoculation with homologous and unrelated viruses 1/2

USSR

TIMAKOV, V. D., et al., Voprosy Virusologii, No 3, May/Jun 71, pp 281-285

(for instances herpes). The possibility of a latent virus carrier state in such cells is discussed. It was concluded that infection of insensitive cells by a virus leads to a change in some cellular properties of hereditary character, which is particularly important for the possible formation of a latent form of viral infection in such cells. This is confirmed by data on the increased dimensions of cells and nuclei during the viral transmission process, as well as by the enhanced vital capacity of such cells.

2/2

USSR

UDC 553.85:548.55

UTKIN, N. N., URSULYAK, D. N., MIKHAL'CHENKOV, A. G., and ZUYEV, V. ...

"Inhomogeneity of Composition of Single Crystals of Calcium-Vanadium-Bismuth Ferrogarnet"

Moscow, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70, pp 104-107

Abstract: It was demonstrated earlier that when growing single crystals of calcium-vanadium-bismuth ferrogarnet by the method of static spontaneous crystallization from solution in a melt of lead oxide, the cooling rate of the melt V_{cool} has an essential effect on the composition and on the most important parameter -- the ferromagnetic resonance band width $2\Delta H$. On decreasing the cooling rate, the molecular composition of the single crystals $\{Bi_{3-2x}Ca_{2x}\}[Fe_2](Fe_{3-x}V_x)O_{12}$ growing from charges of the same initial composition (CaCO$_3$--2.9 mole %; Fe_2O_3--55.9 mole %; V_2O_5--5.3 mole %; Bi_2O_3--7.1 mole %, and PbO--18.8 mole %) varies toward an increase in the content of calcium and vanadium which for $V_{cool} \approx 1.5$ deg/hour reaches the limit. The results of these investigations are tabulated. The established nature of the dependence of saturation magnetization $4\pi M_s$ and $2\Delta H$ on the composition of the calcium-vanadium-bismuth ferrogarnet agrees with the earlier results. However, for single crystals of $Bi_{0.3}Ca_{2.7}Fe_{3.65}V_{1.35}O_{12}$ grown at $V_{cool} < 1.5$ deg/hour, a continuing drop in the value of $2\Delta H$

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with a decrease in their crystallization rate is characteristic. This law is also observed for single crystals of constant composition obtained from various initial charges.

In order to discover the causes of the effect of the cooling rate of the melt on the composition of single crystals of calcium-vanadium-bismuth ferrogarnet and, consequently, their properties, some samples were subjected to microradiography using the electron probe microanalyzer JXA-3A. It was discovered that in order to grow single crystals of calcium-vanadium-bismuth ferrogarnet with a homogeneous composition, the crystallization process must be carried out with melt cooling rates of no more than 1.5 deg/hour. This also promotes improved reproducibility of the single crystal composition and improved magnetic and super-high-frequency properties. It is pointed out that the more homogeneous composition arises from the fact that the diffusion processes and convection fluxes insure a favorable ratio of ferrite-forming components in the layer of the melt near the surface of the growing single crystals.

USSR

DMITRUK, N.L., ZUYEV, V.A., LYASHENKO, V.I., and TERESHCHENKO, A.K.

"Photoelectric Phenomena in the Near-Surface Region of GaAs"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 654-662

Abstract: Although the situation usually assumed in investigating photoelectric phenomena in semiconductors that the photocurrent carriers are always concentrated in a quasi-neutral region while the effect of the surface can be described by the rate of surface recombination is typical for Ge, it is extremely rare in GaAs. The existence of highly developed depletion layers close to the GaAs surface must lead to the localization of photocarriers in the near-surface charge region. Hence there is a need for a detailed investigation of this charge region, a task which this article undertakes. It investigates experimentally and computes theoretically the photoconductivity of semiconductors of the GaAs type, taking into account the minority carrier lifetime as a function of the coordinate in the charge region. In doing so, the authors did not assume a quasi-equilibrium situation in this region since it ordinarily does not occur in GaAs. They also consider quasi-monopolar photoconductivity. The experimental method consisted in measuring the steady-state photoconductivity and capacitive photo-emf in the characteristic absorption region of weakly compensated n-type GaAs. The authors express their gratitude to D.I. Zlobin for his assistance in computing the GaAs photoconductivity, and to V.K. Malyutenko and R.O. Litvinov for their comments.

1/1

Acc. Nr: AP0049429 Abstracting Service: CHEMICAL ABST.5/70 Ref. Code: UR0363

104760a Compositional heterogeneity of calcium–vanadium–bismuth iron garnet single crystals. Utkin, N. I.; Ursulyak, N. D.; Mikhal'chenkov, A. G.; Zuev, V. A. (USSR). *Izv. Akad. Nauk SSSR, Neorg. Mater.* 1970, 6(1), 101–7 (Russ). The reasons for the influence of the cooling rate of the melt on the compn. of Ca-V-Bi Fe garnet single crystals, and consequently, also on their properties, were investigated. To grow these garnet crystals that are homogeneous in compn., the crystn. must be carried out at melt cooling rates not >1.5 degree/hr. This also increases the reproducibility of the compn. of the single crystals and improves the magnetic and ultrahigh-frequency properties.
S. A. Mersol

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REEL/FRAME
19801267

USSR

UDC 576.858.75.083.35

ZUYEV, V. A., PETERS, V. V., and AZADOVA, N. B., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, and Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Latent Infection of Cell Cultures Resistant to Viral Cytopathic Effects. II. Isolation of Influenza Virus From Latently Infected Cells"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 713-718

Abstract: No cytopathology and no virus replication was observed in L cells inoculated with the WSN strain of AO influenza virus. During further cultivation of these L_{WSN} cells, no signs of virus-specific degeneration could be detected. However, immunofluorescent analyses revealed that most of cells contained virus-specific antigen. Infectious viruses were regularly isolated from L_{WSN} cultures by means of successive passages of the medium in chick embryo fibroblasts, though not in chick embryos (which proved unsuitable for this purpose). These viruses were identified as AO influenza, WSN strain. It was concluded that the L_{WSN} system represents a new form of latent influenza infection of virus-resistant cell colonies, in which the virus survives in most if not all cells.

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1/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--THE DYNAMICS OF DIFFERENT TYPES OF ANTIBODIES IN RABBITS IMMUNIZED WITH ASSOCIATED VACCINE AGAINST ANTHRAX AND BRUCELLOSIS -U-

AUTHOR--ZUYEV, V.G.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI, 1970, NR 1, PP 58-63

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTHRAX, BRUCELLOSIS, VACCINATION, SEROLOGIC TEST, COMPLEMENT FIXATION TEST, HEMAGGLUTINATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1288 STEP NO--UR/9091/70/000/001/0058/0063

CIRC ACCESSION NO--AP0136694

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0136694
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DRY ASSOCIATED VACCINE AGAINST BRUCELLOSIS AND ANTHRAX CAUSES MORE INTENSE ANTIBODY FORMATION IN THE BODIES OF RABBITS THAN THE SEPARATE VACCINES, APPARENTLY DUE TO SYNERGISM OF ANTIGENS. THE RESPONSE REACTION OF RABBITS WITH RESPECT TO BRUCELLOSIS ANTIGEN IS FIRST THE AGGLUTINATION REACTION, THEN THE COMPLEMENT FIXATION REACTION AND ALLERGY. THE ALLERGIC REACTION TO ANTHRAX ANTIGEN APPEARS EARLIER THAN SEROLOGICAL REACTIONS. THE INDIRECT HEMAGGLUTINATION REACTION WAS USED TO DETECT HUMORAL ANTHRAX ANTIBODIES. MONOVACCINES USED WERE BRUCELLOSIS NR 19 AND STI ANTHRAX VACCINE. THE AGGLUTINATION TEST FOR BRUCELLOSIS WAS POSITIVE ON THE FIFTH DAY AND REACHED THE HIGHEST TITERS (1:1485) ON THE 15TH DAY. COMPLEMENT FIXING ANTIBODIES WERE OBSERVED ON THE SEVENTH DAY AFTER ADMINISTRATION OF ASSOCIATED VACCINE. THE INDIRECT HEMAGGLUTINATION REACTION FOR ANTHRAX WAS POSITIVE ON THE 10TH DAY AND HIGHEST TITERS WERE NOTED ON THE 15TH AND 20TH DAYS. FACILITY: KAZAKHSKIY NAUCHNO-ISSLEDOVATEL'SKIY VETERINARNYY INSTITUT.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CRYOSTAT FOR A NEUTRON SCINTILLATION SPECTROMETER -U-

AUTHOR-(03)-ADAMOVICH, N.I., ZUYEV, V.I., PAVLOVSKAYA, T.F.

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, 1, 230-2

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYOSTAT, SCINTILLATION SPECTROMETER, NEUTRON, CRYSTAL, PHOTOMULTIPLIER TUBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1884 STEP NO--UR/0120/70/001/000/0230/0232

CIRC ACCESSION NO--AP0108214

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203820014-9"

2/2 029 .UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0108214
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONSTRUCTION AND THE COOLING SYSTEM ARE DESCRIBED OF A CRYOSTAT WHICH CAN COOL THE CRYSTAL AND THE PHOTOMULTIPLIER SIMULTANEOUSLY TO A GIVEN TEMP. FROM PLUS 25 TO MINUS 196DEGREES. THIS TEMP. CAN BE MAINTAINED WITH AN ACCURACY OF PLUS OR MINUS 0.2DEGREES.

UNCLASSIFIED

JPRS 59368

6-73

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XVI-10. EPITAXY OF Ge ON (100) SURFACES OF NaCl, CaF_2 and BaF_2 CRYSTALS

[Article by L. Zh.-3. Lyudvik, V. G. Pyn'ko, V. M. Zuyev, A. A. Lyudvik, Krasnoyarsk; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 229]

The characteristic features of germanium epitaxy are compared for vacuum condensation of it on (100) NaCl, CaF_2 and BaF_2 surfaces. The CaF_2 and BaF_2 substrates in the form of monocrystalline layers with (100) surfaces were grown epitaxially on NaCl crystals by vacuum condensation. The surfaces of the NaCl substrates were manufactured by three procedures: the cleavage of the crystal in the air, cleavage in a vacuum during deposition of the germanium, and the surface of the NaCl autoepitaxial layer was used.

In spite of the almost complete coincidence of the lattice periods of Ge and NaCl, an oriented germanium film cannot be uniquely obtained on the (001) surface of NaCl crystal.

Perfect monocrystalline germanium films with orientation parallel to the substrate were obtained on the (100) CaF_2 and BaF_2 surfaces.

An effort is made to explain the results obtained on the basis of the concepts of the atomic structure of a real crystal surface.

ZUYEV, V. M.

USSR UDC 621.314.26

DOLMATOV, R. G., GRIGOR'YEV, V. S., BESSARABOV, G. V., ZUYEV, V. N., Taganrog Radio Engineering Institute

"A Converter of the Mean Frequency of a Random Pulse Train"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 3, Jan 71, Author's Certificate No 291220, Division G, filed 4 Aug 69, published 6 Jan 71, p 124

Translation: This Author's Certificate introduces a converter of the mean frequency of a random pulse train. The device contains a flip-flop, switches, a shaper, two voltage sources of different polarity, and an integrating amplifier. As a distinguishing feature of the patent, the reliability of the converter is improved by including a threshold device whose output is connected to the inputs of the shaper and flip-flop and to the controlling input of one of the switches, through which the input of the entire device is connected to the second input of the flip-flop. The sources of voltage of opposite polarity are connected through the corresponding switches to the inputs of the integrating amplifier. The output of the amplifier is connected to the input of the threshold device.
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USSR UDC: 621.391.825(088.8)

ZUYEV, V. N., IOSHCHENKO, A. N., KVASHNIN, Ye. F., SAVINYKH, V. L.

"A Reception Device for Orthogonal Wide-Band Radio Signals"

USSR Author's Certificate No 262940, filed 5 May 68, published 3 Jun 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D56 P)

Translation: The device introduced by this patent provides coherent reception of orthogonal wide-band signals by the method of synchronous heterodyning. Signals are fed from the output of channel multipliers to the signal inputs of the corresponding coherent channel detectors. A common sinusoidal reference voltage from the outputs of the channel multipliers is fed to the second input of the coherent channel detectors through an adder, narrow-band filter and phase shifter. The device is designed for radio telegraph communications systems with an active pause. N. S.

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1/2 031 UNCLASSIFIED PROCESSING DATE--020CT70
TITLE--A DEVICE FOR RECEPTION OF ORTHOGONAL BROAD BAND RADIO SIGNALS -U-

AUTHOR-(04)-ZUYEV, V.I., IOSHCHENKO, A.N., KVASHNIN, YE.F., SAVINYKH, V.L.

COUNTRY OF INFO--USSR

SOURCE--PATENT NO 262940
REFERENCE--MUSCOW, OTKRYTIYA, IZOBRET. PROM. OBRAZTSY, TOVARNYE ZNAKI NO
DATE PUBLISHED--04FEB70

SUBJECT AREAS--NAVIGATION, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--BROADBAND COMMUNICATION, ORTHGONAL FUNCTION, SIGNAL RECEPTION, ELECTRONIC CIRCUIT, COMMUNICATION CHANNEL, SIGNAL DETECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1100 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0112222
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--02OCT70

2/2 031

CIRC ACCESSION NO--AA0112222

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES A DEVICE FOR RECEPTION OF ORTHOGONAL BROAD BAND RADIO SIGNALS. THE UNIT CONTAINS CHANNEL MULTIPLIERS, NOISE GENERATORS, INTEGRATORS AND A COINCIDENCE CIRCUIT. IT DIFFERS BECAUSE TO PROVIDE FOR COHERENT RECEPTION OF WIDE BAND SIGNALS, THE SIGNAL FROM THE OUTPUT OF THE CHANNEL MULTIPLIERS IS FED TO THE SIGNAL INPUTS OF THE CORRESPONDING COHERENT CHANNEL DETECTORS, WHILE A COMMON SINUSOIDAL REFERENCE VOLTAGE FROM THE OUTPUTS OF THE CHANNEL MULTIPLIERS IS SIMULTANEOUSLY APPLIED ACROSS THE SECOND INPUT OF THE COHERENT DETECTORS THROUGH A SUMMING CIRCUIT, NARROW BAND FILTER AND PHASE INVERTER.

UNCLASSIFIED

USSR 2

UDC 621.391.825

ZUYEV, V. N., IOSHCHENKO, A. N., KVASHNIN, Ye. F., SAVINYKH, V. L.

"A Device for Reception of Orthogonal Broad-Band Radio Signals"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, 4 Feb 70, p 36, Patent No 262940, Filed 5 May 68

Translation: This Author's Certificate introduces a device for reception of orthogonal broad-band radio signals. The unit contains channel multipliers, noise generators, integrators and a coincidence circuit. It differs because to provide for coherent reception of wide-band signals, the signal from the output of the channel multipliers is fed to the signal inputs of the corresponding coherent channel detectors, while a common sinusoidal reference voltage from the outputs of the channel multipliers is simultaneously applied across the second input of the coherent detectors through a summing circuit, narrow-band filter and phase inverter.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203820014-9"

1/2 040 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ON THE POSSIBILITY OF EMPLOYING OPTICAL PUMPING FOR EXCITATION OF NOBLE GAS ATOMS -U-

AUTHOR-(02)-BOROVICH, B.L., ZLYEV, V.S.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 5, PP 1794-1797

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--OPTIC PUMPING, POPULATION INVERSION, COLLISION, PHOTON, ATOM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0022 STEP NO--UR/0056/70/058/005/1794/1797

CIRC ACCESSION NO--AP0127672

UNCLASSIFIED

2/2 040 UNCLASSIFIED

CIRC ACCESSION NO--AP0127672 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR CREATION OF INVERSE POPULATION IN THE LEVELS OF NOBLE GAS MOLECULES (XE SUB2, KR SUB2 ETC.) IT IS SUGGESTED THAT AN OPTICAL EXCITATION METHOD BE APPLIED IN WHICH USE IS MADE OF THE TRANSITIONS WHICH OCCUR IN TRIPLE COLLISIONS BETWEEN A PHOTO AND TWO UNEXCITED ATOMS. THE PARAMETERS OF THE PUMPING SOURCE REQUIRED FOR APPRECIABLE AMPLIFICATION ARE ESTIMATED. FACILITY: FIZICHESKIY INSTITUT IM. P. N. LEBEDEVA, AN SSSR.

UNCLASSIFIED

USSR

UDC 621.375.82

BOROVICH, B. L., ZUYEV, V. S., KATULIN, V. A., NOSACH, O. Yu., TYURIN, Ye. L., SHCHEGLOV, V. A.

"On the Propagation of a Light Pulse in a Moving, Two-Level Absorption Medium"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 2, Moscow, "Sov. radio", 1972, pp 88-89 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D845)

Translation: A solution is obtained for the transfer equations for a monochromatic pulse of radiation of an arbitrary time form $I_0(t)$ in a two-level absorption medium with a density of active particles N_0 = const and a velocity $v(t)$. It is shown that, depending on the relationships v and $v_0 = 2I_0/N_0$, there exist two modes of propagation of illumination waves with the interface at $v = v_0$. The study is also applicable for a radiation source moving with an arbitrary velocity in the medium. 6 ref. Authors abstract.

1/1

USSR

BOROVICH, B. L., ZUYEV, V. S., KROKHIN, O. N. (Lebedev Physics Institute, USSR Academy of Sciences)

"Photochemical Dissociation Waves"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, April 1973, pp 1184-1189

Abstract: Photochemical dissociation waves in an absorbing molecular gas are studied on the basis of the solution of the transfer functions of the radiation and balance of the number of particles. The analysis is carried out for light of arbitrary spectral composition and any directivity and by taking into account the real molecular absorption bands. The analytic expressions obtained allow one to evaluate the velocity and width of the waves and the effective frequency band used for various shapes of the absorption bands. The possibility of stationary propagation of photochemical dissociation is investigated. Conditions for the appearance of inverse population of levels when one of the photodissociation products is in the excited state are analyzed. It is shown that the conditions for inversion differ qualitatively in the regions of fixed and stationary wave propagation.

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USSR

UDC: 535.14:621.001

BOROVICH, B. L., ZUYEV, V. S., KATULIN, V. A., NOSACH, O. Yu., TYURIN, Ye. L., SHCHEGLOV, V. A.

"Concerning Propagation of a Light Pulse in a Moving Two-Level Absorbing Medium"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 88-89

Abstract: A solution is found for equations of propagation of a monochromatic pulse with arbitrary time dependence $I_0(t)$ through a two-level absorbent medium with density of active particles $N_0 = \text{const}$ and velocity $v(t)$. It is found that depending on the ratio of v and $v_0 = 2I_0/N_0$, there are two modes of wave propagation with interface at $v = v_0$. The analysis is also applicable to a source of emission moving with an arbitrary velocity in the medium. Bibliography of six titles.

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USSR

2.

BASOV, N. G.; ZUYEV, V. S.; et al (Lebedev Physics Institute, USSR Academy of Sciences, Moscow)

"High-Current Discharge in Gases: 1. Experimental Study of Optical and Energy Characteristics of a Powerful Discharge in Air" (first of a two-part series)

Leningrad, Journal of Technical Physics; March, 1970; pp 516-22

Δ Δ Δ

ABSTRACT: A high-current discharge in air (~ 400 ka) with an energy in the discharge channel up to 25 kilojoules for a period of $2 \cdot 10^{-5}$ seconds was studied experimentally. The current and voltage, expansion rate of the channel, and the absolute radiation intensities for various frequencies were measured, making it possible to determine the energy balance in the discharge. With a channel expansion rate of 2 to 2.5 km/sec the radiation spectrum of the discharge column corresponds to the radiation spectrum of a black body with a temperature varying from 2 to 4 electron volts for 20 μsec. The discharge can be used as a high-intensity source of radiation.

The article includes 7 figures. There are 7 references.

1/1

USSR

Optics & Spectroscopy

DONCHENKO, V. A., ZUYEV, V. YE., KRASYUK, I. K., PAL'YANOV, P. A., PASHININ, P. P., PROKHOROV, A. M., KABANOV, M. V.

"Energy Attenuation of Supershort Pulses of Optical Emission by Dispersive Media"

Moscow, Pis'ma v ZhETF, Vol 18, No 4, 1973, pp 230-232

Abstract: Preliminary results are presented from direct measurements of one of the basic characteristics of a dispersive medium -- the attenuation coefficient -- on its interaction with a supershort pulse of optical emission. A decrease in attenuation of the supershort pulse by comparison with the case of emission which is continuous in time was detected experimentally. The results of measurements of the optical thickness of suspensions of polystyrene latexes and lycopodium spores are tabulated for continuous and pulsed emission. The observed "transparency" of the medium which is three times as great in the case of a laser pulse by comparison with continuous radiation is not connected with such effects as the thermal effect on the properties of the medium, the spectroscopic effect of saturation and self-focussing.

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USSR

UDC 535.361.1

ZUYEV, V. Ye., KREKOV, G. M., POPKOV, A. I., Institute of Optics of the Atmosphere, Siberian Department of the Academy of Sciences of the USSR

"Statistical Evaluation of Deformation of a Light Pulse in Laser Ranging of Plane-Stratified Clouds"

Tomsk, Izvestiya VUZov: Fizika, No 2(129), 1973, pp 50-53

Abstract: Statistical sampling techniques are used to analyze the information contained in the reflected pulse when lasers are used for cloud ranging. The proposed Monte Carlo algorithm can be used to account for (1) the complex boundary conditions which arise when a divergent, spatially bounded light beam propagates in a laminar, nonhomogeneous scattering medium, and (2) for the nonstationary nature of the process. The results of the study show that converting measured time functionals to the properties of the scattering system investigated requires a preliminary detailed analysis of direct relations by numerical experiments and asymptotic methods.

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USSR

UDC 621.373.826:550.3

ZUYEV, V. Ye., KOSTIN, V. V., MARICHEV, V. N., and SOSNIN, A. V.

"Propagation of Laser Radiation of 2.36 Micron Wavelength in the Atmosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 162-164 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D442)

Translation: Results are given of measurements of the attenuation of a laser with $\lambda = 2.36\ \mu$ (the laser using $Ca,F_2:Dy^{2+}$) under complex meteorological conditions. It is shown that the dispersion by particles of atmospheric aerosol plays the decisive role. In several cases, the attenuation factor at $\lambda = 2.36\ \mu$ is greater than at $\lambda = 0.63\ \mu$. One table, bibliography of four. A. L.

ject. Bibliography of four. A. L.
1/1

USSR UDC 621.373.826:550.3

ARSHINOV, Yu. F., DONCHENKO, V. A., ZUYEV, V. Ye., KOSTIN, V. V., and SAMOKHVALOV, I. V.

"Propagation of Laser Radiation for λ = 2.36 Microns in Artificial Dispersing Media"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 157-161 (from RZh--Radiotekhnika, No 10, 1972, Abstract 10D439)

Translation: Results are given of a study of the attenuation and inverse scattering of the radiation from a laser using $CaF_2:Dy^{2+}$ (λ = 2.36μ) and Ne-He mixture (λ = 0.63μ) in a medium simulating some types of natural clouds, fogs, and wood smoke. Bibliography of five. A. L.

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USSR

UDC 621.373:535.06

ANTIPOV, B. A., ZUYEV, V. YE., PYRSIKOVA, P. D., SAPOZHNIKOVA, V. A.

"Investigation of the Shape of the Methane Absorption Line Using a Laser Controlled by a Magnetic Field"

Leningrad, Optika i Spektroskopiya, No 6, Dec 71, pp 899-902

Abstract: The shape of the methane absorption line with center 2947.888 cm^{-1} at methane pressures from 1 to 6 mm Hg was investigated. It is noted that the resolution of existing spectral devices did not generally give a true picture of the shape of the absorption line. Studies of the distorted shape of the spectral line are of interest to spectroscopists since the shape of the line, more than any other parameter, is sensitive to various intermolecular and intramolecular interactions. A laser is suggested as very promising for the study of the true shape of the line, since the radiation line of the laser is close to the absorption line being studied and it can be tuned by the same method. A He-Ne laser with a wavelength of 3.39 μ was used as a radiation source in studying the methane absorption line. The length of the laser resonator was 28 cm and the diameter of the discharge tube did not exceed 4 mm. The laser was

USSR

ANTIPOV, B. A. et al, Optika i Spektroskopiya, No 6, Dec 71, pp 899-902

placed in a solonoid of length 76 mm where the magnetic field strength varied from 0 to 600 gauss. The length of the solonoid was three times the length of the gas tube in order to ensure a high homogeneity of the magnetic field inside the tube. Values of the integral intensity and the half-width of the line were found to be 1.1 ± 0.1 $atm^{-1} \cdot cm^{-1}$ and 0.0045 ± 0.0004 cm^{-1}, respectively. Both single-frequency and multimode helium-neon lasers were used in the measurements. It is claimed that the technique makes it possible to study the effect of partial pressures of various gases, temperature, and total pressure on the change in monochromatic absorption coefficients at the center of the line and at various distances from it. A comparison of experimental and calculated values shows that the shape of the methane absorption line obtained in the experiment may be considered practically undistorted.

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USSR

UDC 551.521.3

ZUYEV, V. YE., SOKOLOV, V. V., TVOROGOV, S. D.

"Calculating the Volumetric Coefficients of Radiation Attenuation by Water Clouds and Fogs in the 0.3-25 Micron Range"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 4, 1971, pp 73-77

Abstract: The volumetric coefficients of attenuation of radiation by water clouds and fogs in the 0.3-25 micron range are calculated. The particle size spectrum is described by the gamma distribution, the parameters of which vary within broad limits. The latest most exact and detailed data on the components of the complex index of refraction of water were used in the calculations.

The calculated coefficients are presented in a table, and the attenuation coefficients are plotted as functions of some defined values of the microstructure parameters r (most probable particle radius) and μ (the characteristic of the distribution halfwidth). An error analysis is performed for the calculations.

ZUYEV, V. YE., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy-- Fizika, No 4, 1971, pp 73-77

The problem of the limiting optical thicknesses of clouds and fogs for which it is still possible to use the values of the attenuation coefficients obtained in estimating the measurable radiation attenuation by Bouguer's law is also investigated.

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USSR UDC: 538.245

ZUYEV, V. Ye., LEVIN, B. Ye., STANISHEVSKAYA, S. P., DUBROSSARSKAYA, V. Ya.

"A Method of Reducing Dielectric Losses in SHF Ferrites"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 4, Feb 71, Author's Certificate No 292195, Division H, filed 31 Jul 69, published 6 Jan 71, p 140

Translation: This Author's Certificate introduces a method of reducing dielectric losses of SHF ferrites made by hot pressing. As a distinguishing feature of the patent, the procedure is designed for oxidizing the ferrite during pressing, and for simplifying technology. Materials which dissociate at the hot pressing temperature with the release of oxygen are added to the initial charge.

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1/2 023 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--USE OF A CAST IRON POWDER IN ELECTRODES FOR CAST IRON WELDING -U-

AUTHOR--ZUYEV, V.YE.

COUNTRY OF INFO--USSR

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CIRC ACCESSION NO--AP0113228

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CAST IRON TURNINGS GROUND IN A BALL MILL TO 0.05-0.08 MU (ORIGINAL CHEM. COMPN.: C 3.45, SI 2.65, MN 0.6-0.65, S 0.04 AND P 0.06 WT.PERCENT) WERE STUDIED FOR USE AS ELECTRODE COATINGS AND IN CORED WIRE FOR ELECTROSLAG WELDING OF CAST IRON. ELECTRODE COATINGS OF THE CAST IRON POWDER ENRICHED IN SI, C, TI, AL, AND NI AND A SLAG BASED COATING OF SIO SUB2 MINUS TIO SUB2 MINUS CAF SUB2 WERE INVESTIGATED. WELDS PRODUCED BY USING THE ENRICHED CAST IRON POWDER SHOWED A HARDNESS HB 200-240. THE INTRODUCTION OF CRYOLITE INTO THE FILLER WIRE CAST IRON POWDER COMPN. PRODUCES A CLOSE WELD WITHOUT THE USE OF SPECIAL GASEOUS SHIELDING. THE USE OF CAST IRON POWDER DECREASES MATERIAL COSTS AND SIMPLIFIES THE WELDING PROCESS.

FACILITY: MOGILEV, MASHINOSTR. INST., MOGILEV, USSR.

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UDC 621.385:530.145.6:623

ZUYEV, V. YE.

Raspostraneniye vidimykh i infrakrasnykh voln v atmosfere (Propagation of Visible and Infrared R Waves in the Atmosphere), Moscow, Soviet Radio Press, 1970, 496 pages (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D372K)

Translation: In this monograph the basic results of theoretical and experimental investigations of various aspects of the problem of propagation of visible and infrared waves in the atmosphere are generalized. The investigations of the author and other work both in the USSR and abroad form the basis of the monograph. In the first two parts of the book, the problems of absorption and scattering of both monochromatic and nonmonochromatic radiation are investigated under various meteorological conditions, at different distances and for different directions of radiation propagation. The third part contains a description of the laws of propagation of spatially limited beams of radiation of thermal sources and lasers in the atmosphere: the structure of the beam in various scattering media, the effect of turbulence of the atmosphere on the beam parameters; nonlinear effects accompanying propagation of powerful radiation in the atmosphere. The book is designed for a broad class of readers working in the field of optics and spectroscopy of the atmosphere, meteorology, geophysics, geodesy and astrophysics, optico-

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USSR

ZUYEV, V. YE., Raspostraneniye vidimykh i infrakrasnykh voln v atmosfere (Propagation of Visible and Infrared R Waves in the Atmosphere), Moscow, Soviet Radio Press, 1970, 496 pages (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D372K)

electronic and laser engineering and also for students in the advanced courses of the corresponding specialties.