USSR

GULYAYEV, A. P., and PASTERNAK, I. I., Izvestiya Akademii Nauk USSR, Metally, No 4, Jul-Aug 72, pp 159-163

coercivity of the alloys. The martensitic phase in the alloys is stable to 350-450°C, after which the reverse ($\alpha \rightarrow \gamma$) transition occurs. Six illustrations, three tables.

2/2

Acc. Nr.: AP0029499 Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp 25-28

A STUDY OF THE CHEMICAL COMPOSITION AND ANTITUMOR ACTIVITY OF PROTAMINES, ISOLATED FROM STURGEON MILT

Yermol'yeva, Z.V.; Silayev, A.B.; Yulikova, Ye.P.; Pokidova, N.V.; Pasternak, N.A.; Kolosova, I.V.; Yevseyenko, L.K.; Shenderovich, V.A.

Central Post Graduate Medical Institute, Moscow State University

Triprotamines in the form of sulfates were isolated from the milt of individual sturgeon stocks. The amino acid composition of triprotamines was determined and their antitumor activity was studied. It was shown that protamine from Ac. guldenstadti and Ac. stellatus inhibited tumor growth by 60—80 per cent, while protamine from Ac. nudiventris was practically inactive.

REEL/FRAME

19681100

USSR UDC 534.222.232:51

BORDYUGOV, G. T., PASTERNAK, V. B.

"Mathematical Modeling of the Electrical-Acoustical Circuit of an Ultrasonic Device"

Defektoskopiya, No 6, 1971, pp 26-37.

ABSTRACT: A mathematical model is developed for the electrical-acoustical circuit of an ultrasonic instrument for modeling by analog computer. The model is developed for a longitudinal-wave piezovibrator with an acoustical load consisting of a system of plane-parallel layers, an arbitrary electrical load, excited by a generator of arbitrary form. Examples of calculations using the model are presented. The model allows analysis and synthesis of the electrical-acoustical circuit as a whole and of the electrical and acoustical lengths separately when operated in the pulse and continuous modes in the time and frequency areas. The model allows engineering design and planning of the electrical-acoustical circuit (echo-pulse defectoscope, shadow pulse defectoscope, ultrasonic measuring devices operating in continuous or semi-continuous modes).

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UDC 533.69.01+533.662.013

USSR

PASTUKHOV, A. I.

"Nonlinear Theory of the Plan-View Nonorthogonal Wing, With Nonplanar Median Surface"

Tr. Leningr. in-t aviats. priborostr. (Transactions of the Leningrad Institute of Aircraft Instrument-Making), 1970, Vypusk (Issue) 66, pp 69-82 (from RZh-Mekhanika, No 12, Dec 70, Abstract No 12B329, by V. I. Putyata)

Translation: The vortical scheme of the wing proposed by the author, which takes into account the nonlinearity effect, is used in calculating the characteristics of wings with values of the derivative of local taper different from zero. The function of the distribution of vortical density of the attached vortices is approximated by a piecewise linear function for the approximate calculation of the induced velocities. The singular integral equation obtained for the vortical density is solved in approximate terms by replacing it with a system of algebraic equations. To the first approximation, the slope of the free vortices to the wing's median surface is assumed to be constant, and in successive approximations this quantity is refined in accordance with the method outlined in another study (cf. Abstract 12B331)

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USSR

UDC 533.69.01+533.662.013

PASTUKHOV, A. I.

"Approximation Method for Calculating Aerodynamic Characteristics of Thin Nonplane Wings With Variable Sweepback"

Tr. Leningr. korablestroit. in-ta (Works of Leningrad Shipbuilding Institute), 1971, No. 74, pp 79-85 (from RZh-Mekhanika, No 8, Aug 72, Abstract No 8B415)

Translation: The wing is replaced by a system of connected vortices with an intensity of variable span and of rectilinear free vortices coming from each point of the surface of the wing and located in vertical planes parallel to the base cross section. An integral equation is compiled to find the intensity of the vortices on the basis of the condition of nonflow. The solution is sought in the form of a trigonometric series. The paper presents an approximation method for finding the coefficients of the series. Calculations of the first approximation for a plane triangular wing show satisfactory agreement with experimental data. 5 ref. V. M. Shashin.

1/1

1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CONCERNING CERTAIN CLASS OF CODES UTILIZING PROPERTIES OF LOGICAL TRANSFORMATION -U-

AUTHOR--PASTUKHHOV, A.V.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 5, PP 169-174

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ERROR CORRECTING CODE, LOGIC ELEMENT, NONLINEAR SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0923 STEP NO--UR/0103/70/000/005/0169/0174

CIRC ACCESSION NO--AP0113758

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0113758

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE IS CONSIDERED A CLASS OF CODES USED FOR THE CORRECTION OF THE ERRORS OF A SET MULTIPLICITY AT THE INPUT OF A LOGICAL SCHEME. THE NONLINEAR CODES OF THIS CLASS ARE CONSTRUCTED BOTH WITH TAKING INTO ACCOUNT THE NONLINEAR PROPERTIES OF THE LOGICAL TRANSFORMATION AND WITH THE HELP OF THE COMPLETE OR PARTIAL UTILIZATION OF LINEAR CODES. THERE IS STATED THE ESTIMATION OF THE ADVANTAGE OF INTRODUCING THE AFORE MENTIONED CODES AS COMPARED WITH THE LINEAR CODES OF MINIMAL REDUNDANCY.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--NONSTOICHIOMETRY AND MIXED CONDUCTION OF MELTS CONTAINING VANADIUM PENTOXIDE -U-

AUTHOR-(03)-PASTUKHOV, E.A., YESIN, O.A., VATOLIN, N.A.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(4), 453-60

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--VANADIUM PENTOXIDE, VANADIUM OXIDE, LEAD OXIDE, CALCIUM OXIDE, ELECTROMOTIVE FORCE, ELECTRICAL CONDUCTIVITY, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1150 STEP NO--UR/0364/70/006/004/0453/0460

CIRC ACCESSION NO--AP0121709

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121709

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SYSTEMS V SUB2 O SUB5-PBO, V SUB2 O SUB5-CAO, AND V SUB2 O SUB5-M SUBX O SUBY WERE STUDIED TO INVESTIGATE THE TRANSITION FROM ELECTRONIC TO IONIC CONDUCTION. THE EMF. AND ELEC. COND. WERE MEASURED AS FUNCTIONS OF TEMP., COMPN., AND O PARTIAL PRESSURE, PO. THE FRACTION OF ELECTRONIC CONDUCTION IS TABULATED FOR PO EQUALS 0.95, 0.21, AND 0.03 ATM, 0-100 MOL. PERCENT PBO, AND 830-1030DEGREES FOR V SUB2 O SUB5-PBO; 26-69 MOL. PERCENT CAO AND 730-1030DEGREES FOR V SUB2 O SUB5-CAO; 0-50 MOL. PERCENT AL SUB2 O SUB3 AND 730-1030DEGREES FOR V SUB2 O SUB5-AL SUB2 O SUB3; 42 AND 95 MOL. PERCENT B SUB2 O SUB3 AND 730-1030DEGREES FOR V SUB2 O SUB5-B SUB2 O SUB3; AND 32 MOL. PERCENT K SUB2 O AND 730-1030DEGREES FOR V SUB2 O SUB5-K SUB2 O. A TRANSITION FROM ELECTRONIC TO IONIC CONDUCTION TAKES PLACE AFTER THE OXIDE ADDNS. THE SMALLER THE POLARIZING STRENGTH OF THE ADDN., THE MORE EASILY IONIC CONDUCTION APPEARS. THE COMPN. DEPENDENCE OF THE ACTIVITY OF V USB2 O SUB5 IS ALSO PLOTTED. FACILITY: INST. MET., SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC 576.895.4

PASTUKHOV, G. I., Turkmen Scientific and Technical Society of Agriculture

"Seasonal Dynamics of the Development of Ixodid Ticks in the Kara-Kala Rayon of Turkmen SSR"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Biologicheskikh Nauk, No 1, 1972, pp 83-86

Abstract: In the Kara-Kala district of the Turkmen SSR, 18,169 Ixodid and Argasid ticks, belonging to 17 species, were collected from 1,900 animals. The ticks Hyalomma anatolicum, H. asiaticum, H. anatolicum excavatum, Boophilus calcaratus, and Rhipicephalus sanguineus parasitize animals in the imago phase all year round. In spring (March-May), animals are attacked by imagoes of Hyalomma plumbeum turanicum, H. detritum, Rhipicephalus bursa, Rh. turanicus and larvae of Boophilus calcaratus, and also by imagoes of Haemaphysalis otophila, H. sulcata, Dermacentor daghestanicus, and nymphs of Hyalomma detritum. In summer (June-August), attacks are continued by imagoes of Rhipicephalus bursa, Rh. turanicus, larvae of Boophilus calcaratus, and by imagoes of Hyalomma ticks. In fall (September-November) attacks by larvae of Rhipicephalus bursa and Hyalomma detritum, imagoes of Haemaphysalis otophila, Haem. sulcata, Dermacentor daghestanicus and Boophilus calcaratus, and by

USSR

BAKHTIN, A. Ye., PASTUKHOV, N. F.

"One Approach to the Solution of Problems of Optimal Territorial-Production Planning"

Optimiz. Planov. Razv. i Razmeshch. Otrasley Prom-sti [Optimization of Plans for Development and Placement of Branches of Industry -- Collection of Works], Novosibirsk, 1971, pp 57-90 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V539 from the Introduction).

Translation: A numerical method is described for calculating linear models used for optimal territorial-production planning. Based on the models studied, the problem of prospective development of branches of industry, problems of the development of economic regions and industrial complexes are solved.

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USSR

UDC: 51.681.14.155

BAYDAKOV, M. P., KRASIL'NIKOV, N. N., and PASTUKHOV, O. V.

"Human Ability to Distinguish Images in Gaussian Noise"

Novosibirsk, Avtometriya, No 1, 1973, pp 7-14

Abstract: In the practical design of radar and television equipment, the engineer comes up against the problem of the operator's ability to distinguish halftone images in a background of additive noise with a normal distribution law, the problem of when the detected images have substantial linear frequency distortion, and the problem of when the noise is correlated -- i.e., when the spectral intensity of the noise is a function of the frequency. The purpose of this paper is investigate the possibility of using the theory of statistical solutions for describing the operator's reactions under these conditions. Results of experiments the authors conducted in this investigation are described along with the experimental equipment. Observers were tested on their ability to distinguish images in Gaussian noise whose spectral intensity is independent of the frequency, images with linear frequency distortion, and images with varying levels of distortion. The authors conclude that the theory of statistical solutions is applicable to the problem.

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USSR UDC: none

BAYDAKOV, M. P., PASTUKHOV, O. V., POTOTSKIY, V. K.

"On the Probability of Distinguishing Images Without a Fixed Location"

Tr. Leningr. in-t aviats. priborostr. (Works of the Leningrad Institute of Aviation Instrument Building), 1971, vyp. 69, pp 38-42 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6G2)

Translation: The paper deals with the problem of distinguishing images against a background of a noise field in the case where the location of the image is not precisely known. Formulas are presented for evaluating the probability of distinguishing images without a fixed position. Resumé.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ON RELATIONSHIP BETWEEN SECRETION AND BLOOD SUPPLY OF THE PAROTID GLAND -U-
AUTHOR--PASTUKHOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--FIZIOLOGICHESKIY ZHURNAL SSSR IMENI I. M. SECHENOVA, 1970, VOL 56, NR 3, PP 407-412
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SALIVARY GLAND, BLOOD CIRCULATION, BLOOD PRESSURE, MEDICAL EXPERIMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1982/1609 STEP NO--UR/0239/70/056/003/0407/0412

CIRC ACCESSION NO--AP0052804
UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0052804

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN 4 DOGS WITH CHRONIC GLAND FISTULAE, THE GLAND BLOOD SUPPLY WAS MEASURED WITH THERMOELECTRIC PROCEDURE (MARSHAK'S FLAT ELECTRODE). ARTERIAL BLOOD PRESSURE WAS SIMULTANEOUSLY DETERMINED WITH AN ARTERIAL OSCILLOGRAPH. FEEDING AND SIGHT OF FOOD EVOKED A SECRETION AND INCREASE IN BLOOD SUPPLY OF THE GLAND. THE CHANGES IN THE BLOOD SUPPLY PERSISTED TWO OR THREE TIMES LONGER THAN THE SECRETION. THESE CHANGES RESULTED FROM THE ACTIVE DILATATION OF THE GLAND'S VESSELS. FACILITY: I. P. PAVLOV'S INSTITUTE OF PHYSIOLOGY ACAD. SCI. USSR, LENINGRAD.

UNCLASSIFIED

USSR

UDC: 621.3.049.75:774

PASTUKHOV, V. M., LOBOV, V. I., LUTCHENKOV, A. M., CHUMAKOV, Ye. A., SIYANOV, S.A., SHEKHOBANOV, M. P., LESKOVSKAYA, N. P., Scientific Research Institute of Technology and Production Organization"

"A Device for Combining Solid Circuits or Semiconductor Devices with Phototemplates"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3, 1970, pp 51-52, patent No 259975, filed 19 Nov 66

Abstract: This Author's Certificate introduces a device for combining solid circuits or semiconductor devices with phototemplates and exposing the resultant combination. The device contains a table for combining the solid-state circuit with the phototemplate, an illuminator, power supply, control unit and enclosure. As a distinguishing feature of the patent, precision of registration is improved by fitting the combining table with a hemispherical suction device fastened on a rotating column and connected through a piston rod, movable sleeve, cylinder, support bracket and moving carriage in prismatic guides to a fixed plate to which the phototemplate is fastened.

USSR

UDC 616.988.25-022.395.42-084(-21)

CHUDINOV, P. I., NETSKIY, G. I., CHERNUKHA, A. D., YEVSTIGNEYEVA, N. S., PASTUKHOVA, A. N., SHCHEGLOVA, Ye. Ye., and PRIGORODOV, V. I., Omsk Scientific Research Institute of Natural Focus Infections, Ministry of Health RSFSR, and Novosibirskaya Oblast Sanitary Epidemiological Station

"Prevention of Tickborne Encephalitis in a Large City"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 5, 1971, pp 588-591

Abstract: The rapid growth of industrial centers in Western Siberia near endemic regions of tickborne encephalitis has increased the incidence of this disease among some urban populations. For example, in Novosibirsk, a city of approximately half a million people located on the Ob River, four cases were reported in 1955, 108 in 1962, and 141 in 1966. The city is located close to a number of densely wooded, heavily tick-infested areas often visited by hikers, vacationers, etc. However, the number of cases was reduced to 74 in 1969 mainly as a result of systematically dusting the forests most frequented by Novosibirsk residents with DDT (30 to 50 kg of 10% dust per hectare) and by selective vaccination of groups most vulnerable to tickborne encephalitis (geologists, regular hikers, etc.). It was not deemed necessary to provide mass vaccinations.

USSR

UDC 669.018.8:669.29

BRYNZA, V. P., PASTUKHOVA, O. M., and KAPLINA, G. S., Dnepropetrovsk State University, Academy of Sciences UkrSSR, and Institute of the Problems of Material Science

"Investigation of the Corrosion Resistance of Nitrided Titanium"

Moscow, Zashchita Metallov, Vol 7, No 4, Jul-Aug 71, pp 466-468

Abstract: The effect of chemico-thermal processing by nitration on the corrosion resistance of VT1-1 and OT-4 titanium alloys in solutions of sulfuric acid, hydrochloric acid, nitric acid, and potassium hydroxide acid was investigated on 15 x 20 mm specimens, 0.4 and 0.9 mm thick, placed in a quartz vessel through which was passed nitrogen of high frequency. The corrosion was investigated by roentgenostructural, metallographic, and gravimetric analyses. The results are discussed by reference to tabulated data of corrosion rates and the microstructure of the VT1-1 alloy. Nitrided Ti-specimens showed no corrosion signs in solutions of 3% HCl, but they had a weight increase of 0.004 g per specimen. Their nitride layer was not disrupted, but was slightly dark, probably due to the development of oxide layers on its surface. One illustr., two tables, seven biblio. refs.

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Pharmacology and Toxicology

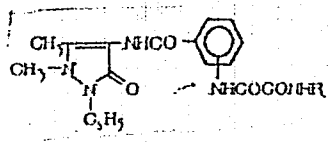
USSR UDC 615.31:547.775

PETYUNIN, G. P., and PASTUKHOVA, T. P., Khar'kov Pharmaceutical Institute

"Synthesis and Biological Activity of 4-Antipyrylamines of N(aralkoxamoyl)-aminobenzoic Acids"

Moscow, Khimiko Farmatsevticheshiy Zhurnal, Vol 7, 2, Feb 73, pp 15-17

Abstract: The conversion of the 4-aminoantipyrines to its N-oxamoyl derivative has been shown to strengthen the medicinal properties and to decrease the toxicity of the drug. Thus a series of 14 compounds were prepared having the form



for the NHCOCONHR group in either the 2 or the 4 position. In comparison to the antipyrine starting material, the derivatives generally have similar activity in doses of 10-200 mg/kg and a toxic dose (determined by the ID_{50}) of 725-1450 mg/kg making the latter 2-3 times less toxic than the antipyrines. Individual compounds are discussed briefly. Chemical composition, physical data, and preparations are given.

1/1

USSR

UDC: 541.124

ALEKSANDROV, V. V., BUFETOV, N. S., PASTUKHOVA, T. V., TUKHTAYEV, R. K., Novosibirsk

"Using Pulse Calorimetry to Study the Kinetics of Reactions in Condensed Media"

Novosibirsk, Fizika Goreniya i Vzryva, Vol 9, No 1, Jan/Feb 73, pp 75-83

Abstract: The authors investigate pulse calorimetry as a means of studying high-temperature reactions. Some of the advantages of this research procedure are its fundamental nature (there are almost no chemical reactions which do not involve release or absorption of heat), the fact that calorimetric methods are direct, which simplifies interpretation, and the possibility of making measurements where other methods cannot be used. It is shown that the best way to ensure that the time constant of the calorimeter is much shorter than the time constant of the reaction to be studied, is to use thin layers in the calorimetric cell construction. Some examples are given of experimental data obtained by pulse calorimetry.

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1/3 020 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--STRUCTURE AND PROPERTIES OF BERYLLIUM BRONZE MICROALLOYED WITH MAGNESIUM -U-

AUTHOR--TKHAGAPSOYEV, KH.G., RAKHSHTADT, A.G., PASTUKHOVA, ZH.P., KARPOV, A.G.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2), 19-24

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--BRONZE, BERYLLIUM CONTAINING ALLOY, MAGNESIUM CONTAINING ALLOY, ALLOY DESIGNATION, X RAY ANALYSIS, ELECTRIC RESISTANCE, MECHANICAL PROPERTY/(U)B2 BERYLLIUM BRONZE, (U)BNT19 BERYLLIUM BRONZE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1297 STEP NO--UR/0129/70/000/002/0019/0024

CIRC ACCESSION NO--AP0106077

UNCLASSIFIED

2/3 020 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106077

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COLD ROLLED B2 AND BNTI.9 BE BRONZES CONTG. MG 0.05-0.10, AND P 0.02-0.1PERCENT (B2 BRONZE ONLY), AND THOSE WITHOUT MG AND P WERE QUENCHED FROM 780-820DEGREES AND AGED AT 280-360DEGREES FOR 0.5-10 HR. DISTRIBUTION OF TI, NI, AND MG WAS DETD. BY THE X RAY ANAL., AND THE AGING KINETICS WAS STUDIED BY DETG. CHANGES OF HARDNESS, ELASTIC LIMIT SIGMA SUB0.002, AND ELEC. RESISTANCE. THE RELAXATION STABILITY WAS DETD. BY THE LONGITUDINAL BEND TESTS AT 10 PRIME4 CYCLES, 65 AND 45 KG-MM PRIME2, AND UNDER STATIC LOAD OF 55 KG-MM PRIME2 AT 20 AND 100DEGREES, FOR 3500 AND 150 HR, RESP. ADDN. OF MG SMALLER THAN OR EQUAL TO 0.1PERCENT SIGNIFICANTLY IMPROVES MECH. PROPERTIES OF BRONZES. THE SIGMA SUB0.002 INCREASED FROM 58-63 FOR BRONZE WITHOUT MG TO 73-8 KG-MM PRIME2 FOR THE ONE CONTG. MG, THE FINAL DEFORMATION DEGREE AFTER 10 PRIME4 CYCLES DECREASED FROM (5-6.3) TIMES 10 PRIME NEGATIVE3 TO (2.5-2.6) TIMES 10 PRIME NEGATIVE3PERCENT AT 65 KG-MM PRIME2, AND FROM (1.72-2.9) TIMES 10 PRIME NEGATIVE3 TO (1.17-1.4) TIMES 10 PRIME NEGATIVE3PERCENT AT 45 KG-MM PRIME2, AND THAT UNDER THE STATIC STRESS OF 55 KG-MM PRIME2 DECREASED FROM (4.8-5.65) TIMES 10 PRIME NEGATIVE3 TO (2.34-2.42) TIMES 10 PRIME NEGATIVE3PERCENT AT 20DEGREES, 3500 HR, AND FROM 8 TIMES 10 PRIME NEGATIVE3 TO 4.2 TIMES 10 PRIME NEGATIVE3PERCENT AT 100DEGREES, 150 HR. MG INCREASES DISPERSITY AND HOMOGENEITY OF THE BRONZE STRUCTURE. THE MEAN ALPHA SOLID SOLN. GRAIN DIAM., MEASURED AFTER 15 MIN OF HEATING AT 720-820DEGREES AND QUENCHING, DECREASED FROM 0.03 TO 0.025 MM AT 720DEGREES AND FROM SIMILAR TO (0.08-0.09) TO SIMILAR TO (0.065-0.07) MM AT 820DEGREES.

UNCLASSIFIED

3/3 020 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106077

ABSTRACT/EXTRACT--THESE EFFECTS ARE ATTRIBUTED TO THE ADSORPTION OF MG ON THE INTERPHASE SURFACES AND AT THE GRAIN BOUNDARIES. NO CHANGES OF ELEC. RESISTANCE AND NEGLIGIBLE ONES OF HARDNESS WERE OBSD. FURTHERMORE, IT WAS CALCD. THAT P INCREASES THE AGING ACTIVATION ENERGY OF THE B2 BRONZE AT 280-360DEGREES FROM 24-6 TO 32-5 KCAL-MOLE. P ATOMS FORM COMPLEXES WITH VACANCIES AND DIMINISH THEIR MOBILITY. THE QUENCHING FROM 770DEGREES AND AGING AT 320DEGREES FOR 6 HR IS RECOMMENDED AS THE OPTIMUM HEAT TREATMENT OF THE BNT1.9 AND B2 BRONZES - CONTG. MG. J. PIETKIEWICZ.

UNCLASSIFIED

USSR UDC: 519.2

PASTUR, L. A.

"Spectra of Random Self-Conjugate Operators"

Uspekhi mat. nauk (Advances in the Mathematical Sciences), 1973, 28, No 1, pp 3-64 (from RZh-Kibernetika, No 5, May 73, abstract No 5V46 by the author)

Translation: The survey is devoted to presenting the results of investigation of the spectra of certain classes of random operators, and is made up of three chapters. Chapter I, which is introductory, sets forth the content of some (basically two) papers which represent a pioneer effort in this area, and at the same time are substantial enough to give an understanding of the kinds of problems whose formulation and solution falls naturally into the given field of endeavor. Chapter II investigates the distribution of eigenvalues in sets of random matrices, a typical example being the sum of one-dimensional projection operators on random vectors uniformly and independently distributed over the surface of an n-dimensional unit

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USSR

PASTUR, L. A., Uspekhi mat. nauk, 1973, 28, No 1, pp 3-64

sphere. It is shown that as $n \to \infty$ the eigenvalue distribution function ceases to be random and may be found as the solution of a certain functional equation. Chapter III is devoted to the Schrödinger equation with random potential. Proofs are given here for the ergodic properties of certain random quantities constructed from the eigenvalues and eigenfunctions of such an equation, and a study is made of the distribution of eigenvalues in cases where the potential is a Gaussian random field or a homogeneous Markov process.

USSR

UDC 576.312.36

NUZHDIN, N. I., Corresponding Member, Academy of Sciences USSR and PASTUSHENKO-STRELETS, N. A., Institute of Biophysics, Academy of Sciences USSR, Moscow

"Reasons for the High Radioresistance of Barley Seeds From Plants Grown in High Mountains (Western Pamirs)"

Moscow, Doklady Akademii Nauk SSR, No 4, 1971, pp 954-957

Abstract: Natural ultraviolet radiation, especially in regions of intense insolution like the Western Pamirs, clearly has a protective effect against ionizing radiation. Seeds from two barley varieties were grown under conditions that excluded the ultraviolet part of the spectrum and then exposed to Cs^{137} gamma rays at various doses. The yield of chromosome aberrations counted in meristematic cells of root tips in late anaphase and early telophase served as a criterion of radioresistance. Cytological analysis showed that the frequency of chromosome aberrations in gamma-irradiated seeds from plants deprived of ultraviolet radiation throughout the growing period was much

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USSR

NUZHDIN, N. I. and PASTUSHENKO-STRELETS, N. A., Doklady Akademii Nauk SSR, No 4, 1971, pp 954-957

higher than in roots of seeds grown under light conditions normal for the Western Pamirs (control). In the variations without irradiation, the frequency of chromosome aberrations was virtually the same in both the experimental and control seeds of both barley varieties.

2/2

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CHROMOSOME MUTATIONS INDUCED BY SPACE FLIGHT FACTORS IN BARLEY SEEDS DURING THE FLIGHT OF THE AUTOMATIC STATIONS ZOND-5 AND ZOND-6

AUTHOR-(05)-NUZHDIN, N.I., DOZORTSEVA, R.L., PASTUSHENKOSTRELETS, N.A., SAMOKHVALOVA, N.S., CHUDINOVSKAYA, G.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. BIOL. 1970, 31(1), 72-83

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIATION INDUCED MUTATION, AGRICULTURE CROP SEED/(U)ZOND 5 CIRCUMLUNAR PROBE, (U)ZOND 6 CIRCUMLUNAR PROBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1962 STEP NO--UR/0321/70/031/001/0072/0083

CIRC ACCESSION NO--AP0123743

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123743

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SEEDS OF 2 VARIETIES OF BARLEY (RADIORESISTANT, AND RADIOSENSITIVE), IRRADIATED WITH 5 OR 10 KR AND PRIME137 CS GAMMA RAYS, OR NONIRRADIATED, DURING THEIR DORMANT AND RESTING STATE, WERE PLACED IN THE ZOND-5 AND ZOND-6 SPACESHIPS, WHICH FLEW AROUND THE MOON. AFTER THE FLIGHT, THEY WERE THOROUGHLY ANALYZED. THE CYTOL. STUDIES SHOWED SIGNIFICANT DIFFERENCES BETWEEN THE EXPTL. AND CONTROL SERIES IN THE AMTS. OF ABERRANT CELLS DUE TO CHROMOSOMAL MUTATIONS CAUSED BY THE SPACE FLIGHT FACTOR (SFF). SFF CAUSED CHROMOSOMAL MUTATIONS IN THE SEEDS. THE GENETIC EFFECT OF THE COMBINED INFLUENCE OF SSF AND GAMMA IRRADN. DEPENDED ON THE PHYSIOL. STATE OF THE IRRADIATED SEEDS, AND ON THE DOSES OF IRRADN. DORMANT SEEDS WITH A HIGH RADIORESISTANCE, AFTER IRRADN. WITH LOW GAMMA RAYS DOSES, WERE MORE AFFECTED BY THE COMBINED INFLUENCE OF SFF AND GAMMA IRRADN. SEEDS IN THE RESTING STATE WITH HIGH RADIOSENSITIVITY SHOWED A SHARP INCREASE OF THE EFFECT OF SFF. THE ADDITIVE AND SENSITIZING EFFECTS OF GAMMA IRRADN. AND SFF WERE OBSD. IN THE SEEDS FROM THE SPACE SHIPS.

FACILITY: INST. BIOL. PHYS., MOSCOW, USSR.

USSR UDC 541.13

MARKIN, V. S., PASTUSHENKO, V. F., and CHIZMADZHEV, Yu. A., Institute of Electrochemistry, Academy of Sciences USSR

"Propagation of a Pulse in the Electrokinetic Model of Nerve Fiber"

Moscow, Elektrokhimiya, No 3, Mar 71, pp 337-345

Abstract: Electrochemical systems with N-shaped current-voltage characteristics attract much research, since they enable one to model the generation processes and the propagation of nerve impulses. This article considers an electroosmotic system which displays localized drop in the current-voltage characteristics. The model system consisted of a two compartment electrolytic cell separated by a membrane and containing two solutions of different concentrations on the two sides of the membrane. The membrane was polarized by a segmented electrode located some distance away from the membrane in solution of lower concentration. In the experiment a constant current density j_0 is imposed upon this segmented electrode. It was found that propagation of the signal is determined not only by the properties of the membrane, but also by the nature of the distribution of the potential along the membrane. Equations were derived which describe the profile of

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USSR

MARKIN, V. S., et al., Elektrokhimiya, No 3, Mar 71, pp 337-345

the potential along the membrane and changes of the concentration of the electrolyte inside the membrane. Calculations are given for the rate of the propagation of the potential step along the membrane as a function of the parameters of the electroosmotic cell. The rate of propagation of the signal is dependent on the polarization current and has the shape of semiparabolas of different radius of curvature. From the formulae describing the rate of propagation of the impulse it is apparent that in the discrete membrane system, which is analogous to myelinized fiber, impulses propagated more rapidly than in the uniform membrane. In the membrane consisting of small segments which are separated by short intervals of the local current density on the active segments of the membrane remain constant then the increase of the resistance of the membrane r by a factor of α decreases the current density per unit length of the membrane by a factor of α. Substituting changes of the current and resistance into derived equations one finds that the rate of the propagation of the signal is increased by a factor of $\alpha^{1/2}$.

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UDC 539.325:534.1

USSR

PASTUSHIKHIN, V.N. (Moscow), Moscow Structural Engineering Institute

"Free Oscillations of Nonlinearly Elastic Shells"

Kiev, Prikladnaya Mekhanika, No 3, 1971, pp 16-20

Abstract: The article deals with free nonattenuating oscillations of nonlinear physically and geometrically slightly sloping shells. The physical nonlinearity is assumed in the form of a cubic parabola, the geometrical nonlinearity corresponds to the relationships of T. Karman. Along with the phase trajectories known in the theory of the oscillation of shells of finite flexure, made of materials subject to the Hooke law, qualitatively new phase curves were obtained for shells in which the influence of physical nonlinearity is greater than the influence of geometrical nonlinearity. With sufficiently large perturbations the flexures of such shells increase monotonously in time, and this brings about rapid destruction of the shell. 4 figures, 5 biographic entries.

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USSR

PASTUSHIKHIN, V. N., POPOVA, L. N.

"Stability of Smooth Envelopes in an Elliptical Plane with Finite Bending"

4-ya Vses. Konf. po Probl. Ustoychivosti v Stroyit. Mekh. Tezisy Dokl. [Fourth All-Union Conference on Problems of Stability in Structural Mechanics, Theses of Reports -- Collection of Works], Moscow, 1972, p 157, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 V291).

Translation: The process of sudden, snap deformation and bulging of smooth shells is studied. The bending of the shell is represented by means of two coordinate functions, one of which is symmetrical relative to both axes of the plane, while the other is inversely symmetrical relative to the large axis of the elliptical plane and symmetrical relative to the small axis. A variational method is used to reduce the problem to a system of two nonlinear algebraic equations. Study of the solutions of the equation system produced shows the possibility of a symmetrical form of loss of stability with a snap. A loss of stability in "mixed" form is also discussed, consisting of a combination of symmetrical and inversely symmetrical forms of bending relative to one axis. The limiting values of initial parameters of the shell for which the "mixed" form of loss of stability represents a genuine danger for thinwall three-dimensional systems are discussed.

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UDC 624.21.093

USSR

DROZD, YA. I., Honored Worker in Science and Technology; PASTUSHKOV, G. P., LOBANOV, A. T., Candidates of Technical Sciences

"33-Meter Diaphragmless Bridge Beam of Prestressed Algophorite Concrete"

Moscow, Beton i zhelezobeton, No. 12, Dec 71, pp 13-15

Abstract: A study of the use of prestressed algophorite concrete in highway bridges connected by the Belorussian Polytechnical Institute in conjunction with the Main Administration of Highways under the Council of Ministers BSSR is described. A bridge beam without diaphragms of length 33 m was designed and fabricated for a G-7 span structure. The span structure was designed for loads of N-30 and NK-80. The following composition was used per cubic meter of concrete: type 500 portland cement 480 kg, quartz sand (M-2.59) 575 kg, algophorite rubble with a fraction 5-20 mm satisfying requirements of GOST 11991-66, 658 kg and water 192 l. The tests showed that algophorite concrete can be used successfully to produce reliable bearing structures. A correct calculation of the three-dimensional operation of elements of a spanning structure and replacement of heavy concrete with algophorite concrete produced significant economies: the mass of the beams was reduced by 21.9% and the number of high-strength reinforcement rods was reduced by 21.8%. The rating of the concrete could be lowered from 400 to 350. The same formulas as for heavy concrete can be used to calculate these elements for strength in terms of normal cross sections.

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1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DETERMINATION OF MOTION VELOCITY OF CUMULUS CLOUDS ON THE BASIS OF RESULTS OF NUMERICAL SIMULATION OF THEIR DEVELOPMENT -U-

AUTHOR--PASTUSHKOV, R.S.

COUNTRY OF INFO--USSR

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 6, PP 35-41

DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--CUMULUS CLOUD, WIND VELOCITY, CLOUD FORMATION, CLOUD PHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1774 STEP NO--UR/0050/70/000/006/0035/0041

CIRC ACCESSION NO--AP0125390
UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125390

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF NUMERICAL SIMULATION OF THE DEVELOPMENT OF ISOLATED CUMULUS CLOUDS ARE USED FOR DETERMINING THE RELATIONSHIP BETWEEN THE MOTION VELOCITY OF THE CLOUD C AND THE VELOCITY OF THE EXTERNAL WIND U AT THE LEVEL OF MAXIMUM WATER CONTENT OF THE CLOUD. AS AN AVERAGE C IS SHOWN TO BE CLOSE TO U SUBL. FOR WEAKLY DEVELOPING CUMULUS CLOUDS IS FIND A TREND TO INCREASE THE VELOCITY OF THEIR MOTION. ON THE CONTRARY, IN THE STAGE OF INTENSIVE GROWTH OF THE CUMULUS CLOUD ITS MOTION VELOCITY IS SLIGHTLY DECREASED. HOWEVER AT INDIVIDUAL MOMENTS OF TIME AND FOR INDIVIDUAL CUMULUS CLOUDS THE REVEALED RELATIONSHIP BETWEEN C AND U SUBL CAN UNDERGO CONSIDERABLE PULSATING VARIATIONS. FACILITY: TSENTRAL'NAYA AEROLOGICHESKAYA OBSERVATORIYA.

UNCLASSIFIED

USSR

UDC: 621.382.323

GALSTYAN, V. G., NOSIKOV, S. V., PRESS, F. P., PASTUSHKOV, V. V.

"Use of a Scanning Electron Microscope to Study Defects in Dielectric Films and Semiconductor Structures"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1911-1919

Abstract: A scanning electron microscope was used to study defects in films of silicon dioxide, processes of dopant penetration through defects during diffusion, and the influence of localized diffusion regions on the properties of MOS structures. A procedure is developed for studying semiconductor objects on the scanning electron microscope and interpreting the observed patterns in accordance with the nature of the contrast.

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1/2 C12 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ALKYL, ARYL, CHLOROSILANE FORMATION DURING THE DIRECT REACTION OF ALKYL, ARYL, CHLORIDES WITH SILICON. 7. CHLORINE TRANSFER MECHANISM IN

AUTHOR-(05)-TOPETSKAYA, R.A., GOLUBTSOV, S.A., ANDRIANOV, K.A., ROSIN, A.N., PASTUKHOVA, Z.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 802-8.

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, CHLORINATED ORGANIC COMPOUND, SILANE, BENZENE DERIVATIVE, ZINC COMPOUND, CADMIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1305 STEP NO--UR/0062/70/000/004/0802/0808

CIRC ACCESSION NO--AP0134979

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134979

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM EXAMN. OF THE DIRECT SYNTHESIS OF CHLOROSILANES OVER A CU,SI MASS, WHICH WAS EXAMD. REPEATEDLY DURING THE REACTION FOR ITS CONTENT OF CD, CU AND ZN, IT WAS SHOWN THAT SYNTHESIS OF PHENYLCHLOROSILANES IS DIRECTLY THE RESULT OF FORMATION OF CUCL IN THE REACTION OF PHCL WITH CU, FOLLOWED BY REDN. BY SI. THE CL TRANSFER TO CU, THEN TO SI, OCCURS AS A GENERAL SYMPTOM OF DIRECT SYNTHESIS OF CHLOROSILANES IN GENERAL. PROMOTERS IN THE FORM OF ZN OR CD OR THEIR CHLORIDES IN THE REACTION MASS APPEAR TO FUNCTION THROUGH THE INTERMEDIATE FORMATION OF MONOCHLORIDES OF ZN AND CD AND TRANSFER OF THE CL FROM CU TO THESE. THIS APPEARS TO BE MORE FAVORABLE ENERGETICALLY THAN IS THE FORMATION OF CUCL FROM CU PROPER AND PHCL. NUMEROUS KINETIC AND YIELD DATA WERE SHOWN GRAPHICALLY.

UNCLASSIFIED

USSR UDC 621.396.622.23:778.53

USYSHKIN, Ye. I., PASUKHINA, M. G.

"Thyristor Frequency Converter for Film Camera Voltage Supply in Nature Shooting"

Moscow, Tekhnika kino i televideniya, No. 6, 1971, pp 9-12

Abstract: The authors, members of the All-Union Scientific Research Kinofotoinstitute, assert that the frequency converter described in this article will help solve the problem of independent power supplies for low-noise synchronous electrical drive in cinema cameras. The device was developed by the Institute with which the authors are associated, in collaboration with the TsKBK /expansion unknown/ and has the double function of supplying power to the synchronous film-shooting equipment and to the sound-recording equipment. It is light in weight, comparatively noiseless, capable of use on automobiles or boats, and adaptable to the 60-Hz supply lines of foreign countries. A complete schematic is given plus the technical specifications of the instrument. A photograph is also supplied. The instrument underwent testing at the Gorkiy Film Studios, conducted by S. A. Baranov and B. I. Shishkin, to whom the authors express their gratitude.

USSR

UDC 621.382.3

MIRONOV, V.A., NOVOSEL'TSEV, V.YE., PASYNKOV, V.V., SHINKOV, A.D.

"Calculation Of Time Constant Of Feedback Circuit Of Planar Transistor"

Izv. Leningr. elektrotekhn. in-ta (Journal Of The Leningrad Electrical Engineering Institute), 1972, Issue 108, pp 100-113 (from RZh:Elektronika i yeye primeniye, No 11, Nov 1972, Abstract No 11B253)

Translation: A calculation is given of the dependence of the time constant of a feedback circuit on the technological and structural parameters of a planar structure transistor. A grid electrical model was used in which a planar transistor was taken as two-dimensional, i.e., the base region was considered as a thin conductive layer. A comparison of the calculated values of the time constant with those measured on an actual transistor shows that a divergence between the experimental and analytical curve is observed only in the area of large currents. 5 ill. N.K.

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USSR UDC: [537.226+537.311.33]:[537+535]

PASYNKOV, V. V., SEYSYAN, Ye. L., TAIROVA, D. A., and TAIROV, V. N.

"Process of Electret Formation in Some Organic Films"

Elektron. tekhnika, Nauchn-tekhn. sb., Radiodetali (Electronics Engineering, Scientific-Technical Collection, Radio Parts--collection of works) No. 1(22), 1971, pp 57-65 (from RZh-Fizika, No. 11, 1971, Abstract No. 11E883)

Translation: The average surface charge density in electrets made of polyethylene terephthalate, polycarbonate, and polytetrafluorethylene as a function of the maximum temperature of polarization and polarization intensity (field intensity) is investigated. The investigations were made by setting up the electret state by the contact method and polarization in an air gap. It is shown that in films made of organic polymers, it is possible to obtain a stable electret state without short-circuiting the charged surfaces of the electret. It is established that film electrets of polytetrafluorethylene (teflon), the surface charge density of which varies only slightly for more than one and a half years even under conditions of high relative humidity, are the most stable of the specimens investigated.

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UDC 621.382

USSR

KARPOV, YU. S., LOTOTSKIY, B. YU., OKUNEV, YU. T., PASYNKOV, V.V., CHIRKIN, L.K.

"Varistors"

V sb. Poluprovodn. pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works). No 23, Moscow, "Sov. radio," 1970, pp 305-317 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B265)

Translation: The mechanism of varistor action is considered, and the basic parameters and characteristics of varistors of domestic manufacture are presented, as well as the results of computation of certain characteristics of varistors, assuming that heating of the point contacts is a basic effect leading to nonlinearity of the current-voltage characteristic in the operating range of the change of currents and voltages. It is shown that by introducing an impurity with a different ionization energy into silicon carbide, it is possible to change within wide limits the value of the coefficient of nonlinearity of the current-voltage characteristic. The results are presented of investigations of the noise properties of varistors; and the dependence of the noise factor on the operating conditions of varistors and the temperature of the environment. 7 ill. 1 tab. 5 ref. Summary.

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Microelectronics

USSR

UDC: 621.382

PASYNKOV, V. V., Leningrad Electrotechnical Institute imeni V. I. Ul'yanov (~~Lenin~~)

"Electroluminescent Semiconductor Devices in Microelectronics"

Leningrad, IVUZ Priborostroyeniye, Vol. XIII, No 3, 1970, pp 31-38

Abstract: The article is a review of the present state of the art in utilization of the phenomenon of electroluminescence for microminiaturization of visual display elements in computer technology and electronics. One of the most important areas of present research in this field is the development of devices which utilize a light emitter and a matched receptor. Such a device is called an optron and is based on processes of conversion of electrical signals to light signals, luminous control of the receptor from the light emission side, and subsequent conversion of the light signals to electric signals. Development of devices based on this process has become a new branch of electronics -- optoelectronics. At the present time, the following types of optoelectronics devices are distinguished: 1. those which consist of incoherent electroluminescent emitters and semiconductor photocells; 2. those which use injection semiconductor lasers as emitters; 3. those with light beam control by means of various physical processes such as the Kerr, Pockel's, Faraday and Franz-Keldysh effects. Electroluminescent devices based on various operating principles and materials are described and evaluated.

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USSR

UDC: 537.53

VARGIN, A. N., PASYNKOVA, L. M., TREKHOV, Ye. S., Moscow Engineering Physics Institute

"Emittance of Carbon Dioxide Plasma at Temperatures of 7000-9000°K in the Spectral Interval of 2100-10,000 Å"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 4, Jul/Aug 72, pp 732-737

Abstract: The emittance distribution of a carbon dioxide plasma is determined at atmospheric pressure over a broad spectral interval of 2100-10,000 Å at temperatures of 7000, 8000, and 9000°K. The results are given in the form of graphs. The distributions found for intensities at wavelengths longer than 6000 Å show characteristic differences from the distributions at shorter wavelengths — at 7000°K the line emission is very weak and the principal contribution is from molecular systems, one of the strongest being the Swan C_2 system. At 9000°K there is a sharp increase in the emission contribution from the line spectrum. At wavelengths shorter than 5650 Å there are breaks in the curve for intensity as a function of wavelength on the strongest lines in the visible

USSR

VARGIN, A. N. et al., Teplofizika Vysokikh Temperatur, Vol 10, No 4, Jul/Aug 72, pp 732-737

and ultraviolet regions of the spectrum. The experimental results are compared with calculations for pure carbon dioxide. Satisfactory agreement is observed in the region below 3500 A (i. e., at this wavelength and shorter). In the long-wave region where the Swan C_2 molecular system begins to make itself felt, the theoretical curve lies much lower than the experimental data, which fact is attributed to the composition of the gas assumed for the initial data of the calculations.

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USSR

UDC 621.396.69:621.391.63

KUZ'MENKO, N.N., PASYNKOVA, O.V., SAVEL'YEV, G.A.

"Photosensitive Films Elements For Opticoelectronic Devices With Optical And Electrical Coupling"

Izv. Leningr. elektrotekhn. in-ta (Journal Of The Leningrad Electrical Engineering Institute), 1972, Issue 108, pp 151-157 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11B371)

Translation: During the creation of bistable d-c optrons consisting of series-connected photoresistors and electroluminescent emitters (EE), difficulties appear during matching of the elements with respect to conductivity. The development is described of a film photoresistor suitable for direct coupling with a film EE, which emits in the 580-586 nm region with a 20-volt voltage and a current density of 20-25 mA/cm^2. The photoresistor was produced by the method of successive build-ups on a rotating preheated glass substrate of layers of CdS, CdSe, and $CdCl_2$ with subsequent annealing in air. The composition of the film of a photoresistor which has a spectral characteristic matched with the EE corresponds to the formula $CdS_{0.46}Se_{0.54}$ for which evaporization of CdS and CdSe is carried out with their weight ratio 3:2. The current-voltage and spectral characteristics of the photoresistor are given. 5 ill. 4 ref. N.S.

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1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CYCLOPENTADIENYLDICARBONYL,PI-CYCLOPENTADIENE,NIOBIUM -U-

AUTHOR-(04)-NESMEYANOV, A.N., ANISIMOV, K.N., KOLOBOVA, N.YE., PASYNSKIY, A.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM, 1970, (3), 727

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLIC GROUP, NIOBIUM COMPOUND, COMPLEX COMPOUND, DIENE, BUTADIENE, ISOPRENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0766 STEP NO--UR/0062/70/000/003/0727/0727

CIRC ACCESSION NO--AP0124436

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0124436
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UV IRRADN. OF CYCLOPENTADIENYLNIOBIUM TETRACARBONYL AND CYCLOPENTADIENE MONOMER IN PENTANE 2 HR AT REFLUX GAVE 77PERCENT CYCLOPENTADIENYLDICARBONYL,(PI,CYCLOPENTADIENYL)NIOBIUM, M. 77-80DEGREES. SIMILARLY WERE PRED. C SUB5 H SUB5 NB(CO) SUB2,DIENE COMPLEXES FROM BUTADIENE, ISOPRENE AND CYCLOHEXADIENE, AS WELL AS CYCLOHEPTATRIENE (WHCIH CORRDINATED LIKE THE DIENE). FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 537.533

ARIFOV, U. A., MUKHAMADIYEV, E. S., PARILIS, E. S., and PASYUK, A. S., Joint Institute of Nuclear Research, Dubna

"Identification of Multicharge Ions from the Electron Emissions They Cause"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, No 2, 1973, pp 375-379

Abstract: In the analysis of an ion beam with a mass analyzer the ions are divided in accordance with their mass/charge ratios. In such a beam, however, there are ion pairs of the same or similar ratio, thus giving rise to the problem of quantitatively identifying the ions making up these pairs. In an earlier paper one of the authors named above (Parilis, E. S., Reprint of the OIYaI, R7-335, Dubna, 1967) proposed a method for identifying such multicharge ions from the potential electron emission from metals they produce. The function of the present article is to explain briefly the mechanism of the electron emission and the theory behind the identification method and to give the method and results of experimental research conducted by the LYaR OIYaI (Nuclear Reactions Laboratory of the Joint Institute of Nuclear Research) in Dubna.
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USSR

UDC: 537.533

ARIFOV, U. A., et al, Zhurnal Tekhnicheskoy Fiziki, No 2, 1973, pp 375-379

A diagram of the experimental equipment and curves for its results are presented. The authors express their gratitude to Academician G. N. Flerov and Ye. D. Vorob'yev for their support and to Yu. P. Tret'yakov and R. I. Ivannikov for their assistance.

2/2

USSR UDC 539.1.03

TRETYAKOV, Yu. P, KUL'KINA, L. P., KUZNETSOV, V. I., and PASYUK, A. S., Institute of Nuclear Research, Dubna

"An Economical Source of Multiply-Charged Ions of Calcium and Zinc"

Moscow, Pribory i Tekhnika Eksperimenta (Instruments and Experimental Technology), No. 5, Sept-Oct 1970, p 40-44

Abstract: An ion source, illustrated and described in detail, consists of a stainless steel discharge chamber and a molybdenum insert with an emission slit. The chamber, provided with titanium heat isolators, is temperature-controlled by a chrome-alumel thermocouple. The evaporating electrode is mounted on a water-cooled holder in a slender tube between a cathode and plate, just to the side of the discharge path. Adjustable screws move the evaporation surface into the discharge path. Xenon was used as the initiating gas for the calcium, and krypton for the zinc. Argon was also used. When the chamber is cold, a large proportion of the working substance is deposited on the walls, but when the chamber is heated, the substance readily sublimes. The evaporated substance is completely ionized and passes through the slit. A small portion is deposited on the cold parts of the source near the evaporating electrode. Heating the chamber makes it possible to economize on the consumption of the substance. The proposed

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202330008-1"

USSR

TRETYAKOV, Yu. P., et al, Pribory i Tekhnika Eksperimenta, No 5, Sept-Oct 1970, p 40-44

cyclotron source is only one of several possible configurations of a hot discharge chamber with a cathode evaporator. The distribution of Ca atoms and ions along the discharge chamber was measured and found to be higher than the distribution in a cold chamber. The authors thank G. M. Solov'yeva for designing the source, Y Dude for technical assistance, and Ye. D. Vorob'yev for supporting the work. Orig. art. has 2 figs. and 4 refs.

2/2

1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--MULTICHARGED CA AND ZN ION SOURCE -U-

AUTHOR-(05)-PASYUK, A.S., VOROBYEV, YE.D., IVANNIKOV, R.I., KUZNETSOV, V.I., KUTNER, V.B.
COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. USSR, 28: 75-8, JAN 1970

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ION SOURCE, ION BEAM, CALCIUM, ZINC, METAL VAPOR, CYCLOTRON/(U)U300 CYCLOTRON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0213 STEP NO--UR/0089/70/028/000/0075/0078

CIRC ACCESSION NO--AP0105289

UNCLASSIFIED

2/2 025 UNCLASSIFIED

CIRC ACCESSION NO--AP0105289 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTIONS ARE GIVEN OF THE DESIGN AND PERFORMANCE OF MULTICHARGED ION SOURCE. THE SOURCE WAS USED WITH CALCIUM AND ZINC METAL WITH THE VAPOR ELASTICITY REACHED AT ABOUT 800 TO 900DEGREESC. THE MULTICHARGED CALCIUM AND ZINC IONS WERE OBTAINED WITH A SOURCE DEVELOPED FOR THE U-300 CYCLOTRON. TABULATED DATA INDICATE PULSED CURRENT VALUES FOR NINE CHARGED CALCIUM IONS AND TEN CHARGED ZINC IONS. IN SUCH A CASE THE MEAN ZINC CONSUMPTION IS SIMILAR TO 50 MG,HR AND CALCIUM CONSUMPTION IS SIMILAR TO 100 MG,HR. EXPERIMENTS ON ACCELERATION OF HEPTA CHARGED CALCIUM IONS AND DECA CHARGED ZINC ION SHOWED A MEAN CURRENT FOR CA PRIME7 POSITIVE SUB40 IONS ON THE 100 CM RADIUS REACHED 3 MU A AND AN EXTRACTED DECO CHARGED ZINC BEAM UP TO CONGRUENT TO 10 NEGATIVE PRIME4 MU A.

UNCLASSIFIED

USSR

UDC 678.029+661.66

ANDRIANOV, K. A., SOSEDOV, V. P., PATALAKH, I. I., KROTOV, A. I., RAZUMOV, L. L., and KAVEROV, A. T.

"Some Features of the Formation of Novel Thermally Stable Reinforced Plastics"

Moscow, Doklady Akademii Nauk SSSR, Vol200, No 6, Oct 71, pp 1343-1344

Abstract: One of the most important problems in the area of chemistry and physics of solid bodies concerns development of mechanically strong thermally stable materials. The reinforced materials currently available are either not sufficiently strong or thermally instable. With this in mind, experiments were carried out in which glass fiber KN-11 and a hydrocarbon fiber were treated with siliconorganic polymer (polymethyloxydiphenylpropanesiloxane) followed by thermal activation in a reducing medium and in hydrocarbon medium. In this fashion materials with high specific strength at elevated temperatures were obtained, exceeding considerably the properties of known construction materials.

USSR

GALEYEV, A. A., LOMINADZE, D. G., PATARAYA, A. D., SAGDEYEV, R. Z., and STEPANOV, K. N., Institute of High-Temperature Physics of the Academy of Sciences USSR

"Anomalous Resistance of Plasma Due to Instability at Cyclotron Harmonics"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 7, 5 Apr 72, pp 417-420

Abstract: An expression for the anomalous resistance arising due to buildup of Bernstein modes is obtained and the nonlinear mechanism leading to saturation of the growth of oscillations is explained. It is noted that high anomalous resistance of plasma observed in many experiments is associated with the appearance of ion-sound instability; but that ion-sound instability can arise only for sufficiently strong nonisothermality $T_e \gg T_i$, and the anomalous resistance occurs when this condition is not fulfilled. It is observed that instability in electron cyclotron oscillations (Bernstein modes) has recently been discussed in connection with the problem of anomalous resistance; Bernstein modes are oscillations with the wave vector strictly or almost strictly perpendicular to the magnetic field and with frequencies of the order $n\omega_{he}$. As distinct from ion-sound, this instability

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GALEYEV, A. A., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 7, 5 Apr 72, pp 417-420

develops from $T_i \geq T_e$. An expression is obtained for ν_{eff}, the frequency of the oscillations at which electrons are scattered. The magnitude of ν_{eff} is small due to the "Pitayevskiy factor" $\kappa^2\rho^2_e$. The resistance given by this expression is much less than the resistance due to ion-sound instability. It is stated that when electron-sound instability due to smallness of the increment of rise cannot develop and goes into a nonlinear mode such as in collisionless shock waves, this anomalous resistance in Bernstein modes will play the major role.

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1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--GRAVITATIONAL COLLAPSE OF A SLIGHTLY ASPHERICAL MASS -U-

AUTHOR-(02)-PATASHINSKIY, A.Z., KHARKOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, DOKLADY, VOL. 190, FEB. 11, 1970, P. 1074-1077

DATE PUBLISHED----FEB70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATHEMATICAL SCIENCES

TOPIC TAGS--GRAVITATION FIELD, AXISYMMETRIC BODY, EARTH GRAVITY, LINEAR APPROXIMATION, COORDINATE SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0893 STEP NO--UR/0020/70/190/000/1074/1077

CIRC ACCESSION NO--AT0112057

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0112057

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETAILED STUDY OF THE GRAVITATIONAL COLLAPSE OF A SLIGHTLY ASPHERICAL BODY WITH CHARACTERISTICS POSSESSING AXIAL SYMMETRY. SINCE THE DEVIATION FROM SPHERICAL SYMMETRY IS ASSUMED TO BE SMALL, THE EQUATION FOR THE ADDITIONS TO THE METRIC IN EMPTY SPACE IS TAKEN IN A LINEAR APPROXIMATION. THIS MAKES IT POSSIBLE TO DETERMINE IMMEDIATELY THE ANGULAR DEPENDENCE OF THE ADDITIONS, SINCE THE ZERO APPROXIMATION METRIC ALLOWS A GROUP OF THREE DIMENSIONAL ROTATIONS. THE APPROACH USED IS TO CONSIDER FIRST A PERTURBATION OF THE SCHWARZSCHILD METRIC. THEN THE EQUATION OBTAINED IS TRANSFORMED WITH THE AID OF A LEMAITRE TRANSFORM FOR THE ZERO APPROXIMATION. THE REFERENCE FRAME THUS OBTAINED IS NOT COMOVING WITH RESPECT TO THE TEST PARTICLE, BUT DIFFERS ONLY SLIGHTLY FROM A COMOVING FRAME. FACILITY: NOVOSIBIRSKII GOSUDARSTVENNYI UNIVERSITET, NOVOSIBIRSK, USSR.

UNCLASSIFIED

UDC 621.525

USSR

VASIL'YEVA, V. D., PATEPALOV, YU. N., and SUVAOROVA, S. V., Central Scientific Research Institute for Complex Automation

"A Pneumatic Zone Indicator Device"

USSR Author's Certificate No 372560 kl G 06 g/500, filed 30 Dec 70, published 27 Apr 73 (from RZh-Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 73, Abstract No 11 A 388P)

Translation: The authors propose a pneumatic zone-indicating apparatus containing single-membrane comparison elements, the blind chamber of the first of which is connected to the first input channel of the device, while the flow-through camber is connected to the second input channel; an amplifier based on a single-membrane element whose blind chamber is connected through a choke to the atmosphere and to the nozzle of the second comparison element. The nozzle is connected to the output channel of the device and through a choke to the supply source.

To extend the functional capabilities of the apparatus, the blind chamber of the second comparison element is connected with the nozzle of the first comparison element and through a choke to the third input channel, while the flow-through chamber is connected to the second input channel of the device.

One illustration.

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USSR

PATEREU, S. G. and SHELUD'KO, O.

"Probability Algorithm of MGUA with Successive Separation of Input Characteristics"

Avtomatika [Automation], Kiev, 1973, No 3, pp 37-43 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V775)

Translation: A new algorithm is developed for classification (pattern recognition) of Bayes type with successive complication of decision functions, effective with great dimensionality of the space of input characteristics and relatively small number of interpolation nodes. The input characteristics are assumed statistically independent. It is shown that in certain cases a recognition algorithm trained with a finite sample will provide greater accuracy when only a portion of the input characteristics are used than when all are presented. It is constructed on the basis of the theory of statistical decisions which, as we know, is the optimal-accuracy apparatus for pattern recognition with an infinitely long learning sample. The transition from statistically dependent input characteristics to independent characteristics is made using their orthogonalization relative to each other. The algorithm suggested is used for optimal diagnosis of poisoning with four classes of pesticides. Author's view

PATEREU, S.G.

Mathematics

PART II

S0IPRS 55352

6 MAR 1972

POLYSERIAL ALGORITHMS OF THE THEORY OF STATISTICAL SOLUTIONS AS APPLIED TO CLASS RECOGNITION PROBLEMS

[Article by A. G. Ivakhnenko, Ye. I. Spyna, V. S. [illegible], [illegible] I. Z. Patratiy; Moscow, V Vsesoyuznoye Soveshchaniye po Problemam [illegible], Moscow, 1971, Referaty Dokladov, Russian, Part II, 1971, pp 110-112]

The theory of statistical solutions is the strictest apparatus for pattern or class recognition implementing the idea of information accumulation. In classical form, this theory is polyserial in the sense that it is based on a single calculation of the risk function with respect to three cofactors: the matrix of a priori probabilities, the experimental matrix and the loss matrix. These three matrices can be called "complete," since they consider all the arguments directly, and for dependent arguments, all their covariations, which requires quite broad initial data for strict observation of stationarity of the process.

In accordance with the basic idea of the "Method of Group Consideration of Arguments (see the Ukrainian journal Avtomatika, 1968-1970), it is proposed that the polyserial "complete" algorithm be replaced by a system of several series of "partial" descriptions for all possible pairs of arguments. For training each of the partial algorithms it is sufficient to have a comparatively short series of experimental data available, and the so-called analog of the complete description can be obtained from a system of partial descriptions by exclusion of intermediate variables.

The complete description (algorithm) has the known form:

$$\rho(d_j) = \sum_i p(R_i) L [R_i, c_j(x_1, \ldots, x_n)] P(x_1, \ldots, x_n/R_i), \qquad (1)$$

where $\rho(d_j)$ is the decision-making risk; $P(R_i)$ is the a priori probability of the class; d_j is the solution in favor of the j-th class;

$x_1, \ldots, x_n$ are discrete arguments ($x_i = 1, 2, \ldots, q$ where q is the number of digitalization levels);

UDC 62-50

USSR

IVAKHNENKO, O. G., SPYNU, YE. I., DIMITROV, V. D., PATEREU, S. G., and PATRATIY, I. Z. (Kiev, Sofia, Kishinev)

"Recognizing the Lethal Duration and Content of Pesticides in Planst According to a Probability Algorithm for a Method of Data Handling by Groups"

Kiev, Avtomatyka, No 5, Sep-Oct 70, pp 42-52

Abstract: The article describes the development of a probability algorithm for a method of data handling by groups which uses the numerator of the Bayes formula or its modification as a support function. The probability algorithm is used to solve the following problem:

1) Approximately determining the time constant in the exponent in the expresion for a pesticide's toxicity on the basis of data concerning the physicochemical properties of the preparation, the conditions of its use, and plant peculiarities;

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IVAKHNENKO, O. G., et al., Avtomatyka, No 5, Sep-Oct 70, pp 42-52

2) Determining the current concentration of a pesticide at a given time from calculated data on the initial concentration of the substance in plants and the destruction rate constant.

USSR

UDC 621.396.677.001.24

AZAROV, Yu. Ye., KUZNETSOV, Yu. A., and PATEYUK, G. M.

"Synthesis of an Impedance Realizing a Specified Directional Diagram"

Dnepropetrovsk, V sb. Voor. teorii i tekhn. avtomat. sistem (Problems in the Theory and Technology of Automatic Systems--collection of works) 1971, pp 97-105 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10B6)

Translation: The plane problem is considered of synthesizing an impedance which, for a known directional diagram of a primary radiator, permits obtaining the specified diagram in the presence of a metal body. An expression is obtained for the distribution of the impedance along the antenna. Results are given of the computation of the impedance distribution. Two illustrations, bibliography of three. V. S.

USSR UDC 639.2.002.637

PATIN, S. A., All-Union Scientific Research Institute of Marine Fishing and Oceanography

"Pollution of the World Ocean"

Moscow, Rybnoye Khozyaystvo, No 5, 1971, pp 5-7

Translation: The world ocean is a unique physicochemical and hydrobiological system with a diverse complex of interrelated processes. As a consequence of the common circulation and integral biological structure of the ocean, any change that occurs in one part of it will be reflected -- in the final analysis -- in the state of its other parts and of the entire system as a whole. This generalized conclusion is of fundamental importance, both for estimating the consequences of polluting the marine environment and for working out national and international research programs and legal norms in this field.

One of the chief sources of harmful action on the marine environment and hydrobionts is oil pollution. Not less than 10 million tons of petroleum and petroleum products are lost annually in the seas and oceans during cleaning of tankers alone. In addition to this, part of the oil is precipatated into sea water during exploration and development of oil wells in the continental shelf zone. The cases of severe oil pollution of sea water during implemen-

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PATIN, S. A., Rybnoye Khozyaystvo, No 5, 1971, pp 5-7

tation of the US's broad program of exploitation of marine oil deposits are well-known. The oil pollution of the ocean is being increased significantly as a result of emergency situations that occur during extraction and transportation of oil.

Petroleum and petroleum products exert a harmful influence on all water organisms, but have an especizlly great toxic effect on the roe of marine fish. Insignificant concentrations of oil in the water (10^{-3} or 10^{-4} ml per liter) are sufficient to cause the death of larvae or to cause serious abnormalities in their development.*

A constructive solution to the problem of pollution of the world ocean requires intensification of the research activity associated with evaluating the biological consequences of oil pollution, as well as the appropriate technical measures in the fields of exploration, extraction, and transportation of oil from the sea, consistent with international norms.

*O. G. Mironov. "Effect of Small Conentrations of Petroleum and Petroleum Products on the Developing Roe of Black Sea Brill", Voprosy Ikhtologii, Vol 7, No 3, 1967.

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PATIN, S. A., Rybnoye Khozyaystvo, No 5, 1971, pp 5-7

Among the other chemical toxicants in the marine environment we must note heavy metals, pesticides, and waste waters from chemical enterprises. Some of these contaminants are being disseminated in the sea water, and not just in the offshore regions. For example, lead and individual toxicants of an artificial nature were recorded in the water and organisms of the open ocean, which testifies to the global nature of chemical pollution of the marine biosphere.

An especially active influence on water biocenoses is exerted by waste waters with large quantities of phosphates, nitrates, and other nutritive substances which stimulate the development of mass forms of algae. In such cases, a sharp change in the hydrobiological situation, deterioration of the oxygen cycle, and depression of many types of marine flora and fauna often taken place. A similar situation is now taking shape, for example, in the deep-water region of the Baltic Sea, where it is possible that life may completely disappear in the near future.*

* S. H. Fonsellins. Rept. Fish. Board Sweden Ser. Hydrogr., No 23, 1969.

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USSR

PATIN, S. A., Rybnoye Khozyaystvo, No 5, 1971, pp 5-7

The chief sources of radioactive pollution of the world ocean at the present time are radioactive fallout from the atmosphere, overflows and discharges of waste products from atomic enterprises and power stations, waste disposal from ships equipped with nuclear power reactors, and discharge of radioactive elements into sea water in the case of accidents.

It should be noted that radioactive fallout from the atmosphere has decreased significantly at the present time (since the signing of the Moscow treaty on the cessation of nuclear testing), but the flow of waste products from atomic industries has grown. Special apprehension is caused by the expansion of the practive of dumping radioactive waste products into the sea and ocean by the USA, Great Britain, and a number of other countries. This has led to steady local pollution of individual water areas, for example, the estuaries of the Columbia River, the Irish Sea, and the Gulf of Mexico.

The theoretical basis of the validity of discharges and overflows of large quantities of radioactive substances in the sea was that natural dilution would reduce the concentrations of them to a safe level. However, as Soviet and foreign researchers showed, the very concept of a "level of radioisotopes in sea water that is safe for marine organisms" is extremely relative.

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PATIN, S. A., Rybnoye Khozyaystvo, No 5, 1971, pp 5-7

In connection with this, it is impossible to postpone a review of the question of the validity and consequences of radioactive pollution of the sea until the distant future.

In the majority of instances, the negative consequences for man of all types of pollution of the marine environment are not manifested directly (for example, in the form of toxic effects from the consumption of contaminated marine products), but indirectly.

Water organisms, including organisms in the sea, react differently to changes in the composition and properties of their environment, and this leads to a disruption of the natural biological equilibrium through the action of various contaminants. It is precisely this disruption rather than the death of individual types of fish or other organisms which is the most menacing circumstances of the appearance of various toxicants in the world ocean. It is known that the presence of contaminants may inhibit the development of certain organisms and stimulate the growth of others, thereby changing the natural biological equilibrium of sea water. The toxic depression and affection of the lower one-celled organisms, which are the producers and destructors of organic substances and without which a biotic cycle is impossible in a water medium, is especially dangerous.

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PATIN, S. A., Rybnoye Khozyaystvo, No 5, 1971, pp 5-7

Also extremely important is the circumstances that fish and other commercially important water animals are especially vulnerable during their embryonic development period. Concentrations of contaminated admixtures which would not have a noticeable negative effect on adult individuals are injurious at this stage. The data of Soviet and foreign researchers convincingly testifies to the fact that pollution of sea water is capable of undermining the biological foundation of the reproduction of fish and other types of marine organisms that are important to man.

The threat of pollution is especially alarming in connection with long-term use of the sea's biological resources as a source of protein food.

From what has been said it follows that research on the scale and consequences of pollution of the ocean and its bioresources must be expanded. Special attention must be devoted to the biological effects associated with prolonged occurrence in the marine environment of low concentrations of chemical, radioactive, and other toxicants.

The marine biosphere is unique, and any mistake made with respect to it could prove fatal, inasmuch as the biological structure of the world ocean is nonreproducible. It is no accident that the national programs for oceanography

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PATIN, S. A., Rybnoye Khozyaystvo, No 5, 1971, pp 5-7

of all maritime countries call for the solution of the problem of pollution of the seas and oceans as their most important step. This same goal is also being pursued by the contemplated International Program of Scientific Research for the Preservation and Improvement of the Natural Environment.

The attention being devoted to this problem in our country is indicated by a number of government decrees, including a decree by the USSR Council of Ministers, "On Measures for the Prevention of Pollution of the Caspian Sea."

Naturally, efforts to combat pollution must not lead only to recommendations of a limited nature. A constructive approach to the given problem implies a combination of presentday interests and prospects for economic exploitation of the entire riches of the world ocean for the good of mankind. This is why coordinated efforts on national- and international-scale programs for the study of all the consequences of man's effect on the ocean and the life in it are so urgent and so important now.

7/7

1/3 013 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--SOLUBILITY AND CRYSTALLIZATION IN A SODIUM SELENATE SODIUM, SELENITE WATER SYSTEM -U-

AUTHOR-(02)-YANITSKIY, I.V., PATKAUSKAS, R.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 522-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SOLUBILITY, SODIUM COMPOUND, SELENITE, CRYSTALLIZATION, WATER, ISOTHERM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1946 STEP NO--UR/0080/70/043/003/0522/0527

CIRC ACCESSION NO--AP0118908

UNCLASSIFIED

2/3 013 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118908

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY. ISOTHERMS OF THE NA SUB2 SEO SUB4 -NA SUB2 SEO SUB3 SYSTEM AT 0 AND 20DEGREES SHOWED 2 BRANCHES CORRESPONDING TO NA SUB2 SEO SUB4 .10H SUB2 O (I) AND NA SUB2 SEO SUB4 .10H SUB20 (I) AND NA SUB2 SEO SUB3 .5H SUB2 O (II) AS THE EQUIL. SOLID PHASES. THEIR POINTS OF INTERSECTION ARE ISOTHERMAL INVARIANT POINTS WITH COMPN. NA SUB2 SEO SUB3 41.8 PLUS NA SUB2 SEO SUB4 2.80PERCENT AT 0DEGREES AND NA SUB2 SEO SUB3 32.95 PLUS NA SUB2 SEO SUB4 16.25PERCENT AT 20DEGREES. AT 25 AND 35DEGREES 3 BRANCHES WERE OBSERVED. SOLID I LOST ITS CRYSTN. H SUB2 O AT SELENITE CONTENTS OF 24.46 AND 7.34PERCENT AT 25 AND 30DEGREES, RESP., SO THAT I, I PLUS NA SUB2 SEO SUB4, NA SUB2 SEO SUB4 PLUS II, AND II WERE THE EQUIL. SOLID PHASES DEPENDING ON THE COMPN. OF THE SYSTEM. ISOTHERMS AT 40 AND 60DEGREES CORRESPONDED TO ANHYD. NA SUB2 SEO SUB3 AND NA SUB2 SEO SUB4 ONLY. THE RESULTS ARE DISCUSSED FROM THE VIEWPOINT OF SEPG. BOTH SALTS DURING THE ELECTROLYTIC PRODN. OF SELENATE FROM SELENITE. THE CHOICE OF CRYSTN. TEMP. DEPENDED ON WHETHER I OR NA SUB2 SEO SUB4 IS TO BE OBTAINED. IN BOTH CASES MUTUAL SALTING OUT OF BOTH SALTS CAN BE EXPLOITED. PRODUCTION OF I IS RECOMMENDED AS MORE SUITABLE. FROM SATD. SOLN. OF SELENATE CONTG. 5-7PERCENT SELENITE AT 30DEGREES, I IS LESS THAN 70PERCENT SELENATE CAN BE OBTAINED AS I BY COOLING THE SYSTEM DOWN TO 0DEGREES. BETTER YIELDS WERE OBTAINED BY USING ISOTHERMAL EVAPN. AT 25DEGREES UNTIL THE ISOTHERMAL INVARIANT POINT WAS REACHED, AND THEN BY COOLING TO 0DEGREES. AFTER WASHING THE CRYSTALS WITH ICE COLD H SUB2 O AND RECRYSTN., I WITH 99-99.9PERCENT PURITY WAS OBTAINED.

UNCLASSIFIED

3/3 013 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0118908
ABSTRACT/EXTRACT--FACILITY: KAUNAS. POLITEKH. INST., KAUNAS, USSR.

UNCLASSIFIED

PATMALNIKS, A.A.

JPRS 59008
6-73

XIII-8a. LIQUID HETEROEPITAXY BY THE ZONE MELTING METHOD

[Article by I. Ya. Biyelis, A. A. Patmalniks, Riga: Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 187]

In this paper a study was made of the thermal conditions of zone melting for which it is possible to realize liquid heteroepitaxy.

It is demonstrated that the monocrystalline growth is caused both by the epitaxy process and by the process of lateral growth of the layer along the substrate.

The results are presented from a study of the liquid heteroepitaxy of Ge on Si and Si on SiC by the zone melting method.

PAT MALNIKS ; A.A.

JPRS 55608

6-73

XIII-Bb. CRYSTALLIZATION OF THIN LAYERS BY THE ZONE MELTING METHOD

[Article by A. A. Patmalnieks, Riga: Novosibirsk, III Simposium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 170]

In this report there is a brief survey of the basic research results with respect to crystallization of thin layers (films) by the zone melting technique discussed in scientific literature at the present time.

A study has been made of the papers connected with the zero processing of thin layers from films on different nonorienting and orienting substrates.

The latest research results with respect to the process of the electron-beam zone crystallization of thin layers of Ge and Si (papers by the authors) are discussed.

The expediency of the practical application of the indicated method is estimated.

USSR

UDC: 539.23

BIYELIS, I. Ya., PATMALNIYEKS, A. A., Latvian State University imeni P. Stuchka

"Peculiarities of the Nucleation and Growth of Germanium and Silicon Thin Films Produced by Zone Melting"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR: Seriya Fizicheskikh i Tekhnicheskikh Nauk, No 5, 1972, pp 32-37

Abstract: The paper presents some results of an investigation of the catalytic influence of substrate and points out some of the particulars of nucleation and growth of thin films of silicon and germanium made by the method of zone melting. It is found that the disorienting effect of the substrate can be qualitatively evaluated from the ratio of the work of adhesion W'_A of the system made up of the melt and the material being crystallized to the work of adhesion W''_A of the system comprised of the melt and the substrate. The influence of the substrate increases with a reduction in this ratio and becomes appreciable when W'_A/W''_A decreases to a value of the order of unity or less. Directional growth of a thin film with diamond lattice in the case of random multiple nucleation takes place in the form of banded

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USSR

BIYELIS, I. Ya., PATMALNIYEKS, A. A., Izvestiya Akademii Nauk Latviyskoy SSR: Seriya Fizicheskikh i Tekhnicheskikh Nauk, No 5, 1972, pp 32-37

grains growing in direction <112> as a result of mutual rearrangement. The method of zone melting can be used with a seed to grow single-crystal layers with a given orientation on unoriented, dissimilar substrates.

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USSR

UDC 621.371.332.4

FILIPP, N. D., PATOKOV, L. F., NASYROV, A. M., and KHACHATUROV, A. I.

"Scattering of UHF Waves by H_E Heterogeneities"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 518-522 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A350)

Translation: Scattering of UHF (at frequencies of 44 and 74 MHz) by H_E nonuniformities is analyzed over a range of 1500 km. Two types of amplitude-time dependences of H_E reflections are detected: flash and quasi-continuous. It is assumed that the flash signals are of meteoric origin. The nature of the quasi-continuous signals remains vague. Five illustrations, bibliography of four. A. L.

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USSR

UDC: 621.791.72

PATON, B. YE. and NAZARENKO, O. K., Institute of Electric Welding imeni Y. O. Paton Academy of Sciences Ukrainian SSR, and GABOVICH, M. D. and SOLOSHENKO, I. A., Institute of Physics, Academy of Sciences Ukrainian SSR

"Particulars and Principles of Conducting Ion-Beam Welding"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 73, pp 1-4

Abstract: The authors show the necessity to neutralize ion beams in order to achieve their high specific power. Neutralization methods are studied. The attainable specific power is calculated and experimentally verified. The ion welding beam is described and the possibility of its practical application indicated. The results of the study show that it is possible to weld with an axially-symmetric, electron compensated, helium ion beam with specific power in excess of 10^4 w/cm^2. The following attest to the prospective use of ion-electron beam welding: absence of x-ray radiation, low sensitivity to the effect of external magnetic fields, the possibility of welding products without electrical contact with the charged particle source, and welding dielectric.

1/1

USSR

UDC 621.791

PATON, B. YE., Academician, Electric Welding Institute imeni Ye. O. Paton of the Academy of Sciences UkrSSR

"Complex Mechanization is the Major Factor of Speeding up the Technical Progress in the Production of Welded Constructions"

Kiev, Avtomaticheskaya Svarka, No 1(250), Jan 74, pp 1-7

Abstract: Complex mechanization and automation in welding production are considered major trends of technical progress. The mechanization of welding work increased from 11% in 1958 to 53.8% in 1972, resulting in savings of several hundred millions of rubles. The 65% complex mechanization of the production of welded constructions at the Ural Heavy Machinery Plant increased output by more than 3.5 times and decreased labor-consuming work by 1.5 times. The successful introduction of a mechanized production flow line at the Druzhkovka Machinebuilding Plant, a new flow line project of the Planning and Design Technological Institute, and an improved construction of welded heating radiators made from thin-leaved steel are reviewed. The trend toward combining welding and machine-tool plants is considered. The use of rolled wide-strip steel and electric-resistance and radio-frequency welding methods are recommended for modern constructions. The seventies must become a period of development

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202330008-1"

USSR

PATON, B. YE., Avtomaticheskaya Svarka, No 1(250), Jan 74, pp 1-7

of the welding production to a new qualitative level on the basis of complex mechanization of all technological and auxiliary operations in the production of welded constructions.

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USSR

UDC 621.791.72.03

PATON, B. YE., Academician, NAZARENKO, O. K., LOKSHIN, V. YE., Candidates of Technical Sciences, ZUBCHENKO, YU. V. and AKOP'YANTS, K. S., Engineers, Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR

"Classification of Electron-Beam Welding Guns"

Kiev, Avtomaticheskaya Svarka, No 12 (249), Dec 73, pp 34-41

Abstract: Electron-beam welding guns have been classified and diagrams have been constructed for the suggested classification as well as the area of technological possibilities for standard guns. The principle of constructing these guns has been described. As a result of the investigations a device has been created for shaping the accelerating voltage on electrodes using a column of water. Extended exploitation has confirmed the high degree of operating reliability. The basic models of standard welding guns have been thoroughly tested both under laboratory and industrial conditions and are recommended for commerical production. The article contains 7 figures, 3 tables, and 5 bibliographic references.

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USSR

UDC: 621.791.753.9

PATON, B. YE., Academician, and POTAP'YEVSKIY, A. G., Candidate of Technical Sciences, Institute of Arc Welding imeni Ye. O. Paton, Academy of Sciences of the Ukrainian SSR

"Types of Welding in Shielding Gases With Steady and Pulsed Arcs (Survey)"

Kiev, Avtomaticheskaya Svarka, No 9, Sep 73, pp 1-8

Abstract: The authors attempt to classify the basic types of welding processes according to the particulars associated with the electrophysical phenomena observed during the stable flow of the processes. The most efficient utilization of these processes is indicated. The study is based on literature and data obtained by the authors with the aid of high-speed photography which was synchronized with the oscillographic monitoring of voltage and current. Tables are given showing the type of shielding gas, type of welding process, material welded, material thickness, and position of weld seam. Recommendations are given for controlling the various welding processes listed.

USSR UDC 621.791.79

PATON, B. YE. (Academician), MEDOVAR, B. I. (Corresponding Member, Academy of Sciences Ukrainian SSR), SAFONNIKOV, A. N. (Cand. of Techn. Sciences), SEVRUK, A. N., and YEMEL'YANENKO, Yu. G. (Engineers)

"New Electroslag Welding Method"

Moscow, Svarochnoye proizvodstvo, No 6, June 72, pp 16-17

Abstract: Described is a new method for enlarging castings of nearly unlimited cross sections. The method involves the use of two advanced technological processes--electroslag remelting and electroslag welding. The test specimens were castings from 25KhN3MFA rotor steel produced by electroslag remelting. The castings were 1200 mm in diameter and weighed 14 tons. The electrode metal was of the same heat as the castings. The new electroslag welding technique does not require preheating. Mechanical property tests failed to reveal any differences between the base and the weld metal. Plant tests confirmed the superiority of the new method over all others currently in use with respect to simplicity and reliability. The new technique will be chiefly used for producing rotor shafts from individual castings and has been patented in a number of Western countries.
(5 illustrations, 3 tables)
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USSR

UDC: 621.791.72

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"Features of Cathode Ray Welding in Various Spatial Positions"

Avtomaticheskaya Svarka, No 6, June 1972, pp 1-4

Abstract: The present study was designed to determine the effect of joint orientation relative to the direction of the force of gravity on cathode ray welding with a sharply focussed beam for metals up to 30-40 mm thick without finishing of edges. Experiments were pefformed on stainless steel specimens using a type U-212 cathode ray welder with U-250A power supply and U-530M welding gun in a vacuum of $5 \cdot 10^{-5}$-$1 \cdot 10^{-4}$ mm hg. The direction of the force of gravity affects seam strength only when welding in the "ceiling" position. The stability of the welding bath in this position depends to a great extent on the viscocity of the liquid metal, rate of crystallization, and relationship between surface tension across the outside of the bath and pressure produced by the weight of the liquid metal in the bath. These factors are of little significance for horizontal seams welded onto a vertical surface. For the metal in question, the maximum melting depth, beginning at which drops are formed when

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PATON, B. Ye., et al., Avtomaticheskaya Svarka, No 6, June 1972, pp 1-4

seams are welded across a ceiling, is inversely proportional to melting width. The width can be decreased by increasing the welding rate and decreasing the radius of the electron beam. Series-produced equipment with beam powers of 15 kw and mean diameter 0.5 mm can achieve stable melting of seams to up to 20 mm deep.

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PATON, B.YE., and KUBASOV, V.N.

"Experiment in the Welding of Metals in Space"

Kiev, Avtomaticheskaya Svarka, No 5, May 70, pp 7-12

Abstract: Experiments were conducted on the welding of metals under space conditions. The basic features of space as a medium for performing welding work consist of: the presence of weightlessness; the existence of a deep vacuum in the surrounding space, with a very high rate of diffusion of the gases and vapors formed in the metal fusion zone or entering there; the very wide temperature range under which the fused and crystallizing metal may find itself. The development of space technology of metals led to the creation of such methods as low-pressure plasma are cutting and welding, low-pressure consumable electrode welding, and contact (spot and seam) vacuum welding. A complex of equipment was designed for testing various welding methods and devices under vacuum and weightlessness conditions aboard f flying laboratory. The self-contained "Vulcan" device was used in the experiments to conduct welding by electron beam, plasma arc, and consumable electrode. From the results obtained, it was found that the process of fusion and cutting by electron beam proceeds in a stable manner and ensures the required conditions for normal forming of a weld joint or cut. The basic parameters of the conditions of consumable electrode welding conducted aboard the Soyuz-6

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spaceship in 1969 and also the structure of the seam and weld-affected zone remained practically the same as in welding on Earth and in the flying laboratory" the required depth of fusion of weldable metal was attained; metal of seems was dense, without gas and nonmetallic inclusions; elimination of gases from the molten metal was satisfactory. No substantial deviations from the given chemical composition of the weld metal and remelted electrode metal were detected. Investigation of consumable electrode arc welding showed that under conditions of prolonged weightlessness, regardless of the high diffusion rate, the formation of a continuous stable arc discharge in electrode material vapors is possible. Low-pressure plasma arc welding with the given device did not yield the results expected. Apparently, the rate of plasma-forming gas diffusion into the atmosphere of the spaceship exceeded the expected rate. Therefore, its concentration in the arc gap was inadequate for contraction of the compressed arc. At the same time, the high rate of gas diffusion through the hatch of the spaceship exerted a positive effect on electron-beam cutting. The liberation of gases observed in this case did not affect the reliability of performance of the electron-beam equipment. Small scale welding devices included in the Vulcan arrangement showed adequate reliability and efficiency under space conditions. It was recommended that these devices are to be enlarged for actual operation in space.

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PRIMARY SOURCE: FBIS Daily Report, Soviet Union, 9 Feb 70, Vol III, Nr 27, P D1 USSR

MOSCOW ACADEMY OF SCIENCES MEETING CONCLUDES

Moscow TASS International Service in English 1753 GMT 6 Feb 70 L

[Text] Moscow, February 6, TASS--Intensification of production on the basis of the latest achievements of science was the topic of discussion at the general meeting of the Academy of Sciences of the USSR which ended its work today. Taking part in the discussion were scientists, and representatives of the industry.

"It is shown be statistical data, science is the most advantageous sphere of capital investments," said Academician Vadim Trapeznikov. Analysing the problem "Economic Management and Scientific-Technical Progress", he reported that the increment of the national income from allocations into science is several-fold higher than that received as a result of direct investment into production.

Further technical progress, Academician Boris Nitch believes, depends in many respects upon the development of metallurgy. "Despite the rapid growth of production of synthetic materials, metal will remain the principal construction material in the foreseeable future," the scientist said at the meeting.

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Summing up the results of the discussion, Academician Nikolai Zhavoronkov has said that development of scientific foundations of chemical technology is one of the most important tasks of chemists, in particular. He recalled that over 600 big scientific and technical estimates were put into effect in the chemical industry in the recent decade.

Academician, Nobel Prize winner, Nikolai Basov believes it necessary to establish scientific laboratories at all institutes under different branches of industry and plants scientists are cooperating with. He believes that this will speed up introduction of discoveries into production.

The general meeting massed a decision on the tasks of the Academy of Sciences of the USSR, linked with technical progress. The decision determines priority research in power engineering, control and automation, radio electronics and the other sphares of science.

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Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

240726 ELECTROSLAG REMELTING in a syphon bottom pouring operation: the consumable electrode is inserted so that its base is clear of the bottom by one third of the slag bath depth. Voltage is applied and the molten slag syphoned into the mould, or else imported via a tundish and orifice in the bottom of the mould. The slag rises and makes the circuit. The idea is to raise the slag sharply and thus avoid any skull or crusting on the mould bottom or walls. Once the slag reaches project height, syphoning stops and remelting proceeds normally.

5.3.66 as 1060334/22-2. PATON.B.E.et al.E.O.PATON ELECTROWELDING INST. (26.8.69) Bul 13/1.4.69.

Class 18b. Int.Cl.C 21 c.

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AUTHORS: Paton, B. Ye.; Medovar, B. I.; Latash, Yu. V.; Dudko, D. A.; Yemel'yanenko, Yu. G.; Klyuyev, M. M.; Pryanishnikov, I. S.; Laktionov, V. S.; Butskiy, V. N.; and Kosyrev, L. K.

Ordena Trudovogo Krasnogo Znameni Institut Elektrosvarki imeni E. O. Patona

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USSR

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PATON, B. YE., and SPYNU, G. A., Institute of Electric Welding imeni Ye. O. Paton

"Industrial Robots for Welding"

Kiev, Avtomaticheskaya Svarka, No 9, Sep 72, pp 1-8

Abstract: Application of numerical program control methods for the development of second-generation industrial robots is discussed as applied to arc and spot welding. According to the authors, this generation of industrial robots must have a complex system of control, be self-adjusting, be adaptable to external conditions, and be able to select the appropriate behavior algorithm for a given situation. The second generation of robots should be able to simulate the movement of a man's hands in order to place and orient an object. This requirement has led to the creation of two basic designs: wrist movement in conjunction with the coordinates of the spherical system (rotations in horizontal and vertical planes and radial forward movement); wrist movement in cylindrical coordinates (rotation around the vertical axis, vertical and radial forward movement). The remaining two degrees of freedom are wrist rotation (wrist with clamp attachment) around mutually perpendicular axes.

The control system of industrial robots consists of a memory, logic elements, and executive components. Memory can be magnetic tape, drum, or

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PATON, B. YE., and SPYNU, G. A., Avtomaticheskaya Svarka, No 9, Sep 72, pp 1-8

ferrite cores; control system executive components can be digital, analog, or mixed.

Programming of an industrial robot is fairly simple. The robot is connected to a control panel where a worker performs a welding operation using control panel buttons. As the robot is performing the welding operation under control of the control panel, it stores the movements it makes in its memory, allowing this process to be repeated as many times as required. Also an operational program can be dumped from the memory of one robot and loaded into the memories of other robots.

At the present time robots are being used solely for auxilliary operations whereas in the future, once automation problems have been solved, the robot should be able to perform the entire welding process. Parallel with the creation of specialized welding robots for ordinary conditions there is the task of designing a robot which can perform welding operations under water, in corrosive media, space, etc.

The Institute of Electric Welding imeni Ye. O. Paton is researching the possibilities of using robots in welding production. Much has been done toward determining the conditions of using robots for spot welding at automobile plants. 4 figures, 2 tables, 15 bibliographic references.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE BRIEFLY REVIEWS THE ADVANCEMENTS ACHIEVED BY THE UKRAINIAN ACADEMY OF SCIENCES. THE ACADEMY IS STAFFED BY MORE THAN 38,000 ASSOCIATES INCLUDING 117 ACADEMICIANS, 166 CORRESPONDING MEMBERS, AND NEARLY 4,000 DOCTORS AND CANDIDATES OF SCIENCES. THE 138 INSTITUTIONS OF HIGHER LEARNING, WITH THEIR 1,700 PROFESSORS AND DOCTORS OF SCIENCES, 14,000 DOCENTS AND CANDIDATES, AND SEVERAL TENS OF THOUSANDS OF ASSOCIATES AND GRADUATE STUDENTS, ARE ALSO MAKING SIGNIFICANT CONTRIBUTIONS TO THE ADVANCEMENT OF THE UKRAINIAN SCIENCE.

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Soviet Inventions Illustrated, Section III Mechanical and General, Derwent, 8-70

244004 CONSTANT PRESSURE REGULATOR. The control of constant oil pressure in the forced lubrication system of an internal combustion engine is achieved by coupling the thermostat 2 in feed pipe 1 through rod 3 to box valve unit 6 and coupling the shaft of the valve 9 to the metering rod 12 of the oil supply pump 13. Thus the pressure in pipe 5 regulates the output of the pump to feed pipe 1 and controls the pressure to pipe 4 and to the crankshaft bearings.

15.2.68 as 1218062/24-6 O.B. LEONOV et al. N.E. Bayman, Moscow, Technical College (3.10.69) Bul. 17/14.5.69. Class 46c, Int. Cl. F 01m.

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