"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

PODCHERNYAYEVA, I. A., and FOMENKO, V. S.

"All-Union Symposium on the Investigation of Materials for Plants for the Direct Conversion of Different Energy Forms Into Electricity"

Kiyev, Poroshkovaya Metallurgiya, No 7 (103), Jul 71, pp 105-106

Abstract: The "All-Union Symposium on the Investigation of Materials for Plants for the Direct Conversion of Thermal and Chemical Energies Into Electricity" was held in Kiev, November 26-29, 1971. The Symposium was organized by the Materials Section of the Scientific Council of the Academy of Sciences USSR on the complex problem "Methods of Direct Conversion of Thermal Energy Into Electric Energy", the Division of Physico-Technical Problems of Energetics of the Academy of Sciences UKrSSR, and the Institute of the problems of Materials Science of the Academy of Sciences UKrSSR. One hundred fifty scientific and technical workers participated, representing 40 organizations. The papers dealt with theoretical and experimental investigations of electronic structures and various physico-chemical, physico-technical, and working properties of electrode and electro-insulating materials. The plenary session included 70 reports on the state and prospects for the development of materials fordirect energy conversion plants, held in four sections: magneto-hydro-

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PODCHERNYAYEVA, I. A., and FOMENKO, V. S., Poroshkovaya Metallurgiya, No 7 (103), Jul 71, pp 105-106

dynamic generators, thermoelectric generators, thermoelectronic transformers, and fuel cells. The reports can be characterized generaly as follows: 1. Information storage of experimental data on thermal, electrophysical, thermmechanical, thermo-emission, and adsorption properties and thermo-dynamic and crystal chemistry characteristics of electrode and electro-insulating materials. 2. Generalization of experiences in the exploitation of materials under natural and model conditions of direct energy conversion. 3.. Development of prospects for creating effective electrode and electro-insulating materials. In papers of the first section, new materials for lining and production of current collectors were discussed. Papers of the second section dealt with the physics, physical chemistry, and technology for production of semiconducting and insulating materials of thermoelectric cells. The third section dealt with investigations of the structures of adsorbed films of alkaline - earth metals on different singlecrystal faces of tungsten and rhenium and cesium adsorption on alloys of refractory metals. The fourth section included papers discussing production of porous nickel electrodes with high values of specific surface and electroconductivity at which the electrode activation process is in coincidence with sintering at temperatures of 750-110°C.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

Conferences

USSR

PODCHERNYAYEVA, I. A., and POLEMKO, V. S.

"Seventh All-Union Symposium on the Physical Properties and Electron Structure of Transition Metals, Their Alloys, and Compounds"

Kiev, Poroshkovaya Metallurgiya, No 4, Apr 70, pp 109-110

Abstract: The article discusses the reports presented at the symposium spon-sored by the IPM [expansion unknown] of the Academy of Sciences UkrSSR and the Kiev Polytechnic Institute which was devoted to a discussion of theoretical and experimental sutdies of electron structure, various physicochemical and psych-cotechnical properties of transition metals, their alloys and compounds with boron, carbon, nitrogen, silicon, hydrogen, and oxygen, and also of similar in-vestigations in the area of chalcogenides of transition and rare metals.

The symposium was opened by G. V. Samsonov, Corresponding Member of the Academy of Sciences UkrSSR, who noted that, in addition to extensive experimental investigations of the physical properties of transition metals, attempts are being made to discover the nature of the formation of these properties.

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PODCHERNYAYEVA, I. A., et al., Poroshkovaya Metallurgiya, No 4, Apr 70, pp 109-110

The following reports of the plenary session provoked a great deal of interest: electron interactions in the configurational model of substances -- G. V. Samsonov, I. F. Pryadko, L. F. Pryadko; models of band structure of the basic classes of refractory chemical compounds and alloys based on transition metals -- Ye. A. Zhurakovskiy; valence state of atoms and properties of isolated molecules of halides and chalcogenides of transition metals -- O. P. Charkin; questions of the nature and correlation of some physicochemical properties of inorganic materials -- S. S. Oshchorin; and the effect of localization of valent electrons in solids and approximate diagonalization of the energy operator in the quantum field theory of semiconductors -- A. S. Kuchmirenko.

The reports presented at the three sessions of the symposium [illegible] further to the experimental data on the thermophysical, electrophysical, optical, magnetic, galvanomagnetic, physicomechanical, thermal emission, thermodynamic, and crystallochemical characteristics of transition metals, their alloys, and compounds continued the experimental investigation of electron structure using methods of soft and hard x-ray microscopy, x-ray diffraction, NMR, ESR and Mossbauer effect and further [illegible] of the use of refractory compounds as [illegible], [illegible], and heating materials.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR UDC 576.858.75.095.57

PODCHERNYAYEVA, R. Ya., SOKOLOV, M. I., PARASYUK, N. A., MYASNIKOVA, I. A., BASOVA, E. A., SOKOLOVA, N. N., and MOLIBOG, Ye. V., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"Study of Genetic Markers and Their Variability in Influenza Virus Isolated During the 1968-1969 Influenza Epidemic. II. Variability of Genetic Markers in Influenza Type A_2 (Hongkong) Virus In Passages in Mice at Low Temperatures"

Moscow, Voprosy Virusologii, No 5, 1971, pp 543-548

Abstract: Ten passages of influenza type A2 (Hong Kong) virus in mice resulted in variants that produced lung changes typical of influenza in mice. After the 20th passage, the pathogenic variants exhibited increased reproductive activity at 36 and 40°C. All strains, except A2 (Hong Kong) 1/68 M_{20}, resisted heating to 56°C. Like the original strains, they were completed adsorbed on chick erythrocytes but were more readily eluted from them. Neuraminidase activity was half that in the original strains. The pathological variants remained sensitive to normal animal serum inhibitors and did not agglutinate mouse erythrocytes. They resembled the original strains in resistance to trypsin, urea, and ultraviolet irradiation.

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USSR

PODCHERNYAYEVA, R. Ya., et al., Voprosy Virusologii, No 5, 1971, pp 543-548

After 10 passages of A2 (Hong Kong) 1/68 and its pathogenic variant A2 (Hong Kong) 1/68 M_{20} in chick embryos incubated after inoculation at 28°C both strains reproduced actively and remained able to do so even at 40°C.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

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UDC 576.858.75.095 5

SOKOLOV, M. I., PODCHERNYAYEVA, R. YA., PARASYUK, N. A., MYASNIKOVA, I. A., MEN'SKIKH, L. K., MOLIBOG, Ye. V., SOKOLOVA, N. N., and STAKHANOVA, V. M., Institute of Birology imeni D. I. Ivanovskiy, Academy of Medical Sciences, USSR, Moscow

"Study of Genetic Properties and Their Variability in Viruses Isolated in the 1968-1969 Influenza Epidemic. Communication 1: Biological Properties of Strains of A2/Hong-Kong 1/68"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 70, pp 677-680

Abstract: A study was made of the inhibitor ratio, thermal stability, neuramidase and eluent activities, stability against UV light, and pathogenic and toxic effects on white mice of the A2/Hong-Kong 1/68 flu strain and two similar strains isolated in the USSR. The latter strains did not differ significantly from the former. On the basis of the test results, it is assumed that evolution of the A2 virus in nature does not involve reversion to strains of group AO. Additional studies with laboratory varieties are required to elucidate this problem.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--MODEL CALCULATIONS OF POINT DEFECT CHARACTERISTICS IN A FACE CENTERED CUBIC LATTICE -U-

AUTHOR--PLISHKIN, YU.M., PODCHINENOV, I.YE.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3) 958-9

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--COPPER, CRYSTAL LATTICE DEFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0653 STEP NO--UR/0181/70/012/003/0958/0959

CIRC ACCESSION NO--AP0105632

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

2/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105632

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON A CRYSTALLITE OF RECTANGULAR SHAPE, REPRESENTING A PART OF AN IDEAL FCC. LATTICE AND CONTG. SEVERAL HUNDRED ATOMS, BOUNDARY CONDITIONS WERE APPLIED WHICH IMITATE THE TRANSITION TO INFINITE ELASTIC CONTINUUM. THE ELASTIC CONSTS., CALCD. BY MEANS OF A CHOSEN POTENTIAL FUNCTION, ARE GIVEN FOR CU. THE ACCOUNT OF THE EFFECT OF THE INTERACTION OF 2ND NEIGHBORS LEADS TO QUAL. DIFFERENT CONCLUSIONS, NAMELY: THE MOST STABLE IS THE BODY CENTERED CONFIGURATION OF THE INTERSTITIAL ATOM.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC: 539.4

KALIMOV, A. I., MALYATIN, V. V., POCHTENNYY, Ye. K.

"Investigation of the Kinetics of Steel Destruction Under Impact Loading"

V sb. Teoriya i prakt. vysokoskorost. deformatsii metal. materialov (Theory and Practice of High-Velocity Deformation of Metallic Materials--collection of works), Moscow, 1971, pp 8-9 (from RZh-Mekhanika, No 5, May 72, Abstract No 5V978)

Translation: The paper presents a method of recording the distribution of cracks in flat steel specimens under dynamic tension using a high-speed photo unit. Heat-treated stamped steel grades 5KhNM and 4Kh5V2FS was investigated. An analysis is given of the speed of crack propagation as a function of impact speed, the initial damage to the specimen (produced by different stress concentrators), the dynamic strength limit and the thickness of the specimen. Oscillograms of the force-time relation are given. Resistance strain gauges were used as the pickups. The oscillograms were recorded on the S1-18 and S1-37 cathode-ray oscillographs.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 621.371.029.55

VSEKHOSVYATSKAYA, I. S., GLADYSHEVA, M. V., GORSHKOVA, E. Z., DUMBRAVA, Z. F., YEROFEYEV, N. M., ZOLOTAREV, A. Ye., KIYAKOVSKIY, M. P., MAL'SHAKOV, V. N., NOVIKOVA, L. N., PEZHEMSKAYA, M. D., PODDEL'SKIY, N. P., and RUDYKA, L. V.

"Some Results of Investigations Into Tilted Short-Pulse Sounding in Ranges up to 400 km Long"

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 347-348 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A333)

Translation: Results are given of the selection of optimal operating frequencies for ranges of varying extent, the identification of propaganda modes, and the determination of the spectral characteristics of the fluctuations in signal level. A. L.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

Acc. Nr: AP0047339

Ref. Code: UR 0300

PRIMARY SOURCE: Ukrayns'kiy Biokhimichniy Zhurnal, 1970, Vol 42, Nr 1, pp 97-101

EFFECT OF DENERVATION AND FOLLOWING STIMULATION ON THE CONTENT OF MIOFIBRILLAR PROTEINS

Yu. G. Poddubnyak, A. A. Novikova

Department of Biochemistry, Medical Institute, Dnepropetrovsk

Summary

The effect was investigated of the muscle electrostimulation during one and three months after denervation on the renewal in them of the content of basic contractile proteins. It is established that in a month after denervation actomyosin, myosin and actin content in muscles decreases sharply. Its partial restoration is observed in three months. Stimulation of the denervated muscles considerably prevents the changes in the content of actomyosin, myosin and actin. Stimulation during three months after denervation is particularly effective. Both denervation and stimulation do not considerably affect the content of thiol groups of contractile proteins in the denervated muscles.

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REEL/FRAME

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 577.1:615.7/9

KUSTOV, V. V., MIKHAYLOV, V. I., and PODDUBNAYA, L. T.

"Some Peculiarities of the Biological Effect of Gaseous Toxic Substances Released Into the Atmosphere From Urine and Feces"

V sb. Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 16, Moscow, "Nauka" (Science), 1971, pp 164-170 (Russian) (from RZh-Biologicheskaya Khimiya, No 20, 25 Oct 71, Abstract No 20F1686 from summary)

Translation: Male mice underwent poisoning for two hours by gas released from urine and feces, fresh or stored for 10 days. On conclusion of poisoning a determination was made of blood cholinesterase (ChE) and catalase activity and carboxy-Hb and acetylcholine content of the blood. On the basis of changes in the acetylcholine-ChE system a conclusion was drawn regarding the general toxic effect of the gaseous substances released from fresh and stored urine and feces.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 577.1:612.12-015

PODDUBNAYA, L. T., ROGATINA, L. N., KUSTOV, V. V., and MIKHAYLOV, V. I.

"Effect of Chemical Preservative Agent on Rate of Emission of Certain Gaseous Toxic Substances From Stored Units"

V sb. Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 16, Moscow, "Nauka" (Science), 1971, pp 170-173 (Russian) (from RZh-Biologicheskaya Khimiya, No 19, 10 Oct 71, Abstract No 19F1534 from summary)

Translation: A study was made of the effect of a chemical preservative of the phenol class on the rate of gas emissions from stored urine. It was established that addition of the preservative lessens the input into the air of substances of the ammonia, ketone, fatty-acid and nitrogen-oxide group. The emission of carbon monoxide and organic compounds, as determined cumulatively according to carbon, does not vary.

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UDC 612.231-06:612.273.1

EFFECT OF THIRTY-DAY CONFINEMENT OF RATS IN AN ATMOSPHERE WITH AN INCREASED OXYGEN CONTENT ON THE ELIMINATION OF SOME GASEOUS PRODUCTS OF VITAL FUNCTIONS

[Article by V. V. Kustov, R. I. Abidin, V. I. Belkin, L. L. Poddubnaya, and T. A. Lebedeva; Moscow, Kosmicheskaya Biologiya i Meditsina, [illegible], No 5, September-October 1972, submitted for publication 5 November 1970, pp 3-5]

Abstract: Experiments on white male rats have shown that 30-day exposure of the animals in a hyperoxic atmosphere (320-340 mm Hg) produces an insignificant effect on the intensity of carbon monoxide elimination, increases ammonia elimination and decreases elimination of ketones and aldehydes.

The possibility of contamination of the artificial atmosphere in tightly sealed, small-volume chambers by the gaseous products of man's vital functions has led to a series of investigations devoted to a study of the influence of physical, chemical and other environmental factors on the intensity of their formation and elimination from the body into the surrounding medium (V. V. Kustov, L. L. Tiunov; T. S. Kolosova, et al.).

This communication presents data on the influence exerted on these processes by the prolonged continuous presence of animals in an artificial atmosphere with an increased oxygen content.

The experiments were performed on white male rats weighing 230-300 g. The experimental animals were kept for 30 days in a pressurized chamber with a volume of 0.184 m³. The oxygen concentration in the chamber air was maintained automatically at the level ~ 45% (320-340 mm Hg). Carbon dioxide in the atmosphere was maintained at the level 0.3-0.5% by means of continuous pumping of chamber air through a chemical absorbent with its subsequent return to the chamber. After the animals had been confined in this chamber for 24 hours, 15 and 30 days they were transferred to a chamber with lesser volume (0.093 m³) outfitted with a heat-regulating system. The oxygen and carbon dioxide concentrations in the atmosphere of this chamber were maintained by the method described above at the same level as in the chamber

JPRS 57517
15 Nov 72

PODDUBNAYA, L. T.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CHEMICAL STRUCTURE OF THE ANTIBIOTIC ALBOMYCIN. XXVI. SYNTHESIS OF ALPHA,TRIPEPTIDES OF L AND D,GLUTAMIC ACID AND THE TETRAMETHYL ESTER OF

AUTHOR-(03)-PODOUBNAYA, N.A., BAZAITOVA, L.V., CHALOVA, L.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 487-91

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TERPENE, GLUTAMIC ACID, ALIPHATIC ESTER, PEPTIDE, SERINE, MOLECULAR STRUCTURE, ANTIBIOTIC/(U)ALBOMYCIN ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1157 STEP NO--UR/0079/70/040/002/0487/0491

CIRC ACCESSION NO--AP0123135

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

2/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123135

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DL,GLUTAMIC ACID WAS CONVERTED BY ACYLASE I INTO PURE D,ISOMER AS SHOWN ON MICROFICHE. THESE WERE USED TO PREPD. THE FOLLOWING PEPTIDES: (SHOWN ON MICROFICHE). THE L,D,D,ANALOG TREATED WITH AQ. MEOH-NAOH 1 HR AT ROOM TEMP. GAVE 20PERCENT L,GLUTAMYL,D,GLUTAMYL,D,GLUTAMIC ACID, AN OIL; D,D,L,ANALOG, 15PERCENT, OIL. ME ESTER OF N,CARBOBENZOXY,D,SERYL,D, SERYL,D,SERINE AND N SUB2 H SUB4 IN MEOH 1 DAY GAVE THE HYDRAZIDE, M. 202DEGREES, WHICH IN AQ. ACOH-HCL AT MINUS 10DEGREES TREATED WITH NANO SUB2. EXTD. WITH ETOAC AND THE CRUDE PRODUCT TREATED WITH II IN THE PRESENCE OF ET SUB3 N GAVE 42PERCENT OILY TETRA,ME ESTER OF N,CARBOBENZOXY, D,SERYL,D,SERYL,SERYL,ALPHA PRIME, L,GLUTAMYL,ALPHA PRIME D,GLUTAMYL,D,GLUTAMIC ACID, (ALPHA)PRIME20 SUBD MINUS 0.6DEGREES.

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

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UDC 615.285.7:620.193.47:669.35"5

USSR

KIBA, N. Z., and PODDUBNAYA, N. P., Zhdanov Plant of Technological Equipment

"Investigation of the Resistance of Brass to Corrosion in Chlorophos Solutions"

Moscow, Meditsinskaya Tekhnika, Vol 5, No 2, Mar/Apr 71, pp 42-44

Abstract: Since manual spray guns used for disinfecting rooms with chlorophos are made of brass, the resistance of this alloy to corrosion was tested by the gravimetric method. Three standard brass samples with different microstructures (density and distribution of alpha and beta phases) were kept in 2.5, 5, 10, and 20% chlorophos solutions (pH 1.0) for a total of 28 days; they were washed, dried and weighed once per week. The results indicated that corrosion increased with increasing strength of the chlorophos solution. Brass rich in the alpha phase (high content of copper) was most resistant, while brass rich in the beta phase (high content of zinc) was least resistant. The recommendation was made to adjust the industrial processing so as to prevent the formation of the beta phase in the form of a solid network around alpha-phase grains but to achieve a most homogeneous microstructure.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

1/2 C11 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--STRUCTURE OF THE ALDEHYDE FORMED DURING VERBANOL PYROLYSIS -U-

AUTHOR-(02)-PODDUBNAYA, S.S., CHERKAYEV, V.G.

P

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 236-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALDEHYDE, ALCOHOL, PYROLYSIS, HYDROGENATION, HEPTANE, ALKYL RADICAL, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1497 STEP NO--UR/0063/70/015/002/0236/0237

CIRC ACCESSION NO--APC133498

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

2/2 011 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0138498

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PYROLYSIS OF VERBANOL IN A STEEL TUBE AT 450-520DEGREES YIELDS UP TO 26PERCENT 2,6,DIMETHYL,2,7,OCTADIEN,4,OL, UP TO 19PERCENT UNIDENTIFIED ALDEHYDE, AND OTHER UNIDENTIFIED PRODUCTS. IF THE PYROLYSIS IS RUN IN A DISC PYROLYZER WITH THE REACTION SPACE IN THE FORM OF A SLIT, THE REACTION AT 450-500DEGREES WITH 1.3 SEC CONTACT TIME GAVE UP TO 36PERCENT ALDEHYDE, B SUB4 57-8DEGREES, IDENTIFIED AS 2,4,DIMETHYL,3,ETHYL,2,HEXENAL. HEDN. AND HYDROGENATION CONVERTED IT INTO 2,4,5,TRIMETHYLHEPTANE. THUS THE PYROLYSIS INVOLVED NOT ONLY RING OPENING BUT SKELETAL ISOMERIZATION AS WELL. FACILITY: VSES. NAUCH.-ISSLED. INST. SIN. NATUR. DUSHISTYKH VESHCH., MOSCOW, USSR.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

GORELOV, G. M., TRYANOV, A. YE., PODDUBNOV, V. P.

UDC 533.6.011:001.24

"Calculating Pressure Losses in a Gas Flow Through a Cylindrical Channel With Friction and Heating"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1970, No. 45, pp 79-86 (from RZh-Aviatsionnyye i raketnyye dvigateli, No 4, Apr 72, Abstract No 4.34.4)

Translation: Gas flow in a rectilinear cylindrical channel under the combined action of friction and heat exchange on the flow is discussed. A formula is obtained for calculating the coefficient of resistance in the case of a uniform supply of heat along the length of the channel under the assumption of a power dependence of density and viscosity on temperature in the region of ideal and real gas. 4 ill., 6 ref. Resume.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

UNCLASSIFIED PROCESSING DATE--30OCT70

1/2 020

TITLE--KINETICS OF HOMOGENEOUS BUTADIENE POLYMERIZATION CATALYZED BY TITANIUM CHLORIDE IODIDE,TRIISOBUTYLALUMINUM -U-

AUTHOR-(04)-BRESLER, L.S., GRECHANOVSKIY, V.A., MUZSAY, A., PODDUBNYI, I.YA.

COUNTRY OF INFO--USSR

SOURCE--MAKROMOL. CHEM. 1970, 133, 111-18

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL REACTION MECHANISM, CHEMICAL REACTION KINETICS, BUTADIENE, MOLECULAR WEIGHT, IODINE, ORGANOALUMINUM COMPOUND, TITANIUM CHLORIDE, POLYMERIZATION CATALYST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1615 STEP NO--SZ/0000/70/133/000/0111/0118

CIRC ACCESSION NO--AP0112609

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

UNCLASSIFIED PROCESSING DATE--30OCT70

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CIRC ACCESSION NO--AP0112609

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETICS OF HOMOGENEOUS BUTADIENE POLYMN. INITIATED BY TII SUB2 CL SUB2 ISO,BU SUB3 AL WAS STUDIED AT CONST. MONOMER CONCN. A REACTION MECHANISM INVOLVING FAST INITIATION AND PROPAGATION OF LIVING CHAINS WITH REVERSIBLE DEACTIVATION OF THE ACTIVE SITES WAS PROPOSED. THE NO. AND WE. AV. MOL. WTS. OF THE POLYMER AT ANY MOMENT AFTER ESTABLISHING THE DEACTIVATION REACTIVATION EQUIL. WERE CALCD. FACILITY: SYN. RUBBER RES. INST., LENINGRAD, USSR.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

UDC 582.282.195.232-115.1+575.23

USSR

KVASNIKOV, Ye. I., PODDUBNYY, F. N., SVISHCHUK, A. A., GRINBERG, T. A., BITYUKOVA, L. B., DUBKOVA, O. M., and GRINBERG, B. G., Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR, and Institute of Organic Chemistry, Academy of Sciences Ukrainian USSR

"Adenine-Dependent Mutants of the Yeast Rhodotorula gracilis and Their Fat-Forming Ability"

Kiev, Tsitologiya i Genetika, No 2, 1971, pp 112-115

Abstract: The ability to synthesize lipids was studied in adenine-deficient mutants of Rhodotorula gracilis induced by ultraviolet radiation. The survival rate of cells decreased with increasing dose of UV rays: from 52.4% at a dose of 500 erg/mm^2 to 0.002±0.0022% at a dose of 10,000 erg/mm^2. UV irradiation induced six auxotrophic mutants which required the presence of adenine hydrochloride (from 10 to 100 μg/ml) in the medium for good growth. The optimum dose for inducing adenine-dependent mutants was 4,000 erg/mm^2 which gave rise to one mutation per 5,755 cells (0.055±0.045%). The adenine-dependent mutants were found to have a low capacity for synthesizing lipids. While the control strain formed 52.4% of the lipids, the adenine-dependent mutants formed only 10.4 to 24.4%.

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UDC 678.7:539.2

USSR

PODDUBNYY, I. Ya., ERENBURG, Ye. G., and GRECHANOVSKIY, V. A., All Union Scientific Research Institute of Synthetic Rubber imeni S. V. Lebedev

"Research on the Molecular Structure of Synthetic Rubbers"

Moscow, Kauchuk i Rezina, No 2, 1971, pp 6-9

Abstract: The article is a survey of the principal work done at the Physico-chemical Laboratory of the All Union Scientific Research Institute of Synthetic Rubber in the field of the molecular structure of various types of synthetic rubbers. The comprehensive study of hydrodynamic properties of solutions established the relationship between the intrinsic viscosity and sedimentation constant of butadiene-styrene, cis-1,4-butadiene, cis-1,4-isoprene, butadiene-nitrile rubbers of various brands, butyl rubber and copolymers of the SKEP type and their molecular weight. Molecular-weight distribution and kinetic data were used to study the anionic polymerization of butadiene and isoprene under the influence of butyllithium, as well as the coordination-ionic polymerization of these same monomers under the influence of complex catalysts. Methods were developed for a quantitative characterization of polymer branching, based on measurements of the intrinsic

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PODDUBNYY, I. Ya., et al, Kauchuk i Rezina, No 2, 1971, pp 6-9

viscosity of homogeneous fractions with known molecular weight in a θ-solvent, as well as combined intrinsic viscosity and sedimentation constant measurements. Experimental studies of the branching of macromolecules of synthetic rubbers obtained in the presence of different catalytic systems established the following:

1. Macromolecules of SKI-3 rubber synthesized under ordinary conditions are linear; disturbing the polymerization regime in the production of this polymer may lead to the formation of highly cross-linked structures.

2. Macromolecules of cis-polybutadiene, obtained with the use of a catalytic system containing cobalt salts (SKD-2), remain linear for all practical purposes regardless of the polymerization temperature on moderate conversion.

3. The degree of branching of butadiene-nitrile (emulsion) rubbers increases with increased acrylonitrile content.

Methods were developed for studying molecular chain flexibility, the homogeneity

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1/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--BUTADIENE NITRILE RUBBERS -U-

AUTHOR-(05)-FISHER, S.L., RADCHENKO, I.I., PERMINOV, A.M., [illegible],
I.YA., RABINERZON, M.A.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 256,250

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--17MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--NITRILE RUBBER, CHEMICAL PATENT, COPOLYMERIZATION, BUTADIENE, ACRYLONITRILE, SOAP, FROST, LOW TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1789 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132055

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UNCLASSIFIED PROCESSING DATE--27NOV70

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CIRC ACCESSION NO--AA0132055

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE RUBBERS ARE PRODUCED BY AQ. EMULSION COPOLYM. OF BUTADIENE WITH ACRYLONITRILE IN THE PRESENCE OF FREE RADICAL TYPE INITIATORS, EMULSIFIERS COMPRISING SOAPS OF CARBOXYLIC ACIDS, AND S-CONTG. REGULATORS OF THE MOL. WT. AND OF THE MOL. WT. DISTRIBUTION. TO IMPROVE THE FROST RESISTANCE OF THE RUBBERS, THE REGULATORS ARE INTRODUCED IN THE FORM OF AN EMULSION OR SUSPENSION CONSISTING OF PRODUCTS OF ALK. SAPON. OF THE REGULATOR SOLN. IN A FATTY ACID. THE EMULSION OR SUSPENSION IS ADDED IN UNEQUAL PORTIONS DURING THE COPOLYM. PROCESS.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PMR SPECTRUM AND STRUCTURE OF BUTENYLLITHIUM -U-

AUTHOR-(03)-DOLINSKAYA, E.R., PODDUBNYY, I.YA., TSERETELI, I.YU.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 862-5 (PHYS CHEM)

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MAGNETIC RESONANCE, SPECTRUM, MOLECULAR STRUCTURE, ORGANOLITHIUM COMPOUND, ROTATIONAL SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0696 STEP NO--UR/0020/70/191/004/0862/0865

CIRC ACCESSION NO--AT0124368

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UNCLASSIFIED PROCESSING DATE---30OCT70

2/2 015

CIRC ACCESSION NO--AT0124368

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PMR SPECTRA WERE SHOWN FOR BUTENYLLITHIUM IN THE 183-293DEGREESK INTERVAL ILLUSTRATING THAT IN ME SUB2 O SOLN. THIS COMPD. EXISTS AS CONTACT ION PAIRS, THE ANIONS OF WHICH ARE CROTYL GROUPS WITH CIS AND TRANS DISPOSITIONS OF THE ME GROUPS. AT LESS THAN 180DEGREESK THE RATATION OF ME ABOUT THE C SUB1-2 BOND CEASES AND THE ANION BECOMES FLAT. FACILITY: VSES. NAUCH. ISSLED. INST. SIN. KAUCH. IM. LEBEDEVA, LENINGRAD, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

1/2 018 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--EFFECT OF SLOT SHAPE AND SIZE ON CURRENT DISTRIBUTION IN A SLOT CELL -U-

AUTHOR-(03)-MASLIY, A.I., PODDUBNYY, N.P., PIROGOV, B.YA.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(1) 70-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ELECTRODE, ELECTROLYTIC CELL, ELECTRIC CURRENT, ANODE, CATHODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0464 STEP NO--UR/0364/70/006/001/0070/0073

CIRC ACCESSION NO--AP0107070

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

2/2 018 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107070

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN A PARALLEL ELECTRODE CELL IN WHICH THE ANODE WAS A FRACTION OF THE AREA OF THE CATHODE, THE CURRENT DISTRIBUTION AT THE CATHODE WAS CALCD. AS A FUNCTION OF THE RELATIVE AREA OF THE 2 ELECTRODES. THE SHAPE OF THE CURRENT DISTRIBUTION CURVE WAS BELL SHAPED, WITH THE MAX. VALUE OCCURRING AT THAT SEGMENT OF THE CATHODE WHICH WAS DIRECTLY OPPOSITE THE ANODE; AS THE RELATIVE SIZE APPROACHED 1, THE DISTRIBUTION BECAME MORE UNIFORM. IF THE ANODE WAS T SHAPED SO THAT PART OF IT WAS PERPENDICULAR TO THE CATHODE, THE CURRENT DISTRIBUTION AT THE CATHODE WAS STILL BELL SHAPED AND BECAME LESS UNIFORM AS THE RELATIVE AREA OF THE ANODE AND CATHODE APPROACHED 1.

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USSR

UDC: 621.396.621.59

DORMAN, M. I., PODDUBNYY, V. N., Voronezh Polytechnical Institute

"A Resolving Receiver for a Data Transmission System With Resolving Feedback in the Case of Combination Phase-Difference Signal Keying"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331495, Division H, filed 31 Dec 69, published 7 Feb 72, pp 182-183

Translation: This Author's Certificate introduces a resolving receiver for a data transmission system with resolving feedback in the case of combination phase-difference signal keying. The device contains a memory element for the duration of a single transmission, a 45° phase shifter, a main information channel and an auxiliary information channel. The main information channel is made up of a multiplier, integrator, two-threshold device, resolver and decoder. The auxiliary information channel is made up of a multiplier, integrator, single-threshold device and resolver. As a distinguishing feature of the patent, the effect of error accumulation is reduced by connecting the second input of the multiplier in the auxiliary information processing channel to the output of the 45° phase shifter through

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USSR

DORMAN, M. I., PODDUBNYY, V. N., USSR Author's Certificate No 331495

an auxiliary 90° phase shifter, and by connecting the output circuits of the resolvers in the main and auxiliary information processing channels to a solution analyzer. The signals from the output of the solution analyzer are fed respectively to the return channel transmitter and to the decoder of the main information processing channel.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--INTERFERENCE FREE RECEPTION OF RELATIVE PHASE TELEGRAPHY (OFT: OTNOSITEL'NAYA FAZOVAYA TELEGRAFIYA) SIGNALS UNDER CONDITIONS OF

AUTHOR-(02)-DORMAN, M.I., PODDUBNYY, V.N.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA, NO 2, 1970, PP 24-29

DATE PUBLISHED--------70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--BINARY CODE, SIGNAL RECEPTION, SIGNAL DISTORTION, RADIO TELEGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1746 STEP NO--UR/0108/70/000/002/0024/0029

CIRC ACCESSION NO--AP0123547

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

2/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123547

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROBABILITY OF DISTORTION IS DETERMINED FOR BINARY CODE SYMBOLS IN RELATIVE PHASE TELEGRAPHY SYSTEMS UNDER THE EFFECT OF WIDEBAND (NONCORRELATED) AND NARROWBAND (CORRELATED) INTERFERENCE. ALGORITHMS ARE INVESTIGATED WHICH ARE BASED ON SCALAR PRODUCTS, MULTIPLICATION AND DIVISION (PRODUCTION OF PARTICALS) OF THE UTILIZED SIGNALS.

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USSR UDC: 621.396.626

DORMAN, M. I. and PODDUBNYY, V. N.

"Noise-Free Reception of OFT Signals in Presence of Correlated Interference"

Moscow, Radiotekhnika, Vol 25, No 2, 1970, pp 24-29

Abstract: The reception can be strongly distorted by the narrow-band (lumped) noises when a large number of radio stations are operating in a narrow frequency range. Therefore, it is expedient to evaluate the noise immunity of a OFT system utilizing both the multiplication and division algorithms in presence of both wide-band and narrow-band noises.

It was shown that the method of division provides a similar noise immunity as the method of comparison of polarities. The effect of narrow-band interference on the OFT receiver does not change the mean error probability, but leads to redistribution

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USSR

DORMAN, M. I., et al, Radiotekhnika, Vol 25, No 2, 1970, pp 24-29

of "zeros" and "units" distortions. This peculiarity can be utilized to introduce an artificial asymmetry of the transmission channels in systems with feed-back, thus improving their noise immunity. Such an asymmetry can be obtained by introducing an auxiliary signal at the input of the computer.

The distortion probability of the binal code symbols in the OFT system in presence of the wide-band (non-correlated) and narrow-band (correlated) noise were examined.

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PODDUBNYY, V.V.

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TECHNICAL TRANSLATION

FSTC HT 23-1015-72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV, SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: I. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY IMENI T.G. SHEVCHENKO

Translated for FSTC by ACSI

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- Title Page -

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USSR

UDC: 621.396.932.1

PODDUBNYY, V. V.

"Divergence of Information in Problems of Base Direction Finding of a Heat Source From δ-Samples"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 251-257 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5G65)

Translation: The paper deals with using Bartlett's indeterminacy function for studying the potential accuracy of base direction finding of sources of thermal radio emission. Two illustrations, bibliography of ten titles. N. S.

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USSR

UDC: 621.396.932.1

PODDUBNYY, V. V.

"Potential Accuracy of Base Direction Finding of a Heat Source by δ-Sampling From Envelope and Phase"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated with Tomsk University), 1970, vyp. 51, pp 236-250 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5361)

Translation: The author considers the simplest base system of direction finding which consists of two parallel dipoles arranged in a plane perpendicular to the base — source plane. The accuracies of evaluating the signal delay at one dipole with respect to the other are determined by studying the information content of uncorrelated samples of the envelope and phase of a mixture of the received noise signal with the instrument noises of the receivers. It is shown that in the case of wide-band noise signals, the envelope is most informative, while in the case of narrow-band noise signals, it is the phase difference which is most informative. Five illustrations, bibliography of four titles. N. S.

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PODDUBNYY, V. V.

"Potential Accuracy of Base Direction Finding of a Heat Source From Joint Sampling"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 222-235 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V66)

Translation: The author investigates the potential accuracy of measuring the delay of a signal from a source of thermal radio emission at one receiver as compared with another in the case where the results of observation are independent readings of instantaneous values of the high-frequency voltage across the antenna outputs (δ-sampling). It is assumed that the emissions from the source and the instrument noises of the receiving devices are stationary Gaussian processes. It is shown that the accuracy of estimating the bearing by δ-sampling is lower than the optimum evaluation of the source bearing of a coherent signal by continuous observation. Seven illustrations, bibliography of five titles. N. S.

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UDC: 621.396.932.1

PODDUBNYY, V. V.

"Potential Accuracy of Phase-Difference Direction Finding of a Heat Source by Pair-Correlated Sampling"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 258-263 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5G63)

Translation: The paper deals with the precision of evaluating the delay between the signals produced by heat radiation of a target which are received by two spatially separated dipole antennas which are parallel to each other and perpendicular to the base — source plane. Account is taken of the additive noises of the input devices which are independent of the signal and of each other. It is shown that an evaluation method based on processing uncorrelated samples is close to the optimum method based on processing continuous realizations; accuracy is not appreciably improved by accounting for correlation within a sample. Bibliography of three titles. N. S.

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KUNCHENKO, Yu. P., PODDUBNYY, V. V.

"On the Potential [redacted] Accuracy of Measuring the Angular Position and Angular Velocity of a Moving Heat Source"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 264-268 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5Ж64)

Translation: The proposed problem is solved by analyzing the correlation properties of signals received from a heat source by both antennas of a direction finder. It is shown that in the case of a movable source, the problem of direction finding reduces to evaluating the initial time shift of the received signals and the rate of change in this shift, and using these parameters to predict the motion of the source. The accuracy of predicting the angular position of a moving source is determined by the information content of evaluating the delay for a stationary source. Two illustrations, bibliography of two titles. N. S.

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UDC: 519.2:621.391

KUNCHENKO, Yu. P., PODDUBNYY, V. V.

"On the Potential Accuracy of Measuring the Angular Position and the Angular Velocity of a Moving Heat Source"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 264-268 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V287)

Translation: The results of a paper by one of the authors (abstract 9V283) dealing with analysis of the potential accuracy of taking the bearing of a stationary heat source are generalized to the case of uniform motion. The problem of determining the parameters of motion boils down to finding the optimum simultaneous estimate of the bearing and tangential velocity of the object. Assuming that the observed sample is uncorrelated, the elements of the inverse Fisher's information matrix are determined. The results are illustrated by numerical calculations for Markov signals. V. Brikker.

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USSR UDC: 519.2:621.391

PODDUBNYY, V. V.

"Potential Accuracy of Taking the Phase-Difference Bearing of a Heat Source by Pair-Correlated Sampling"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 258-263 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V286)

Translation: In contrast to works by the same author dealing with the analysis of potential accuracy in taking the bearing of a heat source from uncorrelated samples (abstracts No 9V283, 9V284 and 9V285), it is assumed that the observed sequences of signals are pair-correlated. Expressions are found for the potential accuracy of measurement, and the quantity of information in Fisher's sense when a bearing is taken by a phase-difference method. It is concluded from the results of a comparison of the potential accuracy of estimation by pair-correlated and uncorrelated samples of narrow-band signals that accounting for the mutual correlation between the elements of a sample has practically no effect on the accuracy of taking the bearing, and that as the signal-

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PODDUBNYY, V. V., Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te, 1970, vyp. 51, pp 258-263

-to-noise ratio increases, the phase-difference method of estimation based on processing uncorrelated samples is asymptotically very close to the optimum method based on processing continuous realizations.
V. Brikker.

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USSR UDC: 519.2:621.391

PODDUBNYY, V. V.

"Divergence of Information in Problems of Taking a Base Bearing of a Heat Source From δ-Samples"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 251-257 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V285)

Translation: In connection with problems of analyzing the potential accuracy of taking a bearing on a heat source from δ-samples (abstracts 9V283 and 9V284), the author studies the properties of Bartlett's indeterminacy function, which is called directed divergence of information. It is shown in particular that in taking a bearing from a δ-sample of the envelope of the observed process, the divergence of information has a unique minimum which coincides with the true value of the parameter being estimated, and thus optimum processing does not lead to indeterminacy in taking the bearing. V. Brikker.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR UDC: 519.2:621.391

PODDUBNYY, V. V.

"Potential Accuracy of Taking a Base Bearing on a Heat Source by δ-Sampling From Envelope and Phase"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 236-250 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V284)

Translation: The author notes the difficulty of technical realization of the methods investigated in another paper (abstract 9V283) for taking a base bearing on a noise source, where δ-samples from the high-frequency signals at the output of the antennas of reception devices are subjected to optimum processing. In this connection, the information content of δ-samples from the envelope and phase of the observed processes is analyzed. Expressions are derived for the amount of Fisher information on the bearing of the source which is contained in the given δ-samples, and their asymptotic properties are studied. It is concluded that the envelope is most informative in the case of wide-band noise signals,

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PODDUBNYY, V. V., Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te, 1970, vyp. 51, pp 236-250

and that the phase difference is most informative in the case of narrow-band signals. The information content of an envelope is compared with that of a high-frequency signal as illustrated by a Markov process. V. Brikker.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR UDC: 519.2:621.391

PODDUBNYY, V. V.

"Potential Accuracy of Taking a Base Bearing on a Heat Source by Simultaneous δ-Sampling"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 222-235 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V283)

Translation: The author evaluates the potential accuracy of taking a bearing on a stationary point source of thermal radio emission by a base system made up of two spaced dipoles with circular radiation pattern. Time-quantized high-frequency signals are processed at the output of antennas at the reception points. These signals are an additive mixture of the signal from the source and the natural noises of the receivers. The emission of the source and the natural noises are assumed to be stationary Gaussian processes. It is further assumed that the quantization step is greater than the correlation interval, i. e. the observed realizations are a discrete sample of uncorrelated random

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PODDUBNYY, V. V., Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te, 1970, vyp. 51, pp 222-235

quantities (δ-sample). The useful information is coded in the time delay of the signal from the source at one reception point as compared with the other. Methods of the theory of statistical decisions are used in deriving expressions for the potential accuracy of the estimate of the bearing and of the related amount of Fisher information on delay contained in the signal being processed. The accuracy of the optimum δ-sample estimate is compared with the bearing estimate from continuous realization of a high-frequency signal. The results of the analysis are illustrated by numerical calculations for three types of processes: a Markov process, a process with a rectangular spectrum, and a process with Gaussian spectrum. V. Brikker.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR UDC: 621.376.56

ALEKSANDROV, A. M., BATETSKIY, N. V., MISHCHENKO, I. N., PODD'YAKOVA, V. N., SAFRONOV, Yu. S.

"A Device for Shaping Series-Coded Signals"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 5, Feb 71, Author's Certificate No 293292, Division G, filed 21 Oct 68, published 15 Jan 71, p 177

Translation: This Author's Certificate introduces a device for shaping series-coded signals of length N. The device contains shift registers and cadence pulse generators. As a distinguishing feature of the patent, the number of digital places in the shift register is reduced by connecting two shift registers in a matrix circuit, one of the registers consisting of n digital places, while the other consists of N/n places. The output of each of the digital places in the second reginter is connected to those inputs of digital places in the first register where the "ones" of the code to be generated must be recorded for a given group of symbols of length n. The first register operates on a cadence frequency of f, and the second on a frequency of f/n.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC: 621.315.592

BARANOVSKIY, S. N. and [redacted] Novosibirsk Electrical Engineering Institute

"Transverse Microwave Conductivity of Semiconductors in Strong UHF Fields"

Leningrad, Fizika i tekhnika poluprovodnikov, vol 6, No 6, 1972, pp 1173-1175

Abstract: The authors propose a method for investigating charge carriers heated by microwave pulses in semiconductors which differs basically from other such methods in that it permits study of carrier heating over the period of the heating field. In this method, another wave of the same frequency as the heating wave is also incident on the specimen, but has a much lower amplitude than the heating wave and is polarized in a plane perpendicular to that of the heating wave. A theoretical analysis of this method is presented, beginning with the expression for the sum of both these waves, which is then substituted into the Boltzmann equation. A solution is found in the form of a Fourier series. To determine the transverse conductivity from the transmission coefficient, the elements of the dispersion matrix are tabulated on an electronic computer. Curves are plotted for the transverse conductivity as a function of the phase of the heating field and of the power absorbed by the specimen.

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USSR

UDC 536.46:533.6

PODES, O. M., GOL'TSIKER, A. D., GORBUL'SKIY, Ya. G., IONUSHAE, R. K.

"On the Propagation of a Plane Flame Front in Aerodisperse Systems"

V sb. Goreniye i vzryv (Combustion and Explosion -- Collection of Works), Moscow, "Nauka", 1972, pp 166-170 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B964)

Translation: The technique for calculating the propagation velocity of the standing flame front in aerodisperse systems was developed from the studies of Nusselt and Esseng. Radiant flow from the flame front heats the aerosuspension located ahead of it up to its combustion temperature under conditions that ensure the possibility of steady-state propagation of the front with velocities from meters up to tens of meters per second. The possibility of the inhibition of flame propagation in the aerosuspension was analyzed theoretically and supported experimentally. 5 ref. Authors' abstract.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--APPLICATION OF COLORLESS LACQUERS ON SMALL BRASS ARTICLES -U-

AUTHOR-(04)-GOLUBITSKAYA, M.L., TYULENEVA, N.N., OTDPKOV, G.M., PODGAINYY, I.M.

COUNTRY OF INFO--USSR

SOURCE--LAKOKRASOCH. MATER. IKH PRIMEN. 1970, (2), 51-3

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LACQUER, BRASS, PHENOLIC RESIN, ALKYD RESIN, EPOXY RESIN, MELAMINE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/D09 STEP NO--UR/0303/70/000/002/0051/0053

CIRC ACCESSION NO--AP0140298

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

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UNCLASSIFIED

CIRC ACCESSION NO--AP0140298 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SMALL BRASS ARTICLES (BUCKLES, HASPS, KNOBS, HINGES, ETC.) ARE USUALLY LACQUERED BY HAND OR IN A ROTATING DRUM, AND THE COATING IN A DRUM IS SATISFACTORY PROVIDED SIMILAR TO 1 G LACQUER IS USED FOR 100 G ARTICLES. THE ROTATION IS 15 RPM AND THE TIME OF RESIDENCE 5-7 MIN. A CENTRIFUGE IS DESCRIBED WHICH GIVES MUCH HIGHER PRODUCTION RATES (LESS THAN OR EQUAL TO 10,000 ARTICLES-HR), ECONOMY, AND BETTER COATING UNIFORMITY. THE LACQUERS USED ARE BASED ON PHENOLIC ALKYD EPOXY RESINS, ACRYLIC RESINS, OR MELAMINE ALKYD RESINS.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 539.376+532.135

LOBODOV, V. V., POZDEYEV, A. A., PODGAYETS, R. M.

"Stress Relaxation in a Hollow, Nonlinear, Viscoelastic Cylinder with Displacements Fixed at the Contour"

Sb. Nauch. tr. Perm. Politekhn. In-t. [Collected Scientific Works of Perm Polytechnical Institute], No 102, 1971, pp 143-150, (Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 V565 by L. Kh. Papernik).

Translation: The problem of the stress state of an infinite hollow cylinder of a viscoelastic material loaded around the external contour by fixed radial displacements is studied. The defining equation used is a nonlinear heredity relationship similar to the equation of Rabotnov

$$e(t) = \varphi[\sigma(t)] + \int_0^t K(t-s)\,\varphi[\sigma(s)]\,ds$$

which is used for the case of a complex stress state in the form used in the deformation theory of plasticity, and relates the intensity of shear stresses and strains. The function of "instantaneous" loading $\varphi(\sigma)$ selected is a special form of exponential function, dependent on the maximum shear stress

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 539.376+532.135

LOBODOV, V. V., POZDEYEV, A. A., PODGAYETS, R. M., Sb. Nauch. tr. Perm. Politekhn. In-t., No 102, 1971, pp 143-150.

intensity. The variational principle of the minimum addition of energy is used to produce the solution. An approximate numerical solution is produced by the method of local variations and for comparison, an analytic solution by the Ritz method is produced. The known solutions of the elastic problem of Lamé and the problem for rigid plastic bodies are used as coordinate functions in the Ritz method. In the solutions by both methods, the form of the kernel K(t - s) was not specified, but in the numerical example analyzed, the resolvent of the kernel is selected as the sum of two exponents. For the kernel selected in both cases, the distributions of radial and tangential stresses with respect to the thickness of the cylinder wall, changing with time, are calculated. 6 Biblio. Refs.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

1/2 017 UNCLASSIFIED PROCESSING DATE---20NOV70

TITLE--SELECTION AND CHARACTERISTICS OF L CELL SUBLINES RESISTANT TO 8,AZAGUANINE -U-

AUTHOR-(04)-ADDMAYTIYENE, D., IGNATOVA, T.N., PODGAYETSKAYA, O.YA., GERSHON, V.A.

COUNTRY OF INFO--USSR

SOURCE--TSITOLOGIYA 1970, 12(4), 457-64

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUMOR, TISSUE CULTURE, GUANINE, ORGANIC NITROGEN COMPOUND, DRUG RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0414 STEP NO--UR/0053/70/012/004/0457/0464

CIRC ACCESSION NO--AP0127985

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

2/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0127985

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. L CELL SUBLINES RESISTANT TO 8,AZAGUANINE WERE OBTAINED DURING TREATMENT WITH THIS COMPD., AND RETAINED THEIR RESISTANCE AFTER SEVERAL MONTHS OF REPRODUCTION IN VIVO AND IN VITRO EVEN IN THE ABSENCE OF DRUGS, SUGGESTING THE HEREDITARY NATURE OF THE PROPERTY. THESE CELLS WERE ALSO RESISTANT TO 6,MERCAPTOPURINE AND SENSITIVE TO 8,AZAADENINE. RESISTANCE TO BOTH 8,AZA NUCLEOTIDE BASES WAS NOT ACCOMPANIED BY CHANGES IN KARYOTYPE BUT INVOLVED LOSS OF A SCL. ANTIGEN. BOTH SENSITIVE AND RESISTANT LINES HAD SIMILAR GUANYLIC ACID PYROPHOSPHORYLASE ACTIVITY, BUT THE SENSITIVE POPULATION WAS NOT ABLE TO UTILIZE EXOGENOUS HYPOXANTHINE.

FACILITY: LAB. GENET. TUMOR CELLS, INST. CYTOL., LENINGRAD, USSR.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

1/2 027 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--AMYLASE INDUCTION IN L CELLS. EFFECT OF THE MODE OF CELL HARVESTING ON THE AMOUNT OF REGISTERED AMYLASE ACTIVITY -U-

AUTHOR--PODGAYETSKAYA, D.YA., GERSHUN, V.A., IGNATOVA, T.N., BLINOVA, M.I., FRIDLYANSKAYA, I.I.

COUNTRY OF INFO--USSR

SOURCE--TSITOLOGIYA 1970, 12(2), 253-6

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TISSUE CULTURE, CULTURE MEDIUM, AMYLASE, BIOSYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0943 STEP NO--UR/9053/70/012/002/0253/0256

CIRC ACCESSION NO--AP0102884

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

2/2 027 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102884

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INCREASED AMYLASE ACTIVITY IN L CELLS AFTER ADDN. OF STARCH TO THEIR NUTRIENT TRYPSIN CONTG. MEDIUM INDICATE SUBSTRATE INDUCTION OF ENZYME SYNTHESIS. THE SIZE OF THE REGISTERED EFFECT COULD BE CHANGED BY DIFFERENT METHODS OF HARVESTING CELLS FROM THE GLASS. DURING MECH. OR SIMPLE HARVESTING, INDUCTION DECREASED. .

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USSR

UDC: 621.373.826

PODGAYETSKIY, V. M., SKVORTSOV, B. V., TOKAREVA, A. N., BARABANOVA, V. N.

"A Gas-Discharge Flash Tube for Laser Pumping"

USSR Author's Certificate No 313241, filed 20 Jan 70, published 24 Apr 72 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D059P)

Translation: This Author's Certificate introduces a gas-discharge flash tube for laser pumping. The device contains electrode units and an optically transparent envelope filled with the working gas. To increase the effectiveness of pumping a neodymium glass active body, a mixture containing at least two inert gases under a pressure of from 200 to 600 mm Hg is used as the working gas. The following mixtures can be used: a mixture of xenon and krypton in a ratio of $1/2:1/2$ (by volume) under a pressure of 350-450 mm Hg with a discharge gap 11-12 mm in diameter; a mixture of xenon and neon in a ratio of $3/5:2/5$ (by volume) under a pressure of 350-450 mm Hg with a discharge gap 11-12 mm in diameter; a mixture of xenon, krypton and neon in a ratio of $1/3:1/3:1/3$ (by volume) under a pressure of 550-600 mm Hg for a discharge gap diameter of 11-12 mm, or a mixture of xenon and helium in a ratio of $3/16:1/16$ (by volume) under a pressure of 350-450 mm Hg with a discharge gap diameter of 11-12 mm.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR UDC: 621.791.04

PODGAYETSKIY, V.V., Institute of ElectricWelding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR

"Present State of the Development and Investigation of Welding Fluxes"

Kiev, Avtomaticheskaya Svarka, No 5, May 70, pp 13-17

Abstract: A survey is presented on the development of research and production of fluxes in the USSR. The basic specifications of fluxes and their principal components are presented. Welding fluxes are classified into various categories: 1) general purpose fluxes -- usually melted in open-flame furnaces and used in machine-building and construction; 2) fluxes for high-speed steel welding -- prepared in electric furnaces and used in the metallurgical industry and in the production of structural metal constructions; 3) fluxes for the welding of alloy steels -- obtained in electric furnaces and used in machine-building; 4) fluxes for hardfacing work -- melted in electric furnaces and used principally in the metallurgical industry; 5) fluxes for electoslag welding -- produced in electric furnaces and used in machine-building and construction; 6) fluxes for electroslag remelting -- melted in electric furnaces and used in the metallurgical industry; 7) ceramic fluxes -- used in machine-building and construction for welding and hard-facing; and 8) chemically pure fluxes -- used for the welding of active nonferrous metals. An analysis is made of the dynamics of flux production in the

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PODGAYETSKIY, V.V., Avtomaticheskaya Svarka, No 5, May 70, pp 13-17

USSR, and a forecast of flux production to 1980 is presented. A rapid growth in flux production is predicted on the basis of expected increased production of large-diameter welded pipes.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 621.791.053.002.637:546.226

PODGAYETSKIY, V. V., Doctor of Technical Sciences, PARFESSA, G. I., Engineer, and LEYNACHUK, YE. I., Candidate of Technical Sciences

"The Shape of Sulfide Inclusions in Welds"

Moscow, Svarochnoye Proizvodstvo, No 12, Dec 70, pp 14-15

Abstract: The article describes results of a study of sulfide inclusions in welds of varying composition. Welds on carbon and low-carbon steel display all three types of sulfide inclusions usually encountered in cast steel, viz. globular and round oxysulfide and sulfide inclusions, sulfide films and chains of small sulfide inclusions, and complex sulfur-containing inclusions of irregular shape. The shape and composition of the sulfide inclusions forming in the welds depend on the conditions for their elimination. The authors studied the effect of different titanium and vanadium contents on the shape of welds welded on low-carbon rimming steel St. 3 under a silicon-free manganese-free flux (AN-30 or AN-70). A metallographic study showed that

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USSR

PODGAYETSKIY, V. V., et al., Svarochnoye Proizvodstvo, No 12, Dec 70, pp 14-15

the introduction of small amounts of titanium changes the shape and composition of the sulfide inclusions. There is a significant increase in the quantity of complex sulfide films and chains situated along the primary crystallite boundaries and a decrease in the number of oxysulfide inclusions. A further increase in the titanium concentration results in the appearance of complex nonmetallic inclusions containing titanium carbides and sulfides, as well as a decrease in the number of film-like sulfide inclusions. With titanium concentrations of 0.5-2.0 percent practically the entire sulfur enters into the complex nonmetallic inclusions, and the films and chains of sulfides completely disappear. The introduction of vanadium changes the shape and composition of the globular oxysulfide inclusions. In welds without vanadium these inclusions consist mainly of ferromanganese oxides and silicates. With the introduction of vanadium the oxysulfide inclusions consist mainly of vanadium oxides and ferromanganese sulfides, with some sulfide films and chains. In

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

PODGAYETSKIY, V. V., et al., Svarochnoye Proizvodstvo, No 12, Dec 70, pp 14-15

welds with a higher carbon content (up to 0.3 percent), vanadium carbide inclusions form, which serve as elimination centers for the sulfides. This reduces the number of film and chain sulfide inclusions. With a vanadium content of about 4-8 percent practically the entire sulfur is in the form of irregularly shaped vanadium carbosulfide particles.

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AA0039789 P PODGAYETSKIY, V. V.

UR 0482

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

239470 SLAG CONTENT ANALYSIS using spectroscopy where a single drop of molten slag is taken from the process and placed in a specially built micro-furnace which keeps the slag in molten state. The bottom graphite plate of the furnace together with the slag drop form one electrode; the second electrode being made of copper. Spark or arc discharge across the electrodes emits a spectrum from the slag drop, which then is analysed and slag composition determined. This method of slag analysis is recommended especially for slag welding process.
29.1.68 as 1213751/25-27. N.N,DMITRIENKO et alia. E.O.PATON'S ELECTRO-WELDING INST. (25.7.69) Bul 11/ 18.3.69. Class 21h. Int.Cl. B 23k.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

AA0039789

AUTHORS: Dmitriyenko, N. N.; Podgayetskiy, V. V. and Medovar, B. I.

Institut Elektrosvarki imeni Ye. O. Patona

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 621.391.8

PODGAYSKIY, A. G.

"Effect of Amplitude Limiting on Traffic Carrying Capacity of a Communication Channel"

V sb. Materialy nauchno-tekhn. konferentsii. Leningrad elektrotekhn. in-t svyazi, 1970 g. Vyp. 1 (Materials of a Scientific-Technical Conference. Leningrad Electrical Engineering Institute of Communication, 1970, No 1), Leningrad, 1970, pp 53-57 (from RZh--Elektrosvyaz', No 9, September 1970, Abstract No 9.64.14)

Translation: The entropy is determined of a steady-state normal process at the output of an amplitude limiter. The results obtained are compared with Shannon's theoretical limit. It is shown that amplitude limiting influences the information content which it is possible to transmit on the channel; this effect grows with an increase of the signal-to-noise ratio. Two illustrations, three references. D.B.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 681.325.65.525

CHIRKOV, V. I., and PODGAYSKIY, K. A.; Donets Scientific Research, Planning, and Design Institute for the Automation of Mining Machinery

"Pneumatic Pulse Selector"

USSR Authors' Certificate No 337775, Cl. G 06d 3/00, filed 17 Aug 70, published 5 May 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 15, 5 May 72, p 177)

Abstract: The device contains a unit for converting the number of pulses into pressure, using a three-membrane relay whose nozzles are connected to a variable capacitance. One of the end chambers is connected to the feed channel, the other to a capacitor of constant volume, and the middle chamber to the input pulsing channel. There is a second three-membrane relay, a pneumatic valve, and an "OR" element. The device is unique in that, in order to increase reliability, the input pulsing channel is connected to the end chamber of the second relay, whose corresponding nozzle is connected to the output channel of the selector and the control chamber of the pneumatic valve. The latter's output is connected to the atmosphere, the second nozzle of this

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

CHIRKOV, V. I., and PODGAYSKIY, K. A., USSR Authors' Certificate No 337775

same relay, and the input of the "OR" element, whose output is connected to the control chamber of this same relay, the second control chamber of which as well as the second chamber of the pneumatic valve is connected to the feed channel. The second input of the "OR" element, connected to the constant-volume capacitor is connected to the input of the pneumatic valve.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 681.325.65:525

CHIRKOV, V. I., PODGAYSKIY, K. A.

"Pneumatic Trigger with Counting Input"

USSR Author's Certificate No 295118, Filed 13/10/69, Published 24/03/71, (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, 1971, Abstract No 11 A84 P).

Translation: A pneumatic trigger with a counting input is suggested, containing 2 OR elements and two 3-membrane relays with springs, the first of which is connected in the switching mode and the input of which is connected to the input of the trigger. In order to simplify the device and increase its reliability, the output of the first relay, connected to a chamber containing a spring, is connected to the blocking chamber of this relay and to the input of the first OR element. The output of the latter is connected to the control chamber of the second relay, the output of which is connected to the output bus of the trigger and to the inputs of both OR elements. The output of the second OR element is connected to the control chamber of the first relay, the second output of which is connected to the input of the second OR element and to the blocking chamber of the second relay. 1 Figure.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 669.71.472

PODGAYSKAYA, M. M., ZAVARITSKAYA, T. A.

"Structural Characteristics and Surface Properties of Industrial Alumina"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 172-177 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G169)

Translation: Results are presented from comparative analyses of the structural features and surface properties of industrial Al_2O_3. The following were determined: the granulometric composition of the Al_2O_3 by the method of sedimentation analysis in an aqueous medium with an acid stabilizer (HCl), the dispersion composition of Al_2O_3 of one plant and different plants is not identical; the magnitude of the minimum and maximum bulk weight and also the degree of packing; the natural angles of slope, the friction coefficient and the cohesive strength between the particles on a VAMI [All-Union Institute of Aluminum and Magnesium] design instrument; the specific weight by the pycnometric method in toluene and the specific surface, which permits judgment of the depth of annealing of the Al_2O_3 with sufficient accuracy. The data

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USSR

PODGAYSKAYA, M. N., ZAVARITSKAYA, T. A., Tr. Vses. n.-i. i proektn. in-ta alyumin., magn. i elektrodn. prom-sti, 1970, No 70, pp 172-177

obtained and also the methods of investigating the structural characteristics and surface properties of Al_2O_3 can be used to solve a number of problems of aluminum production technology and also when manufacturing catalysts, electrical insulating materials, and radioceramics. There are 4 tables and 1 illustration.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

PODGAYSKIY, B. K.

UDC: 519.2

"Probabilistic Properties of a Polyharmonic Process With Random Phases"

Tr. Leningr. politekhn. in-ta (Works of Leningrad Polytechnical Institute), 1971, No 318, pp 117-120 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V203)

Translation: A formula is presented for the joint probability density function of the quantities $X(t)$, $X'(t)$ and $X''(t)$ for the random process $X(t)=\sum_{i=1}^{n} a_i \sin(\omega_i t+\Phi_i)$, where Φ_i are independent random quantities uniformly distributed on the segment $[0, 2\pi]$. Some applications of this formula are given, e. g. the problem of surges in the random process $X(t)$. V. Prelov.

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1/2 012 UNCLASSIFIED

TITLE--ISOTOPIC RELATIONS FOR PARTICLES OF THE SAME ISOMULTIPLET -U-

PROCESSING DATE--16OCT70

AUTHOR-(02)-DUMBRAYS, O.V., POOGOOORETSKIY, M.I.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(1), 223-228

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ISOTOPE, ELEMENTARY PARTICLE, SCATTERING CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0382

STEP NO--UR/0367/70/011/001/0223/0228

CIRC ACCESSION NO--AP0048654

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2/2 012 UNCLASSIFIED

CIRC ACCESSION NO--AP0048654 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONCEPT OF "GEOMETRICAL TESTING" OF ISOTOPIC INVARIANCE IS EXTENDED TO THE CASE WHEN THE ISOTOPIC SPIN OF A SYSTEM OF 2 PARTICLES WHICH BELONG TO THE SAME ISOTOPIC MULTIPLET HAS NO DEFINITE PARITY. IN SUCH A CASE THE CROSS SECTIONS FOR THE ANGLES THETA AND PI-THETA CONTAIN THE SAME INTERFERENCE TERMS WHICH ARE CONCELLED DURING SUBTRACTION OR ADDN. THIS IS THE BASIS FOR THE DERIVATION OF A SERIES OF NEW ISOTOPIC RELATIONS FOR WEAK, ELECTROMAGNETIC, AND STRONG PROCESSES. RELATIONS ARE OBTAINED FOR THE CROSS SECTIONS OR DECAY PROBABILITIES WITH CONFIGURATIONS RELATED BY INTERCHANGE OF MOMENTA OF THE PARTICLES. ADDNL. RELATIONS ARISE IN CASES WHEN SOME ISOTOPIC AMPLITUDES ARE SMALL AS COMPARED WITH OTHERS. ALSO THE I. M. SHMUSHKEVICH METHOD (1955; G. PINSKI, ET AL., 1965) IS APPLIED WITH SOME MODIFICATIONS. THE RESULTS MAY PROVE USEFUL FOR TESTING THE SELECTION RULES, AS WELL AS FOR AN INVESTIGATION OF THE REACTIONS FOR WHICH IT IS DIFFICULT TO MEASURE DIRECTLY THE CROSS SECTIONS. FACILITY: OB'EDIN. INST. YAD. ISSLED., DUBNA, USSR.

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USSR

UDC: 577.1:615.7/9

PODGORNAYA, I. V., LATOSH, N. I., TRACUBENKO, I. P., SHENCOV, D. I.

"Effect of Complexing Agents (Hydroxy- and Sulfo-Substituted Ethylenediamine-tetraacetic Acid Salts and Iminodiacetic Acid) on the Behavior of Cerium-144 in an Organism"

Tr. In-ta ekol. rast. i zhivotnykh. Ural'sk. fil. AN SSSR (Works of the Institute of Plant and Animal Ecology. Ural Affiliate, Academy of Sciences of the USSR), 1970, vyp. 66, pp 76-80 (from RZh-Biologicheskaya khimiya, No 23, 10 Dec 70, Abstract No 23F2209)

Translation: It was found that the introduction of one or two hydroxyl groups into the molecule increases its effectiveness, while the addition of a sulfo group reduces effectiveness. From the authors' resumé.

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USSR

UDC 615.272:576.851.555].015.4:612.017.1

KALINICHENKO, N. F., PODGORNAYA, L. G., and BIRYUKOVA, S. V., Kharkov Institute of Microbiology, Vaccines, and Sera imeni Mechnikov

"Hypersensitivity of the Delayed Type to Injection of Cl. perfringens Toxoid"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1972, pp 25-28

Abstract: Guinea pigs sensitized with a single subcutaneous injection of 50 ml of purified, concentrated Cl. perfringens toxoid series 10 received intracutaneously 0.1 ml of the same preparation 21 days later. Within 48 hours many of the animals developed hyperemia and necroses at the injection sites. These allergic reactions were intensified when Freud's adjuvant or aluminum hydroxide was combined with the toxoid. Sensitivity tended to decrease with increase in the toxoid titers of the animals' sera. Repeated injection of the toxoids, with or without adjuvant, raised the serum toxoid levels but had no effect on the intensity of skin reactions.

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USSR

UDC 616-058.13-022.7(CL.PERFRINGENS)

KALINICHENKO, N. F., BIRYUKOVA, S. V., PODGORNAYA, L. G., and STAROBINETS, Z. G., Kharkov Institute of Microbiology, Vaccines, and Sera imeni Mechnikov

"Delayed Hypersensitivity in Guinea Pigs Sensitized Against Cl. perfringens and Other Microorganisms"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, p 148

Abstract: Investigations were conducted on 300-350 g guinea pigs to determine whether Cl. perfringens would induce delayed hypersensitivity cross-reacting with allergens from other genera of bacteria. The animals were sensitized by subcutaneous injection of 1 ml of a formalin treated culture of one of the following: Cl. perfringens type A 28, E. coli Moscow, S. aureus 209, Ps. pyocyanea, and proteus No 132. Thirty days later the animals were tested with the respective allergens prepared by the method of Runova (1970). Each animal responded with a specific delayed hypersensitivity against the allergen derived from the bacterium with which it was immunized. Reaction against Cl. perfringens allergen in animals not sensitized with Cl. perfringens was not specific. Subsequently, animals sensitized against Cl. perfringens were tested with allergens derived from the

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USSR

KALINICHENKO, N. F., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, p 148

other bacteria. A typical cutaneous reaction indicating delayed hypersensitivity was obtained with each heterologous allergen, and was most pronounced with the E. coli allergen. After 60 days the reaction against the homologous Cl. perfringens allergen was found to wane, the reaction with the E. coli and staphylococcal allergens grew more intense, and that with the other allergens remained unchanged.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 615.372:576.851.555

KALINICHENKO, N. F., STAROBINETS, Z. G., PODGORNAYA, L. G., and BIRYUKOVA, S. V., Kharkov Institute of Microbiology, Vaccines and Sera imeni Mechnikov

"Sensitizing Properties of Purified Concentrated Clostridium perfringens Toxoids"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1971, pp 113-116

Abstract: Subcutaneous injection of mice and guinea pigs with sorbed (on aluminum hydroxide) or nonsorbed Cl. perfringens toxoids produced the typical severe symptoms of anaphylactic shock. The effect of the sorbed toxoid was more severe. The animals' reaction was the same whether the toxoids were prepared on casein or bouillon culture media. The sensitizing activity of the Cl. perfringens toxoid was caused by the protein of this antigen and not by an admixture of proteins from the nutrient media.

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USSR

UDC: 612.13.014.45

MALINSKAYA, N. N. and PODGORNAYA, T. G., Institute of Labor Hygiene and Occupational Diseases, Academy of Medical Sciences USSR

"Effect of Frequency and Duration of Vibration on the Peripheral Circulation in Man"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 1, 1971, pp 9-13

Abstract: The effect of 5 and 30 min of vibration at various frequencies (16, 63, 250, and 1,000 hz) and oscillatory velocity levels (111, 117, and 123 db) was studied in 10 apparently healthy men who had previously not been subjected to vibration. The peripheral blood in the exposed right hand was investigated by means of sphygmography and rheovasography. The vascular reaction, which developed in two phases, varied with the frequency, intensity, and duration of the vibration. Vibration at the low (16 hz) and medium (63 hz) frequencies increased vascular tone (vasoconstriction) while the higher frequencies (250 and 1,000 hz) decreased it (vasodilatation). A reflex mechanism is considered to be responsible for the two-phase vascular reaction. Stimulation of the afferent fibers of the peripheral nerves results in reflex constriction of the blood vessels followed by dilatation due to inhibition of vasoconstrictor tone of the vessels of the extremity.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC: 621.372.86(088.8)

PODGORNOV, I. R.

"A Coaxial Detector Section"

USSR Author's Certificate No 263703, filed 26 Feb 68, published 15 Jun 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D[illegible] P)

Translation: This Author's Certificate introduces a detector section which consists of a section of coaxial line and a detecting element connected in parallel. To reduce the VSWR and make it independent of a change of detectors, the detecting element is made in the form of a series connected detector stage which may be made up of two detectors, one being the main detector while the other is a stabilizing unit.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 621.385.6

SOBOLEV, D.P., ZAZNOBIN, YE. S., PODGORNOV, I.P.

"Measurements Of The 'Fine' Structure Of The Signal Of Power Microwave Devices"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 2, pp 88-99 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A146)

Translation: A description is given of the measurement methods and the construction of units for measurement of: the spectrum of a signal of millisecond duration with a resolution of 30 Hz, the spectral density of the fluctuations in the 5 kHz--4.5 MHz frequency band being analyzed with a resolution of 200 Hz, the electrical phase shift, the phase-frequency characteristics and phase deformation in a pulse, and the short-lived instability of the frequency during a time interval of 10-30 milliseconds. Summary.

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Miscellaneous

USSR

UDC 517.512.6

LITVIN, O. M., PODGORNYY, A. M., Khar'kov Affiliate of the Institute of Engineering Heat Physics of the Academy of Sciences UkrSSR, Khar'kov Polytechnical Institute

"On Satisfying Boundary Conditions Occurring in a Calculation of Multilayer Shells"

Kiev, Doklady Akademii Nauk Ukrainskoy SSR, Seriya A, No. 2, 1972, pp 121-124

Abstract: A method is proposed for constructing functions satisfying boundary conditions of the type

$$\Delta^j u|_\Gamma = f_j|_\Gamma, \; j = 0, n - 1,$$

where G is a sphere of radius R, $f_j(P) = f_j$ are given functions, Γ is the boundary of the sphere $P = (x, x, x)$, and Δ is the Laplace operator, with $\Delta^n u = 0$ in G. It is stated that the functions constructed can be used to construct coordinate sequences.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR

UDC 539.376

PODGORNYY, A. M., Khar'kov Polytechnical Institute

"The Thermal Creep of a Cylinder of Finite Length"

Kiev, Prikladnaya Mekhanika, Vol 6, No 12, Dec 1970, pp 50-54

Abstract: The article deals with an axisymmetrical problem of the creep of a rotating cylinder that is under the action of temperature which changes along the axis of rotation and along the radius. An arbitrary load is applied to the side surface. The theory of small elastoplastic deformations is employed. The solution is sought in the form of expansions into exponential series. In order to obtain a system of solving equations, use is made of the Lagrange principle of variation. 3 bibliographic entries.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

UDC: 620.10

USSR

PODGORNYY, A. N., Candidate of Technical Sciences, Docent

"On Solving the Three-Dimensional Problem of Creep Theory"

Moscow, IVUZ, Mashinostroyeniye, No 1, 1971, pp 37-41

Abstract: An approximate solution is found for the antisymmetric problem of creep in the case of a rotating thick-walled cylinder of finite length, assuming that an external load is applied to the lateral wall which varies arbitrarily with respect to length, and that temperature is a function of the longitudinal coordinate and the radius. The stresses and displacements are expanded in polynomial series. Lagrange's variational principal is used to derive a system of resolving equations. The system is solved on the "Ural-2" digital computer. A numerical solution is given for a steel cylinder.

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PODGORNYY, I.D. (Col. Gen. Avn.) Mil

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

USSR UDC: 533.95:537.84

DUBININ, E. M., PODGORNYY, I. M.

"The Geomagnetic Tail in Experiments With a Three-Dimensional Terrella"

Leningrad, IV Leningr. mezhdunar. seminar "Yedincobrazive uskoreniya chastits v razlich. masshtabakh kosmosa", 1972--sbornik (Fourth Leningrad International Seminar on the Uniformity of Particle Acceleration on Different Scales of the Universe, 1972--collection of works), 1972, pp 293-294 (from RZh-Fizika, No 6, Jun 73, abstract No 6G13 [Résumé])

Translation: The paper describes experiments on modeling the geomagnetic tail when a plasma flux interacts with the magnetic field of a three--dimensional dipole. The plasma parameters are chosen on the basis of the principle of bounded modeling. The magnetic field in the plasma layer is not regular in nature. For average values of the field direction in the tail a pronounced neutral line is observed at a distance of approximately 10 cm from the center of the dipole. The distance from the center of the dipole to the shock wave on the daylight side is also about 10 cm. The fast electrons specially introduced into the solar wind simulation are detected in the plasma layer.

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052

TITLE--SPACE IN THE LABORATORY -U- UNCLASSIFIED

PROCESSING DATE--02OCT70

AUTHOR--PODGORNYY, I.M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIRODA, NO. 2, 1970, PP. 61-65

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS, PHYSICS

TOPIC TAGS--SPACE RESEARCH FACILITY, SOLAR WIND, MAGNETIC DIPOLE, MAGNETIC FIELD, SIMULATION, PLASMA CONCENTRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1130

STEP NO--UR/0026/70/000/002/0061/0065

CIRC ACCESSION NO--AP0112244

UNCLASSIFIED

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UNCLASSIFIED PROCESSING DATE--07OCT70

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CIRC ACCESSION NO--AP0112244

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EXPERIMENTS CARRIED OUT AT THE INSTITUTE OF SPACE RESEARCH IT HAS BEEN POSSIBLE TO MEASURE THE INTERACTION BETWEEN AN ARTIFICIAL SOLAR WIND WITH A TWO DIMENSIONAL MAGNETIC DIPOLE. THIS MADE IT POSSIBLE TO REPRODUCE THE PRINCIPAL PHENOMENA TRANSPIRING NEAR THE MAGNETOSPHERE. THE DIPOLE FIELD WAS CREATED BY TWO PARALLEL CONDUCTORS WITH ELECTRIC CURRENTS OF OPPOSITE DIRECTION. THE DISTANCE BETWEEN CONDUCTORS WAS 2 CM. THIS GEOMETRY MADE POSSIBLE A DIRECT MEASUREMENT OF PLASMA CONCENTRATION WITHOUT INTRODUCING THE DISTORTIONS OF THE MEASUREMENT METHOD. THE RAY OF THE LASER INTERFEROMETER WAS DIRECTED PARALLEL TO THE CONDUCTORS, THAT IS, PASSED ALONG THE LINE OF CONSTANT PLASMA CONCENTRATION. THE MAGNETIC FIELD DISTRIBUTION WAS MEASURED WITH PROBES. THE RESULTS OF THE MAGNETIC MEASUREMENTS REVEALED THAT AS A RESULT OF THE SURROUNDING PLASMA FLOW THE MAGNETIC FIELD OF THE DIPOLE ON THE DAYTIME SIDE IS EXPELLED FROM THE REGION WHERE THE MAGNETIC PRESSURE H PRIME2-8 PI IS LESS THAN THE FLUX PRESSURE MNV PRIME2. NEAR THE DIPOLE THE STRENGTH INCREASES, FORMING A PLASMA FREE SPACE (THE MAGNETOSPHERE). ITS EXTENT IN THESE EXPERIMENTS WAS SIMILAR TO 10 CM. A COLLISIONLESS SHOCK WAVE, EMANATING FROM THE BOUNDARY, IS FORMED NEAR THE BOUNDARY OF THE MAGNETOSPHERE. THE MAGNETIC FIELD STRENGTH AND THE PLASMA CONCENTRATION INCREASE THREE OR FOURFOLD AT THE WAVE FRONT. THE WIDTH OF THE FRONT WAS SIMILAR TO 5 CM.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202430006-2

3/3 052 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112244

ABSTRACT/EXTRACT--AMONG THE POSSIBLE MECHANISMS OF SCATTERING OF ENERGY OF DIRECTIONAL MOTION OF PLASMA THE MOST IMPORTANT IS THE INSTABILITY OF MAGNETOHYDRODYNAMIC WAVES DUE TO ANOSITROPY OF PRESSURE AND SCATTERING OF PARTICLES ON IONOSONIC OSCILLATIONS. BOTH TYPES OF MECHANISMS CAN BE PRESENT IN BOTH INTERPLANETARY AND LABORATORY PLASMA. AT THE INSTITUTE ATTENTION WAS CONCENTRATED ON STUDY OF THE SCATTERING OF ENERGY DUE TO INSTABILITY ASSOCIATED WITH THE ANISOTROPY OF PRESSURE. IT WAS FOUND THAT FLUCTUATIONS OF THE MAGNETIC FIELD AT THE SHOCK WAVE FRONT AGREE WITH THE ASSUMPTION OF DEVELOPMENT OF INSTABILITY ASSOCIATED WITH PRESSURE ANISOTROPY. THE CHARACTERISTIC DIMENSION OF THE MICROFLUCTUATIONS WAS DETERMINED. IN ADDITION TO EXPERIMENTS IN MODELING COLLISIONLESS SHOCK WAVES, A STUDY WAS ALSO MADE OF THE NIGHTTIME SIDE OF THE MAGNETOSPHERE. FORMATION OF THE GEOMAGNETIC TAIL WITH A NEUTRAL LAYER WAS DEMONSTRATED IN THE LABORATORY. THE TAIL IS FORMED BY ANOMALOUS DIFFUSION OF PLASMA THROUGH THE BOUNDARY OF THE MAGNETOSPHERE AND SUBSEQUENT ENTRAINMENT OF THE MAGNETIC FIELD BY THE PLASMA FLOW. FACILITY: INSTITUTE OF SPACE RESEARCH.

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USSR

UDC 621.32.032.75

RODICHEV, Yu. M., CHEMERIS, A. N., PEREVORUKHOV, G. I., AMEL'YANOVICH, K. K., PODGORNYY, L. N., KRAYNOVA, E. A., (Kiev)

"Supporting Power of Spherical Ceramic Shells Under External Pressure"

Kiev, Problemy Prochnosti, No 8, 1972, pp 26-29.

Abstract: Results are presented from tests of spheres of an aluminum ceramic under external pressure conditions. It is established that the initial geometric imperfections of the shells, characteristic for ceramic technology, have just as great an influence on the stability of ceramic spheres as on metallic spheres. The high strength of the aluminum ceramic in the shells, evidenced both with single-cycle and repeated-cycle applications of external pressure, is noted. It is remarked that an earlier work [Stachiw, I. D., "Design Parameters for Glass and Ceramic Underwater Structures," Ceramic Age., Vol 81, No 6, 1965] recommends that k be taken as 0.7 in the Zolli formula for critical pressure. The results of this study show that the value of k for spheres with deviations typical for ceramic technology may be lower. The following formula is recommended for aluminum ceramic spheres with R/h ratios of 40:

$$p_{cr} = \frac{0.35\text{-}0.40}{\sqrt{1 - \mu^2}} E (h/R)^2. \quad (6)$$

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USSR UDC 621.32.032.75

RODICHEV, Yu. M., CHEMERIS, A. N., PEREVORUKHOV, G. I., AMEL'YANOVICH, K. K., PODGORNYY, L. N., KRAYNOVA, E. A., Kiev, Problemy Prochnosti, No 8, 1972, pp 26-29.

The ceramic spheres are found to be capable of withstanding compressive stresses of up to 70% of the ultimate strength without residual changes in shape or dimensions, as long as the walls of the spheres do not have significant thickness variations.

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