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UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--HYDROGEN IMPURITY IN A MOLTEN EUTECTIC ALLOY OF SODIUM AND POTASSIUM -U-

AUTHOR--(04)-ARNOLD'OV, M.N., IVANOVSKY, M.N., MORDZOV, V.A., PLETENETS, S.S.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZIKA VYSOKIKH TEMPERATUR, JAN.-FEB. 1970, I, (1), 88-92

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--SODIUM-ALLOY, POTASSIUM ALLOY, HYDROGEN, EUTECTIC MIXTURE, OXYGEN, CHEMICAL BONDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0203

STEP NO--UR/0294/70/008/001/0088/0092

CIRC ACCESSION NO--AP0123972

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

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CIRC ACCESSION NO--AP0123972

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. POSSIBLE FORMS IN WHICH H IMPURITY MAY OCCUR IN THE DISSOLVED STATE IN MOLTEN EUTECTIC Na, K ALLOYS ARE DISCUSSED THEORETICALLY AND COMPARED WITH EXPERIMENT. THE EQUILIBRIUM PRESSURE OF H OVER SUCH ALLOYS MAY BE MATERIALLY AFFECTED BY OTHER CHEMICALLY ACTIVE IMPURITIES SUCH AS O AND LI. IN ALL CASES OBSERVED EXPERIMENTALLY, HOWEVER, THE H APPEARED TO OCCUR IN SOLUTION MAINLY IN THE ATOMIC FORM, ALTHOUGH THERE WAS ALSO A TENDENCY FOR SOME OF THE H ATOMS TO BECOME ATTACHED TO O OR LI ATOMS.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--MEASUREMENT OF THE LIFETIMES OF GADOLINIUM 151 EXCITED STATES -U-

AUTHOR--(03)--MOROZOV, V.A., MUMINOV, T.M., RAZOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(5), 921-4

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--GADOLINIUM ISOTOPE, HALF LIFE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/0583

STEP NO--UR/0367/70/011/005/0921/0924

CIRC ACCESSION NO--AP0137668

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

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CIRC ACCESSION NO--AP0137668

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STATES 108.1, 395.2, 575.3 AND 839.3 KEV HAVE HALF LIVES OF 2.60 PLUS OR MINUS 0.13, 0.24 PLUS OR MINUS 0.04, 0.23 PLUS OR MINUS 0.04, AND 0.32 PLUS OR MINUS 0.05 NSEC.

FACILITY: OB'EDIN, INST. YAD. ISSLED., DUBNA, USSR.

UNCLASSIFIED

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UDC 621.397:612.843.721

USSR

KOLIN, K. T., KIVRIN, V. I., MOROZOV, V. A.

"Stereotelevision Camera with a Small Transmission Base"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi.  
Vyp. 3 (Materials of the Scientific and Technical Conference. Leningrad  
Electrotechnical Communications Institute. Vyp. 3), Leningrad, 1970, pp 36-  
39 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8G116)

Translation: This article contains an investigation of possible means of constructing stereotelevision cameras with a small transmission base for one and two-channel stereotelevision systems. The expediency of applying two methods of constructing stereotelevision cameras with orthogonal arrangement of the transmitting tubes in which the transmission base can vary from zero to any given value is demonstrated.

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T/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--MAGNETO VIBRATION MACHINING OF MACHINE PARTS -U-

AUTHOR--MORDOZOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, VESTNIK MASHINGSTROYENIYA, NO 3, 1970, PP 52-55

DATE PUBLISHED-----70

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

TOPIC TAGS--VIBRATION EFFECT, MAGNETIC FIELD, ULTRASONIC MACHINING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3003/1981

STEP NO--UR/0122/70/000/003/0052/0055

CIRC ACCESSION NO--AP0130756

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130756

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR DISCUSSES THE CONDITIONS OF CONDUCTING AND PRESENTS THE RESULTS OF AN EXPERIMENTAL STUDY OF THE INTENSITY OF THE MAGNETO VIBRATION MACHINING OF PARTS. RELATIONSHIPS BETWEEN METAL REMOVAL FROM THE MACHINED PARTS AND MACHINING CONDITIONS ARE PRESENTED. THESE ARE RELATED TO THE INDUCTION OF A MAGNETIC FIELD INTO THE WORKING VOLUME OF THE CONTAINER.

UNCLASSIFIED

LC 041

TITLE--THE ROLE OF RADIANT FLUXES IN THE DESTRUCTION OF METALS BY HIGH VELOCITY PULSED JETS -U-  
AUTHOR--KISELEVSKIY, L.I., MOROZOV, V.A.

UNCLASSIFIED

PROCESSING DATE--11SEP70

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COUNTRY OF INFO--USSR

SOURCE--ZHURNAL PRIKLADNOI SPEKTROSKOPII, VOL. 12, MAR. 1970, P. 406-410

DATE PUBLISHED----MAR 70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--NITROCELLULOSE, PLASTIC COATING, METAL COATING, ABSORPTION SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1989/0643

STEP NO--UR/0368/70/012/000/0406/0410

CIRC ACCESSION NO--AP0107240

UNCLASSIFIED



272 041

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107240

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL STUDY OF THE EFFECT OF A RADIANT FLUX ON METALS COATED WITH A CELLOPHANE FILM. THE FILM IS NOT DESTROYED BY THE ACTION OF A SINGLE PULSE. IT ABSORBS RADIATION WITH A WAVELENGTH OF LESS THAN 2200 A. THE SPECTRA OF THE SHOCK COMPRESSED REGION OF THE PLASMA, TAKEN THROUGH AN OPENING IN THE BARRIER, ARE OF CONTINUOUS NATURE IN THE VISIBLE AND ULTRAVIOLET RANGES. ONLY LINES OF FIRST MULTIPLICITY IONS FIGURING IN THE TARGET COMPOSITION ARE RECORDED. RADIANT FLUXES CAUSE EROSION DESTRUCTION OF METALS. A DIFFERENCE BETWEEN THE DESTRUCTION OF POLISHED AND ETCHED SAMPLES IS OBSERVED. THE SIGNIFICANT ROLE OF RADIANT HEAT FLUXES IS CONFIRMED, AND THE POSSIBILITY OF STUDYING THE EFFECT OF RADIANT FLUXES WITH DENSITIES UP TO 10 TO THE 10TH W-SQ CM ON AREAS AMOUNTING TO SEVERAL SQUARE CENTIMETERS IS DEMONSTRATED.

1/2 043 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--SOLUBILITY OF GASES IN A SODIUM AND POTASSIUM EUTECTIC ALLOY -U-  
AUTHOR--(05)-ARNOLDOV, M.N., IVANOVSKIY, M.N., MORDZOV, Y.A., PLETENETS,  
S.S., SUBBOTIN, V.I.  
COUNTRY OF INFO--USSR  
SOURCE--AT. ENERG. 1970, 28(1), 18-22  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, CHEMISTRY  
TOPIC TAGS--SODIUM ALLOY, POTASSIUM ALLOY, EUTECTIC, ALKALI METAL,  
HYDROGEN, ARGON, SOLUBILITY, GAS PROPERTY, LIQUID METAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY KEEL/FRAME--1995/1321 STEP NO--UR/0089770/028/001/0018/0022  
CIRC ACCESSION NO--AP0116781  
UNCLASSIFIED

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PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115781

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. USED TO MEASURE THE SOLY. C OF GASES IN MOLTEN ALKALI METALS IS DESCRIBED. THE C OF H SUB2 IN A 78.2 WT.PERCENT K-21.8 WT.PERCENT NA ALLOW IS DESCRIBED BY THE EQUATION  $\text{LOG}(C \text{ TIMES } 10 \text{ PRIME}^4) \text{ EQUALS } 6.43 \text{ MINUS } (2670-T)$ , WHERE C IS IN WT.PERCENT AND T IS THE TEMP., (DEGREESK); THIS EQUATION IS VALID FOR H SUB2 CONC. BELOW THE SATN. POINT, I.E., WHEN THE RELATION BETWEEN THE H SUB2 CONC. AND (P) PRIME<sup>0.5</sup> (WHERE P IS THE H SUB2 PRESSURE OVER THE ALLOY) IS LINEAR. AT 300DEGREES, LOG C FOR N SUB2, HE, AND AR IN THE ABOVE ALLOY (WHERE C IS ATOM FRACTION-KG-CM PRIME<sup>2</sup>) UNDER 1 ATM IS MINUS 4.3, MINUS 4.9, AND MINUS 5.1, RESP.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--MEASUREMENT OF HALF LIVES OF THE FIRST EXCITED 2 PLUS STATES OF  
OSMIUM-184, OSMIUM-186, AND OSMIUM-188 -U-  
AUTHOR--(05)-BEDICA, T., ZAYTSEVA, N.G., MOROZOV, V.A., MUMINOV, T.M.,  
SELEGEANU, S.  
COUNTRY OF INFO--USSR  
SOURCE--YAD. FIZ. 1970, 11(3), 481-2  
DATE PUBLISHED-----70

M

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--RADIOACTIVE DECAY SCHEME, OSMIUM ISOTOPE, EXCITED NUCLEUS,  
COINCIDENCE COUNTING, NUCLEAR ENERGY LEVEL, HALF LIFE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/1059

STEP NO--UR/0367/70/011/003/0481/0482

CIRC ACCESSION NO--AP0110749

UNCLASSIFIED

Z/Z 012  
CIRC ACCESSION NO--AP0110749

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HALF LIFE T SUBONEHALF OF THE  
119.8 KEV LEVEL OF PRIME184 OS WAS DETD. BY DELAYED E-GAMMA COINCIDENCE,  
RESOLN. S SUBTAUO SMALLER THAN OR EQUAL TO 1.2 NSEC, TO BE 1.18 PLUS OR  
MINUS 0.05 NSEC. THE 137.2 AND 155.0 KEV LEVELS, T SUBONEHALF 0.84 PLUS  
OR MINUS 0.05 AND 0.71 PLUS OR MINUS 0.03 NSEC, WERE DETD. BY VARIOUS  
METHODS. FACILITY: OB'EDIN. INST. YAD. ISSLED., DUBNA, USSR.

UNCLASSIFIED

USSR

ARNOL'DOV, M. N., IVANOVSKIY, M. N., MOROZOV, V. A., PLETENETS, S. S.,  
and SUBBOTIN, V. I.

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UDC 621.039.534.6

"Solubility of Gases in Eutectic Sodium-Potassium Alloy"

Moscow, Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 18-22

Abstract: The article describes results of the measurement of the solubility of gases in the eutectic sodium-potassium alloy at various temperatures. The apparatus used by the authors, in contrast to the device used by E. COMPERE and J. SAVOLAINEN, permits study of the equilibrium between gas and alloy in direct contact with each other. This made it possible to measure the solubility not only of hydrogen, but also of such gases as nitrogen, argon, and helium. In addition, information could be obtained on the kinetics of the interaction of the gases with the alloy. The hot volume method was used to study the solubility of the gases in the alloy.

The first series of experiments yielded the dependence of the hydrogen pressure on the amount of hydrogen absorbed by the alloy

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USSR

ARNOL'DOV, M. N., et al., Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 18-22

at 380° C. The dependence of activity coefficient,  $\gamma$ , of hydrogen in the alloy on the hydrogen concentration was calculated. In the second series of experiments, undertaken following removal of hydrogen from the alloy by evacuation, the temperature dependence of the saturation concentration of hydrogen in the alloy was calculated, as well as the temperature dependence of the dissociation pressure of the saturated hydrogen solution.

Some results are described of the kinetic study of the interaction of gases with alloy. The process of hydrogen evolution, as well as the process of absorption, is described by a first-order reaction equation. The solubility of the inert gases was determined for the alloy at 300° C. The absorption rate of the inert gases is much slower than hydrogen absorption.

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1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--AMINO ACIDS AND PEPTIDES. V. SYNTHESIS OF PEPTIDES OF AN OXYTOCIN  
SEQUENCY USING HYDROXYPHTHALIC ESTERS OF BENZYLOXYCARBONYLAMINO ACIDS  
AUTHOR--(03)-KAUROV, O.A., MARTYNOV, V.F., MOROZOV, V.R.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 908-11

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AMINO ACID, PEPTIDE, ORGANIC SYNTHESIS, HYDROXYL RADICAL,  
PHTHALIC ACID, IMIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/1509

STEP NO--UR/0079/70/040/004/0908/0911

CIRC ACCESSION NO--AP0135170

UNCLASSIFIED



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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135170

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATING DICARBOBENZOXYTYROSINE AND N, HYDROXYPHthalIMIDE IN DMF, DIOXANE WITH DICYCLOHEXYLCARBODIIMIDE OVERNIGHT GAVE 70PERCENT DICARBOBENZOXY, L, TYROSINE HYDROXYPHthalIMIDE ESTER, M. 68-9DEGREES; SIMILARLY WAS PREPD. 90PERCENT HYDROXYPHthalIMIDE ESTER OF CARBOBENZOXY, L, ISOLEUCINE, M. 122DEGREES, 60PERCENT HYDROXYPHthalIMIDE ESTER OF CARBOBENZOXY, L, ASPARAGINE, M. 153-5DEGREES, AND 80PERCENT HYDROXYPHthalIMIDE ESTER OF CARBOBENZOXY, L, GLUTAMINE, M. 132-4DEGREES. THESE ESTERS TREATED WITH APPROPRIATE AMINO COMPONENTS AND ET SUB3 N AT MINUS 10DEGREES IN DMF, CHCL SUB3, OR DIOXANE GAVE THE FOLLOWING L, AMINO ACIDE PEPTIDES (Z EQUALS CARBOBENZOXY): Z, ASN, CYS(PHCH SUB2), OME M. 192-5DEGREES; Z, GLN, ASN, CYS(PHCH SUB2), OME M, 238-9DEGREES; Z, LEU, GLY, OET, M. 104-6DEGREES; Z, PRO, LEU, GLY, OET, M. 148-51DEGREES; Z, CYS(PHCH SUB2), PRO, ELU, GLY, NY SUB2, M. 170-1DEGREES; Z, ASN, CYS(PHCH SUB2), PRO, ELU, GLY, NH SUB2, M. 213-14DEGREES; Z, GLN, ASN, CYS(PHCH SUB2), PRO, LEU, GLY, NH SUB2 M. 232-3DEGREES; Z, ILLI, GLYN, ASN, CYS(PHCH SUB2), PRO, LEU, GLY, NH SUB2, M. 233-5DEGREES; Z, CYS(PHCH SUB2), TYR, OME, M. 95-6DEGREES; AND Z, TYR(Z), ILE, OME, M. 148-50DEGREES. FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

USSR

RUBTSOV, M. I., SPORYKHIN, V. I., PERVUSHEVEKIY, V. P., MORQZOV, V. F.,  
LUTSET, B. Ya., SHCHUKIN, L. I.

"Impulse Gas-Discharge Light Source"

Otkrytiya Izobreteniya Promyshlennye Obraztsi Tovarnye Znaki, No 31, 1972,  
Patent No 355694.

Translation: 1. An impulse gas-discharge light source with an optically transparent tubular bulb, within which are a dielectric plate, used to elongate the discharge channel and electrode units assembled on one side of the bulb and separated by the plate, differing in that in order to increase the evenness of radiation in the plane perpendicular to the axis of the tube, increase the electrical breakdown resistance and limiting electrical loads on the discharge device, the dielectric plate is bent into a screw shape in the zone of the discharge, forming bifillar spiral channels with its two large edges, connected together by a channel, while the two small edges are hermetically sealed to the inside of the bulb, thus limiting the discharge channel.

2. A light source according to Claim 1, differing in that in order to increase the stability to the effects of mechanical loads, the electrodes are made as truncated cones, compressed against the side surface of the bulb wall.

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RURTSOV, M. I., SPORYKHIN, V. I., ET. AL., Otkrytiya Izobreneniya Promyshlen-  
nye Obraztsy Tovarnyye Znaki, No 5, 1972, Patent No 355694.



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MOROZOV V

UR 0482

AA052681

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent,

244051 VALVE BLOCK where in the housing 1 are mounted two three-way valves 2, each containing controlling piston 3, neutral slide plate 4 and lower plate 5. When valve 2 is in top disconnected position, the slide plate 4 separates volume a and b. Through channel 8 compressed air is supplied. With open valves (bottom position) compressed air is supplied to volume 2 which is connected by channel 7 to volume a. Channel 9 delivers compressed air to controlled installations. To activate the valve, the compressed air is directed by e.g. the solenoid valve 6 to volume e. Because the area of controlling piston 3 is larger than the area of lower plate 5, the three-way valve moves into connected, lower position. In de-activating by de-pressuring volume e, the compressed air from the valve is drained to the atmosphere through channel . In the

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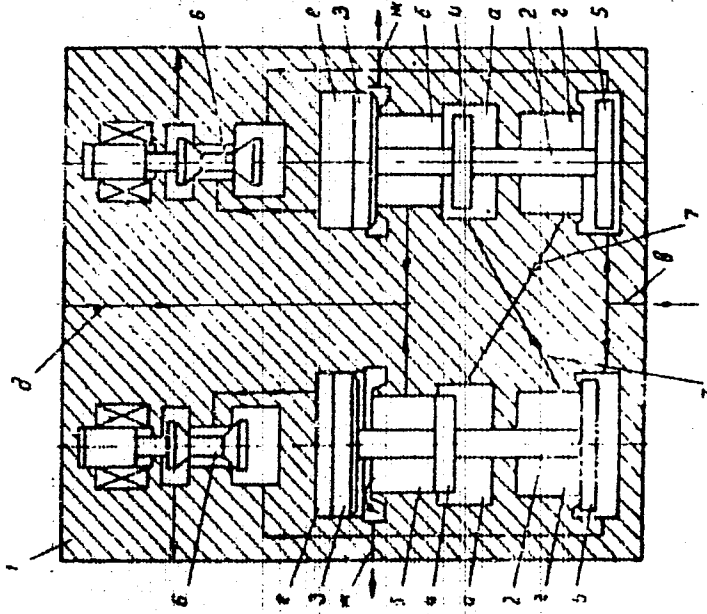
Morozov, V.F.; Karzhan, V.V.; Sakharov, L.N.; Voronezhskiy  
Zavod Kuznechno-Pressovogo Oborudovaniya im. M.I. Kalinina

case when only one valve is de-activated, or only one is activated, the second valve cannot be accidentally moved even if compressed air enters volume e, because the sum of active areas of slide plate 4 and lower plate 5 is larger than the area of controlling plate 3. Activation of both valves is possible only with simultaneous supply of compressed air to both volumes e.  
18.5.67. as 1156367/25-8. V.F.MOROZOV, V.V.KARZHAN, and L.N.SAKHAROV M.I.Kalinin Voronezh Factory of Forging and Pressing Equipment. (6.10.69.)  
Bul.17/14.5.69. Class 47h. Int.Cl. F16h.

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USSR

UDC 577.17.612.4

ANISIMOV, V. N., KHAVINSON, V. Kh., MOROZOV, V. G. and DIL'MAN, V. M.,  
Scientific Research Institute of Experimental Medicine, USSR Academy of  
Medical Sciences, Leningrad

"The Lowering of the Sensitivity Threshold of the Hypothalamic-Hypophysical  
System to the Action of Estrogens Under the Influence of Epiphyseal Extract  
in Old Female Rats"

Moscow, Doklady Akademii Nauk SSSR, Vol 213, No 2, 1973, pp 483-485

Abstract: The effect of an acetic acid extract of bovine epiphysis on the  
pythalamic threshold to inhibition in systems of reproductive homeostasis  
was studied. In one series of experiments the left ovary was removed from  
young (3-month-old) and mature (17-19-month-old) rats and the extract was  
subsequently administered for 7 days either with or without diethylstilbes-  
terol propionate (DESP). The extract alone was found to have no effect on  
the compensatory hypertrophy of the right ovary, however it lowered the com-  
pensation when given with DESP compared to DESP alone. This is said to show  
that the extract increases the sensitivity of the hypothalamus to the  
inhibitory influence of estrogen, and is observed only in mature rats. In a  
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USSR

ANISIMOV, V. N., et al., Doklady Akademii Nauk SSSR, Vol 213, No 2, 1973, pp 483-485

second series of experiments young, mature and old (26-28-month-old) rats were given the extract for 2 weeks and then their cycles were studied by vaginal smear for two weeks. It was observed that in old rats the extract caused a manifestation of the diestrus phase previously absent and a reduction of irregular cycles. This effect is proposed to be connected with the increase in hypothalamic sensitivity to estrogen.

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UDC: 577.4

USSR

MOROZOV, V. G.

"Topological Methods for Investigating Finite, Semi-Markov Automata"

Moscow, V sb. Avtomaty, gibrin. i upravlyayushch. mashiny  
(Automata, Hybrid and Control Machines--collection of works)  
"Nauka," 1972, pp 50-59 (from RZh--Matematika, No 7, 1972,  
Abstract No 7V370)

Translation: The author considers the finite, semi-Markov automaton describable by the stochastic graph  $H = (E, L)$ , where  $E = \{E_0, E_1, \dots, E_n\}$  is a set of vertices of the graph corresponding to the set of states of the automaton;  $L$  is a set of arcs  $l_{ij} = (E_i, E_j)$ ,  $(E_i, E_j \in E)$ ;  $A$  is the matrix of the probability of transitions  $a_{ij}$  between elements  $E_i$  and  $E_j$ ;  $T$  is the transition duration matrix defined at all arcs of graph  $H$ . It is assumed that the elements  $t_{ij}$  of matrix  $T$  take on only integral values:  $0, 1, 2, 3, \dots$ . Let  $S \subset E$  be some subset of the automaton states with the characteristic that, if the automaton should fall into one of the states  $E_i \in S$ , further transitions will cease and the automaton will remain in its original state. The most important characteristic of such an automaton is the law

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USSR

MOROZOV, V. G., V sb. Avtomaty, gibridn. i upravlyayushch. mashiny,  
"Nauka," 1972, pp 50-59

governing the distribution of the operating time before the automaton falls into one of the absorbing states. An expression is obtained in this paper for the generating function  $P(z)$  of the probability  $p(k)$  that the automaton will fall into one of the absorbing states at the  $k$ -th moment of discrete automaton time. Author's abstract.

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USSR

UDC 577.4

MOROZOV, V. G."Topologic Methods of Studying Finite Semimarkov Automata"

V sb. Avtomaty, gibridn. i upravlyayushch. mashiny (Automata, Hybrid and Control Machines -- collection of works), Moscow, Nauka Press, 1972, pp 50-59 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V370).

Translation: A study was made of a finite semimarkov automaton described by means of the stochastic graph  $H = (E, L)$  where  $E = \{E_0, E_1, \dots, E_n\}$  is the set of vertices of the graph corresponding to the set of states of the automaton;  $L$  is the set of arcs  $l_{ij} = (E_i, E_j), (E_i, E_j \in E)$ ;  $A$  is the probability matrix of the transitions  $a_{ij}$  between the elements  $E_i$  and  $E_j$ ;  $T$  is the transition duration matrix defined on all arcs of the graph  $H$ . It is proposed that the elements  $t_{ij}$  of the matrix  $T$  assume only integral values 0, 1, 2, 3, ....

Let  $S \subseteq E$  be a subset of states of the automaton having the property that when the automaton reaches one of the states  $E_i \in S$ , further transitions stop and the automaton remains in the initial state. The most important characteristic of this automaton is the time distribution law of the functioning before the 1/2

USSR

MOROZOV, V. G., Avtomaty, gibridn. i upravlyayushch. mashiny, Moscow, Nauka Press, 1972, pp 50-59

automaton gets into one of the absorbing states. In this paper the expression was obtained for the generating function  $P(z)$  of the probability  $p(k)$  that the automaton will fall into one of the absorbing states at the  $k$ -th point of discrete automaton time.

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USSR

UDC 621.394.14

KULIKOVSKIY, L. F., MOROZOV, V. K., ALEKSANDROV, O. P., MITEL'MAN, M. B.,  
Kuybyshev Polytechnical Institute imeni V. V. Kuybyshev

"A Device for Compressing and Transmitting Textual Data With Coding by Word"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
1970, No 36, Soviet Patent No 288021, class 21, filed 7 Jul 69, published  
3 Dec 70, pp 50-51

Translation: This Author's Certificate introduces a device for compressing and transmitting textual data with coding by word. The device contains an input register, a converter-encoder, control logic circuits, and an output puncher. As a distinguishing feature of the patent, the data traffic handling capacity of the communications channel is increased by connecting the above-mentioned encoder to some inputs of the shift register, while its input is connected to other inputs of the shift register through switches which are controlled from an AND circuit and are connected to the encoder outputs. The output of the shift register is connected to the puncher through a series-parallel output register.

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UDC: 621.317.77

USSR

DERYABIN, Yu. F., MOROZOV, V. I., SOLODAR', G. G.

"A Digital Phase Meter"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Report of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 87-89 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A336)

Translation: The authors describe a phase meter which converts the difference in phases of two SHF signals to numbers in four-digit parallel binary code. The proposed instrument is distinguished from conventional digital phase meters by its high speed. The phase meter consists of two parts: the SHF section in which the measured phase is converted to a series of five voltages, and an analog-digital converter where these voltages are converted to four-digit binary code. Tests of a model of the phase meter showed that its error in a frequency band of 10% is no more than  $\pm 10^\circ$  when input powers are changed by  $\pm 3$  dB, and speed is at least 0.5  $\mu$ sec.

E. L.

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1/2 038 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EXPERIMENTAL STUDY OF OXIDATIVE PROCESSES IN THE CRYSTALLINE LENS  
-U-  
AUTHOR--(02)-YAKOVLEV, A.A., MOROZOV, V.I. *M*  
COUNTRY OF INFO--USSR  
SOURCE--VESTNIK OPTAL'NOLOGII, 1970, NR 3, PP 68-73  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--OXIDATION, OPTIC LENS, PLATINUM ELECTRODE, RABBIT, ALKALOID,  
DRUG EFFECT, METABOLISM, ADENOSINE TRIPHOSPHATE, EYE  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3003/0119 STEP NO--UR/0357/70/000/003/0068/0073  
CIRC ACCESSION NO--AP0129375  
UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSIGN NO--AP0129375

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS DEVISED A METHOD OF IMPLANTING A THIN PLATINUM ELECTRODE INTO THE EYE LENS OF THE RABBIT WITH ITS TRANSPARENCY PRESERVED FOR A LONG TIME. THE PROCEDURE ENABLES OXIDATIVE PROCESSES IN THE CRYSTALLINE LENS TO BE STUDIED POLAROGRAPHICALLY IN A CHRONIC EXPERIMENT. A TOTAL OF 20 TESTS ON 3 RABBITS WERE CARRIED OUT. IN THE LENS THE OXIDATIVE PROCESSES PROCEED AT A MUCH SLOWER RATE THAN IN OTHER EYE TISSUES (THE IRIS, CILIARY BODY). THE INTENSITY OF THE OXYGEN EXCHANGE IN THE LENS APPROACHES THE RATE AT WHICH THE PROCESS PROCEEDS IN THE HUMOR OF THE ANTERIOR CHAMBER. Pilocarpine and Phosphacol inhibit the process of oxygen utilization in the lens. Under the effect of myotics the coefficient of oxygen utilization decreased on the average by 40 percent in the case of Phosphacol and by 100 percent, in that of Pilocarpine. By activating metabolic processes in the lens ATP raises the coefficient of oxygen utilization by an average of 33 percent. To normalize metabolic processes in the lens disrupted by myotics it is expedient that an ATP solution be instilled together with the latter. FACILITY: OTOEL EKSPERIMENTAL'NOGU IZUCHENIYA GLAUKOMY MOSKOVSKOGO NAUCHNO-ISSLED. INSTITUTA GLAZNKH BOLEZNEY IM. GEL'MGOL'TSA.

UNCLASSIFIED



USSR

~~MOROZOV, V. M.~~

A DEVICE FOR REMOTE MEASUREMENT SYSTEM SIMULATION

Moscow, OTKRYTIYA IZOBRAZENIYA PROMYSHLENNYIE OBRAZTSY TOVARNYIE ZNAKI,  
in Russian No 2, 15 Jan 74 pp 153-154

[Abstract] (11) 411470 (21) 1781501/18-24 (22) 06.05.72(51) G 06g 7/48  
(53) 681.142.001.57 (72) (54) A device for simulating remote measurement systems containing an initial information sensor, an error stream simulation unit, an error calculation unit, an information compression unit, a coding unit, an adder, a decoding unit, an information recovery unit, a control unit, an address formation unit, a random sequence sensor, and a communication grouping simulation unit is distinguished by the fact that the area of application is extended by connecting the first output of the initial information sensor to one of the inputs of the error calculation unit, while the second output is connected in series through the information compression unit, the coding unit, the adder with attached error stream simulation unit, and the decoding unit; and the information recovery unit, to the other input of the error calculation unit, the second output of the information compression unit being connected through the control unit and the address formation unit to the  
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USSR

MOROZOV, V. M., OTKRYTIYA IZOBRAZENIYA PROMYSHLENNYIE OBRAZTSY TOVARNYIE  
ZNAKI No 2, 15 Jan 74 pp 153-154

secondary inputs of the coding and decoding units; the second output of the decoding unit is connected through the random sequence sensor and the information grouping simulation unit to the second input of the information recovery unit.

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USSR

MOROZOV, V. M.

"A Device for Remote Measurement System Simulation"

Moscow, Otkrytiya izobrateniya promyshlennyye obraztsy tovarnyye znaki, No 2,  
15 Jan 74, pp 153 - 154

Translation: (11) 411470 (21) 1781501/18-24 (22) 06.05.72(51) G 06g 7/48  
(53) 681,142.001,57 (72) (54) A device for simulating remote measurement systems containing an initial information sensor, an error stream simulation unit, an error calculation unit, an information compression unit, a coding unit, an adder, a decoding unit, an information recovery unit, a control unit, an address formation unit, a random sequence sensor, and a communication grouping simulation unit is distinguished by the fact that the area of application is extended by connecting the first output of the initial information sensor to one of the inputs of the error calculation unit, while the second output is connected in series through the information compression unit, the coding unit, the adder with attached error stream simulation unit, and decoding unit; and the information recovery unit, to the other input of the error calculation unit, the second output of the information compression unit being connected through the control unit and the address formation unit to the secondary inputs of the coding and decoding units; the second output of the decoding unit is connected through the random  
1/2

USSR

MOROZOV, V. M., Moscow, Otkrytiya izobrateniya promyshlennyye obraztsy tovarnyye znaki, No 2, 15 Jan 74, pp 153 - 154

sequence sensor and the information grouping simulation unit to the second input of the information recovery unit,

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- 53 -

USSR

UDC 531.36

MOROZOV, V. M., RUBANOVSKIY, V. N., RUMYANTSEV, V. V., SAMSONOV, V. A., Moscow

"Bifurcation and Stability of the Steady-State Movements of Complex Mechanical Systems"

Moscow, Prikladnaya Matematika i Mekhanika, Vol 37, No 3, 1973, pp 387-399

Abstract: In many cases it is possible to simulate modern equipment such as rockets, spacecraft, gyros, and so on by mechanical systems comprising absolutely solid-states and particles and the deformable (liquid and elastic) bodies connected with them. A study is made of the steady-state movements of complex systems -- mechanical systems containing subsystems with a finite number of degrees of freedom and elements with distributed parameters, that is, continuous media. The steady-state movements correspond to the stationary values of the potential energy  $V$  or variable potential energy  $W$  of the system. The problem of stability of the steady-state movements is reduced to investigating the nature of the extremum of the potential energy  $V$  or  $W$ . Minimum potential energy corresponds to stable movement. The stability (instability) conditions of the steady-state movements can be obtained as conditions of defined positiveness (sign variability together with certain additional conditions) of the secondary variation of the potential energy  $\delta^2V$  or  $\delta^2W$  in many important cases. These general results are applied to the solution of a number of specific problems

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USSR

MOROZOV, V. M., ET AL., Prikladnaya Matematika i Mekhanika, Vol 37, No 3, 1973, pp 387-399

of the stability of steady-state movements of complex systems, and the conditions of stability of the movement of a solid-state with liquid and elastic parts in different force fields are discussed.

Thus, the investigation includes complex systems constrained by holonomic relations, movement of a solid-state having a cavity partially filled with a liquid of density  $\rho$  the surface tension of which is negligible around a stationary point  $O$ , the construction of a complete picture of the distribution of the positions of equilibrium of a complex system, their evolution and bifurcation on variation of the system parameters, the problem of stability of uniform vertical rotation around a stationary point of a solid-state with a thin, rectilinear, nonextensible elastic rod in a uniform field of gravitational force rigidly fastened to it, and the movement of a solid-state in a central newtonian force field bearing thin or thin-walled inextensible elastic rods each of which has 2 planes of symmetry.

2/2

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USSR

UDC 620.179.16

VORONOV, A. I., KOZLOV, Yu. V., MALYSHEV, V. I., and MOROZOV, V. M., Tomsk Polytechnical Institute imeni S. M. Kirov

"Attachment to a UKB-1 Defectoscope for Inspection of Concrete at Negative Temperatures"

Sverdlovsk, Defektoskopiya, No 4, Jul-Aug 72, pp 59-63

Abstract: A shock-excited thyristor with increased output voltage amplitude (up to 6 kv) is proposed as an attachment for a UKB-1 defectoscope for use in the non-destructive testing of concrete at negative temperatures. Since it is not possible to use ultrasonic instruments equipped with Seignette salt heads in unheated locations, the authors employed ceramic piezoelements such as TsTS-19 which require a higher voltage and produce a higher voltage. The modified defectoscope with TsTS-19 radiation elements was tested on a standard concrete sample at -20 C. The tests showed reliability in the +60 to -20 C interval. 3 figures, 1 table, 1 bibliographical reference.

1/1

USSR

UDC 531.55:521.1

MOROZOV, V. M.

"Motion Stability of Space Vehicles"

V sb. Obshchaya mekh. 1969 (Itogi nauki i tekhn. VINITI AN SSSR) (General Mechanics 1969 [Summation of Science and Technology. All-Union Institute of Scientific and Technical Information, Academy of Sciences of the USSR]), Moscow, 1971, pp 5-83 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10A112)

Translation: A survey is given of the methods and results of research in the motion stability of space vehicles. The paper is divided into four chapters.

The first chapter deals with problems of the motion stability of satellites in a gravitational force field in the bounded and unbounded formulations. The bounded formulation of the problem is characterized by the assumption that the relative motion of a satellite has no effect on the orbit of its center of mass, which is assumed to be a Keplerian orbit. The unbounded case is a strict formulation of the problem where motion of the center of mass and motion about the center of mass are interrelated.

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USSR

MOROZOV, V. M., Obshchaya mekh. 1969 (Itogi nauki i tekhn. VINITI AN SSSR), Moscow, 1971, pp 5-83

The author considers problems of the stability of positions of relative equilibrium of satellites (including gyrostat-satellites). Consideration is then given to problems of the stability of stationary revolutions of a dynamically symmetric satellite on a circular and on an elliptical orbit. The results of a study of the stability of some nonstationary motions of satellites are presented.

The second chapter deals with analogous problems in the stability of stationary motions of satellites subjected to gravitational, aerodynamic and magnetic moments, as well as the moments of forces of light pressure. Only the bounded problem is considered here.

The third chapter deals with problems of stabilizing the predetermined motion of a satellite, including problems of optimum motion in one sense or another.

In the fourth chapter, the author presents the results of investigation of motion stability of satellites with stabilizers of various types, and also satellites with elastic elements. In particular, consideration is given to problems of motion stability of gyroscopes installed on a satellite, and also the motion stability of satellites made up of two rotating parts. Bibliography of 204 titles. V. N. Rubanovskiy.

2/2

1/2 013 UNCLASSIFIED  
TITLE--ANOMALOUS NEUTRON SCATTERING -U-

PROCESSING DATE--27NOV70

AUTHOR--(02)-LEBEDEVA, N.S., MOROZOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(4), 310-16

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NEUTRON SCATTERING, ELASTIC SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/0566

STEP NO--UR/0089/70/028/004/0310/0316

CIRC ACCESSION NO--AP0137651

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137651

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CRIT. ANAL. IS GIVEN ON  
PUBLISHED DATA AND THEORIES ON THE ORIGIN OF N ELASTIC SCATTERING AT  
VERY SMALL ANGLES (SMALLER THAN OR EQUAL TO 1DEGREES). ALL CONCLUSIONS  
ON THE ANOMALIES IN N ELASTIC SCATTERING MAY BE DRAWN ONLY IF THE  
STUDIED PROCESS IS ACCOMPANIED BY QUAL. EFFECTS.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--BLAST FURNACE HEARTH COMBUSTION CONTOURS AND VARIATION IN THE  
INDIVIDUAL TUYERE PARAMETERS -U-  
AUTHOR--(05)-VAKULENKO, V.KH., MOROZOV, V.M., SMETANIN, M.V., MAKHANEK,  
N.G., KONOVALOV, K.D.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(2), 24-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--BLAST FURNACE, STEEL TUBE, CARBON DIOXIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/1406 STEP NO--UR/0148/70/013/002/0024/0028  
CIRC ACCESSION NO--AT0120199  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0120199

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SHAPE AND ARRANGEMENT OF TUYERES AND THEIR EFFECT ON BLAST FURNACE OPERATION WERE STUDIED. WATER COOLED TUBES WERE INTRODUCED WHICH WERE ABLE TO COLLECT SAMPLES OF GASES AT A VARIETY OF POINTS. THE COMBUSTION ZONE WAS MORE DEVELOPED IN THE VERTICAL DIRECTION THAN IN THE HORIZONTAL. TO PROMOTE THE MORE FAVORABLE HORIZONTAL DIRECTION, ELLIPTICAL AND SLIT SHAPED TUYERES WERE TRIED; HOWEVER, THE NEED FOR CU AND DIFFICULTIES IN PLACING TUYERES IN EXACTLY HORIZONTAL POSITION MADE THIS CHANGE IMPRACTICAL. FUTUREMORE IT WAS TRIED TO JOIN INDIVIDUAL COMBUSTION CHAMBERS BY INCREASING THE NO. OF TUYERES FROM 10 TO 12; HOWEVER, THE RING SHAPED COMBUSTION ZONE WHICH WAS FORMED WAS VERY NARROW AND THE CO SUB2 CONTENT IN THE GASES INCREASED FROM 4-6PERCENT AT THE FURNACE WALLS TO 16PERCENT CLOSER TO THE AXIS OF THE FURNACE. FACILITY: URAL, POLITEKH. INST., SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC 539.171.4

LEBEDEVA, N. S., and MOROZOV, V. M.

"Anomalous Neutron Scattering"

Moscow, Atomnaya Energiya, Vol 28, No 4, Apr 70, pp 310-316

Abstract: An analysis indicates that conclusions regarding the existence of any anomalies in the current state of neutron elastic scattering theory are possible only if the process studied is accompanied by qualitative manifestations (for example, polarization of scattered neutrons in the case of Schwinger scattering). Current nuclear models do not apparently permit a reliable estimate of even the upper limit of possible scattering "anomalies" in  $\sigma^{el}(\theta)$  which are due to any addends in the full neutron-nucleus interaction potential which are different from the short-range specifically nuclear potential and Schwinger potential.

1/1

1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--ANOMALIES IN THE SMALL ANGLE ELASTIC SCATTERING OF NEUTRONS -U-  
AUTHOR--(03)-GORLOV, G.V., LEBEDEVA, N.S., MOROZOV, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 138-46  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--NUCLEAR MODEL, NEUTRON SCATTERING, SMALL ANGLE SCATTERING,  
SCATTERING CROSS SECTION, CALCULATION, ERROR ANALYSIS, ELASTIC  
SCATTERING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0237 STEP NO--UR/0048/70/034/001/0133/0146  
CIRC. ACCESSION NO--AP0105313  
UNCLASSIFIED

272 014

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105313

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALL INVESTIGATORS MAKE CONCLUSIONS ON THE PRESENCE OR ABSENCE OF ANOMALIES IN THE SMALL ANGLE SCATTERING OF N. ON THE BASIS OF THE COMPARISON OF EXPTL. DATA WITH THE PREDICTIONS OF THEORY. UNFORTUNATELY, THE SIGNIFICANCE OF THEORETICAL PREDICTION IS NOT CUSTOMARILY DEALT WITH. THE FORM OF THE CROSS SECTION OF N ON THE NUCLEI OF THE MEAN AT. WT, IS SATISFACTORILY DESCRIBED BY ALL MODELS USED, BUT THE HEAVY NUCLEI EXHIBIT AN UNSTABLE RESULT. THE USE OF VARIOUS MODELS FOR THE INTERPRETATION OF DATA OBTAINED IN ONE AND THE SAME EXPT. OFTEN LEADS TO CONCLUSIONS BY THE SIGN OF THE EFFECT. THE ASSUMPTIONS MADE IN MANY WORKS ON THE EXISTENCE OF THE ANOMALOUS SMALL ANGLE SCATTERING OF N INCREASING WITH THE INCREASE OF ENERGY OF N ARE NOT JUSTIFIABLE.

UNCLASSIFIED



MOROZOV, V. M.

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NR01 | PSTCART-23-2015-72

39 April 72

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

RUSSIAN TITLE: ПРОБЛЕМЫ ПЕРЕДАЧИ ИНФОРМАЦИИ ЛАЗЕРНЫМИ ИЗЛУЧЕНИЯМИ

AUTHOR: I. A. DERYUGIN, ET AL.

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

Translated for FSTC by ACET

NOTICE

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C. Application of Theoretical Probability and  
Statistical Methods

USSR

UDC: 519.2

MITYUGOV, V. V., MOROZOV, V. P.

"Concerning the Quantum Mechanics Approach to Problems of Reconstructing  
Optical Images"

Probl. peredachi inform., 1973, 9, No 1, pp 108-111 (from RZh-Kibernetika,  
No 7, Jul 73, abstract No 7V207 by the authors)

Translation: Among problems of the physical theory of signal transmis-  
sion in recent years more and more attention is being given to questions  
involving the acquisition of data on the spatial distribution of light  
sources according to given statistical properties of the radiation re-  
ceived from them. In this regard we should note first of all the ad-  
vances in holography which is generating ever increasing interest, the  
experiments of Hanbury, Brown and Twiss on measuring the angular dimen-  
sions of stars, as well as certain other questions, specifically problems  
of reconstructing poorly focused optical images. This paper attempts to  
construct a united quantum approach to problems of the given type in the  
formalism of linear canonical transformations of field variables. For  
the sake of simplicity, the treatment is limited to monochromatic

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USSR

MITYUGOV, V. V., MOROZOV, V. P., Probl. peredachi inform., 1973, 2, No 1,  
pp 108-111

sources of a single frequency  $\omega$ . However, the formalism used permits  
extension to the more general case.

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USSR

UDC 534.781

MOROZOV, V. P., PUOLOKAYNEN, P. A., KHOKHLOV, A. D., Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov of the USSR Academy of Sciences, Leningrad

"Infrasounds Generated by the Human Vocal Organ in the Speech and Singing Process"

Moscow, Akusticheskiy Zhurnal, Vol XVIII, No 1, 1972, pp 144-146

Abstract: A spectral analysis was made of the human voice in the infrasonic range. Both ordinary conversational speech and singing were investigated. Some example spectrometric recordings and oscillograms are presented. On the infrasonic oscillogram basically a frequency on the order of 5 hertz predominates which is well-synchronized with the vibrato frequency of the singer exhibited in the form of amplitude modulation of the sound oscillogram. The origin of infrasounds during speech processes is connected with syllabification, that is, modulation of the air flow from the lungs by the articulation apparatus. The infrasonic frequency corresponds to the mean frequency of the syllable articulation. The origin of intrasound during singing is of a different nature. When singing vowels, the singer's mouth is wide open and articulation is essentially absent; therefore, it is possible to propose that the generation of infrasound is realized by the respiratory apparatus of the singer (the diaphragm)

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USSR

MOROZOV, V. P., et al., Akusticheskiy Zhurnal, Vol XVIII, No 1, 1972, pp 144-145

and larynx. This suppcision is based on the fact that during singing noticeable vibrations of the diaphragm and larynx are observed synchronized with the vibrato frequency. Thus, the origin of the vibrato of a singing voice is connected with the generation of infrasound by the vocal organ.

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MOROZOV, V. P.

JPRS 55729  
17 April 1972

REPETITION RATE OF RANGING SIGNALS OF DOLPHINS AS A FUNCTION OF DISTANCE TO TARGET

Article by V. P. Morozov, E. I. Mospan, V. I. Burdin, K. A. Zvyatseva and Yu. A. Sokolich, Institute of Evolutionary Physiology and Biochemistry, I. H. Sechenov, USSR Academy of Sciences, Leningrad; Moscow, *Biofizika*, Russian, Vol 17, No 1, 1972, submitted 24 September 1970, pp 139-144.

Abstract: This paper gives the results of an experimental study of the patterns of change in the repetition rate of ranging signals of a dolphin in the process of active ranging to a target (fish). It was established that the repetition rate of ranging signals during movement of the animal toward the fish varies within a certain range, at the same time retaining high values  $\tau \approx 2L/c$ , where  $L$  is the distance from the dolphin to the target,  $c$  is the speed of propagation of sound in the water. The collected data make it possible to assume that the dolphin emits each successive ranging pulse only some time (averaging 20 msec) after the echo from the preceding pulse is received.

The ever-increasing interest in the study of dolphins is attributable to a high degree to their possession of a highly developed echolocation apparatus. This enables them even in the absolute darkness and with inoperative vision to detect and discriminate extremely reliably and precisely different types of food and other objects and to differentiate precisely not only the size and shape of objects, but their structure (material) as well (1-9). It is natural that the biophysical principles of the operation of the echo-ranging apparatus of the dolphin are of great interest in both evolutionary-physiological and bionic respects.

1 (I - USSR - C)

USSR

UDC: 621.373.530.145.6

YELOV, V. V., IL'YASOV, R. Sh., MOROZOV, V. P., ORLOV, B. V., POL'SKIY,  
Yu. Ye.

"A Transistorized Oscillator for Excitation of a Ring-Type Gas Laser"

Tr. Kazan. aviats. in-ta (Works of the Kazan' Aviation Institute), 1970,  
vyp. 104, pp 116-122 (from RZh-Radiotekhnika, No 12, Dec '70, Abstract No  
12D199)

Translation: High-frequency pumping oscillators which operate in the 3-100 MHz frequency range are most frequently used for activating a gas laser. As a rule, these oscillators are based on vacuum tubes. With the development of Soviet high-frequency power transistors, it has become possible to make a miniaturized economic pumping oscillator. This paper describes a transistorized oscillator designed for excitation of three gas-discharge tubes on a frequency of 5 MHz with relative frequency instability of  $2 \times 10^{-4}$  with an output power of  $50 \times 3$  W, the time for reaching the working mode being no more than 50 msec. The gas laser emission level is stabilized by using negative feedback with respect to the emission of the laser. The power level for excitation of the gas-discharge tubes in a ring laser is continuously variable from  $P_{max}$  to  $0.3 P_{max}$ .

1/1



172 016 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--REDUCTION OF POLYATOMIC MOLECULE ELECTRON ENERGY OPERATOR MATRIXES  
WITH REFERENCE TO SYMMETRY -U-  
AUTHOR-(02)-MOROZOV, V.P., MOROZOVA, N.K. *M*  
COUNTRY OF INFO--USSR  
SOURCE--DOPOV. AKAD. NAUK UKR. RSR, SER. B 1970, 32(2), 155-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--MOLECULAR STRUCTURE, ELECTRON ENERGY LEVEL, HAMILTONIAN,  
MATRIX FUNCTION, MATHEMATIC OPERATOR  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3005/1643 STEP NO--UR/0442/70/032/002/0155/0159  
CIRC ACCESSION NO--AT0133548  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0133548

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION OF CONSTRUCTION OF SYMMETRY OPERATORS AND THAT OF HAMILTONIAN OPERATOR INVARIANT TO THE FORMER IN THE SPACE OF THE NATURAL ATOM ORBITALS IS GIVEN. THE PRINCIPAL IDEA IS FORMULATED OF REDUCING THE HAMILTONIAN OPERATOR MATRIX TO A SQUARE DIAGONAL TYPE. THE TECHNIQUE OF THE DIAGONALIZATION ORIENTATION AND CORRELATION OPERATIONS IS DESCRIBED. FACILITY: DNEPROPETROVSK. INZH.-BUD. INST., DNEPROPETROVSK, USSR.

UNCLASSIFIED

MOKOZOV, V. P.

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TECHNICAL TRANSLATION

1107 / PSTCALT 21-2015-72

37, 41, 72

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

RUSSIAN TITLE: ПРОБЛЕМЫ ПЕРЕДАЧИ ИНФОРМАЦИИ ЛАЗЕРНЫМ ИЗЛУЧЕНИЕМ

AUTHOR: L. A. BENVOLIN, ET AL.

SOURCE: НИИ УДАРНОЙ ОПТИКИ  
ИИЭИ Т.С. СЕРВАНЕНКО

Translated for PSYC by ACS1

NOTICE

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1-511 Paq

USSR

MOROZOV, V. V.

"One Approach to Cooperative Games"

Zh. Vychisl. Mat. i Mat. Fiz. [Journal of Computer Mathematics and Mathematical Physics], 1973, Vol 13, No 3, pp 781-787 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V470)

Translation: The concept of the configuration is used for a cooperative game  $\Gamma$ , fixed by the characteristic function  $v(S)$ . The set of configurations having the properties of external and internal stability is called the solution in configurations. The set of players  $S$  is called winning if  $v(S) = 1$  with the  $(0 - 1)$ -reduced function  $v(S)$ . The following are proven: 1) if in game  $\Gamma$  there is a minimum winning set with a unique minimum subdivision, game  $\Gamma$  has a solution in configuration; 2) the set of games  $\Gamma$  for which the sufficient conditions of Theorem 1 are not fulfilled is the dense, Lebesgue null measure set in the set of all games  $\Gamma$ ; 3) any game  $\Gamma$  of four persons has a solution in configurations.

Author's view

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MOROZOV, V.V.

Medicine

1-9605

Sov Military Medical Insurance  
July 1978  
USSR 616-714646-651-001

111

Lieutenant-Colonel of the Medical Service, V. V. MOROZOV. A case of severe cranial-cerebral trauma.

Private T., aged 20, fell, while engaged on a construction job, from a height of 6 meters, hitting his head against the floor. He was brought to the hospital in an extremely severe, soporose state. On examination, extensive hematoma was discovered in his right frontal-temporal area, closing the eye. Palpation determined an irregular upper edge of the right orbit. The left wrist showed sharp deformation. The hands of the 2nd, 3rd, 4th and 5th metacarpal bones were found protruding on the palm surface. The base phalanges of the fingers were indented backwards, at an angle of 90°. The pulse was 100 per minute, rhythmic and adequately ample. Arterial blood pressure was 150/70 mm. Hg. Breathing was stern, at a rate of 30 per minute. The pupils were average in size, but with the left pupil having an oval shape and less reaction to light significantly weakened. The corneal reflexes were lowered. The right nasolabial fold was flattened out. Tendons and peritendal reflexes were lowered, without any noticeable difference between the right and left side. Abdominal and plantar reflexes were lively and reflexive. The muscle tone is lower - mostly on the left side, a slight rigidity was observed in the occipital muscles on both sides. There was an intermittent hysteresis vomiting profusely into masses of dark-brown blood. Histological examination of the vomit revealed the presence of brain tissue. The patient skull showed linear fractures of the frontal bone on the right side, with numerous bone fragments of the anterior lamella were identified within the limits of the forward cranial fossa. Disruption severe contusion of the brain, primarily in the frontal parietal areas at the base of the head and in sections of the brain, with leakage of brain tissue and penetration of the foreign body into the frontal cranial fossa. Broken bones of the 2nd, 3rd, 4th and 5th fingers of the left hand.

Conservative treatment was resorted to. The displaced bones were removed. During the first three days, the condition of the patient remained grave, with repeated vomiting. The soporose state was replaced by a somnolent one. Starting with the 4th day, however, his condition improved and the vomiting ceased. The patient complained of strong headaches, double vision and insomnia. By the end of the week, his appetite returned, his sleep improved, the temperature became normal and the headache less bothersome. The patient is completely lucid. By the time of his discharge from the hospital, his condition was satisfactory, as well as satisfactory. An insignificant, left-sided ptosis could be noted, as well as anisocoria with d > s. Convergence and accommodation weakened on the right side, the right nasolabial fold was flattened, and there was a slight deformation of the tongue to the right. On the left side, we had a positive Gordon reflex and, on both sides, the Kernigou - Babinski reflex. Vision right eye 1.0, left eye 0.6. The fundus of the eyes is normal. Movement of the fingers as been fully restored and is painless. The man was discharged from the hospital after 99 days, in satisfactory condition. He was held unfit for further military service and ordered removed from the rolls.

Received in July 1968.

USSR

UDC: 621.376:530.145.6:621.376

KLYUYEV, V. P., MASH, D. I., MOROZOV, V. V., MIKOGOSYAN, D. N., ORAYEVSKIY, A. N.

"Detection of Infrared Emission by Shifting it to the Visible Range"

Kratk. soobshch. po fiz. (Brief Reports on Physics), 1970, No 5, pp 38-42 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D459)

Translation: An experimental investigation was made into the possibility of detecting weak infrared radiation by shifting it in a nonlinear crystal ( $\text{LiNbO}_3$ ) with a powerful pulse of emission from an argon laser. The installation used was sufficiently sensitive to create a nonlinear infrared spectrometer; it is assumed that such a spectrometer can produce broadening of the order of  $1 \text{ \AA}$ . Two illustrations, bibliography of twelve titles. N. S.

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USSR

UDC 621.387.233

MOROZOV, V.V.

"Method Of Determining The Relative Longevity Of Semiconductor Igniters For Mercury Rectifiers"

USSR Author's Certificate No 265298, filed 1 July 67, published 15 June 70 (from RZh--Elektronika i yeye primeneniye, No 1, January 1970, Abstract No 1A116P)

Translation: With the object of increasing the quality of tests during determination of the relative longevity of semiconductor igniters for mercury rectifiers by heating of the igniter and the feeding to it of negative current pulses, the following is proposed. The igniter is heated by an extraneous source of heat up to the operating temperature and pulses of negative polarity are supplied to it with energies on the order of, and more or less than, the energy of the positive pulse necessary for excitation of the cathode spot. After this the time response of its emergence from the system is constructed.

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172 031 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--THE TERNARY SYSTEMS METAL CARBON HYDROGEN AND METAL NITROGEN  
HYDROGEN -U-  
AUTHOR-(03)-SAMSJNOV, G.V., ANTONOVA, M.M., MEROZOV, V.V.  
COUNTRY OF INFO--USSR  
SOURCE--PERLSHKUVAYA MET., APR. 1970,(4), 66-79 M  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--PHASE EQUILIBRIUM, HYDRIDE, CHEMICAL BONDING, ELECTRON  
STRUCTURE, X RAY DIFFRACTION ANALYSIS, NEUTRON DIFFRACTION, NITROGEN,  
CARBIDE PHASE, METAL CONTAINING GAS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3006/0636 STEP NO--UR/0226/70/000/004/0056/0079  
CIRC ACCESSION NO--AP0134398  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 031

CIRC ACCESSION NO--AP0134398

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NATURE OF THE TERNARY HYDRIDES FORMED IN THE ME, C, H AND ME, N, H SYSTEMS WAS STUDIED BY X RAY AND NEUTRON DIFFRACTION FOR CASES IN WHICH ME IS EQUAL TO TI, ZR, HF, V, NB, LA, CR YT. PRIOR TO THE INTRODUCTION OF H THE CARBIDES IN THE ME, C, H SYSTEMS WERE IN A DISORDERED STATE; ON INCREASING THE H CONTENT ORDERING SET IN RAPIDLY. THESE RESULTS AND CORRESPONDING RESULTS OBTAINED FOR THE ME, N, H SYSTEMS ARE INTERPRETED ON THE BASIS OF THE STABLE ELECTRON CONFIGURATIONS CHARACTERIZING THE CHEMICAL BONDS IN THE ASSOCIATED NITRO AND CARBOHYDRIDES.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--ELECTRICAL PROPERTIES OF COMPOUNDS OF LANTHANUM HEXABORIDE WITH  
TRANSITION METALS -U-  
AUTHOR--(03)-BONDARENKO, V.P., KOVENSKAYA, B.A., MOROZOV, V.V.  
COUNTRY OF INFO--USSR M  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 12-15  
DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ELECTRICAL PROPERTY, LANTHANUM COMPOUND, BORIDE, ELECTROMOTIVE  
FORCE, HALL EFFECT, TUNGSTEN ALLOY, TANTALUM, RHENIUM, HAFNIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1993/1914

STEP NO--UR/0139/10/013/002/0012/0015

CIRC ACCESSION NO--A10114354

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--09OCT70

2/2 025

CIRC ACCESSION NO--AT0114354

ABSTRACT/EXTRACT--(U) GP-D- ABSTRACT. THE RESISTANCE, THERMAL EMF., AND THE HALL EFFECT WERE STUDIED FOR LAB SUB6 WITH W, TA, RE, AND HF. THE ALLOYS WITH 0.5 AT. PERCENT OF THE ADDN. ARE SINGLE PHASE. THOSE CONTG. 1, 5, 10, AND 15 AT. PERCENT OF THE ADDN. ARE 2 PHASE MIXTS. OF A SOLID SOLN. BASED ON LAB SUB6 AND THE BORIDE OF THE METAL. FOR ALL OF THE SYSTEMS THE ADDN. OF 0.5 AT. PERCENT OF THE METAL DECREASES THE SP. RESISTANCE. THE MAX. DECREASE (SIMILAR TO 45PERCENT) WAS OBSERVED WITH HF AND W. INCREASING THE AMT. OF METAL TO 1 AT. PERCENT INCREASES THE RESISTANCE. THE RESISTANCE REMAINS CONST. FOR FURTHER INCREASES IN THE ADDN. CALCNS. BASED ON THE HALL EFFECT SHOW THAT THE INTRODUCTION OF THE METALS RESULT IN SOME DECREASE IN THE CARRIER CONC. AND THEREFORE THE DECREASE IN THE RESISTANCE IS ATTRIBUTED TO AN INCREASE IN THE MOBILITY OF THE CURRENT CARRIERS. FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UNCLASSIFIED

1

UDC: 681.327

USSR

BOCHKIN, Yu. Ya., ZHIVOV, N. P., KUBANIN, Yu. Z., ~~BOBOZOV, V. Ya.~~, RYZI-KOV, M. L., Central Scientific Research Institute of Large-Scale Automation

"Pneumoelectronic Accumulator of Statistical Information"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 13, May 72, Author's Certificate No 335705, Division G, filed 29 Jun 70, published 11 Apr 72, p 211

Translation: This Author's Certificate introduces a pneumoelectronic accumulator of statistical information. Connected to the input channels is a pneumocommutator controlled by an address selection module. This commutator is connected in series to a normalizer. The accumulator also contains an analog-digital converter connected through a counter to a data output module whose output is connected to a printer and a puncher. The accumulator also includes a control unit connected to a timer, to the analog-digital converter, and to the data output module. As a distinguishing feature of the patent, in order to extend the range of signals which can be monitored and to simplify the design, an electric input signal commutator, normalizer, and adder are incorporated in the device. The con-

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USSR

BOCHKIN, Yu. Ya. et al., USSR Author's Certificate No 335705

trolling input of the electric signal commutator is connected to the address selection module, and the output is connected through the extra normalizer to the adder. The output of the adder is connected to the analog-digital converter, and a second input of the adder is connected through the main normalizer to the pneumocommutator.

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USSR

UDC: 669.71.411

GOKHSHEYN, M. B., MOROZOV, Ya. I.

"Method of Determining the Degree of Degassing of Aluminum as a Function of Inert Gas Consumption"

Tr. Vses. N.-I. i Proyeht. In-ta Alyumin., Magn. i Elektrod. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1972, No 82, pp 33-36 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G179, by G. Svodtseva).

Translation: During refining of melted Al by an inert gas (Ar or N<sub>2</sub>), the degassing influence of the inert gas depends on the quantity of gas forced through, duration of the blow, height of the metal layer, dispersion of gas bubbles, and also the presence of such impurities in the inert gas as water vapor, etc. A method is described for determination of the degree of degassing of Al. A formula is produced for determination of a factor characterizing the refining process,  $K_e = D/V_y$ , where D is the degassing factor, V<sub>y</sub> is the specific consumption of inert gas.

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USSR

UDC 669.71.042.6

GOKHSHEYN, M. B., MOPOZOV, Ya. I.

"Effect of the Temperature of Processing of the Melt on the Structure of Aluminum"

Tr. Vses. N-i. i Proyechn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 71, pp. 118-124. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G133 by the authors).

Translation: Results are presented from experimental works on the determination of the dependence of the structure of technical Al on the heating temperature, holding temperature of the preliminarily heated Al, rate of cooling of the heated melt to the casting temperature, and the determination of the effect of mixing of different temperature alloys on the Al structure. 3 figs; 2 tables; 11 biblio refs.

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USSR

UDC: 621.319.4(088.8)

FILLIPOV, A. L., MOROZOV, Ye. D., ZAKHAREVICH, Yu. I., PLOTNIKOV, Yu. P.

"A Device for Preaging, Testing Electric Strength, and Sorting the Sections of Metallized Paper Capacitors With Respect to Insulation Resistance"

USSR Author's Certificate No 263005, filed 29 Jul 68, published 8 Jun 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V383 P)

Translation: A device is proposed for preaging, testing electric strength and sorting metallized paper capacitors with respect to insulation resistance. The device contains a disc conveyer, preaging module, insulation resistance measuring module, unit for sorting sections by insulation resistance, a module for testing the electric strength of the sections, which is equipped with control lamellas supporting current take-off rollers in voltage regulators, and a drive mechanism. As a distinguishing feature of the device, design of the installation is simplified and the operational reliability of the device is improved by kinematically connecting the current take-off rollers to the conveyer, placing a lamella for holding the sections under voltage between and partially overlapping the contact lamellas, and equipping the unit for sorting the sections with an extractor

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FILLIPOV, A. L. et al., USSR Author's Certificate No 263005

whose lever is loosely fit on a vertical shaft. The latter is connected to a spring-loaded rocker resting on a cam of the drive mechanism.

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USSR

UDC 669.295.018.9

MOROZOV, YE. I., and KARINSKIY, V. N.

"Plasma-Arc Remelting of Titanium Alloys"

Moscow, Tsvetnyye Metally, No 1, Jan 73, pp 53-55

Abstract: The advantages of plasma-arc remelting over vacuum-arc remelting with a consumable electrode are reported in which VT9 titanium alloy in lump form was used as the test material. These advantages were the possibility of remelting a lumpy, unpacked charge, controlling melting rate and holding metal in the molten state to allow additional degassing, and the use of a simpler type of vacuum equipment. Also, plasma-arc remelting in a vacuum (0.4-0.5 mm Hg) has advantages over plasma-arc melting in a slightly rarified atmosphere (75-100 mm Hg) in that there is a higher degree of degassing of the melt, the process has a higher thermal efficiency, there is less gas (argon) consumption, and low-voltage current sources can be used. It is noted that a source of oxygen contamination is from the argon, and for this reason the process of melting in a vacuum (0.4-0.5 mm Hg) helps to reduce oxide inclusions. Mechanical tests of both plasma-arc- and vacuum-arc-remelted samples of VT9 showed that plasma-arc remelting in a vacuum produced a metal with much better properties. 2 figures, 1 table, 6 bibliographic references.

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USSR

UDC 669.295.48

SKVORTSOV, Yu. N., MOROZOV, Ye. I., USOV, V. N.

"Briquetting of Titanium Alloy Chips"

Tekhnol. Legk. Splavov. Nauch.-tekhn. Byul. VILSa [Technology of Light Alloys, Scientific and Technical Bulletin of All-Union Institute of Light Alloys], No 5, 1971, p 112, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G266 by G. Svodtseva).

Translation: Chips of Ti alloys were pressed on vertical and horizontal hydraulic presses with specific pressure 4-9.5 t/cm<sup>2</sup>, briquette diameter 80-120 mm. With a specific pressure of 9 t/cm<sup>2</sup>, briquette density was 3.6-3.8 g/cm<sup>3</sup>, loose residue 0.1-0.3%. The briquettes produced were added to the charge: 36% during smelting of ingots of Vt1-1 alloy and 40% during smelting of ingots of OT4 alloy.

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USSR

UDC: 539.375:620.171

MOROZOV, Ye. M. and SAPUNOV, V. T.

"Computation of Destruction Diagrams"

Moscow, Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, No 2, 1973, pp 172-176

Abstract: The destruction diagram, defined here as the functional relationship between the external load and the length of the principal crack in a flat specimen, reflects the ability of the specimen material to resist the formation of cracks and is a characteristic to be considered in choosing the material. This article considers equations describing critical and precritical destruction diagrams obtainable from energy criteria of destruction and integral formulation. These equations take into account the presence of the small plastic region before the end of the crack, and include the intensity coefficient of the stresses as well as one empirical coefficient in the case of cyclical loading. A method for computing such diagrams is discussed, and sample diagrams are reproduced. The authors thank V. M. Markochev and B. A. Drozdovskiy for obtaining the experimental results used in the analysis.

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USSR

UDC: 620.171

Sobolev, N. D., ~~Morozov, Ye. M.~~, Markochev, V. M., Gol'tsev, V. Yu., Sapunov, V. T., Bobrinskiy, A. P., Moscow

"Experimental and Theoretical Study of the Rupture of Sheet Materials with Cracks"

Kiev, Problemy Prochnosti, No 7, 1972, pp 45-49.

Abstract: Methods are presented for producing rupture diagrams during tensile testing of flat specimens with an initial crack. The results of testing of specimens of sheet material of various thicknesses of aluminum and titanium alloys, as well as certain steels, are studied.

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USSR

UDC 539.4:621.81+539.375

MOROZOV, Ye. M., Moscow Engineering Physics Institute

"Structural Design of Pressure Vessels in Presence of Cracks"

Kiyev, Problemy Prochnosti, No. 9, Sep 71, pp 7-11

Abstract : The application of the structural design method previously proposed by the author ( Ibid., No. 1, 1971 ) is demonstrated on two calculation examples of the margin of safety and the permissible crack length. In this way, the structural design, with consideration of the presence of a crack based on an appropriate experiment, gives the assurance of the construction protection against brittle failure. The calculated examples referred to a cylinder ( 508 mm in diam., 1.02 mm wall ) of martensitic tempered steel containing 20 % Ni and a cylindrical body of a rocket engine on solid fuel of steel 300M. The derived calculation results comply satisfactorily with experimental data. Three illustr., eight formulas, seven biblio. refs.

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USSR

UDC: 620.171

DROZDOVSKIY, B. A. and MGROZOV, Ye. M.

"Two Mechanical Characteristics Indicating Resistance to Destruction"

Moscow, Zavodskaya laboratoriya, No. 1, 1971, pp 78-89

Abstract: Two criteria for determining the conditions under which the limiting condition for equilibrium, leading to destruction, sets in are considered. The first is based on an energy condition of the form  $\delta\Gamma = G\delta S$ , where  $\delta S$  is the size of a developed crack,  $\delta\Gamma$  is the amount of surface energy required to form the new surface at the break, and  $G$  is the energy to the crest of the break per unit area of the break; i.e.,  $G$  is the amount of liberated elastic energy. The second criterion is based on the assumption that there is a plastic zone before the end of the break from the very beginning of the deformation process. With the flat specimen stretched under the conditions of plane tension, the plastic

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USSR

DROZDOVSKIY, B.A., et al, Zavodskaya laboratoriya, No 1, 1971, pp 78-89

zone will have the form of a wedge at right angles to the movement of the break; such a formation is required for use of the theory of the critical openings of cracks. The authors define the criterion of destruction in terms of the equilibrium limit, and formulate it in mathematical terms. A device for measuring the displacement or yield in a crack opening is described. The authors are associated with the Moscow Engineering-Physical Institute.

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USSR

UDC 538.2:539.2

GALKIN, A. A., ZAVADSKIY, E. A., MOROZOV, Ye. M., Donetsk Physicotechnical Institute, Academy of Sciences, Ukrainian SSR

"Magnetic and Structural Transformations in the  $Mn_{2-x}A_xB_ySb_{1-y}$  System"

Kiev, Ukrainskiy Fizicheskij Zhurnal, No 9, September 1970, pp 1440-1445

Abstract: On the basis of results of numerous measurements it is shown that magnetic transformations observed in various subsystems of the  $Mn_{2-x}A_xB_ySb_{1-y}$  system are qualitatively identical. In this system can be stabilized not only various magnetic structures with identical lattice symmetry but also a weakly ferromagnetic structure connected with a change of the lattice symmetry. A common model of spin orientations is presented for an undistorted lattice of the system; this model includes a ferrimagnetic structure, an antiferromagnetic structure, and two intermediate magnetic structures that are close to spiral ones. By changing the concentration of alloying elements A or B, the temperature of transition from one structure to another can be changed, and one or several of the magnetic structures can also be excluded. On the basis of analysis of the lattice symmetry is proved the possibility of the formation of a weakly ferromagnetic structure, while by means of magnetic measurements on the basis

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USSR

GALKIN, A. A., et al, Ukrainskiy Fizicheskiy Zhurnal, No 9, September 1970,  
pp 1440-1445

of polycrystalline and textured samples in a wide range of magnetic fields (up to 300 kiloorsted) and by means of electrical measurements, it is shown that such a structure is actually realized in the  $Mn_2Ge_ySb_{1-y}$  subsystem. 4 figures, 16 bibliographic entries.

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USSR

UDC: 621.376.43

MUSONOV, V. M. and MOROZOV, Ye. N.

"Relative Phase Modulation Demodulator of the Kostas Type"

V sb. Tonkiye magnitn. plenki, vychisl. tekhn. i radiotekhn., T. 1  
(Thin Magnetic Films, Computer Techniques, Electronic Engineering,  
Vol. 1--collection of works) Krasnoyarsk, 1970, pp 94-99 (from RZh-  
Radiotekhnika, No. 3, March 71, Abstract No. 3D38)

Translation: The Kostas coherent receiver circuit using phase auto-  
matic frequency control with delay is considered; a controlled os-  
cillator is used as the local oscillator in the second frequency  
converter. The search time and the reliability characteristic are  
determined. Bibliography of three. N. S.

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UDC 621.382.3

USSR

ALFEROV, ZH. I., ANDREYEV, V. M., GARBUZOV, D. Z., MOROZOV, YE. P., PORTNOY,  
YE. L., TROFIM, V. G., KHALFIN, V. B.

"Current Flow Mechanisms in the Presence of Electroluminescence of p-GaAs-n-  
 $\text{Al}_x\text{Ga}_{1-x}\text{As}$  Heterojunctions"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 366-375

Abstract: A study was made of the electroluminescent properties of p-GaAs-n-  
 $\text{Al}_x\text{Ga}_{1-x}\text{As}$  heterojunctions with a different level of alloying of the p and n-  
regions. The electroluminescence spectra and the dependencies of the radiation  
intensity on the voltage applied to the heterojunction were investigated in the  
temperature range of 77-400° K. In heterojunctions with an acceptor concentra-  
tion in the p-region of  $\approx 10^{19} \text{ cm}^{-3}$  and a donor concentration in the n-region  
 $> 3 \cdot 10^{17} \text{ cm}^{-3}$  in the temperature range of 77-200° K, the radiation in the  
gallium arsenide band is caused by tunneling of the electrons in the p-GaAs  
through the barrier in the conduction band. The experimental results obtained  
are compared with the theoretical calculation made within the framework of the  
model usually used when investigating tunneling in Schottky barriers.

In heterojunctions with weakly alloyed n-region ( $N_D \leq 3 \cdot 10^{17} \text{ cm}^{-3}$ )

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USSR

ALFEROV, ZH. I., et al., *Fizika i Tekhnika Poluprovodnikov*, Vol 6, No 2, 1972, pp 366-375

there is two-way injection of the carriers. The electron and hole current components responsible for emission in the gallium arsenide and red bands of the electroluminescent spectrum are caused by thermal injection of the carriers. With an increase in the alloying level of the n-region ( $3 \cdot 10^{17} < N_D < 10^{18} \text{ cm}^{-3}$ ),

the electron component of the current increases quickly and the relative radiation intensity in the gallium arsenide band builds up correspondingly. At reduced temperatures the electron component of the current in such heterojunctions is caused by tunneling of the carriers through the barrier in the conduction band. The thermal injection mechanism of the current responsible for recombination in the gallium arsenide band is retained after  $300^\circ \text{ K}$  in heterojunctions with  $N_D \leq 7 \cdot 10^{17} \text{ cm}^{-3}$ . In heterojunctions with strongly alloyed n-region ( $N_D \geq 2 \cdot 10^{18} \text{ cm}^{-3}$ ), the transparency of the barrier in the conduction

band is so great that its presence has no noticeable effect on the dependence of the electron component of the current on voltage. At low voltages  $eV_n < E_g$

(GaAs) the radiation in these heterojunctions is caused by diagonal tunnel junctions of the n-Al<sub>x</sub>Ga<sub>1-x</sub>As conduction band and the p-GaAs valence band.

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USSR

UDC 669.14.018.44:620.17

MOROZOV, YU. A., SIDEL'KOVSKIY, M. P., and ROZENBERG, V. M., Volgograd Scientific Research, Planning and Design Institute of Machinery Manufacturing Technology

"Heat Resistance of Chromium-Nickel and Chromium-Nickel-Molybdenum Grades of Steel with Boron Admixtures"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 6, 1973, pp 2-4

Abstract: Results are given from testing the Kh23N13, Kh23N18, Kh17N13M3T, and the Kh23N28M3D3T grades of steel with small admixtures of boron (up to 0.005 percent) for stress-rupture strength at 550-700°C. The results show that below uniform strength temperatures (during transcrystalline breakdown) the stress-rupture strength of the Cr-Ni and Cr-Ni-Mo grades of steel increases continuously with increased boron admixture up to 0.005 percent. Maximum stress-rupture is reached at a boron concentration of 0.001-0.0016 percent at below uniform strength temperatures. It is also shown that small admixtures of boron raise the strength of grain boundaries, delay the diffusion process associated with the exclusion of excess phase along the boundaries and in the grain volume during creep, and additional strengthening of grain boundaries occurs at boron concentrations of 0.004-0.005 percent due to dispersed borides.

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USSR

UDC 537.533.2+537.534

SHUL'MAN, A. R., KORABLEV, V. V., MOROZOV, YU. A., KHOMUTINNI-KOVA, V. A.

"Investigation of the Variation, with Temperature of the Coefficients of Secondary Electron Emission and Inelastic Reflection of Electrons of Germanium Oxide Single Crystals"

Tr. Leningr. politekhn. in-ta (Works of Leningrad Polytechnical Institute), 1970, No 311, pp 17-19 (from RZh-Fizika, No 12 (I), Dec 70, Abstract No 12Zh660)

Translation: The coefficient of secondary electron emission  $\sigma$  was investigated in the primary electron energy range  $U_p$  50-2000 eV for  $SiO_2$  single crystals. Samples with the faces (110) or (001) on the surface were investigated. Both samples showed a variation with temperature  $\sigma$  close to that described by Dekker theory. The coefficient of inelastic reflection is independent of temperature in the range of temperatures studied (from room to 350° C). Authors abstract.

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1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--SECONDARY ELECTRON EMISSION OF MOLYBDENUM SINGLE CRYSTALS -U-

AUTHOR-(03)-SHULMAN, A.R., KORABLEV, V.V., MOROZOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 758-62

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SECONDARY ELECTRON EMISSION, SINGLE CRYSTAL PROPERTY,  
MOLYBDENUM, CRYSTAL ORIENTATION, ELECTRON ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1987/1967

STEP NO--UR/0181/70/012/003/0758/0762

CIRC ACCESSION NO--AP0105041

UNCLASSIFIED

PROCESSING DATE--23OCT70

UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0105041

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. EXPTL. INVESTIGATION WAS CARRIED OUT OF THE SECONDARY EMISSION CHARACTERISTICS FOR THE (111) AND (102) FACES OF SINGLE CRYSTAL MO. THE SHAPE OF THE CHARACTERISTICS WHICH DESCRIBE DEPENDENCES OF THE COEFFS. OF SECONDARY ELECTRON EMISSION AND INELASTIC REFLECTION ON THE ENERGY OF PRIMARY ELECTRONS AND THE MAX. VALUES OF THESE COEFFS. ARE DIFFERENT FOR SPECIMENS WITH DIFFERENT CRYSTALLOGRAPHIC FACES ON THE SURFACE. THE ANGULAR DEPENDENCES OF THE SECONDARY EMISSION CHARACTERISTICS AT PRIMARY ELECTRON ENERGIES OF 100-2000 EV WERE STUDIED. THE RESULTS OBTAINED ARE EXPLAINED IN TERMS OF THE THEORY OF CHANNELING.

FACILITY: LENINGRAD. POLITEKH.

INST. IM. KALININA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--SECONDARY ELECTRON EMISSION OF SILICON DIOXIDE SINGLE CRYSTALS -U-  
AUTHOR--(03)-SHULMAN, A.R., KORABLEV, V.V., MOROZOV, YU.A.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(2), 666-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--SILICON DIOXIDE, SECONDARY ELECTRON EMISSION, SINGLE CRYSTAL  
PROPERTY, CRYSTAL ORIENTATION, ELECTRON BEAM, ELECTRON ENERGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0060 STEP NO--UR/0181/70/012/002/0666/0668  
CIRC ACCESSION NO--AP0105157

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2/2 023

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--A0105157

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINGLE CRYSTAL PLATES OF  $\text{SiO}_2$  SUB2 CUT FROM NATURALLY GROWN, TRANSPARENT SINGLE CRYSTAL WITH ALPHA QUARTZ STRUCTURE WERE INVESTIGATED. THE DEPENDENCE OF THE COEFF. OF SECONDARY ELECTRON EMISSION  $\sigma$  ON THE ANGLE OF INCIDENCE OF PRIMARY ELECTRONS  $\phi$  FOR VARIOUS ENERGIES OF PRIMARY ELECTRONS  $E_{\text{SUBP}}$  IS GIVEN. THE CURVES ARE SHIFTED VERTICALLY 1 WITH RESPECT TO THE OTHER. EACH CURVE IS CHARACTERIZED BY A SERIES OF MAX. AND MIN.; THE POSITIONS OF THE MAX. COINCIDE WITH THE MAIN CRYSTALLOGRAPHIC DIRECTIONS. A FINE STRUCTURE IS OBSD. STARTING WITH  $E_{\text{SUBP}}$  SIMILAR TO 300 EV. DEPENDENCE IS ALSO GIVEN OF  $\sigma$  ON  $E_{\text{P}}$  AT VARIOUS  $\phi$  IN THE  $E_{\text{SUBP}}$  RANGE 20-2000 EV. THESE CURVES HAVE A NON MONOTONIC CHARACTER AND VARIATION IN THE ANGLE OF INCIDENCE CHANGES THE SHAPE OF THE CURVE. FACILITY: LENINGRAD. POLITEKH. INST. IM. KALININA, LENINGRAD, USSR.

USSR

UDC: 621.317.738

GESSEN, G. V., MOROZOV, Yu. G., EPSHTEYN, S. L.

"A Device for Measuring the Parameters of Thin Dielectric Films"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 529483, Division G, filed 19 May 70, published 9 Feb 72, p 181

Translation: This Author's Certificate introduces a device for measuring the parameters of thin dielectric films such as the permittivity and the loss tangent. The device contains two electrodes with the film to be measured between them. As a distinguishing feature of the patent, measurement accuracy is improved by covering the working surface of one of the electrodes with a layer of current-conducting rubber and making the working surface of the other electrode in the form of a convex spherical segment.

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USSR

UDC 576.851.71.097.2

PAUTOV, V. N., and MOROZOV, Yu. I.

"Investigation of the Antigenic Structure of M-44 Vaccine Strain of Rickettsia burneti. Report III"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 1, 1973, p 129

Abstract: Rickettsia burneti strain M-44, which is an attenuated variant of the Griti strain used as live vaccine, survives for at least 250 days in Alveonatus canestrini and Ornithodoros moubata ticks and for at least 490 days in Alektorobius tholozani ticks. Throughout that time, strain M-44 remains in phase II without acquiring the antigenic component of phase I. Guinea pigs inoculated with a suspension of infected ticks develop complement-binding antibodies of phase II only. The infection proceeds in them without fever and does not differ from experimental rickettsiosis induced by strain M-44 grown in chick embryo. The antigen extracted from infected ticks reacts according to phase II in complement-binding tests. Thus, after prolonged inhabitation of ticks, Burneti strain M-44 remains in phase II, and its pathogenicity to guinea pigs does not change.

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Soviet Inventions Illustrated, Section II Electrical, Derwent,

243922 SEISMIC PLATFORM contains a movable table for setting out the element of building or structure, grouped together cylinders connected to pulsators and connected by their rods to the test table. The base placed on a foundation has the power cylinders fixed into it with two of the axis of cylinders 1 and 2 horizontal and one cylinder 3 with a vertical axis. The table 4 is fixed to rods 5 of all groups of cylinders i.e. 1,2 and 3. The rods are pivoted ensuring their movement in spite of the fixed cylinders. The cylinder cavities are connected to a pulsator.

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22.5.67 as 115794/29-14.YA.E.TYABLIKOV et al.  
(29.9.69) Bul 17/14.5.69. Class 42k. Int.Cl.G 01 1.

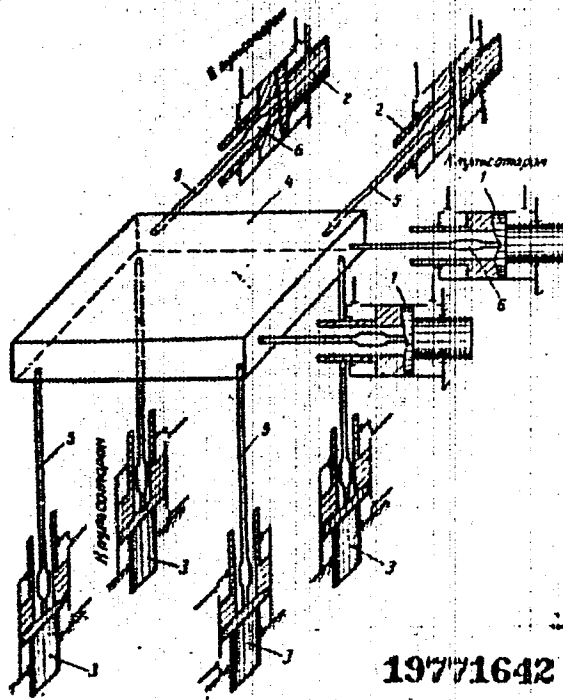
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AUTHORS: Tyablikov, Yu. Ye., Oganessian, A. T., Morozov, Yu. N., Givargizov, G. I., Donchenko, Yu. V., Zavriyev, K. S., Napetvaridze, Sh. G.

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AA0044804



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USSR

UDC 621.371.095.1

BEREZIN, Yu. V., MOROZOV, Yu. V.

"Effect of Large-Scale Ionosphere Nonuniformities on the Polarization of Reflected Waves"

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 393-397 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A339)

Translation: It is shown that the cause of the dependence of the average field polarization and the depolarization coefficient on the rate of change of phase in the waves reflected from the ionosphere may be the focusing of waves reflected by large-scale nonuniformities of the ionosphere. Two illustrations, bibliography of four. A. L.

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USSR

UDC 621.371.095.1

BEREZIN, Yu. V., GUSEV, V. D., and MOROZOV, Yu. V.

"Polarization Characteristics of Radio Waves Reflected from a Nonuniform Ionosphere"

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 388-392 (from RZh-Radiotekhnika, No 10, 1972, Abstract No 10A338)

Translation: Results are given of measurements of the polarization of the separate magnetic-ionic components in the range of 6-9 MHz, at the latitude of Moscow, which have not been clarified from the position of classical magnetic-ionic theory. To interpret the results, we must take into account the wave scattering by ionospheric nonuniformities. Two illustrations, bibliography of nine. A. L.

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1/2 012 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--DIMETHYLVINYLCARBINOL FROM DILUTE AQUEOUS SOLUTIONS -U-

AUTHOR--(04)-OGORODNIKOV, S.K., NEMTSOV, M.S., TRENKE, K.M., MOROZOVA, A.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,593

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

DATE PUBLISHED--10FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AQUEOUS SOLUTION, CHEMICAL SEPARATION, AZEOTROPE,  
DISTILLATION, VINYL COMPOUND, METHANOL, ALKYL RADICAL, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3006/1594

STEP NO--UR/0482/70/000/000/0000/0000

CIRC. ACCESSION NO--AA0135235

2/2 012 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AA0135235  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, THE TITLE COMPD. IS SEPD. BY  
HETEROAZETROPIC RECTIFICATION. DIPROPYL ETHER OR N,PENTANE, IS USED AS  
THE SEPG. AGENT.

UNCLASSIFIED