

USSR

KOL'TSOV, V. M., et al. Tekhnol. legkikh splavov. Nauchno-tekhn. byul, VILSa (Technology of Light Alloys. Scientific and Technical Bulletin of the All-Union Institute of Light Alloys), 1970, No 3, pp 20-23 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1752 by I. NABATOVA)

of particles of the Al-Mg phase over the grain boundaries and a lessening of corrosion resistance of the sheet. The combination of high corrosion resistance and satisfactory mechanical properties of the sheet is assured at an annealing temperature of 280-300°. Five illustrations. One table.

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USSR

UDC 669.715'721:620.186:669.018.8:669.018.8

KOL'TSOV, V. M., KISHMERESHKIN, I. G., GERSHTEYN, V. D., UST'YANTSEV, V. U.,
and PAVLENKO, Z. A.

"Influence of Certain Technological Factors on the Structure and Properties
of AMg6 Alloy Sheet"

Tekhnol. legkikh splavov. Nauchno-tekhn. byul. VILSa (Technology of Light
Alloys. Scientific and Technical Bulletin of the All-Union Institute of
Light Alloys), 1970, No 3, pp 20-23 (from RZh-Metallurgiya, No 12, Dec 70,
Abstract No 12 1752 by I. NABATOVA)

Translation: An investigation was made of the structure, mechanical properties,
and corrosion resistance of cold-rolled, 1-, 2- and 4-mm-thick AMg6 alloy sheet
as a function of variations in chemical composition, degree of deformation
(5-50%), and annealing regime in a range of 230-500°. Sheet properties were
not significantly affected by variation in chemical composition (within the
limits of the All-Union State Standard) or in heating rate (50, 100, and
> 1000 deg/hr) or in cooling rate (25, 50 deg/hr and air cooling). The max-
imum value of $\sigma_{0.2}$, viz., 20.5 kg/mm², was obtained with a deformation degree
of 30% and an annealing temperature of 280°. Heating at 100° for 100 hours
in the event of prior annealing at temperatures > 300° causes the evolution

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KOL'TSOV, V. M., et al, Tekhnol. legkikh splavov. Nauchno-tekhn. byul, VILSa (Technology of Light Alloys. Scientific and Technical Bulletin of the All-Union Institute of Light Alloys), 1970, No 3, pp 20-23 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1752 by I. NABATOVA)

of particles of the Al-Mg phase over the grain boundaries and a lessening of corrosion resistance of the sheet. The combination of high corrosion resistance and satisfactory mechanical properties of the sheet is assured at an annealing temperature of 280-300°. Five illustrations. One table.

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- 15 -

USSR

UDC 669.25.028.44

SHVEDOV, L. I., PAVLENKO, Z. D., and LIVSHITS, S. L., Physicotechnical
Institute, Academy of Sciences, Belorussian SSR

"Investigation of the Structure and Properties of Cast Chrome-Nickel-Aluminum
Steels and the Influence of Titanium, Boron, Cerium, and Zirconium on Them"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk,
No 1, 1971, pp 33-37

Abstract: The article considers the influence of aluminum upon the micro-
structure, strength characteristics, thermal stability, heat resistance, and
irreversible change of dimensions in the cyclic heat treatment of austenitic
chrome-nickel steels of the three groups 12-14, 18-19, and 18-25 in a cast
state. The influence of the content of nickel and of titanium, boron,
cerium, and zirconium additives on the properties of these steels is investi-
gated. One table, 2 figures, 10 bibliographic entries,

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USSR

UDC 911.3:616.981.452(470.45)

PAVLENKO, Z. S. and REZINKO, D. S.

"History of Elimination of Plague Enzootics in the Volgrad Region"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of Works), Saratov, No 4(14), 1970, pp 213-216 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.117)

Translation: The history of study of the plague in the northwestern Caspian region is presented. Results of work of the antiplague service in the eradication of natural foci are reported. The last plague epizootic was recorded in 1934 in the Kotel'nikovskiy rayon. Sanitation of the focus became possible because of plowing virgin soils, the establishment of water reservoirs, the development of irrigation farming, and other methods.

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USSR

UDC 632.4:633.11

PAVLENKOY, R.-V., Head of Plant Protection Department, Pavlodar Experimental Station for the Protection of Soil From Erosion

"Smut and Calibration of Wheat Seeds"

Moscow, Zashchita Rasteniy, No 7, 1972, p 48

Abstract: Seeds of three summer wheat strains were sorted into 10 groups according to grain size and weight, and the various fractions were grown on separate experimental fields under identical conditions. In the control fields sown with unsorted seeds, the spread of smut was within the natural range of 1.3-10%; 9.29% among Al'bidum 43 strain (A), 2.98% among Kharkovskaya 46 strain (K), and 2.75% among Lutestsens 62 strain (L). The disease was least developed in wheat grown from large, heavy seeds: 5.33% among strain A, 1.90% among strain K, and 1.29% among strain L. With decreasing size and weight of seeds, the disease became more widespread, reaching a maximum of: 12.32% among strain A, 4.18% among strain K, and 4.03% among strain L. The large, heavy fractions yielded the biggest crops in centners per hectare, exceeding the control crops by 10-30%. It is suggested that although selective use of the largest and heaviest seeds only reduces wheat smut without eliminating it, this measure is effective when applied in combination with other preventive methods.

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1/2 008

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--STRUCTURE AND DEVELOPMENT OF THE EARTH'S CRUST IN THE UKRAINE AND
ADJACENT REGIONS -U-

AUTHOR--(03)-SOLLOGUB, V.B., CHEKUNOV, A.V., PAVLENKOVA, N.I.

COUNTRY OF INFO--USSR

SOURCE--GEOPHYSICAL INSTITUTE ACADEMY OF SCIENCES UKRSSR; MOSCOW,
SOVETSKAYA GEOLOGIYA, NO 5, 1970, PP 20-30

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--EARTH CRUST, GEOTECTONICS, MOHOROVICIC DISCONTINUITY,
GEOSYNCLINE, GEOLOGIC FAULT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605017/810 STEP NO--JR/0215/70/000/005/0020/0030

CIRC ACCESSION NO--AP0140719

UNCLASSIFIED

2/2 008

CIRC ACCESSION NO--AP0140719

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS HAVE DETERMINED THE FOLLOWING EVOLUTIONARY SERIES OF GEOSTRUCTURES IN THE UKRAINE AND ADJACENT AREAS. ANCIENT (RUSSIAN) CONTINENTAL PLATFORM, AULACOGENS AND OTHER PLATFORM DOWNWARPS (DNEPR DON AND BLACK SEA KUBAN), PARAGEOSYNCLINE (DONBASS), OROGENS WITH FORDEEPS (CAUCASUS), GREATER KRIVROY ROG REGION, AND OTHERS). AGING OROGENS (DONBASS), INTRAGEOSYNCLINAL SUPERPOSED DEPRESSIONS OF THE OROGENY STATE (GREATER HUNGARIAN REGION, BLACK SEA). IT IS SHOWN THAT THE MOST CHARACTERISTIC FEATURES OF GEOSYNCLINAL DEVELOPMENT IS INVERSION OF THE GEOTECTONIC REGIME; THIS IS ACCOMPANIED BY DEEP CHANGES IN THE EARTH'S CRUST LEADING TO THE INVERSION OF ITS BOTTOM RELIEF, THE MOHOROVICIC DISCONTINUITY. THIS EVOLUTIONARY SERIES IS COLLECTIVE BECAUSE CONTINENTAL PLATFORMS CAN BE TRANSFORMED INTO SUBOCEANIC DEPRESSIONS, BYPASSING THE GEOSYNCLINAL STAGE AND THE REGENERATION OF A GEOSYNCLINE IN THE BODY OF THE PLATFORM IS NOT NECESSARILY TERMINATED IN THE APPEARANCE OF SUBOCEANIC DEPRESSIONS. ON THE WHOLE, THE CRUST IN THIS REGION HAS A COMPLEX LAYERED BLOCK STRUCTURE. NUMEROUS DEEP FAULTS BOUND THE PRINCIPAL GEOLOGICAL REGIONS AND SECOND ORDER STRUCTURAL ELEMENTS WITHIN THEM. MINERAL DEPOSITS ARE CONSISTENTLY FOUND TO BE ASSOCIATED WITH FAULT ZONES.

UNCLASSIFIED

USSR

UDC 533.9

VISHNEVETSKIY, V.N., VOYTENKO, D. A., VOLKOV, YE. D., DIKIY, A. G., ZALKIND, V. H., KONOTON, P. I., NOISEYEV, S. S., PAVLICHENKO, D. S., PASHNEV, V. K., SUPRUNENKO, V. A., TOLOK, V. T., TERESHCHENKO, F. F., TONKOPRYAD, V. H., and TARASENKO, V. P., Physico-Technical Institute of Academy of Sciences Ukrainian SSR, Kharkov

"Energy Losses of Plasma in a 'Uragan' Stellarator With Large Shear"

Kiev, Ukrainskiy Fizicheskij Zhurnal, Vol 16, No 8, Aug 71, pp 1320-1323

Abstract: Investigations of the rate of energy losses in plasma have shown that the holding time of particles significantly exceeds the energy life time when the plasma is of collision type. This article discusses the results of investigations on the rate of energy losses of collision-type plasma for the "Uragan" stellarator. The authors study the dependence of energy life time of the plasma on the amount of shear and the angle of conversion. They make extensive use of graphs to illustrate their findings and find that the experimental points lie on a straight line. The authors conclude that the results may be explained on the basis that a temperature-drift instability develops in the plasma. The article contains 5 figures and 8 bibliographic entries.

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1/2 034

UNCLASSIFIED
TITLE--OBSERVATION OF PLASMA SATELLITES NEAR HEI FORBIDDEN LINES DURING
TURBULENT HEATING OF A PLASMA --U-
AUTHOR--(05)-ZELENIN, G.V., KUTSYN, A.A., MAZNICHENKO, M.YE., PAVLICHENKO,
D.S., SUPRUNENKO, V.A.
COUNTRY OF INFO--USSR

PROCESSING DATE--23OCT70

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 6, PP 1879-1883
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--TURBULENT PLASMA, SATELLITE, GAS DISCHARGE, FORBIDDEN BAND,
ELECTRON DENSITY, PLASMA OSCILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1727

STEP NO--UR/0056/70/058/006/1879/1883

CIRC ACCESSION NO--AP0120439

UNCLASSIFIED

2/2 034

CIRC ACCESSION NO--AP0120439
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. SATELLITES IN A TURBULENT PLASMA
OF A STRONG CURRENT LINEAR GAS DISCHARGE (Z PINCH) HAVE BEEN DETECTED
AND INVESTIGATED NEAR THREE FORBIDDEN LINES OF HeI. THE SATELLITES HAVE
BEEN PREDICTED BY BARANGIER AND MOSER. TIME MEASUREMENTS OF THE
POSITION AND INTENSITY OF THE SATELLITES YIELD THE ELECTRON DENSITY AND
THE TIME VARIATION OF THE LEVEL OF THE PLASMA OSCILLATIONS. OBSERVATION
OF SATELLITES IS A NEW CONTACTLESS METHOD FOR INVESTIGATING A TURBULENT
PLASMA.
FACILITY: FIZIKO-TEKHNICHESKIY INSTITUT AN UKR, SSR.

UNCLASSIFIED

1/2 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--THE MECHANISM OF PLASMA LOSSES IN A STELLARATOR -U-

AUTHOR--(C5)-BLRCHENKO, P.YA., VASILENKO, B.T., VOLKOV, YE.D., PAVLICHENKO,
O.S., PUTAPENKO, V.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCC, ATOMNAYA ENERGIYA, VOL 28, NO 2, FEB 70, PP 126-129

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASMA OSCILLATION, LOW FREQUENCY, STELLARATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1481

STEP NO--UR/0089/70/028/002/0126/0129

CIRC ACCESSION NO--AP0123384

UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0123384
ABSTRACT/EXTRACT--(U) G2-C-

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT. A STUDY WAS MADE OF THE EQUILIBRIUM CONDITIONS AND SPECTRAL PROPERTIES OF LOW FREQUENCY OSCILLATIONS OF PLASMA OF OHMIC HEATING IN A STELLARATOR. IT IS SHOWN THAT EQUILIBRIUM IS DISRUPTED AT A MAGNITUDE BETA EQUALS 8 PI NKT DIVIDED BY H SUBO PRIME2 HIGHER THAN SOME CRITICAL BETA SUBE. ON THE BASIS OF STUDIES OF LOW FREQUENCY OSCILLATIONS CONDUCTED AT BETA LESS THAN BETA SUBE, A DEDUCTION CAN BE MADE THAT DRIFT TYPE INSTABILITIES (DRIFT DISSIPATION OR THERMOFORCE) APPEAR IN THE COLLISION PLASMA IN THE STELLARATOR. THE AUTHORS THANK V. F. ALEKSHIN AND S. S. MUISEYEV FOR VALUABLE REMARKS, AND A. I. ZHDANOV FOR HELP WITH THE CORRELATION TECHNIQUE.

UNCLASSIFIED

USSR

UDC 533.92:621.039.61

VASIL'YEV, M. P., KUZNETSOV, Yu. K., PAVLICHENKO, O. S., STARIKOV, V. N.

"Effect of the Degree of Homogeneity of a Magnetic Field on the Radiation From a Plasma of Harmonics of Electron Cyclotron Frequency"

Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb.
(Plasma Physics and Problems of the Controlled Thermonuclear Fusion. Republic Interdepartmental Collection), 1972, No 3, pp 63-66 (from RZh-Fizika, No 11, Nov 72, Abstract No 11G283)

Translation: The results of a study of the spectrum and intensity of the radiation, in the harmonics of an electron cyclotron frequency, from a negative discharge plasma column are presented. It was observed that intense radiation of the cyclotron harmonics, the spectrum of which consists of several narrow lines, arises upon achieving a very high degree of magnetic field homogeneity.

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USSR

Infrared Rays

UDG 535.376:621.382

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GORBAN', I.S., SULEYMANOV, YU.M., SHVAYDAK, YU.M., PAVLICHENKO, V.I., RYZHIKOV,
I.V.

"Infrared Electroluminescence Of Epitaxial P-N Junctions Based On Silicon
Carbide"

V sb. Elektroluminestsentsiya tverd. tel (Electroluminescence Of Solid Bodies--
Collection Of Works), Kiev, "Nauk.dumka," 1971, pp 19-21 (from RZh--Elektronika
i yeye primeneniye, No 11, Nov 1971, Abstract No 11B356)

Translation: The paper reports on the infrared electroluminescence spectra of
epitaxial p-n junctions based on α -SiC (6H). Of particular interest is the
electroluminescence spectrum (IR-II-EL) which consists of three narrow lines
1.184, 1.175, and 1.151 ev (halfwidth on the order of $1/10$ kT at 293° K) which
is observed at both room temperature and at the temperature of liquid nitrogen.
In addition to the structure IR-II-EL, on other light diodes the infrared bands
IR-I and IR-III were observed with energy maxima at 1.35 and 1.07 ev, respect-
ively. A scheme of electron transitions responsible for forming IR-II is pro-
posed. 3 ref. 2 ill. Summary.

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USSR

UDC 535.376.2

ABDULAYEV, O.R., PAVLICHENKO, V.I., RYZHIKOV, I.V.

"Electroluminescence And Double Injection In Thin Silicon Carbide Structures Doped With Aluminum Or Boron"

V sb. Elektroluminestsentsiya tverd.tel. (Electroluminescence Of Solid Bodies-- Collection Of Works), Kiev, "Nauk.dumka," 1971, pp 21-30 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11B557)

Translation: The current-voltage and lumen-current characteristics are studied of p-i-n structures doped with aluminum or boron which differ in the resistivity and the extent of the separate regions. The experimentally observed exponential and power dependences of the current on the voltage are analyzed thoroughly in the limits of theories which take into account the tunneling of the carriers through the intermediate states in the band or recombination of the carriers in the layer of space charge of the p-n junction and in all regions of the p-i-n structure under conditions of a high injection level in the i-region. In the radiation spectra of the light diodes studied a shift of the maximum radiation into the shortwave region is noted as well as a contraction with the increase of temperature and current density. It is discovered that a considerable part of the blue-green and red radiation (which exceeds in intensity the yellow radiation) of SiC light diodes is created by short-duration diffusion of boron.

8 ill. 22 ref. Summary.
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USSR

UDC 621.315.593:535.376

VORONIN, V.G., GLUKHAREV, A.A., ZAVLICHENKO, V.I., PRONIN, B.V., RYZHIKOV, I.V.,
SULEYMANOV, YU.M.

"Effect Of Adhesion Centers On Electroluminescence In α -SiC(6H)"

Elektron. tekhnika. Nauchno-tekhn. sb. Poluprovodn. pribory (Electronic Technology.
Scientific-Technical Collection. Semiconductor Devices), 1970, No. 3(53), pp 24-30
(from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B282)

Translation: The relaxation was investigated of electroluminescence in silicon carbide p-n junctions constructed on silicon carbide (6H) crystals of a modified version of different resistivity. On the basis of the energy levels of the traps obtained (0.06-0.08; 0.13-0.14; 0.18-0.20; 0.22-0.23 e.v.) it is assumed that three levels of nitrogen emerge as adhesion centers in silicon carbide α -SiC(6H), and also one level of unknown donor, which under stable conditions in material of high resistivity is not filled by electrons. 6 ill. 26 ref. Summary.

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1/2 021

TITLE--TUNNEL BREAKDOWN IN SILICON CARBIDE PN JUNCTIONS -U- UNCLASSIFIED PROCESSING DATE--04DEC70

AUTHOR--(04)-ALADINSKIY, V.K., KUZNETSOVA, YE.N., PAVLICHENKO, V.I., RYZHIKOV, V.I. COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV, 1970, 4(4), 708-14

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PN JUNCTION, SILICON CARBIDE, SINGLE CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAE--3002/0183

STEP NO--UR/0449/70/004/004/0708/0714

CIRC ACCESSION NO--AP0127804

UNCLASSIFIED

P

2/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0127804

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PN JUNCTIONS IN SIC SINGLE CRYSTALS WITH N CONC. OF 6 TIMES 10 PRIME17 TO 10 PRIME19-CM PRIME3 WERE PREPD. BY: (I) AL DIFFUSION AT 1900-2300DEGREES DURING SEVERAL MIN, (II) B DIFFUSION AT 1920-2000DEGREES DURING SEVERAL MIN, OR (III) EPITAXIAL GROWTH WITH THE P REGION DOPED WITH AL. THE STATISTICAL CHARACTERISTICS AND THE DIFFERENTIAL RESISTANCE, AS WELL AS THEIR TEMP. DEPENDENCES, WERE MEASURED. THE CAPACITANCE VOLTAGE RELATIONS WERE PLOTTED AND THE SPACE CHARGE LAYER THICKNESS (10 PRIME NEGATIVE6-10 PRIME NEGATIVES CM) WAS EVALUATED. THE V. AMP. CHARACTERISTICS ARE NOT STEEP ENOUGH, SO THAT THE VOLTAGE AT C.D. EQUALS 1-5 MA-CM PRIME2 WAS ARBITRARIYLY CHOSEN AS THE BREAKDOWN VOLTAGE, WHICH VAIIDED FROM 10 TO 40 V, CORRESPONDING TO A FIELD OF 5 TIMES 10 PRIME6 V-CM. THE IMPURITY DISTRIBUTION IN THE DIODES IN CLOSE TO THE ABROUP OR TO THE LINEAR PN JUNCTION. THE LATTER ARE RESPONSIBLE FOR THE TUNNEL MECHANISM OF ELEC. BREAKDOWN. THE TEMP. COEFF. OF BREAKDOWN (BETA) AT 60-120DEGREES IS NEG. AND IS LARGER THAN EXPECTED FROM THERMAL EXPANSION CONSIDERATIONS. THE TEMP. INDEPENDENCE OF BETA IMPLIES A CONSIDERABLE CONTRIBUTION OF EXPANSION TO THE TEMP. DEPENDENCE OF THE TUNNEL EFFECT. THE TUNNEL TRANSITIONS ARE CONSIDERED AS INDIRECT AND AS OCCURRING BY A PHONON MECHANISM. THE FIELD (E) DEPENDENCE OF THE BREAKDOWN CURRENT (I) WAS STUDIED, AND A RELATION LOG I SIMILAR TO ROOT BAR E WAS DERIVED. IT WAS VALID IN A WIDE RANGE OF I. THE PREDOMINANT TYPE OF BREAKDOWN IS THAT BASED ON THE TUNNEL EFFECT. A CONSISTENT THEORETICAL MODEL IS PROPOSED.

UNCLASSIFIED

USSR

UDC 621.382.2

ALADINSKIY, V.K., KUZNETSOVA, Ye.N., PAVLICHENKO, V.I., and RYZHIKOV, I.V.

"Tunnel Breakdown in SiC p-n Junctions"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 708-714

Abstract: This paper describes experiments, which investigate the breakdown mechanism in SiC p-n junctions obtained by various technical means. Such electrical breakdowns are accompanied by electroluminescence, and research in the latter is valuable for investigating one of the new directions in semiconductor engineering, the creation and development of light diodes, i.e., instruments in which electrical energy is transformed to light energy. The p-n junctions under test were prepared by the diffusion of aluminum at temperatures of 1900-2300° C for several hours, or the diffusion of boron for several minutes at a temperature of 1920-2000° C and separate diffusion of Al followed by boron. Some of the junctions were obtained by epitaxial growth; then, the p region was doped with Al. The authors conclude by suggesting that an analysis of the spectral characteristics of recombination radiation in the breakdown of diodes of this type would be worthwhile conducting.

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USSR

UDC 621.373.029.7

LETCKHOV, V.S., PAVLIK, B.D.

"Connection Of Lasers With A Nonlinear Absorber In The Presence Of Transfer Phenomena In A Molecular Gas"

Radiotekhnika i elektronika, Vol XVII, No 5, May 72, pp 1030-1038

Abstract: A new type of connection of gaseous lasers is considered. Connection of the lasers is accomplished by means of absorbing molecules which intersect both beams. The effect of such molecular connection is of importance for synchronization of a large number of long-wave gaseous lasers with the object of decreasing their dispersion, and also for study of the effect of weak collisions on the width of the "trough" which is transferred by absorbing molecules from one laser beam to the other. 3 fig. 13 ref. Received by editors, 6 April 1971.

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USSR

UDC: 621.373:530.145.6

LETOKHOV, V. S., PAVLIK, B. D.

"A Gas Laser With Nonlinear Absorption in the Quasi-Traveling Wave Mode"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 53-63 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D186)

Translation: The paper presents a theoretical analysis of a gas laser with nonlinear saturation operating in the quasi-traveling wave mode under conditions of strong saturation of absorption, i. e. in a mode such that one traveling wave of frequency ν (forward wave) is strong, absorption-saturating, while the backward wave is weak and interacts linearly with the medium within the limits of the uniform width of the line on the mirror-symmetry frequency $2\omega_b - \nu$. Just as in the case of a standing wave in a resonator, emission power in the quasi-traveling wave mode increases resonantly ("power peak"), and the emission frequency is strongly pulled toward the center of the absorption line ω_b ("Self-stabilization effect"), when the field frequency ν passes through the center of the absorption line ω_b . It is shown that the emission mode of a quasi-traveling wave in the cavity, in contrast to the conventionally used standing wave mode, makes it possible to achieve higher power peaks

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LETOKHOV, V. S., PAVLIK, B. D., Kvant. elektronika, No 1, Moscow, 1971,
pp 53-63

and appreciable self-stabilization factors even in the case of deep saturation of absorption and a strong difference between the parameters of saturation of the amplifying and absorbing media. In principle, this means that the so-called absolute frequency self-stabilization mode can be achieved where nonlinear frequency pulling within the power peak is retained in the case of detuning of the cavity frequency at a distance equal to the interval between the active modes of the Fabry-Perot resonator. The conditions for this mode are determined, and a specific example of a CO₂ laser with absorption cell filled with SF₆ is considered. Three illustrations, bibliography of eighteen titles. Resumé.

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USSR

UDC 535.2

LETOKHOV, V. S., and PAVLIK, B. D.

"Nonlinear Absorption of Separated Light Beams in Doppler-Broadened Transition. II. High Field"

Leningrad, Optika i Spektroskopiya, Vol 32, No 6, Jun 72, pp 1057-1062

Abstract: The article considers in theoretical terms the resonance interaction of two spatially separated light beams of the same frequency with a Doppler-broadened absorption line in the case of strong saturation without any limitation on the amplitudes of the fields in the beams. It is shown that a narrow resonance dip in the line center remains in the case of counterbeams and there is an interference dependence of absorption on the phase difference between the fields in the case of parallel beams. The authors thank N. G. RASOV for his support of the present work and A. T. MATACHUN for assistance in the calculations.

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USSR
CHEMISTRY
Aerosols

USSR

UDC 541.182.2/3

DERYAGIN, B. V., PAVLIKHINA, M. A., and SMIRNOV, L. P., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Flow Method for Determining the Capture Coefficient for the Adherence of Aerosol Particles to a Sphere in a Flow"

Moscow, Kolloidnyy Zhurnal, Vol 34, Vyp 5, Oct/Nov 72, pp 762-765

Abstract: Aerosol jets were directed at spheres and the streamlines were determined for both symmetrical and unsymmetrical stationary turbulent flow around the object. Particles were observed to settle on the back side of the sphere at the beginning of this stationary turbulence. A critical trajectory, e.g., the longest possible path for which the particle could still be captured, was measured. A capture coefficient was determined from the difference in the direction of the jet at the two positions producing the critical trajectories. The capture coefficient can be calculated from the equation

$$\xi = \frac{M}{\pi a^2 v n m t}$$

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USSR

DERYAGIN, B. V., et al., Kolloidnyy Zhurnal, Vol 34, Vyp 5, Oct/Nov 72, pp 762-765

where M is the total mass of the particles on the sphere, a is the radius of the sphere, π is the constant, v , n , and m are the velocity, mass, and concentration in the gas of the particles, respectively, and t is the time. Values determined from the aerosol method agreed well with gravimetric data.

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USSR

UDC 666.3/7:539.24:549.517.1:621.762.4

PAVLIKOV, V. N., MIKHASHCHUK, YE. P., and ARTEKOV, V. A., Institute of Problems of Material Science, Academy of Sciences USSR

"Effect of Beta-Alumina Lamellar Crystals on Certain Properties of a Corundum Ceramic"

Moscow, Neorganicheskiye Materialy, Vol 10, No 1, Jan 74, pp 117-121

Abstract: Results are reported from studies on the effect of additions of crystalline beta- alumina with a lamellar structure on the properties of a dense corundum ceramic. The basic material was the gamma-modification of alumina containing 99.5% (by weight) with lamellar crystals of beta-alumina added as the filler. The samples were hot pressed at temperatures of 1400-1700° C and pressures of 50-175 kg/mm² with a sintering time at maximum temperature of 15-45 minutes. It was found that the bend strength of the ceramic decreased with increased volume content of the filler, which was caused by the weak bonding of the matrix material with the smooth surfaces of the lamellar crystals. Despite the loss of strength, this ceramic had high thermal stability which increased with increased beta-alumina content, with the best thermal stability being exhibited by a composite alumina+15% beta-alumina ceramic

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USSR

PAVLIKOV, V. N., et al., Neorganicheskiye Materialy, Vol 10, No 1, Jan 74, pp 117-121

which withstood 45 thermal shocks from being heated from 20° C to 1100° C and quenched in water to 20° C. It was concluded that it is not possible to achieve a high strength and high thermal stability for this material and that the trade-offs in its use must be taken into consideration. Three figures, two tables, seven bibliographic references.

2/2

USSR

UDC: 666.764.36

KARPINOS, D. M., PAVLIKOV, V. N., MIKHASHCHUK, Ye. P., PILIPOVSKIY, Yu. L.,
"Order of the Red Banner of Labor" Institute of Problems of Material
Science Academy of Sciences of the Ukrainian SSR

"A Composite Material"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 22, Aug 72, Author's Certificate No 345111, Division C, filed 22 Jun 70,
published 14 Jul 72, p 86

Translation: This Author's Certificate introduces a composite material
based on aluminum oxide. As a distinguishing feature of the patent,
thermal stability is improved without sacrificing flame resistance and
impact strength by adding lamellar single crystals of chromic oxide with
the following ratios of components (in wt.%): aluminum oxide -- 80-95,
lamellar single crystals of chromic oxide -- 5-20.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--PROPERTIES OF PHOSPHATES -U-
AUTHOR--PAVLIKOVA, V.M. P
COUNTRY OF INFO--USSR
SOURCE--KHIM. SHK. 1970, 25(2), 87-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SOLUBILITY, PHYSICAL CHEMISTRY PROPERTY, CALCIUM COMPOUND,
PHOSPHATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605002/D06 STEP NO--UR/0509/70/025/002/0087/0088
CIRC ACCESSION NO--AP0139455
UNCLASSIFIED

2/2 009
CIRC ACCESSION NO--APC139455

UNCLASSIFIED

PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GF-0- ABSTRACT. AN EXPT. WHICH DEMONSTRATES THE
INSOLY. OF CA SUB3 (PL: SUB4) SUB2 AND THE SOLY. OF CA(H SUB2 PO SUB4)
SUB2 IS DESCRIBED. FACILITY: SHK. NO. 39, BRYANSK, USSR.

UNCLASSIFIED

USSR

UDC 541.8+532.77

MOLCHANOVA, N. R., DULOVA, V. I., ZHURAVLEVA, L. P., and PAVLIN, A. T.
Dnepropetrovsk Chemical-Technological Institute imeni F. E. Dzerzhinskiy
and the Institute of Organic Chemistry, Ukrainian Academy of Sciences

"The Strength of Phosphonic Acids in Certain Nonaqueous Solvents"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, pp 2631-2634

Abstract: In inert solvents phosphonic acids are dimerized, or may yield more complex aggregates; in solvents capable of forming hydrogen bonds, there is decomposition of these associates with subsequent dissociation of the acid molecules.

The present research was aimed at determining the strength of phosphonic acids and β -naphthylphosphonic acid in alcohols, ketones and ether. The bufferless indicator method was used, with a photocolormeter, at $25 \pm 3^\circ$.

Constants σ_ϕ were determined for 12 substituents, from the dissociation of the acids. In agreement with the Hammett equation the indexes of the dissociation constants of phosphonic acids correlate linearly with the constants σ_ϕ .

1/1

USSR

UDC: 539.377

PODSTRIGACH, Ya. S., SHVETS, R. N., and PAVLINA, V. S.

"Quasistatic Thermadiffusion Problem for Deformed Solid Bodies"

Kiev, Prikladnaya Mekhanika, Vol 7, No 12, 1971, pp 11-16

Abstract: The basic relations between stresses, deflections, temperatures and concentrations of dissolved substance are given by the equations of state (1.1) to (1.5).

The dynamic effects can be neglected provided the external loads are applied slowly.

Using the entropy rise as an independent variable the equation of state are put in the form (1.7) to (1.11). The boundary conditions are given by equations (1.13) and (1.14).

Equations (2.) to (2.5) apply to a two-dimensional problem.

In the case of a solid cylinder subject to a cyclic axial load the solution is given by equations (3.1) to (3.5).

Graphs of stresses and temperature versus nondimensional frequency of the applied force are shown on Fig. 1 and 2.

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1/2 033

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--METHOD OF DETERMINING THE PLASTIC DEFORMATION OF MICRO SAMPLES
SUBJECTED TO TENSILE STRAIN -U-

AUTHOR--(03)-MAKSIMOVICH, G.G., PAVLINA, V.S., LYUTY, E.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (1), 69-72

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, METHODS AND EQUIPMENT

TOPIC TAGS--RHEOLOGIC PROPERTY, PLASTIC DEFORMATION, TEST METHOD,
STAINLESS STEEL, ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0210

STEP NO--UR/0369/70/006/001/0069/0072

CIRC ACCESSION NO--AP0129466

UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129466

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF AN APPROX. SOLUTION OF THE GENERAL ELASTIC PLASTIC PROBLEM ENCOUNTERED WHEN ANALYSING THE RHEOLOGICAL PROPERTIES OF MATTER, A FORMULA RELATING THE SMALL RESIDUAL DEFORMATION (STRAIN) IN THE WORKING PART OF A METAL SAMPLE SUBJECTED TO TENSILE STRAIN TESTS TO THE EXPERIMENTALLY MEASURED ELONGATION IS DERIVED. EXPERIMENTAL TESTS WITH ARMCO FE, STAINLESS STEEL, AND AL ALLOY SAMPLES CONFIRM THE VALIDITY OF THIS FORMULA. A NOMOGRAM FACILITATING RAPID PRACTICAL USE OF THE FORMULA IS PRESENTED.

UNCLASSIFIED

Ecology

USSR

PAVLININ, V. N., Institute of Plant and Animal Ecology, Ural Scientific Center,
Academy of Sciences USSR

"The Presidium of the Academy of Sciences USSR Discusses the Development of
Biogeocenology"

Moscow, Ekologiya, No 3, 1971, pp 106-108

Abstract: Two meetings sponsored by the Academy of Sciences USSR are expected to accelerate the expansion of research in ecology and biogeocenology. In June 1970, the Presidium heard reports by Academicians A. L. Kursanov, N. P. Dubinin, and S. S. Shvarts on the importance and tasks of biogeocenology and passed a resolution emphasizing the need for increased research in the field because "a knowledge of biological laws is essential for preserving a dynamic equilibrium in the biosphere at the optimal level for man" and because "ignorance (of such laws) may lead to catastrophe." The Presidium followed up this meetings by assigning its research institutes specific problems for investigation. In January 1971, the Chemical-Technological and Biological Sciences Section of the Presidium held a conference at which over a dozen papers were presented on, for example, "The Role of the Biogeocenological Concept in the Construction of Closed Ecosystems," "Photosynthesis of Genoses as a Basis for Primary Productivity," "Microbial Genoses and Their Role in Soil Fertility,"

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USSR

PAVLININ, V. N., *Ekologiya*, No 3, 1971, pp 106-108

"Methods and Objectives of Experimental Biogeocenology," and "Importance of Biogeocenology in Land Reclamation."

2/2

- 5 -

Titanium

USSR

UDC 669.28/29:548.526

PAVLINOV, L. V.

"Diffusion in Binary Alloys of Titanium With Molybdenum, Niobium, and Vanadium"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 4, Oct 70, pp 800-806

Abstract: Data were obtained on the diffusion of uranium in binary alloys of titanium with molybdenum (up to 30 at. %), niobium (up to 30 at. %), and vanadium (up to 70 at. %). All alloying components reduced the level of diffusion mobility and considerably increased the activation energy (particularly during the concentration of alloying components up to 5 at. % C). With a further increase in the concentration of alloying components, the activation energy may continue to increase (vanadium and niobium alloying), or not (vanadium alloying up to 30-40 at. %). The correlation between the effectiveness of alloying components on the diffusion and the position of the alloying components in the periodic system is shown. An analysis was made of the diffusion anomalies in refractory metals with a high-temperature bcc lattice.

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USSR

UDC 518.516

PAVLINOV, L. V.

"Calculation of Diffusion Coefficients of α -Radioactive Elements in Thin Layers"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol. 30, No. 2, Aug. 70, pp. 367-372

Abstract: A method for the experimental determination of the diffusion coefficients when the mean diffusion line for an infinite medium may exceed the thickness of the specimen L is studied. The possibility is demonstrated of experimentally determining diffusion coefficients of α -active elements in thin layers by three methods: measurement of the ratio of initial activity I_0 to activity on the active side after annealing I_1 ; measurement of the ratio of I_0 to the activity of the layer on the back side after annealing I_2 ; and measurement of the ratio I_1/I_2 . In the last case, the diffusion coefficient is calculated without using the absorption characteristics for α -particles. - The methods were tested by diffusion of uranium in a phase with a body-centered cubic lattice of zirconium with α -radiation of ^{235}U .

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Adsorption

USSR

UDC 541.183

MASLOVSKAYA, R. S., PAVLINOVA, T. N., MIKHAYLOVSKIY, YU. N., and ZUBOV, P. I.,
Institute of Physical Chemistry, Acad. Sc. USSR, Moscow

"Adsorption Kinetics of Monomeric Molecules on Aluminum and the Study of the
Properties of Chemosorption Layers Being Formed"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 5, May 72, pp 1139-1142

Abstract: Kinetics of the formation of adsorbed layers of organic molecules (acrylic acid, styrene, diethylamine, and propyl alcohol) on freshly formed and on oxidized aluminum plates was investigated. All materials reacted with aluminum forming stable chemisorbed layers. Chemosorption of diethylamine on the aluminum is accompanied by exchange of electrons, the organic molecule being the electron donor. Appearance of a new phase of acrylic acid during the adsorption is the result of its polymerization on the aluminum surface. The film formed by propanol appears to serve as a barrier excluding the possibility of the reaction of organic molecules with the metallic ions. It has been determined that a portion of the aluminum surface under the adsorbed layers may become oxidized indicating that some adsorption centers remain free to react with oxygen.

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1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CALCUATION OF THE INTENSITY OF BREMSSTRAHLUNG FOR X RAY TUBES -U-
AUTHDR--(05)-AFONIN, V.P., LOSEV, N.F., PAVLINSKIY, G.V., GUNICHEVA, T.N.,
REVENKO, A.G.
COUNTRY OF INFO--USSR
SOURCE--ZAVOD. LAB. 1970, 36(4), 431-4
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--BREMSSTRAHLUNG, X RAY, SPECTRUM, RADIATION INTENSITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/2032 STEP NO--UR/0032/70/036/004/0431/0434
CIRC ACCESSION NO--AP0138886
UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0138886
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FORMULA BY GRAMERS IS COR. FOR
THE CALCN. OF THE SPECTRUM OF BREMSSTRAHLUNG. THE DERIVED FORMULA IS
THE CORRECTION FOR DISPERSION AND ABSORPTION OF ELECTRONS OF
BREMSSTRAHLUNG IN AN ANODE. THE CALCN. OF CORRECTION COEFF. IS BASED ON
THE IDEA OF TWO STREAMS OF ELECTRONS IN THE ANODE; ONE IS DIRECT
MOVEMENT AND THE SECOND REVERSED. BY USING THE COR. FORMULA THE
INTENSITY WAS CALCD. OF BREMSSTRAHLUNG FOR AL, CU, MO, AG, AND W ANODES.
THE RESULTS ARE COMPARED WITH EXPTL. DATA. GOOD AGREEMENT WAS FOUND IN
THE LONGWAVE SPECTRAL REGION. FACILITY: INST. GEOKHIM.,
IRKUTSK, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--X RAY BACKGROUND IN THE LONGWAVE SPECTRAL REGION --U-
AUTHOR--(04)-REVENKO, A.G., PAVLINSKIY, G.V., LOSEV, N.F., AFONIN, V.P.
COUNTRY OF INFO--USSR
SOURCE--ZAVOD. LAB. 1970, 36(2), 166-9
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--FLUORESCENCE, X RAY, SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/0919 STEP NO--UR/0032/70/036/002/0166/0169
CIRC ACCESSION NO--AP0107448
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70.

CIRC ACCESSION NO--AP0107448

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INFLUENCE OF SEVERAL EFFECTS ON THE BACKGROUND INTENSITY FOR X RAY FLUORESCENCE IN THE LONGWAVE SPECTRAL REGION 2-10 ANGSTROM (SUBALPHA LINES OF TI, FE, SI, AND MG) IS DISCUSSED. NONE OF THE DISCUSSED PHENOMENA IS THE DOMINATING ONE FOR EXPLANATION OF THE BACKGROUND; THUS OTHER EFFECTS NEED TO BE CONSIDERED. FACILITY: INST. GEOKHIM., IRKUTSK, USSR.

UNCLASSIFIED

Acc. Nr: **A0044663**

Ref. Code:
UR 0497

PRIMARY SOURCE: **Klinicheskaya Meditsina, 1970, Vol 48,**
Nr 2, pp 39-42

ELECTROCARDIOGRAPHIC DATA IN HEART WOUNDS

V. A. Pavlishin

Summary

The state of the cardiovascular system in the postoperative period was followed up in patients after suturing of the heart wound. Electrocardiographic findings were analyzed. A study of 76 electrocardiograms demonstrates that in the postoperative period there are significant alterations occurring as the result of the wound, operation and different complications.

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REEL/FRAME

19771394

DI 02

USSR

UDC 621.721.756:699.15-194

P
PAVLYCHUK, G. A., YUSHKEVICH, Z. V., MEDOVAR, B. I., and LANGER, N. A.,
Electric Welding Institute imeni Ye. O. Paton, Academy of Sciences UkrSSR

"Certain Properties of Welds of Extremely Low-Carbon Corrosion-Resistant
Austenitic Steels"

Kiev, Avtomaticheskaya Svarka, No 7, Jul 70, pp 10-13

Abstract: Together with some of their valuable properties, austenitic chromium-nickel steels have a grave shortcoming -- a tendency to intergranular corrosion when exposed to critical temperatures. This type of corrosion may be controlled by lowering the carbon content down to a level (0.02-0.03%) at which it dissolves in austenite at room temperature. A study has been conducted at the Electric Welding Institute imeni Ye. O. Paton to determine the corrosion resistance of extremely low-carbon (up to 0.02% C) EP550, EP551, EP552, EP553, and EP554 austenitic steels. The results of the mechanical tests of these steels at various temperatures are indicative of the high plasticity of the metal under conditions of deep cold (liquid nitrogen boiling temperature of -196° C). The steels are not susceptible to brittleness even after curing at 500° C for 500 hours. All the steels were tested for corrosion resistance of their welds in
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USSR

PAVLIYCHUK, G. A., et al, *Avtomaticheskaya Svarka*, No 7, Jul 70, pp 10-13
a boiling 15% solution of HNO_3 and 10% $\text{K}_2\text{Cr}_2\text{O}_7$ for 200 hours. The results of the experimental steels, including those of the 1Kh18N9T control steel, were tested as welded. Similar tests were made for resistance of corrosion cracking in a boiling 42% aqueous solution of magnesium chloride, with the tensile strength equal to 90% of the yield point. Of all tested steels, the EP553 and EP554 grades appear to have the highest resistance to intergranular, total, and stress corrosion.

2/2

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PAVKOTSKAYA, F.I.

Chemical Sci.

PHOSPHORUS NUTRITION IN SOILS AND PLANTS
(Synopsis in Russian)

Prepared by Candidate of Biological Sciences F.I. Pavlotskaya, Institute of Chemical Sciences, F.I. Pavlotskaya (Moscow, U.S.S.R.), Institute of Soil Science, Russian Academy of Sciences, U.S.S.R., JULY 1977, 20 pages.

5 PR 54142
28 Sep 71

Investigations of recent years have shown that the behavior of artificial radioactive substances -- radionuclides -- entering the biosphere depends mainly on the natural conditions that it is controlled by the type of geographical and geomorphological landscape. Live stable nuclides, they are included in the various processes taking place in the soil and plant cover, as a result of which they are redistributed both within the limits of the landscape and in the profile of the soil and in the soil-plant system. However, artificial radionuclides are characterized by special features of behavior, which are determined by the rate of entry into the ecosystem, its movement, the time of interaction with the soil, and also by the fact that these substances are present in the biosphere in undetectable concentrations.

In connection to the obtaining of purely empirical data on the content of radionuclides in various objects of the biosphere, including the soil-plant system, in order to have a clear idea of the distribution of certain ions of nuclei, attention on the specific surface and absorption in plants, animals, and in the soil, which is necessary to be interpreted by the results of studies in different fields, which determine their activity in connection with the spreading of radionuclides, and also the form of radionuclides in soils, which conditions their mobility and accessibility for plants, and finally, compounds in which radionuclides they migrate in soils and in the system soil-plant.

The Institute of Chemical Sciences of the Academy of Sciences of the U.S.S.R. and the Institute of Agriculture, Georgian SSR conducted in 1977 an All-Union symposium devoted to the study

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--REASONS FOR DEFECTIVE PRODUCTS AND AN IMPROVEMENT IN QUALITY
CONTROL FOR DIELECTRIC RUBBER FOOTWEAR -U-
AUTHOR--(03)-BERLIZEV, D.K., PAVLOV, A.A., STAROV, I.M.
COUNTRY OF INFO--USSR
SOURCE--KAUCH. REZINA 1970, 29(3), 42-3
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS, MILITARY SCIENCES
TOPIC TAGS--FOOTGEAR, ELASTOMER, DIELECTRIC PROPERTY, ELECTRIC STRENGTH
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0835 STEP NO--UR/0138/70/029/003/0042/0043
CIRC ACCESSION NO--AP0124502
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124502

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CAUSES FOR DEFECTS IN RUBBER FOOTWEAR WERE TRACED TO IMPROPER PREPN. OF RUBBER BLENDS AND FORMATION OF AIR GAPS IN THE BONDED SEAM. ELASTOMER SHEETS USED FOR THE MANUF. OF DIELEC. FOOTWEAR HAD ADEQUATE ELEC. STRENGTH. A METHOD WAS DEVELOPED FOR TESTING THE BREAKDOWN VOLTAGE OF RUBBER FOOTWEAR. FACILITY: MOSK. INST. KHIM. MASHINOSTR., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 519.281

SAYCHENKO, Yu. P., PAVLOV, A. A.

"Method of Stochastic Approximation for One Class of Unstable Media"

Vestn. Kiyevsk. Politekhn. In-ta. Ser. Avtonatiki i Elektropristrostr. [Herald of Kiev Polytechnical Institute. Automation and Electrical Instrument Building Series], No. 7, 1970, pp 8-13 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V198 by M. Nevel'son).

Translation : The problem is studied of finding the maximum of an unknown regression function if the position of the maximum point changes with time according to a certain rule which can be approximated by an exponential polynomial. The algorithm of stochastic approximation is presented and its convergence is proven.

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B. Mathematical Statistics

USSR

PAVLOV, A. A.

"Applied Aspects of Mathematical Statistics"

Pribory i Sistemy Avtomatiki. Resp. Mezhved. Temat. Nauch.-Tekhn. Sb. [Automation Devices and Systems, Interdepartmental Thematic Scientific and Technical Collection], 1973, No 27, pp 54-57 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V77)

Translation: The case of estimation of unknown parameters of the distribution of a continuous random quantity is studied. An altered version of the Fisher method of maximum likelihood is presented and the necessary sample volume for which the method can be applied is indicated. Calculations are presented for the case of the normal general set.

Author's view

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1/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--CATALYTIC HYDROGENATION OF NITRILES ON A STATIONARY NICKEL ALUMINUM
CATALYST -U-
AUTHOR--ZELENAYA, SH.A., BASOV, A.S., PAVLOV, A.A. PЕТRYAKOVA, N.K.,
GUSHCHIN, N.V.
COUNTRY OF INFO--USSR
SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(1), 11-12
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CATALYTIC HYDROGENATION, NICKEL BASE ALLOY, ALUMINUM
CONTAINING ALLOY, ORGANIC NITRILE COMPOUND, PRIMARY AMINE, FATTY ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/1452

STEP NO--UR/0064/70/046/001/0011/0012

CIRC ACCESSION NO--AP0101538

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0101538

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CATALYST FOR THE HYDROGENATION OF NITRILES WAS PREPD. BY PARTIAL LEACHING OF AL FOR 1:1 NI AL ALLOY BY 20PERCENT NaOH AT 100DEGREES. THE NITRILES OF C SUB17 TO C SUB20 SYNTHETIC FATTY ACIDS WERE HYDROGENATED BY H IN THE PRESENCE OF NH SUB3 AT 85 TO 120DEGREES-50 ATM, WITH FLOW RATE OF NITRILES 0.25 AND NH SUB3 0.32 VOL.-HR, TO GIVE 100PERCENT CONVERSION TO AMINES. THE CONC. OF PRIMARY AMINES IN THE PRODUCT WAS 84.8PERCENT, THAT OF SECONDARY AND TERTIARY AMINES WAS 11.9PERCENT. AT GREATER THAN 10DEGREES, THERE WAS A SHARP DECREASE IN SELECTIVITY.

UNCLASSIFIED

USSR

UDC 669.295.018.9(088.8)

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TURKINA, A. N., ODOYEVSKIY, L. S., KHAZANOVA, T. P., KARSANOV, G. V.,
ANOSHKIN, N. F., TSISTYAKOV, Ye. P., PAVLOV, A. G., TRUBIN, A. N., and
TETYUKHIN, V. V.

"Master Alloy for Production of High-Strength Titanium Alloys"

USSR Author's Certificate No 309061, filed 15/07/69, published 20/09/71
(Translated from Referativnyy Zhurnal Metallurgiya, No 3, 1972, Abstract
No 3G159P by G. Svodtseva)

Translation: A master alloy for the production of high-strength Ti alloys,
containing Mo, V, and Al. To increase the quality of the ingots produced,
the alloy includes Cr and Fe with the following relationships of components
(in %): Mo 32-34, V 32-34, Al 18-22, Cr 6-8, Fe 5-7. The master alloy can
be produced either by direct smelting of the metals in an open induction
furnace or by an aluminothermal method in a furnace.

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1/2 052 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--THE ACTION OF PULSED SHOCK WAVES ON POLYMERS -U-

AUTHOR--(04)-VINOGRADOVA, N.G., PAVLGV, A.I., PASHKOV, P.G., KHARDIN, A.P.

COUNTRY OF INFO--USSR

SOURCE--MEKH. POLIM. 1970, 6(1) 76-80

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY, PHYSICS

TOPIC TAGS--SHOCK WAVE, POLYMETHYLMETHACRYLATE, NYLON, TEFLON, VIBRATION
EFFECT, COMPRESSIVE STRESS, ANISOTROPY, POLYMER PHYSICAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0329

STEP NO--UR/0374/70/006/001/0075/0080

CIRC ACCESSION NO--AP0111523

UNCLASSIFIED

2/2 052

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111523

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLY(METHACRYLATE), NYLON 6, OR TEFLON WERE COVERED WITH A STEEL PLATE AND SUBJECTED TO A SINGLE SHOCK WAVE IMPACT OR MULTIPLE, VIBRATIONAL IMPACTS. IN THE LATTER CASE A CHARGE WAS EXPLODED ON THE STEEL PLATE COVERING THE POLYMER, WHICH WAS SUPPORTED BY ANOTHER STEEL PLATE. DUE TO THE DIFFERENCES IN THE ACOUSTICAL D. OF STEEL AND PLASTICS THE SHOCK WAVE WAS REFLECTED AND THE PLASTIC SUBJECTED TO REPEATED COMPRESSIONS. THE METHOD PERMITTED TO APPLY SMALLER THAN OR EQUAL TO 350 KILOBARS PRESSURE TO THE POLYMERS WITHOUT DESTRUCTION. SUCH SHOCK WAVES DECREASED THE ANISOTROPY OF POLYMERS AND THEIR D.

UNCLASSIFIED

USSR

UDC 538.577.32

SVESHNIKOV, A.G., IL'INSKIY, A.S., PAVLOV, A.L.

"Diffraction Of Plane Wave At An Ideally Conducting Cylinder In A Non-Uniform Medium"

Radiotekhnika i elektronika, Vol XVII, No 7, July 1972, pp 1587-1591

Abstract: The problem of diffraction at bodies, the dimensions of which are commensurable with the wavelength, and which have a nonuniform medium surrounding the body, gives rise to great difficulties during theoretical investigation. In the present paper the potentialities are illustrated of the use of numerical methods during the solution of diffraction problems of this type on contemporary electronic computers. The results are presented of a solution of the problem of the diffraction of a plane wave of TE polarization at infinitely long cylindrical bodies located in a nonuniform medium. Amplitude patterns of the directivity in the far zone are presented for cylinders with a cross section in the form of an ellipse and in the form of an isosceles triangle with a smoothed vertex. The authors point out that the results of the calculations presented do not pretend to be an exhaustive analysis of the problems considered and rather bear an illustrative character, making it possible to demonstrate the possibilities of the method used. 5 fig. 4 ref. Received by editors, 16 June 1971.

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USSR

UDC 621.382.3

PAVLOV, A.N., PANFEROV, V.P.

"Equivalent Circuit Of Transistor"

Elektron.tekhnika. Nauch.-tekh.nab. Mikroelektronika (Electronic Technics. Scientific-Technical Collection. Microelectronics), 1971, Issue 5(31), pp 107-114 (from RZh:Elektronika i yeye primeneniye, No 5, May 1972, Abstract No 5B166)

Translation: The equivalent circuit of a transistor is proposed in which the distributed character of the base resistance is taken into account. The circuit can be used during calculations on a computer. Summary.

1/1

- 88 -

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--BRINES IN CRYSTALLINE ROCKS OF THE BALTIC SHIELD -U-

AUTHOR--(03)-GREYSER, YE.L., KOZLOV, V.B., PAVLOV, A.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. GEOL. 1970, (3), 141-3

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOGRAPHIC LOCATION, MINERAL DEPOSIT, SODIUM CHLORIDE,
CALCIUM, SALT WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3003/1439

STEP NO--UR/0011/70/000/003/0141/0143

CIRC ACCESSION NO--AP0130373

UNCLASSIFIED

272 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--A0130373

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BRINES, HAVING A TOTAL MINERAL CONTENT OF GREATER THAN 100 G-L., WERE FOUND RECENTLY IN THE TITLE ROCKS. THE WATERS WERE RELATED TO ZONES OF RELATIVELY ELEVATED FRACTURING WHERE FRACTURES WERE THIN AND EVIDENTLY DEVELOPED LOCALLY. THIS FEATURE WAS INDICATED BY A LOW DISCHARGE FROM THE DRILL HOLES. IN ALL DRILL HOLES, THE WATERS HAD PREDOMINANTLY OR ENTIRELY CHLORIDE COMPN. WITH HIGH CONTENTS OF NA AND CA. THE BALTIC SHIELD IS A PART OF THE CRYST. BASEMENT OF THE RUSSIAN PLATFORM. THEREFORE, ITS BRINES WERE COMPARED WITH SUBSURFACE WATERS OF THE BASEMENT. THE TOTAL MINERAL CONTENT OF WATER IN CRYST. ROCKS INCREASED WITH INCREASED DEGREE OF BASEMENT SUBMERGENCE, WITH THE COMPN. OF WATER BELOW THE 800-M DEPTH REMAINING ESSENTIALLY THE SAME AND PREDOMINANTLY OF NA CL TYPE. IT IS DIFFICULT TO DET. THE MAGNITUDE OF SALINE WATER AND BRINE DISTRIBUTION IN THE ENTIRE CRYST. BASEMENT AND WITHIN THE BALTIC SHIELD IN PARTICULAR. IT IS POSSIBLE THAT SALINE WATERS AND BRINES WITH HIGH TOTAL MINERALS CONTENT ARE PRESENT ONLY IN THE WEATHERING PROFILE ON CRYST. ROCKS AND IN THE ZONE OF ELEVATED FRACTURING UNDER THE SEDIMENTARY MANTLE OF THE PLATFORM. IN THE BALTIC SHIELD, SALINE WATERS AND BRINES WERE PRESERVED PROBABLY ONLY IN AREAS ISOLATED HYDRODYNAMICALLY AS RELICTS OF ANCIENT STAGES.

LENINGRAD. GIDROMETEOROL. INST., LENINGRAD, USSR. FACILITY:

UNCLASSIFIED

USSR

SEMENOV, V. M., PAVLOV, A. P.

"Theoretical Analysis of the Process of Rupture of Dielectric Rock by the High Frequency Contact Method"

Termomekh. Metody Razrusheniya Gorn. Porod. Ch. 2 [Thermomechanical Methods of Rock Destruction, Part 2 -- Collection of Works], Kiev, Nauk. Dumka Press, 1972; pp 64-68, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 V741, by E. L. Aero).

Translation: The strength of a circular plate with a cylindrical electrode at its center, heated through its entire volume by dielectric losses, is studied in order to establish the conditions of rupture of dielectric rock in a high frequency electromagnetic field. The non-connected thermoelastic problem is solved with stress-free ends and side surface, ignoring heat transfer processes when the constants of the rock are independent of temperature. It is considered that the rupture process begins when the thermoelastic stresses $\sigma_{\phi\phi}$ reach the limiting rupture value either on the side surface or within the plate in the area of the maximum of the radial distribution. The corresponding heating times are looked upon as rupture times. Their dependence on frequency and amplitude of the electromagnetic field, dielectric, thermal and mechanical properties of the rock, as well as geometry of

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USSR

SEMENOV, V. M., PAVLOV, A. P., Termomekh. Metody Razrusheniya Gorn. Porod. Ch. 2, Kiev, Nauk. Dumka Press, 1972, pp 64-68.

the plate is studied. The power consumption of rupture is calculated as the ratio of the energy expended in heating to rupture to the volume of the specimen. It is shown that the theoretical power consumption agrees with an empirical formula produced for an irregular sense.

2/2

1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--COMBINED TREATMENT OF CANCER OF THE RECTUM -U-

AUTHOR--(04)-PAVLOV, A.S., SIMAKINA, E.P., KHRUSCHOV, M.M., SMIRNOVA, E.S.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 5, PP 67-74

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CANCER, COLON, SURGERY, RADIOTHERAPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3003/0134

STEP NO--UR/0531/70/000/005/0067/0074

CIRC ACCESSION NO--AP0129390

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129390

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROBLEMS CONCERNED WITH THE COMBINED TREATMENT OF CANCER OF THE RECTUM IN PRIMARY ESTABLISHED INOPERABILITY AND IN OPERABLE PATIENTS ARE DISCUSSED. ON THE BASIS OF 85 OBSERVATIONS THE AUTHORS EMPHASIZE THE PRINCIPAL DIFFERENCE OF METHODOLOGICAL APPROACHES IN THE TREATMENT OF THESE TWO GROUPS OF PATIENTS. BASING UPON AN ANALYSIS OF OPERATIVE COMPLICATIONS, CHARACTER OF THE COURSE OF THE POSTOPERATIVE PERIOD, MACRO AND MICRO MORPHOLOGICAL CHANGES OF THE PREPARATIONS REMOVED, IT IS UNDERLINED THAT CONDITIONS OF BETTER (SIMILARITY) OF OPERATIONS AND IRRADIATION IN OPERABLE RECTAL CANCER ARE ASSOCIATED WITH THE TECHNIQUE OF IRRADIATION. PREFERENCE IS GIVEN TO DAILY IRRADIATION (500 RAD) FOR A PERIOD OF FOUR DAYS AND SUBSEQUENT OPERATION ON THE 4TH-6TH DAY AFTER THE END OF IRRADIATION.

FACILITY: NI ONKOLOGICHESKIY INSTITUTA IM. P. A. GERTSENA I
KAFEDRA KLINICHESKOY PAKIOLOGII TSIU.

UNCLASSIFIED

USSR

UDC 616.932-084:616.932-078:061

PAVLOV, A. V., Main Sanitary Epidemiological Administration, Ministry of Health USSR, Moscow

"Organizational Principles for Bacteriological Laboratories of Public Health Stations During Epidemiological Surveys on Cholera"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 46-50

Abstract: A particular difficulty in dealing with epidemiological surveys and identification of El Tor cholera lies in the fact that the disease may present with mild clinical symptoms, and the frequency of asymptomatic carriers. During an outbreak of cholera special facilities and a well trained staff are required in the bacteriological laboratory for the identification of the vibrios on the basis of cultural, biochemical, and serological tests. Consequently, it has been recommended that bacteriological laboratories be divided into the following sections: records division, detection and identification section, section for the identification of pathogenic enterics, droplet infection section, and a disinfection group. Close cooperation between the laboratory and clinical personnel is of the utmost importance.

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USSR

PAVLOV, A. V., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, 1973, pp 46-50

Special efforts must be made to locate carriers early during an outbreak, and it should be kept in mind that the carrier rate among family contacts is 100-200 times higher than in the general population. It is particularly important to locate those carriers that would present the greatest danger to others.

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PAYLOV, A. V.

OPTO-ELECTRONIC INSTRUMENTS

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JPRS 60199-1

4 October 1973

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OPTO-ELECTRONIC INSTRUMENTS FOR SPACECRAFT

PART I

All-optical instruments

Translation of the Russian-language book by A. N. Izrael, A. V. Paylov, and B. E. Federov: Optiko-Elektronnyye Pribory Kosmicheskikh Apparátov, 1971, signed to press 23 August 1972, Izdatel'stvo Mashinostroyeniye, Moscow, 168 pages.

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[1 - USSR - A]

1/2 022
TITLE--THREE MONOGRAPHS -U-

UNCLASSIFIED

PROCESSING DATE--23OCT70

AUTHOR--PAVLOV, A.V.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA GAZETA, AUGUST 4, 1970, P 3, COLS 6-7

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MONOGRAPH, COMMUNICABLE DISEASE, CHOLERA, PROPHYLAXIS,
EPIDEMIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/0898

STEP NO--UR/9034/70/000/000/0003/0003

CIRC ACCESSION NO--AN0122942

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AN0122942
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE REVIEWS THE FOLLOWING
THREE MONOGRAPHS. (1) PAPERS ON THE WORLD PREVALENCE OF THE MOST
IMPORTANT COMMUNICABLE DISEASES (OUTSIDE OF THE SOVIET UNION) 2ND
EDITION, PROFESSOR O. BAROYAN. (2) PRESENT DAY DATA ON THE
EPIDEMIOLOGY AND PROPHYLAXIS OF THE EL TOR CHOLERA. (3) THE RESULTS OF
THE 50 YEAR STRUGGLE AGAINST INFECTION IN THE USSR, AND CERTAIN PROBLEMS
IN THE PRESENT DAY EPIDEMIOLOGY. ALL THREE BOOKS WERE PUBLISHED BY THE
MEDITSINA PUBLISHING HOUSE BETWEEN 1967-1968.

UNCLASSIFIED

USSR

UDC 616.932-022.38-084

PAVLOV, A. V., Main Sanitary-Epidemiological Administration, Ministry of Health USSR

"Some Considerations Concerning the Prevention of Transmission of Cholera Through Food and Food Products"

Moscow, Voprosy Pitaniya, No 2, 1973, pp 6-9

Abstract: Cholera usually spreads via the alimentary food route only in the infected area. The disease has never been imported with food products from any considerable distance, and there is no epidemiological justification for banning the shipment of food from other countries, especially meat, vegetables, and fruits, i.e., products of solid consistency. When the threat of an outbreak of cholera arises, the health authorities should direct particular attention to the dairy industry because milk is a favorable medium for the vibrios and because its liquid consistency encourages the diffuse infection of many food products even when the vibrios are present in small numbers. Scrupulous attention to personal hygiene on the part of all those handling food -- in processing plants, distribution channels, restaurants -- and proper handling of sewage are important preventive measures. The article includes some observations on the 1970 cholera epidemic in Astrakhan' and Astrakhanskaya Oblast.

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1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--NORMS OF ANTI-EPIDEMIC SERVICES OF A RURAL POPULATION -U-

AUTHOR--(05)--BIRKOVSKIY, YU.YE., PONOMAREVA, G.YE., PAVLOV, A.V., GOROBETS,
F.M., DLBRUSHTAN, YE.V.
COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 5, PP 150-152

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EPIDEMIOLOGY, PUBLIC HEALTH, MEDICAL PERSONNEL, GEOGRAPHIC
LOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/0425

STEP NO--UR/0475/70/000/005/0150/0152

CIRC ACCESSION NO--AP0126178

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126178

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANALYSIS OF EPIDEMIOLOGICAL SERVICES IN RURAL DISTRICTS MADE IT POSSIBLE TO SUGGEST THE FOLLOWING NORMS FOR ADEQUATE SERVICE OF THE RURAL POPULATION: ONE EPIDEMIOLOGIST PER 24.2 THOUSAND INHABITANTS AND ONE ASSISTANT EPIDEMIOLOGIST PER 12.6 THOUSAND INHABITANTS. FACILITY: KIEVSKIY INSTITUT EPIDEMIOLOGII, MIKROBIOLOGII I PARAZITOLOGII.

UNCLASSIFIED

AA0043566

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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

1/70

243900 LOCAL HEAT FLOWS MEASURING PICKUP, method for its manufacture, in which an insulated conductor is inserted into a capillary tube, then the capillary tube and the conductor are heated to a temperature close to the filler metal melting point. Then the capillary is filled with a molten metal having a higher thermal emf than the conductor material, and the metal in the capillary is cooled to solidification.

This increases the efficiency of the conductor pressing-in without destroying its insulation, and reduces the pickup dimensions.

11.9.67 as 1182923/18-10-PANLOW, A. V. (1.10.69.) Bul 17/14.5.69. Class 421. Int. Cl. G 01k.

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19762024

USSR

UDC 621.372.061

PAVLOV. B. A.

P
"Phase Automatic Frequency Control with Auxiliary Phase Modulation in the Feed-back Circuit"

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, pp 210-214 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A155)

Translation: This article contains an investigation of a phase automatic frequency control system with phase modulation in the case of direct control of the modulator by an error signal from the phase detector output with a sinusoidal characteristic. For the case of an integrating filter with a large time constant, the phase plane method is used to determine the lock-on band. The filtering properties of the system are estimated with respect to the internal and external phase perturbations.

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USSR

UDC: 532.516

PAVLOV, B. M.

"Concerning Solution of Complete Navier-Stokes Equations in Problems of Flow Around Blunt Bodies"

Tr. Sektsii po chisl. metodam i gaz. dinamike 2-go Mezhdunar. kollokviuma po gazodinamike vzryva i reagiruyushchikh sistem. 1969. T. 1 (Works of the Session on Numerical Methods and Gas Dynamics of the Second International Colloquium on Gas Dynamics of Explosion and of Reacting Systems), Moscow, 1971, pp 55-66 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B887)

Translation: Numerical solutions of complete Navier-Stokes equations are found for problems of flow and heat exchange of a viscous gas during flow around a number of bodies (sphere, right and circular cylinders, ellipsoid and hyperboloid of revolution, blunt cone) for Reynolds numbers $R \leq 10^3$ and Mach numbers $2 \leq M_\infty \leq 15$. The results of the calculations show weak transfer of disturbances upstream, which made it possible to calculate the flow field on the windward side of the body independently of the flow on the leeward side. The solutions are sought with the aid of an explicit computational scheme by the adjustment method. The author gives the behavior of density,

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PAVLOV, B. M., Tr. Sektsii po chisl. metodam i gaz. dinamike 2-go Mezhdunar. kollokviuma po gazodinamike vzryva i reagiruyushchikh sistem. 1969. T. 1, Moscow, 1971, pp 55-66

pressure, heat flux, drag factor, and position of the shock wave and sonic line for different R and M. Satisfactory agreement with the experiment is found for $R > 10$. T. V. Kuskova.

2/2

PAVLOV, B. M.

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(2)

Turanov, Ye. N. Heat evolution at a concave surface in supersonic flow. In: Trudy II Respublikanskoy konferentsii po aerofizicheskoy teplotomenu i massobmenu. Sektsiya "Aerodinamika bol'shikh skorostey". Kiyev. Kiyevskiy universitet, 1971, 168-172. (RZhMekh, 5/72, no. 5B998)

Heat exchange on the concave frontal surfaces of axisymmetric bodies was investigated at Mach numbers $M = 2.5, 3.0,$ and 3.5 . The concave surface was spherical and varied in depth from 0 to R , where R is the radius of the maximum cross section of the body. The shock wave in front of the concave body pulsed at a frequency of 1 kHz. The heat exchange on the axis of symmetry of the concave surface was on the same order as that on the surface of the flat face. Tests were also conducted on models with through apertures in the concave surface. At the relative aperture area of 6-10%, the pulsations ceased. The heat flux at the critical point in this area was less than at the critical point of a flat face and varied approximately in accordance with a linear law as a function of cavity depth.

Pavlov, B. M. Solution to complete Navier-Stokes equations in problems on flow around blunt bodies. In: Trudy sektsa po chislennym metodam v gazovoy dinamike 2-go Mezhdunarodnogo kolektivuma po Eksperimental'noy i teoreticheskoy aerodinamike. 1969. Moskva: v. 1, 1971, 55-66. (RZhMekh, 5/72, no. 5B887)

Numerical solutions to complete Navier-Stokes equations are obtained for problems of the flow and heat exchange of a viscous gas

USSR

UDC 66.048.5

PAVLOV, B. M., RASIN, O. G., and ABRAMENKO, A. N.

"Experimental Gasodynamic Vacuum Installation for the Investigation of Evaporation Processes"

Minsk, Teplo i Massoobmen pri Nizkikh Temperaturakh, 1970,
pp 25—30

Abstract : Problems of investigation of the evaporation process from capillary porous bodies are discussed by reference to experiments carried out with a model capillary porous body on an illustrated gasodynamic vacuum installation. The described investigation method is based on experimental solution of equations of the balance of heat and mass flows by means of determination of the evaporation intensity and by plotting distribution curves of temperature, pressure, and vapor concentration in the moving steam-gas medium, the dry interlayer, and the liquid phase. The important role of the deepening evaporation zone inside of the body and the specific effect of rarefaction conditions of the flowing over gaseous medium on the mechanism of heat and mass transfer are noted. Two illustr.

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USSR

YEMEL'YANOVA, Z. M., PAVLOV, B. M.

"Calculation of Supersonic Viscous Flow around Blunted Conical Bodies"

Sb. Rabot Vychisl. Tsentra Mosk. Un-ta [Collected Works of Moscow University Computer Center], 1972, Vol 19, pp 3-12 (Translated from Referativnyy Zhurnal Mekhanika, No 5, 1973, Abstract No SB245, by I. N. Murzinov).

Translation: This is a continuation of the study (see Pavlov, B. M., Izv. AN SSSR. Mekh. Zhidkosti i Gaza, 1968, No 3, pp 128-133, RZhMekh, 1968, 11B355) of the flow of a supersonic stream around blunted bodies by means of numerical solution of the Navier-Stokes equations. The problem of the flow of a moderately rarefied gas around sphere-cone (cylinder) type bodies is also solved in the same statement. Results are presented from calculation of five versions of distribution of pressure, friction, thermal streams and fields of gas dynamic quantities in a number of cross sections. In the versions studied, the Mach number of the incident stream varied from 3 to 20, the Reynolds number -- from 200 to 500. The results of the calculations performed showed that there is practically no influence of the inclination of the generatrix of the side surface of the body on the flow near the blunt

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USSR

YEMEL'YANOVA, Z. M., PAVLOV, B. M., Sb. Rabot Vychisl. Tsentra Mosk. Un-ta, 1972, Vol 19, pp 3-12.

spherical end, although a narrow, nonclosed area of subsonic flow extends along the body. A significant increase (up to 90%) in pressure on the side surface in comparison to non viscous flow is also noted.

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1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--PULSED NQR NUCLEAR QUADRUPOLE RESONANCES RADIO SPECTROMETER
RELAXOMETER FOR THE 2-70 MEV RANGE -U-
AUTHOR--(03)-KLEBANOV, A.N., BONDARENKO, I.S., PAVLOV, B.N.
COUNTRY OF INFO--USSR
SOURCE--PRIB. TEKH. EKSP. 1970, 1, 150-2
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--NUCLEAR RESONANCE, QUADRUPOLE MOMENT, NUCLEAR SPINE, SPIN
RELAXATION, SPECTROMETER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1480 STEP NO--UR/0120/70/001/000/0150/0152
CIRC ACCESSION NO--AP0106236

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106236

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DESCRIBED DEVICE PERMITS OBSERVATION OF SIGNALS OF NUCLEAR INDUCTION AND SPIN ECHO AND THE MEASUREMENT OF THE RELAXATION TIME IN THE FREQUENCY RANGE 2-70 MEHZ. THE MECH. COUPLING, THE AUTOMATIC ALIGNMENT OF THE HETERODYNE FREQUENCY, AND THE BLOCK OF SIGNAL ACCUMULATION MAKES IT POSSIBLE TO SEARCH AUTOMATICALLY FOR WEAK SIGNALS OF NQR WITH RECORDING OF THE SPECTRUM ON A TAPE. FACILITY: INST. RADIOTEKH. ELEKTRON., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 539.196;539.198

PAVLOV, E. P.

"Multiring Mechanical Selector"

Uch. zap. Tsentr. aero-gidrodinam. in-ta (Scientific Notes of the Central Aerodynamic Institute), 1970, Vol. 1, No. 5, pp 78-86 (from RZh-Fizika, No 5, May 71, Abstract No 5D182)

Translation: A multiring mechanical selector was developed that consists of concentric rings with slits on a moving disc. This selector is more simple than a multidisc selector and has a smaller scale and moment of inertia, and the speed of molecules emitted by it can be given more accurately. The technique and results of calculation of such selectors are presented and the parameters of two selectors are given.

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USSR

UDC 619:616.986.7+616.981.49:636.4

PAVLOV, E. N., All Union Institute of Experimental Veterinary Medicine

"Mixed Infection - Leptospirosis and Paratyphoid of Swine"

Moscow, Veterinariya, No 1, Jan 71, pp 53-56

Abstract: After in vitro experiments involving inoculation of agar cultures with Salmonella choleraesuis var. kuzendorf and Leptospira pomona, which showed that Salmonella have no perceptible effect on the viability of Leptospira for 3 to 5 days, 20- to 60-day-old pigs were infected intraperitoneally with L. pomona and S. choleraesuis cultures simultaneously. The mixed infection developed acutely and mortality was higher than in animals infected with either disease separately. The animals exhibited the general pathological and anatomical changes characteristic of paratyphoid and the severe degenerative changes in the liver characteristic of leptospirosis. Fifteen of the 31 animals died. Autopsy of the dead animals revealed conjunctivitis, hemorrhagic lymphadenitis, multiple hemorrhages, and enlarged spleen and liver.

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- 106 -

LUNOKHOD

CONTROL AND RESULTS OF PROGRAM IMPLEMENTATION

Chapter 4

A. A. Aleksandrov, P. A. Artem'yev, G. I. Bogatov, ~~A. I. Yelenov~~,
O. G. Ivanov, V. A. Ryvalina, Ye. G. Uzkly, A. I. Shakhov, F. P.
Pavlov, Yu. P. Koriolov and L. K. Polenov

1. System for Lunokhod Remote Control

The Lunokhod remote control system (RCS) was designed to ensure safe movement along the lunar surface in the stipulated direction with the maximum mean velocity. With respect to volume of processed information and number of instruments employed, to use the technology adopted at the present time, this system can be classified as a saturated system. A peculiarity of the described system is that it is a closed automatic control system.

Ground and on-board radio complex equipment is used in the remote control of movement. This complex ensures the transmission and reception of control radio commands, telemetric information, and television images. The Lunokhod is remotely controlled by a group of operators, the Lunokhod crew.

The driver, receiving from the vehicle a monoscopic television image of the terrain in front of the Lunokhod, determines the possibilities for moving over it and gives appropriate commands ("Turn," "Proceed," "Stop," "Back up"). The position and dimensions of the obstacle are evaluated using a special range scale plotted on the videocontrol apparatus (VCA) screen.

The navigator, using telemetric data received from the vehicle's course gyroscopes, eyevertical and sensors registering the traversed path, calculates the trajectory and lays out the route to be followed in the stipulated direction.

Accordingly, the driver determines the system quality during Lunokhod movement about its center of gravity and the navigator determines movement along the trajectory. The effect of movement along the trajectory on movement about the center of gravity is related to the requirements on the accuracy in adhering to the trajectory.

PAVLOV, F. P.

Translation of Russian-language monograph
Peredvizhnaya laboratoriya na Lune
Lunokhod-1, 1971, signed to press 4 June 71
resp. editor Academician A. P. Vinogradov;
Mauka Publishing House, Moscow 128 pp.

JPRS 54,585
22 NOV 1971

PAYLOV, F. P.

Chapter 7

DETERMINING GEOMETRIC DIMENSIONS AND DISTRIBUTION OF CRATERS TRAVERSED BY
"LUNOKHOD-1" ON LUNAR SURFACE

B. I. Garin, A. K. Leonovich, F. P. Pavlov, V. B. Georgiyev, and P. S. Semanov

Measurement of the angles of longitudinal α and transverse γ tilting of the lunokhod body and continuous transmission of this telemetric information to the earth make it possible at any moment during a communications contact to determine the slope of the lunar surface at the corresponding points where the lunokhod is situated. In turn, measurement of the lunar surface S and the course β of the lunokhod makes it possible to determine the lunar surface slopes as a function of the traversed path, reduced to the trajectory of its movement, beginning at the time of descent from the lunar station landing stage.

Investigations have demonstrated that the dimensions of craters -- diameter D , depth H , slope steepness ψ , height h_{wall} and width A of the wall, if one exists, as well as their position relative to the lunokhod movement trajectory, can be computed from the results of changes in S , α and γ with sufficient accuracy. For this purpose a method was developed for determining the dimensions of craters on the lunar surface traversed by the lunokhod on the basis of telemetric information from the sensors registering the lunokhod path, banking and fore-to-aft listing.

The method has two modifications, geometric and analytic, the latter making it possible to solve the problem of determining the parameters of lunar craters with a digital computer and to ascertain the characteristics of lunar relief in tempo with lunokhod movement.

Figure 43 shows the trajectory of lunokhod movement across a class-B crater at some distance from its center (a) and gives the results of measurements of fore-to-aft tilting α and banking γ of the lunokhod (b,c) obtained through telemetric channels from aboard the lunokhod, as well as depicting (solid line) the longitudinal profile of the lunar surface, situated beneath the center of the lunokhod, obtained by a graphic integration of the fore-to-aft tilting along the traversed path (d):

- 113 -

"LUNOKHOD-1"

Translation of Russian-Language monograph
Peredvizhnaya Laboratoriya na Lune
Lunokhod-1, 1971, signed by June 71
reup. editor Academician A. P. Vinogradov
Nauka Publishing House, Moscow 128 pp.

JPRS 54,525
22 November 1971

USSR

UDC 616.281:612.273

SIDEL'NIKOV, I. A., MARKARYAN, S. S., and PAVLOV, G. I.

"Usefulness of Certain Hemodynamic Parameters in Detecting Vestibular and Autonomic Disorders Under Ordinary Conditions and During Hypoxia"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 3, 1973, pp 364-373

Abstract: The effect of motion sickness induced by continuous cumulation of Coriolis acceleration on various hemodynamic parameters was studied in 60 human subjects of varying vestibular stability under ordinary and hypoxic (O₂ 10.5%) conditions. The vestibular and autonomic disorders resulting from motion sickness increased blood pressure and peripheral vascular resistance, but decreased the systolic and minute volumes. However, these changes were observed in all the subjects, regardless of the degree of vestibular stability, suggesting that the cardiovascular system can readily adapt to vestibular stimulation. Thus, the use of hemodynamic parameters is only of limited value in detecting latent vestibular insufficiency.

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Physiology

USSR

UDC 523:612.015.3:611.85

LAPAYEV, E. V., PAVLOV, G. I., SIDEL'NIKOV, I. A., UDALOV, Yu. F., YUGANOV, Ye. M., and CHELNOKOVA, N. A.

"The Effect of Linear and Angular Accelerations on Some Metabolic Indices"

Moscow, Izvestiya Akademi Nauk SSSR, Seriya Biologicheskaya, No 4, 1970, pp 515-520

Abstract: Exposure of human subjects to linear and angular accelerations produced definite shifts in protein and vitamin metabolism. Some of the shifts were quite specific to vestibular stimulation -- decrease in transaminase activity, increased excretion of amino acids with decreased excretion of total nitrogen, and relative increase in content of the replaceable acids and amino acids involved in transamination reactions in the blood (aspartic and glutamic acids, glutamine, alanine). The shifts were more pronounced after Coriolis accelerations than after linear accelerations.

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USSR

UDC 611.85:523

MARKARYAN, S. S., SIDEL'NIKOV, I. A., PAVLOV, G. I., DEZDOBA, N. T., and
STEPANOV, V. K.

"Effect of Vestibular Stimulation During Hypoxia on Some Physiological
Reactions"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 1, 1973,
pp 33-36

Abstract: The main purpose of the study was to determine whether moderate hypoxia can be used to detect latent vestibulo-autonomic instability in airplane pilots and astronauts. On the assumption that tolerance for cumulative Coriolis accelerations lasting at least 2 minutes is a good criterion of vestibular function, 242 healthy subjects were exposed to hypoxia either by remaining in a pressure chamber at an "altitude" of 5000 m or breathing a gaseous mixture with a low oxygen content and then rotated in a special chair. The results of the test revealed vestibular instability (4th degree) in 24% of the nonfliers, 12% of the flight school candidates, and 6% of the fliers. Other effects of the combined action of hypoxia and Coriolis accelerations included a marked decrease in the cardiac output, increase in the minute volume of respiration, and diminished visual acuity in the sensitive individuals.
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Aerospace Medicine

UDC: 611.85

CHEKHONADSKIY, N. A., VENTTSEL', M. D., and PAVLOV, G. I.

"Function of the Otolithic Apparatus in Sinusoidal Acceleration Activity"

Moscow, Izvestiya Akademii nauk SSSR--Seriya biologicheskaya, No 5, 1972, pp 707-716

Abstract: The authors find that neither foreign nor domestic literature has shed much light on the functional activity of the otolith apparatus. Yet, such clarification is needed in the study of the peculiarities of manned aircraft since the activity of the human pilot is affected by the influences of acceleration and weightlessness on his organism. For the purpose of adding to such clarification, the authors describe experiments on cats for studying the bioelectrical activity of the vestibular nerve in the middle ear on the level of the Scarpa ganglion under the action of sinusoidal accelerations. The special stand used in the experiments, with the animal subject shown, is reproduced in a photograph. It is so arranged as to permit periodically varying motion of the subject animal in the vertical plane. The experimental method is explained, and a mathematical model of the

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USSR

UDC: 611.85

CHEKHONADSKIY, N. A., et al, Izvestiya Akademii nauk SSSR--Seriya biologicheskaya, No 5, 1972, pp 707-716

Scarpa ganglion is set up. It is found that the experimental data agrees with the data of the mathematical model.

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USSR

UDC 611.85

PAVLOV, G. I.

"A Surgical Approach to the Vestibular Nerve in Animals"

Leningrad, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1972,
pp 605-610

Abstract: The author modified Heidenhain's approach to the auditory nerve in developing his own method of studying vestibular function. It involves approaching the lower branch of the vestibular nerve at the point where it enters the vestibular ganglion and approaching the ganglion itself and the fibers emerging from it. Cats were found to be more convenient for experimental purposes than rabbits or dogs because the bony tissues surrounding the nerve are not as thick as in dogs, their venous sinuses and nerve formations are at a safer distance from the operative field than those of rabbits, and their vestibular reactions are more pronounced than those of dogs and rabbits. The well-developed falling reflex enhances the potential of cats for yielding valuable information on the vestibular apparatus. Bioelectric potentials of the vestibular nerve can be derived from implanted metal microelectrodes for several days after the proposed operation. The recording can be done both under static conditions and when the animal is turning, rolling, or exposed to acceleration or weightlessness.

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AP0041856

Abstracting Service:
CHEMICAL ABST.

4/70

Ref. Code

UR0366

89695n Reactions of α -chlorinated ethers in the presence of zinc. X. Synthesis of selenoacetals. Lapkin, I. I.; Pavlova, N. N.; Pavlov, G. S. (Perm. Gos. Univ., Perm, USSR). *Zh. Org. Khim.* 1970, 6(1), 71-4 (Russ). The reaction of RCH₂Cl(OMe) with R¹SeH in the presence of Zn in abs. Et₂O gave 50-68% RCH(SeR¹)₂ (I). The mechanism of the reaction was described earlier (Lapkin, I. I.; 1967). The oxidn. of I with HNO₃ gave 60-5% R¹SeO₂H.HNO₃. CPJR

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USSR

UDC 621.317.7:531.761

DOBRONRAVOV, O. E., PAVLOVA, G. YA., and POCHTAREV, V. L.

"High-Speed Thyatron of a Nanosecond Measuring Device of Time Intervals"

V sb. Tunnel'n. diody v vychisl. i izmerit. tekhn. (Tunnel Diodes in Computer and Measurement Technology — collection of works), Riga, "Zinatne", 1972, pp 287-294 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11.A231)

Translation: The authors study a high-speed thyatron operating at 300 Mc. The given thyatron is used in a nanosecond measuring device of time intervals equal to or less than 3 nanoseconds. Methodology is described along with the results of threshold testing the thyatron which was assembled from diodes with charge accumulation and tunnel diodes. Results are given from the analysis of the thyatron circuit using the method of experiment planning. Original article: four illustrations, two tables, and three bibliographic entries. Resums.

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USSR

UDC 621.317.755.029.4

DOBRONRAVOV, O. E., PAVLOVA, G. YA., and POCHTAREV, V. L.

"Wide-Band Strobe Unit for Low-Frequency Oscillographs"

V sb. Tunnel'n. diody v vychisl. i izmerit. tekhn. (Tunnel Diodes in Computer and Measurement Technology — collection of works), Riga, "Zinatne", 1972, pp 281-285 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A259)

Translation: The authors study a strobe unit which has a transient process stabilization time of 0.35 nanoseconds and with external synchronization. The strobe circuit uses semiconductor triodes in an avalanche regime and semiconductor diodes with charge accumulation. A particularity of the given strobe unit is the fact that its wide-band capacity is achieved by using a mixing chamber. The conducted study and experimental evaluation of the amplitude-frequency characteristic of the strobe unit with a mixing chamber show that it has a uniform frequency-amplitude characteristic up to 900 Mc. Original article: four illustrations and one bibliographic entry. Resume.

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USSR

UDC 629.735.45.015.4:534.242

GANIYEV, R. F. and PAVLOV, I. G., Institute of Mechanics, Academy of Sciences, Ukrainian SSR; Kiev Institute of Civil Aviation Engineers

"Concerning the Theory of Helicopter Ground Resonance"

Kiev, Prikladnaya Mekhanika, Vol 9, No 5, May 1973, pp 50-56

Abstract: The problem of helicopter ground resonance is formulated as a problem of the stability of movement of a mechanical system under conditions of non-linear resonances, and is solved by methods of nonlinear mechanics. Various resonance phenomena are analyzed, and conditions are obtained for the movement stability of a helicopter under resonance conditions. It is shown that the damping of helicopters with the aim of eliminating ground resonance may, in a number of cases, contribute to the instability of helicopter movement due to the influence of frequency differences and damping coefficients upon the conditions of stability. 2 figures. 16 references.

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USSR

UDC: 621.039.564.2

YEMEL'YANOV, I. Ya., VETYUKOV, V. N., KONSTANTINOV, I. V.,
NAZARYAN, V. G., PAVLOV, I. K., POSTNIKOV, V. V.

"Discrete Testing of Distributions of Power Output in Nuclear Reactor Cores"

Moscow, Atomnaya Energiya, Vol 34, No 2, Feb 73, pp 75-79.

Abstract: This work presents a study of two methods of discrete testing of the distribution of power output: empirical and calculation-experimental. The first method, the engineering solution of the problem, is based on the use of simple empirical relationships produced in experiments involved in startup and initial operation of the first reactor of a given type; the second method is based on simultaneous use of the results of physical calculation and discrete measurements of the distribution of power output. The application of both methods is illustrated using data from the Beloyarsk Nuclear Power Plant. The methods for discrete testing of multi-dimensional distributions studied in this work are intended for use in the algorithms of the computers at nuclear power plants for testing of the distribution of power output. However, with slight changes, they can be used for other discrete measurement tasks as well.

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