

1/2 011 UNCLASSIFIED PROCESSING DATE--300CT70
TITLE--CERTAIN PROBLEM OF SYNTHESIS OF SYSTEM OF OPTIMAL CONTROL -U-

AUTHOR--(04)--ANISIMOV, I.V., BGDROV, V.I., KOSHCHEYEV, N.N., FOMIN, N.G.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEXHANIKA, 1970, NR 6, PP 118-123

DATE PUBLISHED--70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATHEMATICAL SCIENCES

TOPIC TAGS--OPTIMAL AUTOMATIC CONTROL, PERTURBATION METHOD, ALGORITHM,
AUTOMATIC CHEMICAL PROCESS CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/1009

STEP NO--UR/0103/70/000/006/0110/0123

CIRC ACCESSION NO--AP0124668

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124668

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PROBLEM OF THE SYNTHESIS OF A SYSTEM OF OPTIMAL CONTROL BY THE INTEGRAL CRITERION FOR A CLASS OF OBJECTS IS CONSIDERED. THE SYSTEM IS ACTED UPON BY CONSTANTLY MEASURED DISTURBANCES. AN ALGORITHM OF THE OPTIMAL CONTROL OF A RECTIFICATION COLUMN UNDER THE DISTURBANCE CONCERNING THE COMPOSITION OF THE INITIAL MIXTURE IS SUGGESTED.

UNCLASSIFIED

Oscillators and Modulators

USSR

UDC: 621.374.42

ARON, A. Ya. and FOMIN, N. N.

"Phase-Frequency Characteristics of a Regenerative Frequency Multiplier Using a Tunnel Diode"

Moscow, Radiotekhnika, No 9, 1972, pp 46-49

Abstract: The purpose of this article is to set up the phase-frequency characteristics of a frequency multiplier using a tunnel diode oscillator synchronized to a subharmonic. This circuit, which has a number of advantages over resonance frequency multipliers now in general use, was investigated by the authors named above in an earlier paper published in the same journal (vol 27, No 6, 1972). In the present paper, the authors use, to determine the phase-frequency characteristics of the circuit, the shortened equations describing the oscillator with a short-circuited line segment equivalent to the inductance, with the nonlinearity of the tunnel diode capacitance taken into account. An equivalent circuit of the frequency multiplier is shown, and the phase-frequency characteristics are plotted for various values of the external signal amplitude. The device has broad synchronization bands and can multiply the frequency of signals with large deviations at low distortion.

1/1

Devices

USSR

UDO 621.374.42

ECVIN, N.N., ARON, A.YA. [Members, Scientific-Technical Society Of Radio Engineering, Electronics, And Communications imeni A.S. Popov]

"Regenerative High Multiplicity Factor Frequency Multiplier Based On A Tunnel Diode"

Radiotekhnika, Vol 27, No 6, June 1972, pp 88-90

Abstract: A choice of parameters is considered for a generator based on a tunnel diode, during its use as regenerative high multiplicity factor frequency multiplier. Experimental data are presented which show that on the basis of generators with high-current high-frequency tunnel diodes, designed for maximum power yield, it is possible to create a frequency multiplier for the decimeter and centimeter range. 3 fig. 6 ref. Received, 19 January 1971.

1/1

USSR

UDC 621.316.729:621.313.12

FOMIN, N. N.

"Synchronization of UHF Generators Using Semiconductor Diodes With Negative Resistance (Survey)"

Poluprovodnikovyye Pribory v Tekhnike Elektrosvyazi (Semiconductor Instruments in Electrical Communication Technology), Moscow, "Svyaz'," No 7, 1971, pp 80-92

Abstract: The appearance of a whole new class of semiconductor instruments having negative resistance has made it possible to design simple and rather compact autogenerators in the UHF band that possess numerous promising energy characteristics. However, these generators are still inferior to the electron UHF instruments both in level of power generated and in frequency stability. To a significant degree it is possible to solve this problem of increasing the output power by employing the method of frequency synchronization used in generators on electron UHF instruments. The author discusses this possibility and illustrates his findings graphically and mathematically. He concludes that as the technology of these UHF autogenerators is developed and refined, it will be quite fruitful to use various types of synchronization

1/2

USSR

FOMIN, N. N., Poluprovodnikovyye Pribory v Tekhnike Elektrosvyazi (Semiconductor Instruments in Electrical Communication Technology), Moscow, "Svyaz'," No 7, 1971, pp 80-92

both from the viewpoint of improving the basic parameters of the UHF oscillation sources and in a number of other possible applications. The article contains 5 illustrations and 41 bibliographic entries.

2/2

- 63 -

USSR

UDC: 621.382.23.011.222

FOMIN, N. N.

"Synchronization of Semiconductor Diode Microwave Oscillators With Negative Resistance. (A Survey)"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Electrical Communications Technology--collection of works), vyp. 7, Moscow, "Svyaz", 1971, pp 80-92 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D369)

Translation: The recently arrived family of semiconductor SHF diodes with negative resistance (tunnel and avalanche diodes, Gunn effect devices) has opened up new and fascinating possibilities for creating compact economical and highly reliable self-excited oscillators which operate in the decimeter to millimeter wave band. The basic disadvantages of these oscillators which limit their technical use for the present are comparatively low power, low frequency stability, and frequently insufficient stability of the operating mode of the semiconductor device. One of the effective methods of combatting these disadvantages is to use the effect of frequency synchronization. The paper gives a survey of the

1/2

FOMIN, N. N., Poluprovodn. pribory v tekhn. elektrosvyazi, vyp. 7, Moscow, "Svyaz", 1971, pp 80-92

present state of the theory and technology of synchronization of microwave oscillators based on semiconductor devices of the given type. The author considers synchronization in the continuous and pulse modes, power summation, reception and amplification of signals with angular modulation, frequency multiplication and division, and the effect of synchronization on the emission spectrum frequency. Five illustrations, bibliography of fifty-eight titles. Resumé.

2/2

- 138 -

Foundry

F

USSR

UDC: 669.083.4.054

CHERNOV, B. G., FOMIN, N. V., and AGEYEV, P. Ya., Leningrad Polytechnic Institute

"Removal of Impurities of Nonferrous Metals From Melts in the Process of Vacuum Melting"

Moscow, Izvestiya Vyssikh Uchebnykh Zavedeniy - Chernaya Metallurgiya, No 8, 70, pp 23-24

Abstract: An attempt is described to reveal the factors controlling the removal rate of nonferrous metal impurities from iron and nickel-base melts in vacuum induction-type furnaces at a vacuum of 0.001--0.0001 mm hg. The refining of the melt from nonferrous metals impurities, which is based on evaporation, comprises several stages: 1) convective transfer of impurities from the bulk of the melt toward the surface diffusion layer; 2) diffusion through this layer; 3) particle vaporization from the melt's surface, and 4) diffusion of evaporating particles in the melting chamber of the furnace. In a vacuum-type high-frequency induction furnace the forced agitation rate at 1600--1700°C attains 10--30 cm/sec. The problem posed here is reduced to studying the elementary acts of impurity transfer through the unmixed diffusion layer and the impurity evaporation from the surface. It is shown that the removal rate of nonferrous metal impurities is controlled by their vaporization intensity. A logarithmic formula has been derived describing the relation between the initial and current concentration of impurities in the melt and its holding time under vacuum.

015 UNCLASSIFIED PROCESSING DATE 27NOV70
TITLE--REARRANGED IONIC MOLECULAR REACTIONS IN MIXTURES OF NITROGEN WITH
CHLOROCARBONS. I. NITROGEN CARBON TETRACHLORIDE -U-
AUTHOR--(02)-GURYEVA, N.A., FOMIN, O.K. F
COUNTRY OF INFO--USSR
SOURCE--KHIM. VYS. ENERG. 1970, 4(3), 279
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHLORINATED ORGANIC COMPOUND, NITROGEN, CARBON TETRACHLORIDE,
MASS SPECTROMETER, INTRAMOLECULAR MECHANICS/(U)MKH1303 MASS SPECTROMETER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0868 STEP NO--UR/0456/70/004/003/0279/0279
CIRC ACCESSION NO--AP0137896
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137896

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ION MOL. REACTIONS IN N WITH CCL
SUB4 MIXTS. WERE STUDIED WITH THE AID OF THE MASS SPECTROMETER MKH, 1303.
IN THE REACTION OF N PRIME POSITIVE AND N SUB2 PRIME POSITIVE WITH CCL
SUB4, CNCL PRIME POSITIVE FORMED. THE RATE OF THE REACTION CONST. IS
5.1 TIMES 10 PRIME NEGATIVE11 ML MOLE PRIME NEGATIVE1 SEC PRIME
NEGATIVE1 WHICH CORRESPONDED TO THE EFFECTIVE COLLISION OF N PRIME
POSITIVE WITH CCL SUB4, 2.4 TIMES 10 PRIME NEGATIVE2. FACILITY:
FIZ. KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--090CT70
TITLE--100 OPERATIONS OF RETROSTERNAL PREFASCIAL ESOPHAGOPLASTY WITH THE
SMALL INTESTINE IN CICATRICIAL ESOPHAGEAL OBSTRUCTION -U-
AUTHOR-(02)-ROGACHEVA, V.S., FOMIN, P.D.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 5, PP
19-23
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PLASTIC SURGERY, SMALL INTESTINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1021 STEP NO--UK/0589/70/104/C05/0019/0023
CIRC ACCESSION NO--AP0109172
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109172

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EXPERIENCE IN 100 RETROSTERNAL PREFASCIAL ESOPHAGOPLASTIES WITH THE SMALL INTESTINE, PERFORMED IN PATIENTS AGED FROM 7 TO 60 YEARS WITH CICATRICIAL NARROWING OF THE ESOPHAGUS, IS PRESENTED. THREE PRINCIPAL STAGES OF SURGERY ARE DIFFERENTIATED, AND DETAILED CHARACTERISTICS OF EACH IS GIVEN, BASING ON THE ANALYSIS OF CLINICAL DATA. COMPLICATIONS AND CAUSES OF UNFINISHED ESOPHAGOPLASTIES (IN 4 PATIENTS), AS WELL AS CAUSES OF MORTALITY (5 CASES) ARE DESCRIBED. IT IS CONSIDERED THAT RETROSTERNAL PREFASCIAL ESOPHAGOPLASTY WITH THE SMALL INTESTINE COULD BE A METHOD OF CHOICE IN RECONSTRUCTIVE SURGERY ON THE ESOPHAGUS. FACILITY: GOSPITAL"NOY KHIRURGICHESKOY KLINIKI TOMSKOGO ORDENA TRUDOVOGO KRASNOGO ZNAMENI MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

AKHIYEZER, A. I., FOMIN, P. I., and SHUL'GA, N. F., Kharkov State Institute
imeni A. M. Gorky'

"Coherent Bremsstrahlung of Electrons and Positrons of Ultrahigh Energy
in Crystals"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol
13, No 12, 20 Jun 71, pp 713-715

Abstract: The authors find that the bremsstrahlung of electrons and positrons has a coherent character for small angles of slope θ of the primary beam to the axis of the crystal. The theory of the effect in the first Born approximation has been described previously. In this approximation the radiation from electrons and positrons is the same. Here the authors wish to show that at sufficiently small angles θ the coherent effect increases the relative contribution of the second and higher Born approximations, which, in turn, leads to a substantial difference in the radiation from electrons and positrons at small angles θ even in crystals of light elements, but they note that the incoherent part does not act in the same manner. They are able to prove their assumptions through use of a mathematical apparatus. The article contains 4 bibliographic entries.

1/1

- 118 -

USSR

UDC: 621.397.335.29

MOISEYEV, V. K., FOMIN, P. P., ZHOVTIS, I. M., KOZLOVSKAYA, A. V.

"A Device for Automatically Locking on and Tracking Video Pulses"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 18, Jun 71, Author's Certificate No 305598, Division H, filed 11 Aug 69, published 4 Jun 71, p 197

Translation: This Author's Certificate introduces a device for automatically locking onto and tracking video pulses for automatically putting a pulse tracking system in the tracking mode of operation. The device contains a time modulator, a selector gate generator, a time discriminator with accumulation and two data transcribing oscillators, a trigger prf divider, a pulse generator for recording information on the time modulator, and a lock-on flip-flop. As a distinguishing feature of the patent, the system for locking onto the video pulses is simplified by connecting a delay device and two coincidence circuits in the trigger circuit for the selector gate generator. The pulse input of one of the coincidence circuits is connected directly to the output of the time modulator, and the pulse input of the second coincidence circuit is connected through a delay element to the

1/2

MOISEYEV, V. K. et al., USSR Author's Certificate No 305598

output of the time modulator. The potential inputs of these coincidence circuits are connected to the outputs of a commutator whose pulse outputs are connected to the recording pulse generator and to the input of the gate generator for transcription of lock-on pulses. The output of this generator is connected through a differentiating circuit to one input of the lock-on flip-flop, and a signal from the time discriminator is sent to the other input of this flip-flop.

USSR

BERKINBLIT, M. B., DUDZYAVICHYUS, I., KOVALEV, S. A., FOMIN, S. V., KHOLOPOV, A. V., and CHAYLAKHYAN, L. M., Institute of Problems of Information Transmission, Academy of Sciences USSR, Moscow

"Study of the Formation of a Local Response in a Nonuniform Membrane Corresponding to the Hoagkin-Huxley Model"

Moscow, Biofizika, Vol 15, No 5, Sep/Oct 70, pp 873-880

Abstract: The electric response of a model which consists of two membranes regions (one active and the other shunting) connected in parallel is considered. This model imitates biological objects containing membrane regions with a different threshold (e. g., neurons), as well as conditions of nonuniform membrane polarization. The transition is gradual in actual membranes, however. Shifts in the amplitude and duration of the reaction that develops, in the stimulation threshold, and in ionic currents as a result of shifts in the ratio of the excitable to nonexcitable area of the membrane are discussed. On the basis of the model, it is shown that the nonuniformity of the membrane considerably increases the range of strengths of the stimulating current at which a local response develops. The relations obtained
1/2

USSR

BERKINBLIT, M. B., et al, Biofizika, Vol 15, No 5, Sep/Oct 70, pp 873-880

explain some characteristics of the electric reactions of smooth muscles and of myocardial tissue.

2/2

- 3 -

USSR

BERKINBLIT, M. B., VVEDENSKAYA, N. D., DUDZYAVICHUS, I., KOVALEY, S. A., FOMIN, S. V., KHOLOPOV, A. V., and CHAYLAKHYAN, L. M. Institute of Problems of Information Transmission, Academy of Sciences USSR, Moscow and Moscow State University imeni M. V. Lomonosov

"Study of Propagation of Excitation in Purkinje Fibers of the Heart Studied in a Mathematical Model"

Moscow, Biofizika, Vol 15, No 3, May/June 70, pp 521-527

Abstract: Propagation of the action potential in a uniform Purkinje fiber was modeled on a computer using Noble and McAllister models. The velocity of impulse propagation in the Noble model is shown to be five times lower, and in the McAllister model two times lower, than that measured experimentally. This discrepancy can be explained by the underestimated value of the rate of growth of the forward front of the action potential in the models used, since the calculations showed that the velocity of the impulse propagation to a first approximation linearly depends upon the growth of velocity of the forward front. The action potential in the region of fiber expansion was modeled on the Noble Model. It passes through larger expansions than the impulse in the Hodgkin-Huxley model, apparently because of the more extended time of the heart impulse. It is also shown that geometric nonuniformity can provide a

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USSR

BERKINBLIT, M. B., et al., Biofizika, Vol 15, No 3, May/June 70, pp 521-527

temporary delay in impulse propagation, which comprises a considerable part of atrioventricular delay. It is suggested that the experimentally observed "hollow" and "hump" on the background of the plateau of cardiac action potentials are caused by the electrotonic "reflection" of the potential from geometric nonhomogeneities, since the potentials of such a shape are reproduced in model calculations.

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1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--COMPUTER MODELING OF THE BEHAVIOR OF NERVE FIBER MEMBRANE UNDER
RHYTHMIC STIMULATION -U-
AUTHOR--(05)-BERKINBLIT, M.B., DUDZEVICUS, I., KOVALEV, S.A., FONIN, S.V.,
KHOLOPOV, A.V.
COUNTRY OF INFO--USSR
SOURCE--BIOFIZIKA 1970, 15(1), 147-55
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--NERVE TISSUE, CELL MEMBRANE, MATHEMATIC MODEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0017 STEP NO--UR/0217/70/015/001/0147/0155
CIRC ACCESSION NO--AP0105117
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105117

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BEHAVIOR OF EXCITABLE MEMBRANE UNDER RHYTHMIC STIMULATION WAS STUDIED USING THE MATH MODEL OF HODGKIN AND HUXLEY. SUMMATION OF SUBTHRESHOLD STIMULI WAS REPRODUCED ON THE MODEL. THIS PROCESS WAS MAINLY DETD. BY THE TIME CONST. OF THE RESTING MEMBRANE. THE PERIODIC FALL OF IMPULSES AND THE CHARACTER OF IONIC PROCESSES RESPONSIBLE FOR THIS PHENOMENON WERE STUDIED IN DETAIL. EXISTENCE OF MAX. FREQUENCIES WAS SHOWN; THESE WERE REPRODUCED BY THE MEMBRANE UNDER HIGH FREQUENCY STIMULATION, IN THE RANGE OF 140-170 RESPONSES-SEC. THE CHANGE OF FIBER IONIC GRADIENTS MAY BE THE CAUSE OF FATIGUE AND OF GRADUAL TRANSITION FROM LONG CYCLES TO THE SHORTER ONES IN THE PROCESS OF PROLONGED RHYTHMIC STIMULATION. FACILITY: INST. PROBL. INFORM. TRANSM., MOSCOW, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DETERMINATION OF ARTICULATE MOMENTS DURING LOCOMOTION -U-

AUTHOR--(03)-GURFINKEL, V.S., FOMIN, S.V., SHTILKIND, T.I.

COUNTRY OF INFO--USSR

SOURCE--BIOFIZIKA 15(2): 380-383. ILLUS. 1970

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LAGRANGE EQUATION, ANALOG DIGITAL CONVERSION, MOTION
MECHANICS, MAN, ANATOMY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605006/F08 STEP NO--UR/0217/70/015/002/0380/0383

CIRC ACCESSION NO--AP0139932

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139932

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD FOR DETERMINING THE MOMENTS IN JOINTS IN WALKING IN HUMANS AND ANIMALS BASED ON LAGRANGE EQUATIONS IS CONSIDERED. THE ORGANIZATION OF AUTOMATIC CALCULATIONS OF THIS MOMENTS BY THE COMPUTER AND WITH THE ELECTRIC RECORDING OF GONIOGRAMS AND ANALOGUE DIGITAL CONVERTING OF THE DATA ARE DISCUSSED.

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

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SOME MATHEMATICAL PROBLEMS OF BIOLOGY, ANIMALS -U-
AUTHOR--FCMIN, S.V. *F*
COUNTRY OF INFO--USSR
SOURCE--BIOFIZIKA 15(2): 344-351. 1970
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, MATHEMATICAL SCIENCES
TOPIC TAGS--BIOPHYSICS, BIOLOGY, MATHEMATICS

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/0269 STEP NU--UR/0217/70/015/002/0344/0351
CIRC ACCESSION NU--AP0135765
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135765

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. SOME PROBLEMS MAINLY CONCERNED WITH BIOPHYSICS OF COMPLEX SYSTEMS AND CONTROL PROCESSES ARE STATED. THE SOLUTION OF THESE PROBLEMS REQUIRES NON STANDARD MATHEMATICAL METHODS NOT YET WELL DEVELOPED. POSSIBLE APPROACHES TO THESE PROBLEMS ARE BRIEFLY DISCUSSED AND SOME RESULTS DESCRIBED. FACILITY: M. V. LOMONOSOV MOSCOW STATE UNIV., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 8.74

FOMIN, V. D., KHLOPKO, N. S., CHESNOKOV, A. N.

"Output of Digital Information by Digital Computer"

Tr. Irkutsk. Un-ta Ser. Mat. [Works of Irkutsk University, Mathematics Theory], 1970, 74, No 6, pp 215-218 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V516, by V. Mikheyev

Translation: The expediency is analyzed of output of information from a digital computer with the type ATsPU-128 wide-format page printer. The advantage of the ATsPU is that in place of a printing drum carrying various lines consisting of the same digital, alphabetic and special characters, the machine carries a printing drum of the same size, the surface of which consists of several identical sectors with lines of numbers. Each sector contains 12 lines with the basic numerals (0,...,9) and signs. This drum design allows the output of digital information to be several times faster, since several rows can be printed with one rotation of the printing drum. Experiments have shown that when the normal printing drum is replaced by the numbers-only drum in the ATsPU-128-2 printer, the speed of output of digital information reaches 3200 characters per second. It is noted that a similar replacement in the ATsPU-128-3 will allow

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USSR



Fomin, V. D., Khlopko, N. S., Chesnokov, A. N., Tr. Irkutsk. Un-ta Ser. Mat.,
1970, 74, No 6, pp 215-218

the rate of printout of digital information to be increased to approximately
4000 characters per second.

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USSR

UDC 548.4

MIL'VIDSKII, M. G., OSVENSKII, V. B., NOVIKOV, A. G., YOMIN, V. G.,
GRISHINA, S. P., Government Scientific-Research and Planning Institute for the
Rare Metals Industry

"Effect of Thermal Processing on the Ideal Structure of Monocrystals of
Gallium Arsenide Alloyed with Tellurium

Moscow, Kristallografiya, vol 18, No 4, July-August 1973, pp 826-829

The effect of thermal processing (1100°C, 700°C, up to 50 hr) on the physical
properties of gallium arsenide containing 10^{19} tellurium atoms per cubic
centimeter was studied by selective chemical etching, measurement of the
Hall effect, two-crystal spectrometry, diffraction topography, and precision
measurements of the lattice. The electrical properties and monocrystal struc-
tural data indicate a destruction of the supersaturated solid solutions with
formation of a second phase.

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- 18 -

FOMIN, V.G.

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111-2. STUDY OF THE EFFECT OF THE DEVIATION OF THE COMPOSITION FROM THE STOICHIOMETRY AND THE CRYSTALLOGRAPHIC DIRECTION OF GROWTH ON THE DISLOCATION STRUCTURE OF SINGLE CALCIUM NITRIDE CRYSTALS

Article by S. P. Grishina, H. G. Milyutskiy, V. B. Osvenskii, V. V. Pavlov, V. G. Fomin, Moscow: Novosibirsk, III Stepiosium po Proteksham Kozla i Sluzhba Poluprovodnikov Kristallov i Plazm, Russian, 12-17 June, 1972, p 25

It was demonstrated that during the growth from a melt, the deviation of the composition from the stoichiometry can have an effect on the dislocation structure of calcium nitride single crystals both through the crystallization process and by creating additional dislocation sources in the material which has already been crystallized. In the first case the deviation of the composition of the melt from stoichiometry can lead to destruction of the stability of the smooth crystallization front under the conditions of concentration supercooling which is expressed in the formation of the low-angle boundaries and the cellular structures. This effect is exhibited more clearly when growing a crystal in the [100] direction and with a small magnitude of the axial temperature gradient at the crystallization front. In the second case the deviation of the composition from stoichiometry has an effect on the formation of the dislocations in the crystal under the effect of thermal stresses. It was established that the deviation from stoichiometry in the direction of excess calcium in the surface layers of the crystal leads to more intense generation of the dislocations where the deviation in the direction of the excess arsenic has the opposite effect by comparison with the stoichiometric composition. For growth under conditions of identical stoichiometry of the melt, a noticeable effect of the growth direction on the dislocation density in the crystal was not observed. This is confirmed by the results of calculation the thermal stress field. Using the x-ray diffraction topography, a study was made of the types of dislocations in the single crystals expressed in various crystallographic directions.

FOMIN, V.G.

SPRS 57265

6.73

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1X-9. OBTAINING SINGLE SILICON CARBIDE CRYSTALS IN THE CUBIC VESSTON (β-SiC) AND THE STUDY OF THEIR STRUCTURE

Article by M. N. Boyman, R. K. Prikopiyeva, V. G. Fomin, L. A. Zhukova, Ya. P. Shekol'kina, Moscow; Novobil'skiy, M. S. Simoniuk, M. P. Kozlov, Krasnaya Sibirskaya Polytechnicheskaya Katedra i Plank, Krasnoyarsk, 17-17 June 1977, p. 125

A study was made of the possibility of obtaining single β-silicon carbide crystals by thermal reduction of the vapor-phase mixture using methyl trichlorosilane-toluene (ratio C:Si > 1).

By using the ⁶⁰Co radiotracer, the participation of an additional carbon-containing compound introduced into the vapor-phase mixture in the reaction of formation of the β-silicon carbide was demonstrated.

The optimal conditions for growth of single crystals with dimensions of the mirror surface reaching 4 × 5 mm² in individual cases were determined. On the basis of the atom crystals, the point-contact and diffuse light diodes and also barrier-layer photoelements were manufactured.

X-ray diffraction and electron diffraction studies were used to demonstrate the theoretical possibility of obtaining perfect crystals by the indicated method.

FOMIN, V. G.

SPKS 69308
6-73

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XII-11. STUDY OF PERFECTION OF THE STRUCTURE, UNIFORMITY AND COMPOSITION OF GADOLINUM PEROXYFLUORIDE FILMS OBTAINED BY THE SANDWICH METHOD

Article by H. G. Shumilov, L. N. Zhukova, Ye. M. Kislova, V. N. Maslov, V. G. Fomin, Moscow: Novykh Tekhn. [i.e.] Sposobov po Proizvedeniyu i Sintezu Poluprovodnikov i Kristallov, Leningrad, Russian, 12-17 June 1972, p. 177

The x-ray double-crystal spectrometry method, the method of electron diffraction patterns and the x-ray spectral microanalysis were used to study the perfection of the structure, the uniformity and composition of the epitaxial amorphous films of solid solution of the Gad-CaF system. The films were grown by the sandwich method using H₂O and HCl vapor on Gad substrate oriented with respect to the (100) and (111) planes as the carrier reagent. It is demonstrated that the homogeneity with respect to composition and the perfection of the film structure become worse with an increase in the Gad content, beginning especially sharply at 50 percent Gad; here, it is established that the variations of the periodicity of the structure in the given epitaxial films are basically related to the presence of the disoriented mosaic blocks.

The noncorrespondence of the composition of the films obtained and the initial charge were detected. This noncorrespondence decreases with use as the H₂O vapor carrier.

The presence of a negative deviation from the Vegard rule was established, which indicates compression of the lattice with the formation of the solid solution.

USSR

UDC: 548.4

BELYATSKAYA, N. S., GRISHINA, S. P., LOPATIN, Ye. P., MIL'VIDSKIY, M. G., OSVENSKIY, V. B., FOMIN, V. G., State Scientific Research and Design Institute for the Rare Metals Industry

"Structural Singularities of Gallium Arsenide Single Crystals Heavily Doped With Donor Impurities"

Moscow, Kristallografiya, Vol 17, No 1, Jan/Feb 72, pp 158-165

Abstract: A study is made of the effect which tellurium, selenium, and sulfur doping has on the degree of perfectness of GaAs single crystals. Metallographic and radiographic studies show that doping to high concentrations with donor impurities ($n > 10^{18}/\text{cc}$) may lead to an appreciable reduction in the dislocation density and to a specific distribution in the volume of the GaAs single crystals due to strengthening of the material and intensification of the process of dislocation creep during doping. Nonhomogeneous dopant distribution in heavily doped single crystals is an additional source

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BELYATSKAYA, N. S. et al., Kristallografiya, Jan/Feb 72, pp
158-165

of dislocations. Structural investigations show that in the process of growing gallium arsenide single crystals heavily doped with donor impurities, partial decomposition of super-saturated solid solutions takes place, accompanied by the development of additional internal stresses and a lumped structure within the crystal. Five figures, one table, bibliography of eleven titles.

2/2

- 33 -

AA0052698

FOMIN V.I.

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 2-70

244126 POSITIVE DISPLACEMENT INERTIA PUMP comprises an elastic member 1, the rod 2 of which is connected to reciprocating actuator 3. The member is located in chamber 4 with two conical parts, axial inlets 5 and outlet 6. At a specific frequency and elasticity of the member, the latter vibrates in a manner simulating the motion of fish fins. This improves the pump efficiency. In addition the drive of the pump may be incorporated with it, and radial slits can be provided for the elastic member in order to control the type of its motion.

13.3.68 as 1224931/25-8 V.M. USAKOVSKIY & V.I. FOMIN
Farm Electrification Res. Inst. (9.10.69) Bul. 17/
14.5.69. Class 59a, Int. Cl. F 04b.

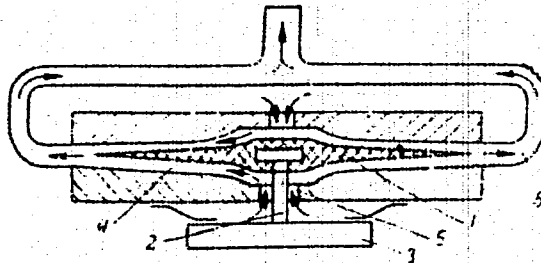
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AA0052698

Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Elektrifikatsii
Sel'skogo Khozyaystva



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19821492

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UDC 629.735.33.015.3.025.35

GADETSKIY, V. M., SEREBRIYSKIY, YA. M., FOMIN, V. M.

"Study of the Effect of Eddy Generators on Suppression of the Turbulent Boundary Layer"

Uch. zap. Tsentr. aero-gidrodinam. in-ta (Scientific Notes of the Central Institute of Aerodynamics), 1972, Vol 3, No 4, pp 22-28 (from RZh-Aviatsionnyye i raketnyye dvigateli, otdel'nyy vypusk, No 11, Nov 72, Abstract No 11.34.6)

Translation: Results are presented from an experimental study at nearsonic velocities of the effect of parallel and diffuser eddy generator systems on the separation of the boundary layer and the position of the shock on the half-section. There are 5 illustrations and a 2-entry bibliography.

1/1

- 16 -

USSR

UDC: 534.2

D'YACHENKO, V. A., FOMIN, V. M.

"Some New Approximations of the Chaplygin Function in a Subsonic Gas Flow Region"

Tr. Seminara po krayev. zadacham. Kazansk. un-t (Works of the Seminar on Boundary Value Problems. Kazan' University), 1970, vyp. 7, pp. 122-128 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B356)

Translation: Two new Chaplygin approximating functions are introduced, each containing five independent arbitrary constants. The solution of the corresponding system of gas dynamic equations in the plane of the velocity hodograph is taken in G. A. Dombrovskiy's form. A solution is given for the problem of determining compression of the jet flowing with subsonic velocity from a flat channel with a nozzle. G. I. Nazarov.

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- 3 -

MATHEMATICS

Differential and Integral Equations

UDC 517.43+513.861

USSR

F
FOMIN, V. N., Leningrad

"Near-Stability of Hamiltonian Equations with Quasi-Periodic Operator Coefficients"

Moscow, Matematicheskiiy Sbornik, New Series, Vol 81 (123), No 3, 1970, pp 307-327

Abstract: This article contains a study of the Hamiltonian function in Hilbert space distinguished only by small quasi-periodic perturbations of the equation, with constant coefficients having certain special properties. Necessary and sufficient conditions for strong formal stability of the Hamiltonian of the equation with constant coefficients are obtained in a class of quasi-periodic perturbations. In the case of periodic perturbations the result obtained is generalized to the class of Hamiltonian equations of the well-known Krayn-Gel'fand-Lidskiy theorem of strong stability of Hamiltonian systems.

The author points out several differences between his paper and earlier papers by other authors dealing with the same topic. It is noted that the operator equations investigated here occur in the theory of dynamic stability of elastic systems described by partial differential equations. Application of known methods to such systems encounters the following difficulties: 1) In systems with distributed parameters the picture of the interaction of various "degrees of freedom" is so confused that the corresponding equation is impossible

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FOMIN, V. N., Matematcheskiy Sbornik, New Series, Vol 81 (123), No 3, 1970, pp 307-327

to integrate in the first approximation. Formal application of known procedures to the operator equations leads to diverging series in the first step. In the present paper, a new procedure is developed for constructing successive substitutions free of this deficiency. Differences between the procedure of Fomin and Matematcheskiy Sbornik, New Series, Vol 81 (123), No 3, 1970, pp 307-327 and Krasinskiy are discussed. 2) In addition to the property of being Hamiltonian, the investigated operator has a special property: parametric perturbation is not only small but is also weak in a certain sense. This property is meaningless for matrix equations, but as a result of it, such fundamental concepts as the solution of the equations, stability of the solutions, and so on can be automatically introduced in the case of systems with an infinite number of degrees of freedom. Therefore it is necessary to see to it that this property is retained during the transformations. These two difficulties are overcome in the present paper, and a basic result is determination of the conditions under which a linear Hamiltonian equation with quasi-periodic operator coefficients is almost stable. In this paper an almost stable equation is considered to be an equation which can be transformed by Lyapunov substitution into an equation differing from the stable equation by terms of as high an order of smallness as one might like.

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USSR

UDC 534.2

FOMIN, V. N.

"Mathematical Theory of Parametric Resonance in Linear Distributed Systems"

Matematicheskaya teoriya parametricheskogo rezonansa v lineynykh raspredelennykh sistemakh (cf. English above), Leningrad, "Leningrad University", 1972, 240 pp, ill., 1 r., 43 k. (from RZh-Fizika, No 1, Jan 73, Abstract No 1Zh440)

Translation: Contents: Introduction. Chapter 1. Linear equations with almost periodic coefficients in Banach space. Formulation of the problem of paramagnetic resonance. Chapter 2. Asymptotic method of integrating linear equations in Banach space. Chapter 3. Near-stability of Hamiltonian equations with quasiperiodic coefficients. Chapter 4. Construction of sets of considerable instability for equations with quasiperiodic coefficients. Chapter 5. Regions of considerable instability of distributed systems. 138 ref.

1/1

- 30 -

USSR

UDC 8.74

FOMIN, V. N.

"Algorithm for Finding Shortest Distance From Given Point to Convex Polyhedron and Its Application to Pattern Recognition Problem"

V sb. Metody vychisleniy (Computational Methods -- Collection of Works) vyp. 7, Leningrad, Leningrad University, 1971, pp 97-106 (from RZh-Matematika, No 5, May 72, Abstract No 5V563 by V. MIKHEYEV)

Translation: The author considers the following problem: What is required is to find the plane $Q = \{v; \theta\}$ in real Euclidean space R^n such that inequalities

$$\begin{aligned} [v, x] + \theta &> 0 \text{ if } x \in S_1, \\ [v, x] + \theta &< 0 \text{ if } x \in S_2, \end{aligned} \tag{1}$$

are satisfied. Here S_1 and S_2 are nonempty finite point sets, and square brackets denote the scalar product in R^n . The process of constructing plane Q is said to be "learning" of the recognition system. To find the solution to system of inequalities (1), the author assumes a method based on an algorithm for finding the distance from a given point to the boundary of a convex polyhedron. This algorithm is described in detail. A theorem about the convergence of the algorithm is proved. The choice of the initial supporting plane is justified.

1/1

USSR

FOMIN, V. N.

"Algorithm for Finding the Shortest Distance From a Given Point to a Convex Polyhedron, and Application of This Algorithm to the Problem of Pattern Recognition"

Leningrad, Metody Vychisleniy--Sbornik Statey, No 7, 1971, pp 97-106

Abstract: A number of problems in the theory of learning systems can be reformulated as the problem of finding a plane which separates the non-empty finite point sets S_1 and S_2 in real Euclidean space R^n . Mathematically, the problem is stated as follows: It is required to find the plane $Q = \{v, \theta\}$ in space R^n such that the inequalities

$$[v, x] + \theta > 0, \text{ if } x \in S_1,$$

$$[v, x] + \theta < 0, \text{ if } x \in S_2,$$

are satisfied, where the brackets indicate the scalar product

1/2

USSR

FOMIN, V. N., Metody Vychisleniy, No 7, 1971, pp 97-106

in R^n . The problem of finding the separating plane furthest from sets S_1 and S_2 consists in finding the solution of the system of inequalities

$$\begin{aligned} [v, x] + \theta &\geq \lambda \|v\|, & \text{if } x \in S_1, \\ [v, x] + \theta &\leq -\lambda \|v\|, & \text{if } x \in S_2, \end{aligned}$$

which corresponds to the greatest number λ ($\|v\|$ is the norm of vector v in R^n , $\|v\| = [v, v]^{1/2}$). A method is proposed for finding a solution for this system of inequalities which is based on an algorithm for finding the distance from a given point to the boundary of a convex polyhedron.

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- 82 -

USSR

UDC: 8.74

FOMIN, V. N.

"Algorithm for Finding the Shortest Distance From a Given Point to a Convex Polyhedron, and its Application to the Problem of Pattern Recognition"

V sb. Metody vychisleniy (Methods of Computations--Collection of works), vyp. 7, Leningrad, Leningrad University, 1971, pp 97-106 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V563)

Translation: The following problem is considered. It is required to find the plane $Q = \{v; \theta\}$ in real Euclidean space R^n such that the inequalities

$$\begin{aligned} [v, x] + \theta &> 0, & \text{if } x \in S_1, \\ [v, x] + \theta &< 0, & \text{if } x \in S_2, \end{aligned} \quad (1)$$

are satisfied, where S_1 and S_2 are non-empty finite point sets, and the brackets indicate the scalar product in R^n . The process of constructing plane Q is termed "instruction" of a recognition system. The authors propose a method of solving inequalities (1) based on an algorithm for finding the distance from a given point to the boundary of a convex polyhedron. This algorithm is described in detail. A theorem on convergence of the algorithm is proved. Selection of the initial reference plane is justified. V. Mikeyev.

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- 60 -

USSR

UDC: 3.74

POMIN, V. N.

"Stochastic Analogs of Finite-Convergent Algorithms for Construction of Recognition Systems"

V sb. Vychisl. tekhn. i vopr. kibernet. (Computer Technology and Problems of Cybernetics--collection of works), vyp. 6, Leningrad, Leningrad University, 1971, pp 68-87 (from RZh-Kibernetika, No 1, Jan 72, Abstract No IV1086)

Translation: The author considers the specific finite-convergent algorithms introduced by V. A. Yakubovich (sb. Vychisl. tekhn. i vopr. programmirovaniya, vyp. 4, LGU Press, 1965) in an outline of the general theoretical principles of design of adaptive recognition systems, and finds a solution for an infinite system of inequalities. A relation is established between finite-convergent algorithms and algorithms which almost certainly give a solution of the system of inequalities. A number of theorems are proved which confirm this assumption. Bibliography of fourteen titles. A. Doroshenko.

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1/2 042 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--EFFECT OF OXIDES ON THE STRENGTH OF WELDED COMBINATIONS OF AMG6
ALLOY PRESSURE VESSELS -U-
AUTHOR--(04)--LUKYANDV, V.F., MOISEYENKO, V.P., FOMIN, V.N., MOISEYENKO,
I.G.
CCUNTRY OF INFO--LSSR
SOURCE--MOSCOB, SVARCHENOYE PROIZVODSTVO, NO. 6, 1970, P 24
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
TOPIC TAGS--ALLOY WELDING, WELD DEFECT, ALUMINUM OXIDE, PRESSURE VESSEL,
OXIDE FILM/(U)AMG6 ALLOY, (U)UDR7 WELD TEST EQUIPMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FILM NO----FD70/605041/808 STEP NO--UR/0135/70/006/006/0024/0024
CIRC ACCESSION NO--APO142718

UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0142718

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HIGH AFFINITY OF ALUMINUM TO OXYGEN AND LOCAL CONCENTRATED HEATING BEFORE THE WELDING BATH RESULT IN FAVORABLE CONDITIONS FOR THE FORMATION OF OXIDE FILMS ON THE SURFACES TO BE WELDED. THESE FILMS ADVERSELY AFFECT THE STRENGTH OF THE WELD BUT THEIR EFFECT VARIES WITH A NUMBER OF FACTORS. THE PURPOSE OF THE AUTHORS IS TO DETERMINE THE EFFECT OF THE OXIDES ON THE WELD UNDER STATIC LOAD AND UNDER CONDITIONS OF BIAXIAL EXPANSION. TESTS WERE CONDUCTED ON THREE GROUPS OF SPECIMENS OF AMG6 ALLOY 3 MM THICK BY THE METHOD OF HYDROSTATIC BUCKLING IN A UDR 7 MACHINE. THE STRENGTH OF THE WELD WAS ESTIMATED FROM THE AMOUNT REAL TENSION ON THE METAL UNTIL THE WELD JOINT GIVES WAY. THE AUTHORS CONCLUDE THAT, IN WELDED COMBINATIONS OF VESSELS UNDER PRESSURE, THERE IS NO NEED FOR STRICT LIMITATIONS ON THE LENGTH OF THE SEAM SECTION WITH THE OXIDE, BUT THE DEPTH OF THE DEFECT SHOULD NOT EXCEED 15-20PERCENT OF THE METAL SEAM THICKNESS.

FACILITY: RISKHM, ROSTOV-ON-DON.

FACILITY: GKSKB

ENERGOMASHA, ROSTOV-ON-DON.

UNCLASSIFIED

FOMIN, V.S.

Moscow

RATIONALIZATION

J-600

123

Desire

Scientific Method Journal, No. 512 (21-07-76/1969)

197-1979

THE "RSP" DEVICE FOR TESTING THE PSYCHOPHYSIOLOGICAL CHARACTERISTICS OF THE OPERATOR OF A CONTROL SYSTEM

Genl. of Incl. Sec., Lieut.-Col. of the Res. Service, V. S. Fomin

An analysis of the work of traffic dispatchers (M. I. Danilov), operators of remote controls in technological processes (D. A. Chukhin, V. I. Yevlakh, V. G. Yeliseyev), operating personnel of electric power stations (E. N. Zhuravskiy, S. S. Gushchikov) and a number of others, has shown that control reactions are the principal factor in the work of the operator in most professions. This, of course, is also true of the production of airplane pilots, as operators of a control system. To investigate this factor as it applies in the case of pilots, we chose the principle of the imbalance compensation signal. The advantage of this principle has been confirmed by numerous authors (Feltov, Chernikov and Fylov, Linnov and Linnov, Shor, and others). G. Z. Gurlich and V. V. Kobzevskiy have shown that the quality of control actions in pilots generally, and in the control group under investigation in laboratory conditions, is the same.

The device we have designed and which is known conditionally as "RSP" (compensating controls, with acceleration), permits a study of the function of control reactions in three modes: steady, complex, and accelerated. The design of the device is shown in fig. 1. The imbalance signal is generated as the result of displacement in the direction of movement of the middle pin of potentiometer 3, produced by an eccentric disc mounted on the axis of the electric motor 2. If the subject reacts to the imbalance signal with the aid of the handle of potentiometer 4, then the voltage at 5 will be retained. As the imbalance increases, this voltage grows and, at a certain level (the threshold of response), activates the integrator computer of the motor 7. The aid of alarm 6, indicating an erroneous action on the part of the operator. The integrator uses the periods 6 kHz and 100 Hz with a frequency of the integrator relay connected between the two. The frequency of the oscillations of the integrator counter is proportional to the amplitude of the imbalance signal. In order to obtain the number of errors, the input signal is fed into a Schmitt trigger, assembled with the use of a double triode 8H17B and recorded by counter WPC-24 connected to its output.

Following are the specifications of the diagram.

- Amplifier: R₁ - R₂ - 500 ohm, variable; R₃ - 6 kilohm;
- R₄ - 100 kilohm; R₅ - 500 kilohm; R₆ - 750 ohm; R₇ - 51 kilohm;
- R₈ - 100 kilohm; R₉ - 100 kilohm; R₁₀ - 20 kilohm; R₁₁ - 2.5 kilohm;
- R₁₂ - 100 ohm; R₁₃ - 300 kilohm; R₁₄ - 100 kilohm; R₁₅ - 30 kilohm;
- R₁₆ - 820 ohm; R₁₇ - 300 ohm; R₁₈ - 1000 ohm; R₁₉ - 100 ohm;
- R₂₀ - 30 ohm; R₂₁ - 30 ohm; R₂₂ - 880 ohm; R₂₃ - 100 ohm; R₂₄ - 200 ohm;
- R₂₅ - 30 ohm; R₂₆ - 30 ohm; R₂₇ - 300 ohm; R₂₈ - 200 ohm;
- R₂₉ - 200 ohm; R₃₀ - 100 ohm; R₃₁ - 50 ohm; R₃₂ - 1000 ohm; R₃₃ - 10 ohm;
- R₃₄ - 200 ohm; R₃₅ - 10 kilohm; R₃₆ - 270 kilohm; R₃₇ - 10 ohm; R₃₈ - 10 ohm.

UNCLASSIFIED

PROCESSING DATE--17JUL79

TITLE--INVESTIGATION OF THE MECHANISMS OF SPATIAL ORIENTATION IN PILOTS

-U-

AUTHOR--FGMIN, V.S.

F

44
3
49

COUNTRY OF INFO--USSR

SOURCE--VCEANO-MEDITSINSKII ZHURNAL, JAN. 1970, P. 57-60

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AEROSPACE MEDICINE, VESTIBULAR FUNCTION, BIOLOGIC ACCELERATION EFFECT, ELECTROENCEPHALOGRAPHY, BLOOD PRESSURE, RESPIRATION, BIOELECTRIC PHENOMENA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1979/0633

STEP NO--UR/0177/70/000/000/0057/0060

CIRC ACCESSION NO--AP0047140

UNCLASSIFIED

Acc. Nr:
AP0047140

Abstracting Service:
INTERNAT. AEROSPACE ABST 5-76

Ref. Code:
UR 0177

A70-25180 # Investigation of the mechanisms of spatial orientation in pilots (Izuchenie mekhanizmov prostranstvennoi orientirovki letchika). V. S. Fomin. *Voenna-Meditsinskii Zhurnal*, Jan. 1970, p. 57-60, in Russian.

Simulation study of the mechanisms of spatial orientation of pilots during a total of 78 experiments on a group of 46 young healthy subjects with a high vestibular stability. The study is carried out in a specially designed apparatus which provides for accurate dosage of angular accelerations and velocities combined with optokinetic stimuli. Electroencephalograms, electrooculograms, arterial pressure, minute respiration volume, respiration rates and cutaneous electroconductivity are recorded during the experiments. A marked efficiency impairment is established in subjects exposed to alternating angular accelerations of 24 deg/sq sec for periods up to 20 min. Operational activity is found to be practically impossible when the vestibular and optokinetic stimuli are compounded, while the tracking ability is improved when the optokinetic stimuli interfere with the angular accelerations. V.Z.

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REEL/FRA
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1/2 039 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THE FUNCTION OF THE EXTERNAL RESPIRATION IN PROLONGED ACTION OF
LIMINAL ANGULAR ACCELERATIONS -U-
AUTHOR-(02)-FOMIN, V.S., MIGULINA, M.A.
COUNTRY OF INFO--USSR *F*
SOURCE--VESTNIK OTORINOLARINGOLOGII, 1970, NR 3, PP 84-89
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--RESPIRATION, BIOLOGIC ACCELERATION EFFECT, VESTIBULAR
APPARATUS, ANGULAR ACCELERATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/1249 STEP NO--UR/0607/70/000/003/0084/0089
CIRC ACCESSION NO--AP0107725
UNCLASSIFIED

2/2 039

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0107725

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONTINUOUS ACTION OF CONSTANT POSITIVE (UP TO 3 MINUTES) AND NEGATIVE (UP TO 3 MINUTES) ANGULAR ACCELERATIONS (3 PRIME0-SEC PRIME2) IN PERSONS WITH A HIGH VESTIBULAR STABILITY (ACCORDING TO DATA OF A MEDICAL FLIGHT COMMISSION) DURING THE FIRST SECONDS CAUSED A STATISTICALLY SIGNIFICANT ACCELERATION OF THE ACTIVITY OF THE FUNCTION OF EXTERNAL RESPIRATION (AN INCREASE OF THE VOLUME AND RATE OF INSPIRATION, FREQUENCY OF RESPIRATORY MOVEMENTS). A GRADUAL INCREASE OF THE DURATION OF ADEQUATE STIMULATION OF THE VESTIBULAR FUNCTIONS RESULTED IN A PROPORTIONAL RISE OF INDICES OF THE FUNCTION OF THE EXTERNAL RESPIRATION, ESPECIALLY OF THE MINUTE RESPIRATORY VOLUME. A MAXIMAL RISE OF THE MINUTE VOLUME (BY AN AVERAGE OF TWO TIMES) WAS NOTED AT THE END OF THE THIRD MINUTE OF ACTION OF NEGATIVE ANGULAR ACCELERATION. ATTENTION WAS DRAWN TO THE MARKED DISTURBANCE OF THE RHYTHM (REGULARITY) OF THE INSPIRATORY VOLUME AND RESPIRATORY MOVEMENTS AT THE END OF ACTION OF POSITIVE (AN AVERAGE OF 2 ONE HALF TIMES) AND, ESPECIALLY, NEGATIVE (AN AVERAGE OF 3 ONE HALF TIMES) ACCELERATIONS. CLOSING OF THE EYES WAS CONDUCTIVE TO A DISTINCT INTENSIFICATION OF THE FUNCTION OF THE EXTERNAL RESPIRATION IN THE PROCESS OF ROTATION IN COMPARISON WITH THE EFFECT IN OPEN EYES OF THE EXAMINEES.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--DYNAMICS OF SYSTOLIC PHASES UNDER THE ACTION OF HIGH TEMPERATURE
-U-
AUTHOR--(03)--MIGULINA, M.A., KALIBERDIN, G.V., FOMIN, V.S.
COUNTRY OF INFO--USSR
SOURCE--VOENNO-MEDITSINSKII ZHURNAL, FEB. 1970. 1970, P. 33-40
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MYOCARDIUM, HEART RATE, DIAGNOSTIC METHODS, BIOLOGIC THERMAL
EFFECT, TEMPERATURE CHAMBER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0929 STEP NO--UR/0177/70/000/000/0038/0040
CIRC ACCESSION NO--AP0109086

2/2 025

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109086

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE DYNAMICS OF SYSTOLIC PHASES IN A GROUP OF 8 HEALTHY MALE SUBJECTS CONFINED IN A THERMOCHAMBER EVERY THIRD DAY AT A TEMPERATURE OF 80 DEG C FOR 50 TO 70 MIN OVER A PERIOD OF TWO WEEKS, OR OVER A PERIOD OF 2 MONTHS WITH INTERMISSIONS OF 10 DAYS AND 1 HR DAILY EXPOSURES TO 50 DEG C DURING THE INTERMISSION PERIODS. AN ANALYSIS OF POLYGRAPHIC CARDIAC PHASE RECORDINGS INDICATES A SLACKENING OF THE SYSTOLIC ACTIVITY IN THE MYOCARDIUM OF THE SUBJECTS.

USSR

F UDC: 616.12-008.315-08:616.001.17

MIGULINA, M.A., KALIBERDIN, G.V., and FOMIN, V.S.

"Dynamics of the Phases of Myocardial Contraction Upon Exposure to High Temperatures"

Moscow, Voenno-Meditsinskiy Zhurnal, No 2, 1970, pp 38-40

Abstract: Exposure of eight males 22-24 years of age to 90°C for one hour every third day for two weeks produced distinct functional shifts in myocardial contractility - increased duration of the contraction period, shortening of the ejection period, decrease in mechanical systole and hemodynamic index. Repeated exposure to the same temperature at 2-10 day intervals for two months did not result in adaptation or compensation.

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1/3 062 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF OPTOKINETIC AND VESTIBULAR EXPOSURES ON RELIABILITY OF A
MAN OPERATOR IN SPACECRAFT CONTROL SYSTEMS, EFFECT OF OPTOKINETIC AND
AUTHOR--(03)-KIRILENKO, YU.I., FILOSOFOV, V.K., FOMIN, V.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KOSMICHESKIYE ISSLEDOVANIYA, VOL VIII, NO. 3, 1970, PP
476-478

DATE PUBLISHED-----70

SUBJECT AREAS--METHODS AND EQUIPMENT, BIOLOGICAL AND MEDICAL SCIENCES,
SPACE TECHNOLOGY
TOPIC TAGS--RELIABILITY, SPACECRAFT CONTROL, MAN, VESTIBULAR ANALYZER,
VISION, OPTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0489

STEP NO--UR/0293/70/008/003/0476/0478

CIRC ACCESSION NO--AP0132702

UNCLASSIFIED

2/3 062

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132702

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A LABORATORY STUDY WAS MADE TO DETERMINE THE CHARACTERISTICS OF RELIABILITY OF A HAN OPERATOR FOR INVESTIGATING THE DEGREE OF DECREASE IN THE PERFORMANCE OF AN OPERATOR INCLUDED IN A CONTROL SYSTEM DURING PROLONGED THRESHOLD AND SUPERTHRESHOLD STIMULI OF THE VESTIBULAR AND VISUAL ANALYZERS. AS THE ADEQUATE STIMULUS THE AUTHORS SELECTED AN ANGULAR ACCELERATION CREATED ON A SPECIAL ROTATING SEAT WITH HYDRAULIC DRIVE AND A PROGRAMMED CONTROL DEVICE. THERE WAS A CONSTANT ANGULAR ACCELERATION OF 24DEGREES-SEC²; ROTATION OF THE SEAT WAS TO THE RIGHT AND LEFT TO ANGULAR VELOCITIES OF 360DEGREES-SEC. THIS PROGRAM FOR ROTATION OF THE SEAT ENSURED APPEARANCE OF POSITIVE AND NEGATIVE ACCELERATIONS. THE TIME FOR ONE CYCLE OF GAINING AND LOSING ROTATION VELOCITY WAS 37 SEC. THE AVERAGE TIME OF ONE SEAT ROTATION WAS 2 1/2 SEC. OPTOKINETIC STIMULI WERE CREATED BY LIGHT BANDS MOVING ON A SCREEN WITH A VELOCITY OF 160 BANDS-MIN AND SITUATED AT THE SUBJECT'S EYE LEVEL. THE SYSTEM FOR CONTROL OF CHAIR ROTATION MADE IT POSSIBLE TO CHANGE THE PROGRAM FOR MODIFYING THESE STIMULI IN THREE REGIMES: EXPOSURE ONLY TO A VESTIBULAR STIMULUS (CONTROL REGIME); COPHASED EFFECT OF VESTIBULAR AND OPTOKINETIC STIMULI (SUMMATION REGIME); ANTIPHASE EFFECT OF STIMULI (INTERFERENCE REGIME). THE SUBJECTS WERE MALES AGES 21-23. IT WAS ESTABLISHED THAT DURING PROLONGED OPTOKINETIC AND VESTIBULAR EXPOSURES, CLOSE TO THRESHOLD, THE DISTRIBUTION LAW FOR OPERATORS CONFORMS TO A TRUNCATED NORMAL LAW. THE RELIABILITY OF AN OPERATOR'S PERFORMANCE IN THE REGIME OF SUMMATION OF STIMULI IS CONSIDERABLE LOWER THAN IN A CONTROL REGIME AND IN AN INTERFERENCE REGIME.

UNCLASSIFIED

3/3 062

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132702

ABSTRACT/EXTRACT--ACCORDINGLY, IF THE ALGEBRAIC SUM OF EXTERNAL STIMULI IS CHANGED, IT IS POSSIBLE TO INCREASE OR REDUCE THE RELIABILITY OF THE OPERATORS. THE EFFECT OF OPTOKINETIC AND VESTIBULAR FACTORS IS REFLECTED IN THE QUALITY OF SURVEILLANCE. FOR EXAMPLE, IN A SUMMATION REGIME, DESPITE INDIVIDUAL PECULIARITIES IN THE REACTION OF EACH OPERATOR TO EXPOSURE TO STIMULI, THE QUALITY OF SURVEILLANCE IS POORER THAN IN OTHER REGIMES. IT WAS POSSIBLE TO DETERMINE THE LAW OF DISTRIBUTION OF THE TIME OF RESTORATION OF OPERATOR WORK CAPACITY. THIS RESTORATION CONFORMS TO THE LAW SHOWN ON MICROFICHE. HERE T IS THE TIME CONSTANT OF RESTORATION OF OPERATOR PERFORMANCE. THE RESTORATION OF PERFORMANCE OF OPERATORS AFTER EXPOSURE TO STIMULI IN A SUMMATION REGIME TRANSPIRES CONSIDERABLE MORE SLOWLY THAN IN OTHER REGIMES. IT WAS ESTABLISHED IN EXPERIMENTS THAT THE RESTORATION TIME CONSTANTS HAVE THE FOLLOWING VALUES: SUMMATION REGIME, 1.25 SEC; CONTROL REGIME, 1.10 SEC, INTERFERENCE REGIME.

UNCLASSIFIED

Aerospace Medicine

F
USSR

UDC 612.586

FOMIN, V. S. Lt-Col, Med Serv, and Candidate of Medical Sciences

"Study of the Mechanisms of a Pilot's Spatial Orientation"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 1, 1970, pp 57-60

Abstract: A specially designed rotating device permitting a wide range of strictly assigned angular accelerations and speeds, with simultaneous optokinetic stimuli was used to determine the mechanisms which disturb a pilot's spatial orientation during protracted rotation. The effect of rotation on the work capacity of the pilot was also studied. Prolonged rotation was conducted with an angular acceleration of 24 degrees a second and a velocity of 1.0 revolutions a second, and inhibition to zero on one side and then on the other side, and so on. Optokinetic stimulation was produced by the movement of light bands on a screen at a rate of 160 bands a minute. Four series of studies were carried out: 1) a regime of summation, in which the vestibular and optokinetic stimuli had the same direction as rotation; 2) a regime of interference, in which the direction of the stimuli was opposite to the direction of rotation; 3) a regime of alternating summation and interference of stimuli; and 1/3

USSR

FOMIN, V. S., et al., Moscow, Voenno-Meditsinskiy Zhurnal, No 1, 1970, pp 57-60

4) a control regime, without optokinetic stimuli. The rotating action was continued until nausea or vomiting developed, but no longer than 20 minutes if no sense of discomfort appeared. During acceleration the following indices were recorded: electroencephalogram of the right side from the front to the occiput, electrooculogram (by the fixation of electrodes in the outer corners of the eyes), electrocardiogram, respiration, arterial pressure, and electric skin conductivity. Work capacity was estimated on the basis of compensatory reactions, and the number of errors within a 30 second period. A total of 78 experiments were conducted with 46 people aged 21-23 years with high vestibular tolerance and a state of health permitting flying. The investigations established that rotation with the above-indicated angular accelerations markedly reduces the work capacity of the operators. The degree of disturbance was manifested mainly by pronounced nystagmus and spatial illusions. Changes in the autonomic reactions point to an elevation in the tonus of the sympathetic nervous system, increasing under the summation regime and diminishing during the interference

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USSR

FOMIN, V. S., et al., Moscow, Voenno-Meditsinskiy Zhurnal, No 1, 1970, pp 57-60

regime. Selected regimes of complex stimulation of the vestibular, optical and motor analysors, strict adherence to specified actions, and recording of the parameters of the operator's activities and physiological reactions may make it possible to study the interaction of afferent systems spatial orientation, and aid in the development psychophysiological training methods for pilots.

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USSR

UDC: 535.2/.3

LIZENGEVICH, A. I., FOMIN, V. V.

"Peculiarities of Formation of the Contour of the Limbs of Spectral Lines in the Case of Self-Broadening"

Leningrad, Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 484-489

Abstract: A previously proposed method (S. D. Tvorogov, V. V. Fomin, Opt. i Spekr., 30, 413, 1971) is used to investigate the contour of the limbs of spectral lines in the case of self-broadening. It is assumed that the principal contribution to formation of the contour of the limbs of the line is made by resonance phenomena accompanying the interaction of molecules, so that the molecules can be treated as two-level systems. The solution is based on generally accepted assumptions for problems of this kind: collisions are adiabatic and binary, intermolecular forces of repulsion are disregarded. It is found that two types of distributions are possible in both the high-frequency and low-frequency limbs of the spectral lines, depending on the intramolecular parameters: distribution close to statistical, and exponential distribution. The exponential distribution in the low-frequency limb may take two forms.

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- 59 -

1/3 036 UNCLASSIFIED PROCESSING DATE--3006770
TITLE--INVESTIGATION OF THE HYDRAULIC EROSION RESISTANCE OF HIGH STRENGTH
CHROME MANGANESE SILICON STEELS -U-
AUTHOR--(05)--CHELYSHEVA, A.A., PROKOSHKIN, D.A., RAKHSHTADT, A.G.,
GUREVICH, YA.B., FOMIN, V.V.
COUNTRY OF INFO--USSR

SOURCE--MGSCOW, IZVESTIYA VYSSHIKH UCHEBNIKH ZAVEDENIY, MASHINOSTROYENIYE,
NO. 1, 1970, PP 117-122
DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHROMIUM MANGANESE STEEL, SILICON STEEL, STEEL HEAT TREATMENT,
STEEL HARDENING, CAVITATION/(U)50KH3G6S HIGH ALLOY STEEL, (U)40KH3G6S
STEEL, (U)25KH1468T STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0028

STEP NO--UR/0145/70/000/001/0117/0122

CIRC ACCESSION NO--AT0123820

UNCLASSIFIED

2/3 036

UNCLASSIFIED

PROCESSING DATE—30CCT70

CIRC ACCESSION NO—AT0123820

ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. THE EFFECTS OF HEAT TREATMENT AND THERMOMECHANICAL WORKING OF HIGH ALLOY CHROME MANGANISE SILICON STEELS (40KH3G6S AND 50KH3G6S) ON THE HYDRAULIC EROSION RESISTANCE OF THE STEELS IS EXAMINED, USING TWO TEST MELTS CONTAINING 0.38PERCENT C, 1.5PERCENT SI, 6.3PERCENT MN, 3.0PERCENT CR, 0.015PERCENT S, AND 0.001PERCENT P IN ONE MELT AND 0.50PERCENT C, 1.5PERCENT SI, 6.3PERCENT MN, 3.0PERCENT CR, 0.013PERCENT S, AND 0.004PERCENT P IN THE OTHER. CLEANED 40 KG INGOTS WERE FORGED AND HOT ROLLED INTO 20 TIMES 14 MM SHEET BILLETS, 7 MM THICK. HIGH TEMPERATURE THERMOMECHANICAL WORKING WAS PERFORMED AT 900DEGREESC WITH A 50PERCENT REDUCTION IN ONE ROLL PASS AND SUBSEQUENT HARDENING IN OIL AND AUSTENIZING IN 30 MINUTES. LOW TEMPERATURE THERMOMECHANICAL WORKING WAS PERFORMED AFTER A 30 MINUTE HOLD AT 900DEGREESC FOLLOWED BY FURNACE COOLING TO 500DEGREESC AND 2, 4 ROLL PASSES FOR A TOTAL REDUCTION OF 70-75PERCENT. FOLLOWING HARDENING AND WORKING, A NUMBER OF THE BLANKS WERE COLD WORKED AT MINUS 20DEGREESC, MINUS 35DEGREESC, AND MINUS 196DEGREESC TO OBTAIN A DIFFERENT AMOUNT OF MARTENSITE AND RESIDUAL AUSTENITE. SAMPLES OF THE ABOVE WERE SUBJECTED TO A 100 M-SEC WATER JET FROM A 5 MM NOZZLE. IT IS CONCLUDED THAT COLD WORKING, CAUSING TRANSFORMATION OF RESIDUAL AUSTENITE INTO MARTENSITE INCREASES THE YIELD POINT OF 40KH3G6S STEEL FROM 67 KG-MM PRIME2 TO 140 KG-MM PRIME2 AFTER HARDENING, WITH A SLIGHT INCREASE IN ULTIMATE STRENGTH. HYDRAULIC EROSION TESTS WITH THE TWO STEELS SHOWED THAT THEY HAVE GREATER RESISTANCE TO JET IMPINGEMENT EROSION THAN 25KH14G8T CAVITATION RESISTANT STEEL.

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0123820

ABSTRACT/EXTRACT--A NUMBER OF OTHER CONCLUSIONS REGARDING THESE STEELS ARE GIVEN, AND THE HIGH AND LOW TEMPERATURE WORKING PROCEDURES DESCRIBED IN THE ARTICLE ARE RECOMMENDED FOR PRODUCING STEELS FOR OPERATION UNDER SEVERE CAVITATION CONDITIONS WHERE THE CORROSION FACTOR IS OF LESSER IMPORTANCE.

FACILITY: MOSCOW HIGHER TECHNICAL SCHOOL IMENI N.

E. BAUMAN.

UNCLASSIFIED

USSR

UDC 546.791.6'21'131-386

FOMIN, V. V., LIPIS, L. V., AVERBAKH, L. I., MAYOROVA, Ye. P., and LEMAN, G. A.

"Uranyl Chloride Solvation With Tributylphosphate"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 3, Mar 71, pp 772-775

Abstract: A study of the system UO_2Cl_2 -tributylphosphate (TBP) was carried out, concentrating on the effect of the solvent. The system was studied by the cryoscopical method, the distribution method, and spectroscopically. Extraction of UO_2Cl_2 with the mixture of TBP and CCl_4 + dichloroethane or heptane gave a pure compound $UO_2Cl_2 \cdot 2TBP$, supporting the contention that disolvates form under conditions studied. The spectrum of $UO_2Cl_2 \cdot 2TBP$ depended strongly on the solvent used in spectral analysis, but there were no indications that solvates other than the disolvate were formed. Cryoscopical determinations showed that only the disolvates exist in the system $UO_2Cl_2 - 2TBP - TBP$.

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USSR

UDC: 621.791.756

YUSHCHENKO, K.A., PONIZOVITSEV, A.M., FOMIN, V.V., POBOL', A.A., and SERDYUK, M.A.

"Increase in Electroslag Welding Efficiency"

Kiev, Avtomaticheskaya Svarka, No 5, May 70, pp 72-73

Abstract: A technique was described for increasing electroslag welding efficiency. Experiments were conducted on an A-535 commercial device with a modified neck. The electrode was preheated from a self-contained DC source. Heating was regulated by changing the current value of the source by lowering or increasing the resistance between the contacts of this current supply. The best results were attained by heating the wire to a temperature close to the melting point. In the experiments, 3-mm-diameter 06Kh19N9T welding wire and ANF-14 flux were used to weld plates made of Kh18N10T and Kh17N13M3T steels. The following advantages were established for electroslag welding with preheated electrode: the time for the transition from the arc process to the slag process is shortened considerably; the electrode wire melts in the upper part of the slag bath, even at a high feed rate; the volume of the slag bath can be decreased sharply without disturbing the stability of the process and worsening the seam-forming conditions; welding current can be reduced by 25-30%; and welding efficiency rises 1.5-2.0 times. Mechanical tests of the seam metal showed its high quality. A considerable rise can be expected in electroslag process efficiency upon complementary preheating of the electrode in arc

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USSR

YUSHCHENKO, K.A., et al, Avtomaticheskaya Svarka, No 5, May 70, pp 72-73

welding with forced forming under flux or in shielding gas, in welding with wire made of powdered material, and in electroslog or arc plasma remelting.

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USSR

UDC 621.375.4(088.8)

F
FOMIN, V. V.

"Bridge Amplifier"

USSR Author's Certificate No 251625, Filed 19 Jan 68, Published 2 Feb 70 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8 D98 P)

Translation: This author's certificate introduces a controlled power supply circuit for a powerful-two-cycle sonic frequency amplifier with transformers at the input and output. The power supply contains a series-connected switching cascade, trigger and comparison circuit. The base of the transistor in the comparison circuit (n-p-n) is connected via a semiconductor diode to the end outputs of the primary winding of the input transformer, and the emitter is connected via a resistor to the emitters of a transistor of the two-cycle cascade (p-n-p). One of the end outputs of the primary winding is connected to the collector of the transistor of the amplifier input cascade (p-n-p), and its midpoint is connected to the negative power supply.

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- 7 -

USSR

UDC 519.21

LEVIN, B. R., and FOMIN, YA. A.

"Stochastic Characteristics of Rejections of Random Processes"

Nelineyn. i optimal'n sistemy - Sbornik (Nonlinear and Optimal Systems - Collection of Works), Moscow, "Nauka," 1971, pp 381-392 (from Referativnyy Zhurnal - Matematika, No 8, Aug 71, Abstract No 8V141)

Translation: Several new results of the theory of rejections of random processes are presented. An exact expression was derived for the probability density of the time of the first attainment of a given level by a continuous non-Markovian process. Distributions of the duration of rejections and the time for first achievement of a given level were found for random sequences with restrictions on statistical relations, as well as the mean value and dispersion of these distributions. Approximation methods were also formulated. An approximate expression was found for the probability density of rejection duration in explicit form. Distributions of the duration of rejections of the envelope of the signal-and-noise total were found.

Based on an approximation of a random process by a sequence of random variables, approximation distributions were found for the duration of rejections of a steady Galssian process and its envelope and the distribution of time
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USSR

LEVIN, B. R., and FOMIN, YA. A., Nelineyn. i optimal' n. sistemy - Sbornik, Moscow, "Nauka," 1971, pp 381-392

for the first attainment of a given level by this process. Theoretical results agree satisfactorily with experimental findings. Author's abstract.

2/2

- 59 -

USSR

UDC 621.391

FOMIN, Ya. A. F

"Distribution of Intervals Between Boundary Intersections of a Given Region"

Kiev, Izvestiya Vuzov SSSR-Radioelektronika, Vol 13, No 2, 1970, pp 268-273

Abstract: An important factor in electronics is the probability characteristics of the time intervals between overshoots of a stationary process beyond the limits of a given region of values. This paper finds an approximate expression for these characteristics based on the method of time discretization of the stationary random process specified by the n-dimensional integral function of the distribution of the region and time values. Expressions are also found for the dispersion and distribution function of the intervals between crossings of the region limits by the process. In the calculations, use is made of the unidimensional and two-dimensional distribution function of the process envelope with an average of zero and a dispersion of unity. The computation of the single-connected approximation of the time interval distribution is done for the envelope of a narrow-band stationary normal random process with a correlation coefficient in the form of a Gaussian curve $1/2$

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FOMIN, Ya. A., Izvestiya Vuzov SSSR-Radioelektronika, Vol 13, No 2, 1970,
pp 268-273

with time discretization of the distributions. Curves are given for various values of the upper limit of the region with the lower region constant, and for various values of the lower region with the upper region constant.

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1/2 . 007 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--DISTRIBUTION OF INTERVALS BETWEEN BOUNDARY INTERSECTIONS OF A GIVEN
REGION -U-
AUTHOR--FGMIN, YA.A. F
COUNTRY OF INFO--USSR
SOURCE--KIEV, IZVESTIYA VUZOV SSSR RADIOELEKTRONIKA, VOL 13, NO 2, 1970,
PP 268-273
DATE PUBLISHED-----70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--PROBABILITY, TIME, RANDOM PROCESS, INTEGRAL FUNCTION,
DISTRIBUTION FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1452

STEP NO--UR/0452/70/013/002/0268/0273

CIRC ACCESSION NO--AP0110944

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0110944

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN IMPORTANT FACTOR IN ELECTRONICS IS THE PROBABILITY CHARACTERISTICS OF THE TIME INTERVALS BETWEEN OVERSHOTS OF A STATIONARY PROCESS BEYOND THE LIMITS OF A GIVEN REGION OF VALUES. THIS PAPER FINDS AN APPROXIMATE EXPRESSION FOR THESE CHARACTERISTICS BASED ON THE METHOD OF TIME DISCRETIZATION OF THE STATIONARY RANDOM PROCESS SPECIFIED BY THE N DIMENSIONAL INTEGRAL FUNCTION OF THE DISTRIBUTION OF THE REGION AND TIME VALUES. EXPRESSIONS ARE ALSO FOUND FOR THE DISPERSION AND DISTRIBUTION FUNCTION OF THE INTERVALS BETWEEN CROSSINGS OF THE REGION LIMITS BY THE PROCESS. IN THE CALCULATIONS, USE IS MADE OF THE UNIDIMENSIONAL AND TWO DIMENSIONAL DISTRIBUTION FUNCTION OF THE PROCESS ENVELOPE WITH AN AVERAGE OF ZERO AND A DISPERSION OF UNITY. THE COMPUTATION OF THE SINGLE CONNECTED APPROXIMATION OF THE TIME INTERVAL DISTRIBUTION IS DONE FOR THE ENVELOPE OF A NARROW BAND STATIONARY NORMAL RANDOM PROCESS WITH A CORRELATION COEFFICIENT IN THE FORM OF A GAUSSIAN CURVE WITH TIME DISCRETIZATION OF THE DISTRIBUTIONS. CURVES ARE GIVEN FOR VARIOUS VALUES OF THE UPPER LIMIT OF THE REGION WITH THE LOWER REGION CONSTANT, AND FOR VARIOUS VALUES OF THE LOWER REGION WITH THE UPPER REGION CONSTANT.

UNCLASSIFIED

USSR

FOMIN, YU. A. and KHRISTIANSEN, G. B., Institute of Nuclear Physics of Moscow State University

"Shape of the Čerenkov Radiation Impulse of an Extended Atmospheric Shower"

Moscow, Yadernaya Fizika, Vol 14, No 3, 1971, pp 642-646

Abstract: Calculation of the duration of an impulse of Čerenkov radiation from an extended atmospheric shower (e. a. s.) is discussed. If the time t is recorded from the instant of intersection of the plane of observation by the e. a. s. axis, then the arrival time of the Čerenkov light at the level of observation at the point A, at a distance r from the shower axis, will be defined by the expression

$$t = \frac{n}{c} \sqrt{h^2 + r^2} - \frac{h}{c}, \quad (1)$$

where n is the index of refraction of light in air. To calculate the shape of the Čerenkov impulse at point A, one must know the values of the densities of the Čerenkov light shower at the point A arriving from different altitudes H . The e. a. s. was generated by a primary particle with an energy of 10^{17} ev. An expression was derived for the total number of quanta of Čerenkov light arriving from altitude H corresponding to pressure x in the solid angle d

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USSR

FOMIN, YU. A. and KRISTIANSEN, G. B., Yadernaya Fizika, Vol 14, No 3, 1971, pp 642-646

$$\Phi(x, \vartheta, E) dx d\Omega = \int_{E_{\text{nop}}(x)}^{E_0} N(E_0, x) W(E_0, E, x) f(\vartheta, E) a(E, x) \times \\ \times \sin \vartheta d\vartheta d\varphi dx dE; \quad (2)$$

where $N(E_0, x)$ is the number of electrons at the level x in the shower from a particle with primary energy E_0 , $W(E_0, E, x)$ is the spectrum of secondary electrons, $f(\vartheta, E)$ is the angular distribution of electrons, and $a(E, x)$ is the number of quanta of Čerenkov light emitted by an electron with energy E per unit path length. To obtain the number of electrons in the shower at sea level, the cascade curves $N(E_0, x)$ from a primary proton with energy $E_0 = 10^{17}$ ev were calculated. To obtain the shape of the Čerenkov impulse at a given distance r , in expression (2) a conversion must be made from the variables ϑ and x to the variables t and r , using equation (1) to do this. Also considered were fluctuations in the shape of the Čerenkov impulse caused by fluctuations in the cascade curve. An array of 100 individual cascade curves formed by a primary proton with energy $E_0 = 10^{17}$ ev was calculated. It was found that the

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USSR

FOMIN, YU. A. and KHRISTIANSEN, G. B., Yadernaya Fizika, Vol 14, No 3, 1971, pp 642-646

shape of the Čerenkov impulse depends on the kind of cascade curve employed. Thus this provides information on the energy of the primary particle. The density of the flux of Čerenkov light as a function of time was plotted for three distances from the shower axis: 500, 1000, and 2000 m.

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USSR

UDC: 621.375.8:621.317.17

FOMIN, Yu. M.

"Method of 'Cold' Parametric Amplifier Measurements"

Tr. NII radio (Transactions of the Scientific Research Institute of Radio) 1970, No. 1, pp 83-88 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D349)

Translation: A method of measuring the resistance of a signal generator converted into the signal circuit of a regenerative parametric amplifier is explained. Resume

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Publications

UDC 619:616.988-07

.USSR

SYURIN, V. N., IVANOVA, G. A., KRASNOBAYEV, Ye. A., and FOMIN, Yu. V.

Laboratornaya diagnostika virusnykh bolezney zhivotnykh (Laboratory Diagnosis of Virus Diseases of Animals), Moscow, Kolos, 1972, 416 pp w/ill.

Annotation

Employing the latest advances by Soviet and foreign scientists the authors of the present book summarize the existing data on the diagnosis of virus diseases of animals.

In the description of a given disease a brief description of the agent is presented. Only those data that are essential for the identification of a virus and for the establishment of its etiological role in the onset of a disease are given.

The methods of taking, preparing and storing materials and the methods of growing viruses in large developing embryos, in primary and subinoculated cultures of cells from various animal tissues and organs, etc., are described in considerable detail.

Basic attention is devoted to the executing and reading of diagnostic reactions (complement fixation reaction, neutralization reaction, agglutination inhibition reaction, etc.) and to the description of a method for conducting biological tests of receptive laboratory animals.

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USSR

SYURIN, V. N., et al., *Laboratornaya diagnostika virusnykh bolezney zhyvotnykh*, 1972, 416 pp w/ill.

The book also contains both common, widespread diseases of farm animals as well as little-studied, so-called "exotic" diseases characteristic of animals on the African continent, the introduction of which to our country is not excluded as a result of the ever-developing trade and transport relations.

Contents

| | |
|---|-----|
| Foreword... | 3 |
| Foot and Mouth Disease (V. N. Syurin and Yu. V. Fomin)... | 5 |
| Rabies (V. N. Syurin and Yu. V. Fomin)... | 54 |
| Vesicular stomatitis (Ye. A. Krasnobayev)... | 70 |
| Pseudorabies (Ye. A. Krasnobayev)... | 81 |
| Rinderpest (G. A. Ivanova and V. N. Syurin)... | 91 |
| Infectious Bovine Rhinotracheitis (G. A. Ivanova and Yu. F. Fomin)... | 101 |
| Viral Diarrhea of Cattle (Ye. A. Krasnobayev)... | 107 |
| Bovine Parainfluenza (V. N. Syurin)... | 118 |
| Bovine Adenovirus Infection (V. N. Syurin)... | 131 |
| African Horse Sickness (V. N. Syurin and Yu. V. Fomin)... | 152 |
| Rhinopneumonitis Equorum (Ye. A. Krasnobayev)... | 164 |
| Influenza Equorum (G. A. Ivanova)... | 175 |

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USSR

SYURIN, V. N., et al., Laboratornaya diagnostika virusnykh bolezney zhivotnykh, 1972, 416 pp w/ill.

| | |
|---|-----|
| Horse Pox (V. N. Syurin)... | 179 |
| Camel Pox (V. N. Syurin)... | 181 |
| Hog Cholera (Yu. V. Fomin and V. N. Syurin)... | 184 |
| African Swine Fever (V. N. Syurin)... | 194 |
| Teschen's Disease (Ye. A. Krasnobayev)... | 206 |
| Infectious Gastroenteritis of Swine (Ye. A. Krasnobayev)... | 223 |
| Myxovirus Influenza. A/Suis (G. A. Ivanova)... | 239 |
| Enzootic Pneumonia of Swine (V. N. Syurin)... | 258 |
| Catarrhal Fever of Sheep (V. N. Syurin)... | 266 |
| Rift Valley Fever (Ye. A. Krasnobayev)... | 275 |
| Nairobi Disease (Ye. A. Krasnobayev)... | 284 |
| Contagious Pustular Dermatitis of Sheep and Goats (V. N. Syurin)... | 287 |
| Enzootic Abortion in Ewes (Yu. V. Fomin and V. N. Syurin)... | 297 |
| Sheep and Goat Pox (V. N. Syurin and Yu. V. Fomin)... | 313 |
| Infectious Hepatitis in Dogs (V. N. Syurin)... | 319 |
| Newcastle Disease (G. A. Ivanova)... | 328 |
| Influenza A/Galli (V. N. Syurin and G. A. Ivanova)... | 337 |
| Influenza A/Fowl Plague/Duck. 1929 (G. A. Ivanova)... | 340 |

3/4

USSR

SYURIN, V. N., et al., Laboratornaya diagnostika virusnykh bolezney zhivotnykh, 1972, 416 pp w/ ill.

| | |
|---|-----|
| Influenza A. Anatis (G. A. Ivanova)... | 352 |
| Infectious Tracheolaryngitis in Chickens (V. N. Syurin)... | 357 |
| Infectious Bronchitis in Chickens (V. N. Syurin)... | 364 |
| Viral Hepatitis in Ducklings (V. N. Syurin and Yu. V. Fomin)... | 379 |
| Leukosis in Poultry (V. N. Syurin and G. A. Ivanova)... | 383 |
| Marek's Disease (G. A. Ivanova and V. N. Syurin)... | 404 |
| Fowl Plague (G. A. Ivanova and V. N. Syurin)... | 409 |

4/4

- 91 -

USSR

UDC 616.988.25-092.9-085.37:576.858.095.383

LEONT'YEVA, N. A., FOMINA, A. N., IDRISOVA, Z. V., SHUHLADZE, A. K., and
GALEGOV, G. A., Institute of Virology imeni D. I. Ivanovskiy, Academy of
Medical Sciences USSR, Moscow

"Combined Use of Interferon and Some Styrylquinolines in Cell Culture and in
Experimental Arbovirus Infection"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 72, pp 482-485

Abstract: The synergistic prophylactic and therapeutic effects of interferon
and styrylquinolines were studied in chick embryo fibroblast cultures and white
mice infected with Venezuelan equine encephalomyelitis (VEE) and Western equine
encephalomyelitis (WEE) viruses. The following compounds were employed:
hydrate of 2-(4¹-bromostyryl)-4-(delta-diethylamino-alpha-methylbutylamino)-7-
chloroquinoline triphosphate (R-29P), 2-(3¹-methoxy-4¹-hydroxystyryl)-4-(delta-
diethylamino-alpha-methylbutylamino)-6-methoxyquinoline triphosphate (R-43P),
and 2-(3¹-methoxy-4¹-hydroxystyryl)-4-(delta-ethylamino-alpha-methylbutylamino)-
7-chloroquinoline triphosphate (R-42P). In cell culture these compounds reduced
infectious titers of VEE and WEE virus by 2 and 2.6 lg respectively. When used
in combination with interferon, these compounds reduced the titers by 6.6 and
7.5 lg respectively. R-42P was the most effective. When used on white mice
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- 14 -

USSR

LEONT'YEVA, N. A., et al., Voprosy Virusologii, No 4, Jul/Aug 72, pp 482-485

infected with WEE virus, R-42P administered twice at 9 mg/ml to animals with 0.03 ml 10 LD₅₀ (minimum dosage) resulted in the highest survival rate (35%). Combined 2-time administrations of interferon prior to WEE infection and R-42P after infection resulted in enhancement of the protective antiviral effect and prevented development of disease in 60-75% of the animals. Thus interferon and styrylquinolines act synergistically in response to arbovirus infection, indicating that their combined use may be effective in preventing and treating such infections.

2/2

FOMINA, I. A.

lunar geology

PROBLEMS OF LUNAR GEOLOGY

Edited by A. V. Pelyve

Translation of "Problemy Geologii Lunny,"
"Pitva" Press, Moscow, 1969

NASA TT F-689

13

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

January 1973

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SCIENTIFIC SEAS OF THE MOON

A. L. SUBBOTINOV

ABSTRACT. Research on lunar maria performed by American and Russian scientists is discussed. The discussion begins with the analysis of J. E. Spurr in 1948.

FEATURES OF LAVA-SHEET FORMATION ON THE MOON

AC A. M. Gaidin, AC Ye. M. Kopylov, AC H. V. Slonimskaya,
AC M. N. G. Sukhin, and AC V. A. Ponomarev

ABSTRACT. Observations of volcanic activity on the moon are discussed. The heat losses experienced by the lava due to radiation, convection and other processes are analyzed. Other problems analyzed include hardening of the lava, bubble rising in the melt, and other physical phenomena.

1/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--EXPERIMENTAL STUDIES ON ANTITUMOR ACTIVITY OF POLYMYCIN -U-
AUTHOR--(03)-TERENTYEVA, T.G., ~~FOMINA, I.B.~~ NAVASHIN, S.M.
COUNTRY OF INFO--USSR
SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 5, PP 442-447
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ANTITUMOR DRUG EFFECT, ANTIBIOTIC, CARCINOMA, SARCOMA,
LYMPHATIC SYSTEM, MOUSE, TUMOR/(U)POLYMYCIN ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/1131 STEP NO--UR/0297/70/015/005/0442/0447
CIRC ACCESSION NO--AP0115150
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115150

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA ON THE EXPERIMENTAL STUDY OF ANTITUMOR ACTIVITY OF POLYMYCIN, AN ANTIBIOTIC FROM THE STREPTOTHRICIN GROUP ARE PRESENTED. PRELIMINARY STUDIES ON TOXICITY OF POLYMYCIN AND REVERSIBILITY OF ITS TOXIC EFFECT FOR 24 HOURS WERE CARRIED OUT. IN EXPERIMENTS ON ANIMALS THE HIGHEST ACTIVITY LEVELS OF POLYMYCIN WERE SHOWN WITH RESPECT TO WALKER CARCINOMA AND SARCOMA 45 ON RATS. THE ANTIBIOTIC HAD A MODERATE INHIBITORY EFFECT ON SOLID FORMS OF SARCOMA 180. ASCITIC FORMS OF SARCOMA 180 AND LYMPHADENOSIS NK-LY WERE MOST SENSITIVE TO POLYMYCIN (INHIBITION OF THE ASCITE DEVELOPMENT WITHIN 50 TO 60 PER CENT) AMONG THE MOUSE TUMOURS. FACILITY: NATIONAL INSTITUTE FOR ANTIBIOTICS, MOSCOW.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70
 TITLE--RECOVERY OF ENERGY DURING CATALYSIS ON ADSORPTION CATALYSTS. II.
 SPECIFIC ACTIVITY -U-
 AUTHOR--(04)-FCMINA, A.P., SHEKHUBALOVA, V.I., POSPELOVA, T.A., KOBOZEV,
 N.I.
 COUNTRY OF INFO--USSR
 SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 366-9
 DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PLATINUM, CATALYSIS, CATALYTIC DECOMPOSITION, HYDROGEN PEROXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3002/1187

STEP NO--UR/0076/70/044/002/0366/0369

CIRC ACCESSION NO--AP0128605

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128605

ABSTRACT/EXTRACT--(U) GP-Q- ABSTRACT. CURVES OF SP. ACTIVITY FOR 2 SERIES OF ADSORPTIONAL PT CATALYSTS FOR THE DECOMP. OF H SUB2 O SUB2 WERE ANALYZED. THE CATALYSTS WERE PT-SIO SUB2 WITH SURFACE AREA 180 OR 375 M PRIME2-G. THE CURVES SHOWED AN INCREASE OF SP. ACTIVITY AT HIGHER CONCNS. OF PEROXIDE. RESULTS INDICATED THE PRESENCE OF 2 TYPES OF ACTIVE CENTERS DURING THE REACTION: (PT SUB1) TYPICAL FOR CATALYTIC PROCESS, AND (PT SUB2) MORE COMPLEX AND WHICH PLAYS A BASIC ROLE IN THE EFFECT OF THE RECOVERY (OR RECUPERATION) OF ENERGY IN THE H SUB2 O SUB2 CATALYSIS. THE PARABOLIC SHAPE OF THE ACTIVITY CURVES, I.E., INCREASE HIGHER ISOTHERMIC ENERGY EVOLUTION ACTIVATION AS A RESULT OF HIGHER H SUB2 O SUB2 CONCNS., EVIDENCED A HIGH ENERGETIC ACTIVATION OF PT CENTERS ON THE CARRIER AS THE PT CENTERS DREW CLOSER. THUS, THE ENERGY LIBERATED IN EXOTHERMIC REACTION IS, APPARENTLY, PARTIALLY RECOVERED AND UTILIZED TO INCREASE THE YIELD PRODUCED BY ACTIVE CENTERS. THE RESULTS, THEREFORE, APPEAR CONSISTENT WITH THE THEORY OF ENERGY RECUPERATION INCATALYSIS, DEVELOPED BY V. V. MAZHUGA (1967). FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr.

AP0045149

Abstracting Service:

CHEMICAL ABST.

F 5-76

Ref. Code

UR0138

91294z Effect of the type of vulcanizing agent on the resistance of vulcanized butyl rubber to acetic acid. Kagan, E. R.; Fomina, A. S.; Kokman, F. S. (Sverdlovsk. Filial Nauch.-Issled. Inst. Rezin. Prom., Sverdlovsk, USSR). *Kauch. Rezina* 1970, 29(1), 17-19 (Russ). Butyl rubber (I) of mol. wt. 45,000 was vulcanized in the presence of S, Captax, thiuram, and ZnO; S, Altax, p-quinone dioxime (II), and ZnO; or 101K resin (III) and SnCl₂·2H₂O, and the vulcanizates were tested in glacial AcOH at 20-118°. The acid resistance of I vulcanizates at 100° followed the order: III vulcanizates > S vulcanizates > S-II vulcanizates. Max. acid resistance in the free and stressed states at 90-118° was obsd. in III vulcanizates, which were thus recommended for the manuf. of gaskets for heat exchangers operating in contact with AcOH at 50-118°. CKJR

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19780049

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USSR

UDC 616.43-001.28-092.9-091

ZAYTSEVA, K. K., BUTOMO, N. V., and FOMINA, G. S., Military Medical Academy imeni S. M. Kirov, Leningrad

"Morphofunctional Changes of Endocrine Organs in Experimental Radiation Chimeras"

Moscow, Doklady Akademii Nauk SSSR, Vol 193, No 3, pp 703-705

Abstract: The morphofunctional state of the adrenal and thyroid glands and the anterior part of the pituitary gland in long-lived allogenic radiation chimeras was studied under conditions of bone marrow transplants. The recipients (male mice and rabbits) were subjected to gamma-ray irradiation from a Co⁶⁰ source. The test animals received bone marrow cells or a transplant 24 hours after irradiation. Control and test animals were sacrificed and examined 40-50 days later. Hyperfunction of the adrenal cortex, hypofunction of the thyroid gland, and some activation of the thyrotropic function of the anterior portion of the pituitary gland were found to occur when the animals exhibited a secondary illness. In animals with no symptoms of a homologous disease and in syngenic chimera, these conditions are either absent or only very weakly evident. Consequently, these conditions cannot be attributed exclusively to the development of immunological reactions. The disturbances must be regarded as partially a result of radiation

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USSR

ZAYTSEVA, K. K. et al, Doklady Akademii Nauk SSSR, Vol 193, No 3, pp 703-705

sickness. Intensification of the thyrotropic activity of the anterior part of the pituitary gland is a compensating reaction to thyroid insufficiency, which, however, does not lead to elimination of hypothyreosis because of the disease of the thyroid. It may also be the result of a disturbance in the mechanisms of thyrotropic hormone removal.

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USSR

UDC 623.983:621.395

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DZERZHINSKIY, I.V., ZHAROVA, N.A., PRIKHOD'KO, V.P., FOMINA, I.P., FUREUYEV, A.V.

"Deep-Water Nine-Channel System Of Hydrophones"

Tr. Akust. in-ta (Works Of The Institute Of Acoustics), 1971, No 16, pp 5-15
(from RZh:Elektronika i yeye primeneniye, No 1, Jan 72, Abstract No 1A641)

Translation: A deep-water system of hydrophones is described which assures simultaneous reception of acoustic signals at nine levels at depths up to 1.5 km in the frequency range from 2 hz to 6 khz with a dynamic range of 50 db. With the object of increasing the reliability and simplifying the transmitting device, a system of frequency modulation is used with an uncontrolled center band. Automatic frequency control of the oscillators is incorporated in the receiving device. The lowering devices are distinguished only by the central frequencies and the frequencies of the remote control of the attenuators. A nondirectional cylindrical hydrophone of barium titanate with self-capacitance of 680 picofarad and a sensitivity of 80 microvolt/bar is used as the signal source. Connection of the signal sources is accomplished by a generator circuit. The noise level in the line because of discontinuities does not exceed that permissible. In the system of hydrophones a type LMI-7 cable-hawser is used which has three high-frequency coaxial cores with a wave impedance of 50 ohm and four insulated steel hawsers. 6 ill. 4 ref. L.K.

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1/2 022 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--INTERRELATIONSHIP BETWEEN HUMORAL LIPID DISORDERS AND ECG DATA IN
CORONARY ATHEROSCLEROSIS -U-
AUTHOR-(02)-FOMINA, L.G., GAYEVSKIY, YU.G.
COUNTRY OF INFO--USSR
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 4, PP 61-63
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--HEART DISEASE, ATHEROSCLEROSIS, BLOOD CHEMISTRY, LIPID,
CHOLERSEROL, LIPOPROTEIN, ELECTROCARDIOGRAPHY, DIAGNOSTIC MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0562 STEP NO--UR/0504/70/042/004/0061/0063
CIRC ACCESSION NO--AP0108777
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0108777

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ATHEROSCLEROSIS HAS A WAVE LIKE COURSE, THIS BEING IN CLOSE ASSOCIATION WITH THE FLUCTUATIONS IN THE LIPID LEVEL, FIRST OF ALL BETA LIPOPROTEIDS AND CHOLESTEROL IN THE BLOOD SERUM. AGGRAVATION OF THE CLINICAL COURSE OF ATHEROSCLEROSIS AS A RULE COINCIDING WITH A CRISIS INCREASE OF THE BLOOD LIPID LEVEL, MAINLY OF BETA LIPOPROTEIDS COINCIDES WITH WORSENING OF ECG, MANIFESTING ITSELF BY ALTERATION OF WAVE T AND INTERVAL ST. A DROP AND STABILIZATION OF THE BLOOD BETA LIPOPROTEID LEVEL IS ACCOMPANIED BY A CLINICAL REMISSION AND IMPROVEMENT OF ECG INDICES. FACILITY: HOSPITAL'NAYA TERAPEVTICHESKAYA KLINIKA CHELYABINSKOGO MEDITSINSKOGO INSTITUTA AND KABINET FUNKSIONAL'NOY DIAGNOSTIKI MEOSANCHASTI CHELYABINSKOGO TRAKTORNOGO ZAVODA.

UNCLASSIFIED

USSR

UDC 678.027.5:678.674'524'42

FOMINA, L. L., GAVRILOVA, L. B., BOGDANOV, YU. N., and GOLOVACHEV, M. YE.

"Production of Multilayer Films Based on the Metal Plated Lavsan"

Moscow, Plasticheskiye Massy, No 11, 1972, pp 38-40

Abstract: Production and some characteristic properties of various multilayer films with low gas permeability have been reported. The starting material consisted of polyethylene terephthalate films plated with aluminum either on one side or on both. Low density nonstabilized polyethylene served as the adhesive. The preparation of multilayer films was carried out by the extrusion method. The gas permeability of the multilayer films depends on the gas permeability of the components. The doubly plated films showed lower air permeability than parent films, provided that the thickness of the multilayer films was at least 10 μ . These films find application in the production of wrapping material, casings, boxes, etc.

1/1

1/2 045 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF MICROHEOLOGICAL PROCESSES ON THE ADHESION OF COMPOSITE
FILM MATERIALS -U-
AUTHOR--(03)-GUL, V.YE., GENEL, S.V., FOMINA, L.L.
COUNTRY OF INFO--USSR
SOURCE--MEKH. POLIM. 1970, 6(2), 203-8
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ADHESION, POLYETHYLENE, MICROPHOTOGRAPHY, ELECTRON MICROSCOPY,
COMPOSITE MATERIAL, POLYMER BINDER, PLASTIC FILM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/E07 STEP NO--UR/0374/70/006/002/0203/0208
CIRC ACCESSION NO--AP0140313

UNCLASSIFIED