USSR

UDC 533.9

BOGDANKEVICH, L. S., and RUKHADZE, A. A., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Stability of Relativistic Electron Beams in a Plasma and the Problem of Critical Currents"

Moscow, Uspekhi Fizicheskikh Nauk, No 4, Apr 71, pp 609-640

Abstract: Recent research in high-current electron accelerators, which have become a subject of renewed interest due to recently expressed ideas concerning using powerful relativistic electron beams to induce controlled thermonuclear reactions and for energy transmission over great distances, is surveyed. Topics covered include limiting currents in uncompensated electron beams, critical currents in compensated unbounded electron beams, the effect of finite longitudinal dimensions of the system on critical currents in the electron beams, the interaction of an unbounded relativistic electron beam with a plasma, the stability of a bounded electron beam in a plasma, and critical currents of relativistic electron beams in a plasma. It is shown that the instability of an electron beam passing through an ion shell determines the limiting current in a compensated electron beam. In the case of nonrelativistic beams this current is only several times greater than the vacuum

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BOGDANKEVICH, L. S., and RUKHADZE, A. A., Uspekhi Fizicheskikh Nauk, No 4, Apr 71, pp 609-640

limiting current determined by the space charge of electrons of the beam. The situation is different in the case of relativistic energies of beam electrons. It is shown that the critical current in a relativistic compensated beam can exceed the vacuum current by a factor of $(E/mc^2)^2$, where E is the energy of the electrons. It is noted that this rise in current is possible only when current-convective instability does not develop in the system. The theory of the stability of electron beams in a plasma is examined from the aspect of explaining those critical parameters of the plasma and beam under which some form of collective interaction arises in the bounded system. As regards systems with an overcompensated electron beam, it is shown that in the interaction of a relativistic electron beam with a plasma the relative loss of beam energy to excitation of oscillations is of the order of $(E/mc^2)(n_1/n_2)^{1/3}$, where n_1 and n_2 are electron densities in the beam and in the plasma, respectively. When this quantity is small, energy losses of the beam and the energy spread of the electrons are slight, and despite the fact that conditions for the development of instability are fulfilled in the system, the beam passes through the plasma practically without change. It is

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BOGDANKEVICH, L. S., and RUKHADZE, A. A., Uspekhi FiziCheskikh Nauk, No 4, Apr 71, pp 609-640

stated that in this case one whould speak about critical currents in the system, as distinct from the case of strictly compensated beams, when the beam loses a considerable portion of its energy as a result of the development of Buneman instability and undergoes essential changes, so that critical currents in compensated beams are simultaneously limiting currents. The final section of the survey is devoted to a comparison between theoretical ideas developed and experiments on the interaction of electron beams with the plasma formed by them.

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USSR

UDC 533.95

BOGDANKEVICH, L. S., RUKHADZE, A. A., Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR, Moscow

"Anomalous Absorption of Cyclotron Waves in a Bounded Plasma"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 40, No 1, Jan 70, pp 10-17

Abstract: The absorption of electron cyclotron waves in a bounded rarefied plasma is investigated under conditions when the Larmor frequency of the electrons is considerably greater than the plasma frequency. Under these conditions in a spatially unbounded plasma the extraordinary cyclotron wave is very strongly absorbed while an ordinary wave is practically not absorbed. In a bounded plasma, such as a waveguide filled with plasma, the absorption of an ordinary wave may become anomalously high due to the interaction of waves at the boundary of the plasma if the wavelength is of the order of the plasma dimensions. The absorption coefficient is then an oscillating function of the wavelength and the dimensions of the system. The cases of a high-temperature collisionless plasma and a cold plasma with a large number of collisions are considered. Recent experiments on the absorption of cyclotron waves in a bounded plasma are discussed on the basis of the theory developed. The experiments were conducted in a rarefield plasma

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BOGDANKEVICH, L. S, RUKHADZE, A. A., Zhurnal Tekhnicheskoy Fiziki, Vol 40, No 1, Jan 70, pp 10-17

with a density of $N \sim 10^{10}$-10^{11} cm^{-3} and a temperature $T_e \sim 10$-20 ev. Two cyclotron waves were excited in the waveguide: one absorbed at the wavelength $L_e \sim 1.5$ cm and the second at the wavelength $L_0 \sim 6$ cm. According to the theory developed here, values for L_e are approximately 0.5 cm and $L_0 \sim 5$-6 cm, so there is good agreement with the values observed experimentally.

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Acc. Nr: A70050501 Abstracting Service: NUCLEAR SCI. ABST. 5/70 Ref. Code: UR0141

17937 TO THE THEORY OF INTERACTION BETWEEN A RELATIVISTIC ELECTRON BEAM AND PLASMA. Bogdankevich, L. S.; Zhelyazkov, I. I.; Rukhadze, A. A. (Lebedev Inst. of Physics, Moscow). Izv. Vyssh. Ucheb. Zaved., Radiofiz.: 13: 21-7(1970). (In Russian).

The interaction between the limited relativistic electron beam of a small density and plasma being in a strong longitudinal magnetic field is investigated. The critical plasma density, above which the electrostatic instabilities may be developed, is determined. In long enough systems, the critical density of plasma is increased with the growth of its density reaching some value determined by the directed velocity of electrons and the geometrical dimensions of the system. In the systems limited in a longitudinal direction, the critical density of plasma may be dependent also on the system length and magnetic field intensity. In this case the critical density is larger than for a long system. It follows from the analysis of the stability that the maximum current of the electron beam, which may be passed through the waveguide, increases in the relativistic region with the growth of the electron energy as ϵ^3. Due to this possibility, large currents may penetrate through a dense plasma. (auth)

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1/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--ANOMALOUS ABSORPTION OF CYCLOTRONIC WAVES IN A BOUNDED PLASMA -U-

AUTHOR-(02)-BOGDANKEVICH, L.S., RUKHADZE, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL TEKHNICHESKOI FIZIKI, VOL. 40, JAN. 1970, P. 10-17

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CYCLOTRON RESONANCE, RESONANCE ABSORPTION, RAREFIED PLASMA, ELECTRON OSCILLATION, HIGH TEMPERATURE PLASMA, LOW TEMPERATURE PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1978/1504 STEP NO--UR/0057/70/040/000/0010/0017

CIRC ACCESSION NO--AP0046343

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002200420003-8"

2/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70
CIRC ACCESSION NO--AP0046343
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE ABSORPTION OF CYCLOTRONIC WAVES IN A BOUNDED, RAREFIED PLASMA UNDER CONITIONS WHEN THE LARMOR ELECTRON FREQUENCY SUBSTANTIALLY EXCEEDS THAT OF THE PLASMA. A STUDY IS MADE OF SEVERAL CASES OF HIGH TEMPERATURE, COLLISIONLESS PLASMA, AND COLD PLASMA WITH A HIGH COLLISON NUMBER. USING THE DEVELOPED THEORY, AN EVALUATION IS MADE OF THE EXPERIMENTS MADE BY BUDNIKOV ET AL (1967) AND AKULINA ET AL (1969) WHICH INVOLVED THE ABSORPTION OF CYCLOTRONIC WAVES IN A BOUNDED PLASMA. FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--INTERACTION OF RELATIVISTIC ELECTRON BEAMS WITH THE PLASMA AND THE PROBLEM OF CRITICAL CURRENTS -U-
AUTHOR-(02)-BOGDANKEVICH, L.S.; RUKHADZE, A.A.

COUNTRY OF INFO--USSR

SOURCE--(NP, 18233) 1970. 66P. DEP. CFSTI

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON BEAM, ELECTRON PLASMA, PLASMA INTERACTION, PLASMA STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1543 STEP NO--UR/0000/70/000/000/0066/0066

CIRC ACCESSION NO--AT0127041
UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0127041

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AIM OF THEORETICAL STUDIES IN THE FIELD OF ELECTRON BEAM PLASMA INTERACTIONS IS THE CLARIFICATION OF THE CRITICAL PLASMA AND BEAM PARAMETERS THAT CAUSE INTERACTION WITHIN A LIMITED SYSTEM. FOR THIS REASON, THE BEHAVIOR OF AN ELECTRON BEAM WITHIN AN EQUIPOTENTIAL DRIFT SPACE ALONG THE AXIS OF A METALLIC WAVEGUIDE WAS EXAMINED. THE CRITICAL CURRENTS THAT MAY PASS THROUGH SUCH A SYSTEM MAY BE DETERMINED ON THE BASIS OF THE STABILITY CONDITIONS OF THE ELECTRON BEAM, OR ITS PASSAGE THROUGH THE COMPENSATION IONIC BACKGROUND OR THROUGH THE MORE DENSE PORTIONS OF THE PLASMA; THIS REQUIRED A MORE DETAILED STUDY OF THE BEAM STABILITY. THE INVESTIGATION INVOLVED AN EXAMINATION OF THE BOUNDARY CURRENTS IN NONCOMPENSATED ELECTRON BEAMS, CRITICAL CURRENTS IN COMPENSATED, UNLIMITED BEAMS, THE EFFECT OF THE LONGITUDINAL DIMENSIONS OF THE SYSTEM ON THE CRITICAL CURRENTS IN THE ELECTRON BEAMS, THE INTERACTION OF RELATIVISTIC ELECTRONS WITH THE PLASMA, THE STABILITY OF THE BEAMS IN THE PLASMA, AND CRITICAL CURRENTS OF RELATIVISTIC ELECTRON BEAMS IN THE PLASMA. IT WAS CONCLUDED THAT WHEN THE ELECTRON BEAM CURRENT IS LOWER THAN BOTH THE CRITICAL CURRENT OF THE COMPENSATED BEAM AND THE BOUNDARY CURRENT OF THE NONCOMPENSATED BEAM, NO INSTABILITY IS GENERATED IN THE SYSTEM AT THE NEUTRALIZED STAGE. FACILITY: AKADEMIYA NAUK SSSR, MOSCOW. INSTITUT FIZIKI.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--INVESTIGATION OF THE HIGH FREQUENCY INSTABILITY THRESHOLD IN THE INTERACTION BETWEEN AN ELECTRON BEAM AND PLASMA -U-

AUTHOR-(04)-BOGDANKEVICH, L.S., RAYZER, M.D., RUKHADZE, A.A., STRELKOV, P.S.

COUNTRY OF INFO--USSR

B

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 4, PP 1219-1233

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON BEAM, PLASMA INTERACTION, PLASMA STABILITY, ELECTRON DENSITY, EXTERNAL MAGENTIC FIELD, PLASMA DENSITY, PLASMA OSCILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1486 STEP NO--UR/0056/70/058/004/1219/1233

CIRC ACCESSION NO--AP0106242

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2/2 030 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106242

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRITICAL PLASMA DENSITY FOR WHICH HIGH FREQUENCY INSTABILITY ARISES IN THE PLASMA BEAM SYSTEM IS DETERMINED EXPERIMENTALLY. THE DEPENDENCE OF THE CRITICAL DENSITY ON THE ELECTORN BEAM DENSITY, MAGNITUDE OF EXTERNAL MAGNETIC FIELD AND GEOMETRICAL DIMENSIONS OF THE SYSTEM IS INVESTIGATED. THE THRESHOLD CONDITIONS FOR EXCITATION OF ELECTROSTATIC OSCILLATIONS, DERIVED FROM AN ANALYSIS OF THE DISPERISON EQUATION FOR A RESTIRCTED PALSMA BEAM SYSTEM, AGREE WITH THE EXPERIMENTAL DATA. A COMPARISON BETWEEN THE THEORY AND EXPERIMENT SHOWS THAT IN THE GIVEN EXPERIMENTAL CONDITIONS THE CRITICAL VALUES OF THE PLASMA DENSITY CORKESPOND TO EXCITATION OF AXIALLY SYMMETRIC OSCILLATION MODES. FACILITY: FIZICHESKIY INSTITUT IM. P. N. LEBEDEVA, AN SSSR.

UNCLASSIFIED

AT0034872 NUCLEAR SCI. ABST. 1/70 UR 0000

3413 (AEC-tr-7073) ANOMALOUS ABSORPTION OF CYCLOTRON WAVES IN CONFINED PLASMA. Bogdankevich, L. S.; Rukhadze, A. A. (Akademiya Nauk SSSR, Moscow. Institut Yz-iki). Translation of Russian preprint No. 72. 20p. Dep. CFSTI.

The absorption of the cyclotron electron waves in a confined and rarefied plasma was investigated when the Larmor frequency of electrons exceeded considerably that of the plasma. Under such conditions the extraordinary cyclotron wave is absorbed rather strongly in a spatially unlimited plasma, while the ordinary wave is practically not absorbed at all. In a limited plasma (for example, a waveguide filled with plasma), due to the interaction of waves at the plasma boundary, absorption of the ordinary waves may become anomalously high if the wave length is of the order of the plasma dimension. At this, the absorption factor becomes an oscillating function of the wave length and system dimensions. Cases of high-temperature plasma without collisions and of cold plasma with a great number of collisions were examined. Recent experiments on absorption of the cyclotron waves in a limited plasma are discussed on the basis of the newly developed theory. (auth)

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USSR

BOGDANKEVICH, L. S.; RAYZER, M. D.; et al (Lebedev Physics Institute, USSR Academy of Sciences)

"Study of the Threshold of High-Frequency Instability Occurring during Interaction of an Electron Beam with a Plasma"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; April, 1970; pp 1219-33

ABSTRACT: An experimental determination is made of the critical density of a plasma in which a high-frequency instability occurs with a plasma beam. The authors study the dependence of the critical density on the energy of the electron beam, the magnitude of the external magnetic field, and the geometrical dimensions of the system. The threshold conditions of excitation of the electrostatic oscillations, found from an analysis of the dispersion equation for a confined plasma beam, agrees with the experimental data. A comparison of theory with experiment shows that under the experimental conditions studied, the critical values of the density of the plasma correspond to the excitation of the axisymmetric mode of oscillation.

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USSR

UDC 621.378.325

BOGDANKEVICH, O.V., ZVEREV, M.M., PROKHOROV, A.N., SIBIRYAK, I.G.

"On The Divergency Of Radiation Of Lasers Of The 'Radiative Mirror' Type With Electron Pumping"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 6(12), 1973, pp 110-111

Abstract: The dependence is studied of the radiation divergence of a semiconductor laser with a "radiative mirror" type resonator and electron beam pumping on the distance L to the external mirror. (Pumping was conducted with a pulsed beam of electrons which have an energy of 170 kev, a current density up to 25 a/cm^2, and a duration of 200 nanosec.) A minimum divergence of 7' was observed at L equals 28 mm and a diameter of the excited region of 300 microns, which corresponds to the diffraction limit of divergence of the fundamental type of oscillations. It is shown that an increase of L leads to a decrease of the width of the longitudinal mode. With L equals 22 mm the measured width of the mode amounted to $\Delta\lambda \leq 0.05$ Å. 1 fig. 4 ref. Received by editors, 28 March 1972

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USSR UDC 621.378.325

BOGDANKEVICH, O.V., BORISOV, N.A., KALENDIN, V.V., KOVSH, I.S., PRYUKOVA, I.V.

"Kinetics Of Reproduction Of Luminescent Properties Of GaAs Single Crystals Irradiated By An Intense Beam Of Electrons"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11),1972,pp 108-111

Abstract: In previous papers by the authors,studies of the principal characteristics of a GaS laser with pumping by a beam of electrons with an energy up to 1 Mev (i.e., above the threshold for formation of defects) showed that with a sufficiently prolonged operation of the laser in such a regime, a decrease of power was observed at approximately 30--50 percent. However, annealing of the crystals at room temperature over several hours leads to practically a complete reduction of it. In the present work new results are reported concerning improvement of the radiating power of GaAs after irradiation by intense electrons. Irradiation of the single crystal was conducted at 300° K with the following parameters of the electron beam: energy of electrons, 600 kev; current density in beam, 20--30 a/cm^2; duration of current impulse, 15 nanosec; and recurrence frequency, 1--2 Hz. Before and after irradiation the spectra were studied of the photoluminescence of specimens in the 0.75--1.2 micron region at 78° as well as the change of the laser threshold of generation with excitation by electrons, 1/2

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BOGDANKEVICH, O.V., et al., Kvantovaya elektronika, Moscow, No 5(11), 1972, pp 108-111

and a 50 kev energy at 300° K. The specimens had the form of a rectangular parallelepiped: length of resonator 0.5--1 mm, thickness 0.2 mm, width 2--3 mm. The gallium arsenide was grown by the Czochralski method and doped with tellurium to a concentration of $5 \cdot 10^{17}$ cm^{-3} as well as by the liquid epitaxy method (without doping) with a concentration of carriers of $1.2 \cdot 10^{16}$ cm^{-3} and a mobility of 46,000 cm^2/sec at 78° K. (The total concentration of impurity in these specimens amounted to 10^{16} cm^{-3}.) An increase of photoluminescent intensity and a decrease of the laser threshold was observed in the n-GaAs:Te. These changes depend on the intensity and dose of irradiation and the parameters of the initial material. In the non-doped epitaxial specimens an improvement of the luminescent properties was not observed. A qualitative explanation is given of the observed effects. The authors thank C.N. Grigor'yev for measurement of the spectrum of x-ray reflection. 3 fig. 8 ref. Received by editors, 22 Feb 1972.

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USSR

UDC: 621.378.329

BOGDANKEVICH, O. V., BORISOV, N. A., LAVRUSHIN, B. M., LEBEDEV, V. V., NEGODOV, A. G., STREL'CHENKO, S. S.

"Waveguide Structure of the Cavity in a Semiconductor Laser With Electron-Beam Pumping"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 61-68

Abstract: A method is described for creating a cavity with waveguide structure in a semiconductor laser with electron-beam pumping. It is shown that waveguide modes are stimulated in such a cavity, with the result that the emission threshold is independent of the energy of the electrons, and the radiation pattern has a structure which is more complex than in a uniform cavity. This type of cavity reduces the emission threshold to 0.3 A/cm^2 (in the 15-20 keV electron energy region), which is 1-2 orders of magnitude lower than in a cavity of heterogeneous structure. Five illustrations, four tables, bibliography of nine titles.

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USSR

UDC 621.375.82

BOGDANKEVICH, O. V., BORISOV, N. A., LAVRUSHIN, B. M., LEBEDEV, V. V., NEGODOV, A. G., STREL'CHENKO, S. S.

"Waveguide Structure of a Resonator in a Semiconductor Laser With Electron Beam Pumping"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 2, Moscow, "Sov. radio", 1972, pp 61-68 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D999)

Translation: A method is described for developing a waveguide structure of a resonator in a semiconductor laser with electron beam pumping. It is shown that modes of a waveguide type are excited in such a resonator, as a result of which the oscillation threshold is independent of the electron energy and the directional diagram has a more complex structure than in a homogeneous resonator. Use of the resonator makes possible a reduction in the oscillation threshold to 0.3 a/cm^2 (in the electron energy range of 15-20 kev), which is less than in a laser with a homogeneous resonator by a factor of 1-2. 9 ref. Authors abstract.

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USSR

UDC 621.378.329

BOGDANKEVICH, O. V., KOROLEV, S. V., NASEDKIN, A. A., OLIKHOV, I. M., PETROV, D. M.

"Use of a Microwave-Modulated Electron Beam for Semiconductor Laser Pumping"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 4, "Sovetskoye Radio", 1971, pp 97-99

Abstract: SHF modulation of semiconductor laser emission is achieved by using a microwave-modulated electron beam for laser pumping. A mode of emission is obtained in which multiple division of the pulse repetition frequency with respect to the frequency of the modulating SHF signal is attained. The authors thank V. A. Dorofeyev and G. N. Yanonis for assistance with the work. Three figures, bibliography of six titles.

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USSR

UDC 621.378.35

BOGDANKEVICH, O.V., ZVEREV, M.M., KOLOMIYSKIY, A.N., PECHENOV, A.N., VASIL'YEV, B.I.

"Multielement Semiconductor Laser Of The 'Emitting Mirror' Type"

Kvantovaya elektronika, Moscow, No 5, May 71, pp 95-96

Abstract: The construction and some characteristics are described of a multielement laser of the emitting mirror type. A high-voltage pulse electron gun was used for pumping of the laser, with a beam energy of 108 kev and a current density of 20 a/cm^2. The polished plane-parallel disks 0.2-mm thick used as the working medium were cut out of single crystals of n-type conductivity gallium-arsenide doped with tellurium to a concentration of(1--2) . 10^{18} cm^{-3}. The generation power increases linearly with an increase of the cross section of the multielement target. A power of 28 kw is attained with a crystal with a 1 cm^2 area. The halfwidth of the directivity pattern is 7°, and the generation spectrum consists of several lines corresponding to the modes of the Fabry--Perot resonator. Received by editors, 28 Apr 71. 2 fig. 6 ref.

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Lasers/Masers

USSR

UDC 621.373:530.145.6

BOGDANKEVICH, O. V., ZVEREV, M. M., MESTVIRISHVILI, A. N., NASIBOV, A. S., PECHENOV, A. N., SVIRENKOV, A. I., FEDOSEYEV, N. P.

"A High-Power Semiconductor Maser With Electron Beam Pumping"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 2, Moscow, 1971, pp 92-93 (from RZh-Radiotekhnika, No 7, Jul 71, Abstract No 7D113)

Translation: To increase the power of a semiconductor maser with electron beam pumping, the authors study multielement structures of gallium arsenide and cadmium sulfide. An emission power of 1.5 MW is achieved when a semiconductor maser on gallium arsenide is excited by an electron beam with an energy of 300 keV and a current of 300 A. Two illustrations, bibliography of five titles.

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USSR

UDC 621.378.35

BOGDANKEVICH, O. V., ZVEREV, M. M., MESHVERISHVILI, A. N., NASIROV, A. S., PECHENOV, A. N., SVIRENKOV, A. I., FEDOSEYEV, N. F.

"A High-Power Semiconductor Laser With Electron-Beam Pumping"

Moscow, Kvantovaya Elektronika, No 2, 1971, pp 92-93

Abstract: Multiple-element structures of gallium arsenide and cadmium sulfide are studied for the purpose of increasing the power of a semiconductor laser with electron-beam pumping. An emission power of 1.5 MW is achieved when a gallium arsenide semiconductor laser is stimulated by a beam of 300 keV electrons at 300 A. Two figures, bibliography of five titles.

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USSR

UDC 621.373.029.7.004.14:681.3

BOGDANKEVICH, O. V., NASIBOV, A. S. , NOVIKOV, A. A., PECHENOV, A. N., FEDOROV, V. B., TSVETKOV, V. V.

"Some Possibilities of Applying a Semiconductor Laser with Electron Excitation in Computers"

Moscow, Radiotekhnika i Elektronika, Vol XVI, No 5, May 1971, pp 824-828

Abstract: A study is made of the requirements on a cathode ray tube based on a semiconductor laser with electron excitation beginning with the problems of creating prospective optoelectronic memories. Experimental and theoretical results confirming the possibility of satisfying these requirements are presented.

The threshold current density is plotted as a function of the electron energy for various sizes of the excited domain d and reflection coefficients of the mirrors. With a beam energy of 100 kiloelectron volts and a current density of 10 amps/cm^2 from a cell 210 microns in diameter, the output power was 5 watts, and the conversion efficiency was 1.5 percent. Since the pulse length of the electrons in the beam was 10^{-7} seconds, the radiation energy was $5 \cdot 10^{-7}$ joules. Consequently, in order to obtain the radiation energy of

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BOGDANKEVICH, O. V., et al., Radiotekhnika i Elektronika, Vol XVI, No 5, May 1971, pp 824-828

10^{-7} joules required to insure a read rate of B = 10^{8} bits/second, under all other equal conditions, the size of the spot on the laser screen of the cathode ray tube has to be about 100 microns. The pulse power of the radiation will be 1 watt and the mean power, 10^{-2} watts, and a screen with 10^{5} positions will be about 40 × 40 mm. A screen spot size up to 300 microns is required to insure a read rate of 10^{9} bits/second.

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USSR

B

UDC 621.486.845:621.375.8

BASOV, N. G., BOGDANKEVICH, O. V., NASIBOV, A. S.

"Cathode Ray Tube"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 16, 8 May 70, p 57, Patent No 270100, Filed 20 Feb 67

Translation: 1. This Author's Certificate introduces a cathode ray tube which is in the form of an evacuated bulb containing an electron gun with an electron beam control system and a converter for converting the electron beam energy to light energy. The tube is distinguished by the fact that to increase directivity and brightness of glow of the image, the converter is executed in the form of a monocrystalline film with smooth surfaces. The film made of semiconductor material is excited by the electron beam and constitutes an active laser element.

2. A second cathode ray tube like in item 1 is introduced. It is distinguished by the fact that to improve the directivity of glow of the image, the semiconductor film is attached to an optically transparent plane-parallel plate which, together with the film, forms an optical resonator.

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USSR

UDC: 621.396.670.951

IVANOVA, N. S., BOGDANOV, A. A., MESROPOV, G. M., OGANOVA, L. A., ZUYEV, F. K., YEGOROV, Ye. M.

"A Fiberglass-Reinforced Polarization Material"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 30, Oct 71, Author's Certificate No 317137, Division H, filed 30 Sep 64, published 7 Oct 71, p 193

Translation: This Author's Certificate introduces a fiberglass-reinforced polarization material based on textolite for antenna reflectors. As a distinguishing feature of the patent, the weight of the reflector is reduced by adding to the glass-textolite reinforcement a layer of metallized glass fabric which contains metallized glass filaments in one of the directions of its structure (warp or weft). The glass filaments consist of elementary glass fibers coated with a layer of metal (aluminum or zinc) securely bonded to the glass fiber surface.

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USSR

UDC: 538.56:621.396.67

BOGDANOV, A. A., BRUSIN, I. Ya., and SKVORTSOV, V. D.

"Effect of Photofilm Noise in Optical Processing Systems for the Signals of Synthesizable Aperture Antennas"

Gor'kiy, Izvestiya VUZ--Radiofizika, Vol. 14, No. 1, 1971, pp 114-126

Abstract: Photographic film is used for recording purposes in antennas with synthesized apertures. In ordinary photography, the noise characteristics of this film is unimportant; in antennas of this type, however, they are extremely important since they can spoil the information capability of the system. This article shows that the film noise imposes limits on the antenna's dynamic range and on the number of discernible levels of signal intensity, leading also to a loss in resolving power. The authors also describe a method for measuring the noise parameters, and obtain quantitative results for film type Mikrat-300. In the development of

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BOGDANOV, A. A., et al., Izvestiya VUZ--Radiofizika, Vol 14, No 1, 1971, pp 114-126

their analysis, the authors refer to an earlier paper (Cutrona, L. J., et al, Proc. IEEE, 54, No 8, 1966) in which this type of antenna is described. Using a formula for the transparency of the ideal film given in that paper, the authors describe an experimental system for determining the factors in that formula.

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A0044646 UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

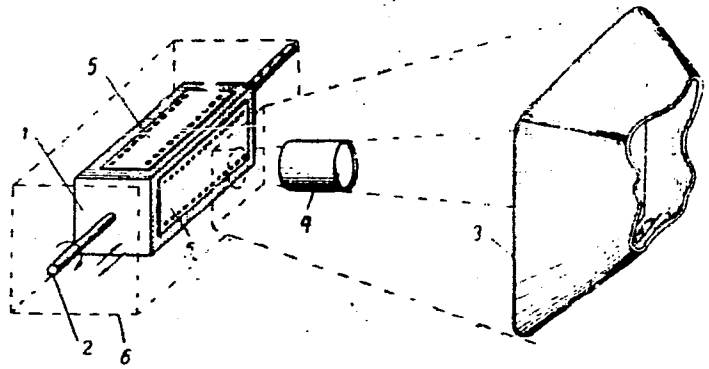
243206 RECORDING SEISMIC INFORMATION from a processing machine can be done via a cathode ray tube and a photo-sensitive means of recording the display, but cannot record variants of the information for one cycle of operation of the processing. The proposed device does this by incorporating in the system, consisting of tube 3, objective 4, and cassette 6 holding the photo-sensitive device, a rotatable multi-faced prism 1 which can be fixed to present any desired face in order to photograph the record. When the parameters of the information are changed, the prism is moved round so as to present a new face. This can be done mechanically, or be connected electrically 1.2.68 as 1214260/26-25.O.I.SPASIBUKHOV et al. PETROLEUM & GAS CHEMICAL INST.(18.9.69) Bul 16/ 5.5.69. Class 42c. Int.Cl.G Olv.

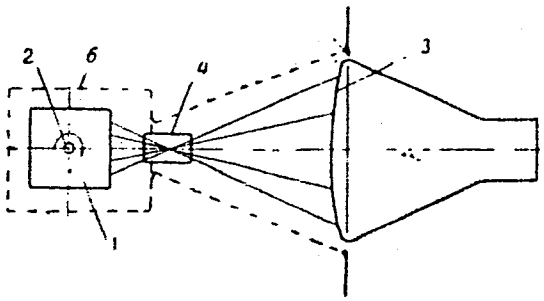
AUTHORS: Spasibukhov, O. I.; Bogdanov, A. A.; Petrov, L. A. Napalkov, Yu. V.; Voskresenskiy, Yu. V.

Moskovskiy Institut Neftekhimicheskoy i Gazovoy Promyshlennosti im. Akad. I. M. Gubkina

19771355

AA0044646





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19771356

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--DOMAINS AND ORIENTATION OF A FERROMAGNETIC MOMENT NEAR THE SURFACE IN A HEMATITE CRYSTAL -U-
AUTHOR-(02)-BOGDANOV, A.A., VLASOV, A.YA.

B

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(1) 164-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--IRON OXIDE, MAGNETOSTRICTION, SINGLE CRYSTAL, FERROMAGNETIC DOMAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1980/0244 STEP NO--UR/0181/70/012/001/0164/0169

CIRC ACCESSION NO--AP0048523
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--19SEP70

CIRC ACCESSION NO--AP0048523

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DOMAINS ON THE SURFACE OF SINGLE CRYSTALS OF HEMATITE WERE OBSD. BY THE POWDER METHOD AND WITH THE AID OF THE MAGNETOOPTICAL KERR EFFECT. CONDITIONS FOR OBSERVATION OF THE DOMAINS AND THEIR BEHAVIOR IN REMAGNETIZATION OF THE CRYSTAL SHOW THAT ON SURFACES DIFFERENT FROM THE BASIS PLANE, THE NORMAL COMPONENT OF THE FERROMAGNETIC MOMENT IS LARGE. THE INVESTIGATED CRYSTALS EXHIBIT QUITE SMALL MAGNETOCRYST. ANISOTROPY IN THE BASIS PLANE. THE OBSD. ORIENTATION IS DETD. BY THE PRESENCE OF SURFACE MAGNETIC ANISOTROPY, THE EFFECTIVE FIELD OF WHICH IS OF THE ORDER OF SEVERAL KOE.

USSR

UDC 669.721.372

BARANNIK, I. A., YASHKEBOVA, Z. V., YEGOROV, A. P., ZHUROV, V. V., CHUKAL'SKIY, YE. N., BOGDANOV, A. P.

"Industrial Investigation of the Influence of Titanium Impurities on the Electrolysis of Magnesium Chloride"

Tsvetnye Metally, No 8, 1971, pp 40-42

Abstract: Results are presented from a chemical analysis of the presence of titanium in the raw material and products of electrolysis. Material balances with respect to titanium are calculated for several commercial electrolyzers. It is demonstrated that regardless of the content of fluorine in the electrolyte, the decrease in the yield of magnesium per current may reach 5-20% when lower titanium chlorides are added to the electrolyzer. The influence of metallic titanium is significantly weaker. On the basis of an analysis of results of commercial studies, necessary measures to combat the harmful influence of titanium on electrolysis are discussed.

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1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--BIOLOCATION DIAGNOSIS OF EFFUSIONS IN SEROUS CAVITIES -U-

AUTHOR-(02)-BOGIN, YU.B., BOGDANOV, A.V.

B

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 87-91

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, RESPIRATORY SYSTEM DISEASE, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0471 STEP NO--UR/0504/70/042/005/0087/0091

CIRC ACCESSION NO--AP0121145

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0121145
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF BIOLOCATION DIAGNOSIS OF EFFUSIONS IN SEROUS CAVITIES IN 159 PATIENTS (ASCITIS IN 53, PERICARDITIS IN 38, PLEURISY IN 74) GIVE GROUND TO CONSIDER THAT ECHOGRAPHIC STUDY MAKES IT POSSIBLE TO STAGE AN ACCURATE DIAGNOSIS OF THE BLOOD ACCUMULATION IN SEROUS CAVITIES AND TO ESTIMATE ITS QUANTITY.
FACILITY: 3-YA KAFEDRA KHIRURGII TSENTRAL'NOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY AND LABORATORIYA BIOLOKATSIONNOY DIAGNOSTIKI NA BAZE TSENTRAL'NOY KLINICHESKOY BOL'NITSY MINISTERSTVA PUTEY SOOBSHCHENIYA, MOSCOW.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ULTRASOUND DIAGNOSIS OF PNEUMONIA -U-

AUTHOR-(05)-BOGIN, YU.N., MUTINA, YE.S., BOGDANOV, A.V., SHIRSHOVA, T.N., BEDUKHINA, L.I.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 6, PP 123-138

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PNEUMONIA, ULTRASOUND, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1474 STEP NO--UR/0497/70/048/006/0123/0128

CIRC ACCESSION NO--AP0133410

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0133410
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS EVALUATED THE DIAGNOSTIC POSSIBILITIES OF THE BIOLOCATION TECHNIQUE IN ACUTE AND CHRONIC PNEUMONIA. THERE WERE 31 PATIENTS WITH ACUTE PNEUMONIA AND 55 WITH CHRONIC. PATIENTS WITH ACUTE PNEUMONIA ON THE ECHOGRAM SHOW HETEROGENOUS FOCI OF INDURATION OF THE PULMONARY TISSU WHICH DISAPPEAR UPON RECOVERY. IF PNEUMONIA IS COMPLICATED BY ACUTE PLEURISY ON THE ECHOGRAM THE LAYER OF FLUID IS REFLECTED IN THE FORM OF NONINTENSIVE HOMOGENOUS SHADOW. THE PNEUMONIC FOCUS IS WELL SEEN BEYOND THE FLUID LAYER. AN EXACERBATION OF CHRONIC PNEUMONIA IS ACCOMPANIED BY THE APPEARANCE OF HETEROGENOUS FOCI OF PULMONARY TISSUE INDURATION.
FACILITY: IV KAFEDRA TERAPII I II KAFEDRA KHIRURGII TSENTRAL'NOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY, MOSKVA, BIOLOKATSIONNAYA LABORATORIYA NA BAZE TSENTRAL'NOY KLINICHESKOY BOL'NITSY MINISTERSTVA PUTEY SOOBSHCHENIYA, MOSKVA.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--REPLATED OPERATIONS ON THE LUNGS AND PLEURA -U-

AUTHOR-(03)-MANEVICH, V.L., BOGDANOV, A.V., STONOGIN, V.D.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 6, PP 62-66

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--THORACIC SURGERY, LUNG, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1767 STEP NO--UR/0531/70/000/006/0062/0066

CIRC ACCESSION NO--AP0129135
UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0129135

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DEPICTS AN ANALYSIS OF 21 REPEATED OPERATIONS ON THE LUNGS AND PLEURA PERFORMED IN PATIENTS WHO WERE PREVIOUSLY OPERATED UPON IN OTHER HOSPITALS. IN THE OVERWHELMING MAJORITY OF CAUSES OF FAILURE WERE DUE TO INCOMPLETE EXAMINATION OF THE PATIENT BEFORE THE FIRST OPERATION (4) AND HENCE A NONRADICAL OPERATION, TECHNICAL ERRORS COMMITED DURING THE OPERATION (7), COMPLICATIONS OCCURRING IN THE IMMEDIATE POSTOPERATIVE PERIOD (3). A TRUE RELAPSE OF THE DISEASE WAS REVEALED ONLY IN 2 CASES. THE METHODS OF EXAMINATION TO PATIENTS ADMITTED FOR REPEATED OPERATIONS ARE ANALYZED. THE RESULTS OF REPEATED OPERATIONS ARE GIVEN. OUT OF 21 PATIENTS OPERATED 6 DIED. A CONCLUSION IS MADE THAT OPERATIONS ON THE LUNGS SHOULD BE PERFORMED IN SPECIALIZED HOSPITALS, THIS WILL ENABLE TO REDUCE THE NUMBER OF COMPLICATIONS, INCLUDING THOSE WHICH REQUIRE A REPEATED OPERATIVE INTERVENTION. FACILITY: 3-YA KAFEDRA KLINICHESKOY KHIRURGII TSIU, MOSKVA.

UNCLASSIFIED

USSR

PLATONOV, P. N., Doctor of Technical Sciences, TRIBEL'GORN, E. V., Candidate of Technical Sciences, BOGDANOV, B. K., Engineer

"Methods of Changing Over to Automatic Control of Continuous Mass Production Systems"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 9, 1970, pp 16-19

Abstract: An analysis of continuous mass production systems in various sectors of the national economy conducted at the Odessa Technological Institute imeni M. V. Lomonosov made it possible to isolate the general functional singularities of various segments of the systems and to reduce them to eight types. The classification of segments of the continuous mass production system and the principles of setting up a dispatcher automated control system on this basis comprised of standard general-purpose modules were taken up at the Third All-Union Conference on Automatic Control. The analysis was based on the example of a modular dispatcher automated control system for the most complex production line segment requiring sixteen modules. Further studies showed that the number of modules required for realization of this segment can be reduced to ten. It is shown that further automation of continuous mass production systems should be based on a transition from dispatcher automated control to operatorless programmed

USSR

PLATONOV, P. N., et al, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 9, 1970, pp 16-19

control. This will require analysis of the dispatcher's functions for purposes of algorithmic description, classification of the dispatcher's functions, and a description of the information which must be stored. A simple formula is found for the optimum control system from the standpoint of cost. It is shown that the function of route analysis can be handled by an automatic device without extensive modification of the dispatcher control system.

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USSR

UDC 539.125.4

BOGDANOV, D. D., KARNAUKHOV, V. A., PETROV, L. A.

"Telescope for Recording Low-Energy Protons Against an Intense Beta Background"

Moscow, Pribory i Tekhnika Eksperimenta, No 5, 1972, pp 28-30

Abstract: A study was made of the problem of lowering the sensitivity of a telescope system to electrons in order to make it possible to record protons with E less than 1.0 megaelectron volts. A telescope is described which comprises 2 planar proportional counters and a semiconductor detector designed for spectrometric analysis of low-energy protons (0.5-6.0 megaelectron volts) in the presence of intense β and γ radiation backgrounds. Utilization of comparisons of the proportional counters in the control channel essentially reduces the β-background of the semiconductor detector by comparison with the case where only one counter is used for the control. With variation of the threshold in the control channel the intensity of the spectrum varies uniformly in accordance with the hypothesis of independent formation of the spectra in the two counters. The introduction of a 3.0 kiloelectron volt threshold in the control channel leads to a twenty-fold reduction in intensity of the count with respect to the entire spectrum of the first counter.

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USSR UDC 669.3'26'295.018.9.4

NIKOLAYEV, A. K., BOGDANOV, D. R.

"Purification of Copper-Chromium and Copper-Titanium Alloy of Slag Inclusions Using Filtration Through Chunk Filters"

Tr. N.-i. i Proekt. In-ta Splavov i Obrabotki Tsvet. Met. [Works of Scientific Research and Planning Institute for Alloys and Processing of Nonferrous Metals], No 35, 1971, pp 20-22, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G376 by the author).

Translation: Results are presented from work on purification of Cu-Cr and Cu-Ti alloys of slag inclusions by filtration of the melt through chunk filters. 1 Figure; 2 Tables; 2 Biblio. Refs.

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Acc. Nr. AP0040013 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code UR 0096

B

68892j Reasons for the appearance of deposits on heating surfaces cooled by organic heat-transfer agents. Bogdanov, F. F. (USSR). *Teploenergetika* 1970, 17(1), 64–8 (Russ). Gas oil fractions from the direct distn. of crude oil of predominantly aromatic compn. can be used as heat-transfer media in energy-producing at. reactors. The formation of deposits in the Soviet ARBUS reactor, which employs hydrostabilized gas oil, is described. The temp. of the hot wall should not exceed 623°K and surface boiling is not permissible. At 633°K, after 35 hr of operation, the deposits begin to form accompanied by a temp. rise and after 40–50 hr the hot-wall temp. reaches 693° at a thermal flux of 150–200 × 10^3 kcal/m^2 hr. The main reasons for formation of deposits are the high temp. or surface boiling. The flow rate of the heat-transfer medium has no effect on the deposit formation. M. Shelef

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REEL/FRAME
19741421

21 di

USSR

Circuit Theory

UDC 621.372.852

BOGDANOV, G. B., KOZHARIN, I. D., MEL'NIK, O. F., TROFIMOV, V. A.

"Experimental Characteristics of Certain Types of Halfopen Multicircuit Ferrite Microwave Filters"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2043-2046

Abstract: The electromagnetic characteristics of multicircuit halfopen filters and the temperature functions of these filters -- direct losses, resonance curves, decoupling, suppression of spurious resonances and thermal stability characteristics -- were obtained experimentally in order to check the known theoretical principles and determine the possibilities of practical application of such filters. The ferrite resonators were installed in the round holes of metal diaphragms, and a constant magnetic field was applied. The diaphragms were arranged at a variable distance from each other, and the input and output ferrite resonators were located so that an intermediate ferrite resonator could be inserted as a third circuit. Investigations in the 3 centimeter band demonstrated that with an increase in the diameter of the ferrite resonators the minimum loss region corresponding to the critical couplings is shifted towards large distances between the filters, and it becomes less expressed as a result of relatively redistribution of the mutual losses and the losses to radiation. For the ferrite filter without an intermediate resonator the

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002200420003-8"

USSR

BOGDANOV, G. B., et al., Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2043-2046

decoupling varies within the limits of 50-52 decibels, and for a ferrite filter with an intermediate resonator, within the limits of 62-63 decibels in a broad frequency range. With orientation of the ferrite filters on the [110] axis, the thermal variations of the losses are noticeable especially in the positive temperature range. The thermal effect on the parameters and characteristics of semiopen filters can be reduced significantly if the ferrite resonators of the filters are oriented independently (in the sense of coupling) along the isotropic axis. The frequency drift obtained for two coupled ferrite resonators (67 kilohertz/degree) indicates high thermal stability of the investigated halfopen filters.

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USSR

UDC 621.372.852.1

BOGDANOV, G. B.

"Theory of Halfopen Ferrite Microwave Filters"

Moscow, Radiotekhnika i elektronika, Vol 17, No 10, 1972, pp 2169-2175

Abstract: A study was made to obtain a set of relations necessary for calculating and designing certain types of halfopen multicircuit ferrite microwave filters. The method developed previously [A. L. Mikaelyan, V. Ya. Anton'yats, Radiotekhnika i elektronika, Vol 7, No 4, 623, 1962] was extended to halfopen systems in order to obtain the relations. There is a noticeable effect from the coupling coefficient on the shape of the resonance frequency curve, magnetization, size and other parameters of the ferrite resonators. In a number of cases this fact can require regulation of the coupling coefficient when tuning coupled ferrite resonators in a broad range of variation of the frequencies and external conditions. The coupling coefficient of the halfopen ferrite resonators (in contrast to closed ones) can be regulated quite simply by various technical procedures as a result of the presence of a free space between the segments of the wave guide lines with ferrite resonators.

The general principles of halfopen ferrite filters, the coupling coefficients, the transmission factor and pass bands of systems of coupled

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USSR

BOGDANOV, G. B., Radiotekhnika i elektronika, Vol 17, No 10, 1972, pp 2169--2175

ferrite resonators are discussed and analyzed. Curves are presented showing the coupling coefficient as a function of the distance between the halfopen ferrite resonators.

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USSR

UDC: 621.317.761

ZOTOV, V. V., BOGDANOV, G. B.

"Frequency Meter With Ferrite Resonator"

Avt. sv. SSSR (Author's Certificate USSR) Class 21a^4, 71, (Col r 23/10), No. 270841, Application 8.12.68, Publication 20.08.70 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3A375P)

Translation: Existing frequency meters containing a ferrite resonator, a sawtooth current generator, and a converter of the measured frequency into a pulse voltage, have low frequency readout accuracy on the oscillograph screen. To improve the measurement accuracy, the output of the UHF detector in the converter is connected to the pulse generator through an amplifier, a differentiating circuit, and a null circuit. V. L.

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Mining, Petroleum, Geological

USSR UDC 621.43.011:533;621.5:533

BOGDANOV, G. G., MASLYAYEV, A. Ye., LI KHI UN

"Determining the Aerodynamic Parameters for Electrical Modeling of the Resistance of Soils in a Collapsed Space"

Tr. Vost. NII po bezopasn. rabot v gorn. prom-sti (Works of the Eastern Scientific Research Institute on Operational Safety in the Mining Industry), 1972, Vol. 12, pp 144-149 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B412)

Translation: The movement of air in collapsed soils in the development of a sluice system and the intermediate law governing motion which was established as a result of the study are discussed. The aerodynamic parameters were found by mathematical means: the permeability coefficients and the macroroughness which enter into the equation for the intermediate law of motion for the air. The quantitative values of these parameters obtained for different motions of the air were determined experimentally under mining conditions. It was also established that the permeability coefficient varies in inverse proportion to the change in the linear aerodynamic resistance and that the roughness is inversely proportional to the change in the square of the aerodynamic resistance.

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USSR

BOGDANOV, G. G., et al, Tr. Vost. NII po bezopasn. rabot v gorn. prom-sti, 1972, Vol. 12, pp 144-149

In absolute value the macroroughness is approximately equal to the roughness of concrete. A method for determining the aerodynamic parameters necessary for electrical modeling of the collapsed space and a graph of the dependence of the index of the air motion regime and the ratio of the pressure drops through the layer of collapsed soil before and after the change in the quantity of air entering the segment are given; the correlation coefficient between the above parameters was determined. Authors' abstract.

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1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--EMISSION FROM A WIDE SLIT ON A FINITE DIMENSION SCREEN -U-

AUTHOR-(03)-BOGDANOV, G.G., TSYBAYEV, B.G., CHUPROV, M.YE.

COUNTRY OF INFO--USSR

B

SOURCE--MOSCOW, RADIOTEKHNIKA, NO 3, 1970, PP 89-93

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION

TOPIC TAGS--ELECTRON EMISSION, WAVEGUIDE, RADAR SCREEN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1296 STEP NO--UR/0103/70/000/003/0089/0093

CIRC ACCESSION NO--AP0123255

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123255

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORMULAS ARE DERIVED FOR CALCULATING THE CHARACTERISTICS OF EMISSION IN THE E PLANE OF A WIDE SLIT ON A SCREEN OF FINITE DIMENSION FOR CASES INVOLVING FLAT AND CURVED SCREENS. THE RESULTS OF G. N. KUCHERZHEVSKIY'S WORK AND THE THEORY OF EMISSION FROM THE OPEN END OF A WAVEGUIDE WERE USED AS THE BASES FOR ANALYSIS. EXPERIMENTAL RESULTS ARE GIVEN FROM VERIFYING THE DERIVED EXPRESSIONS. ORIGINAL ARTICLE: FOUR ILLUSTRATIONS AND THREE BIBLIOGRAPHIC ENTRIES.

UNCLASSIFIED

USSR

UDC 621.774.13

BOGDANOV, V. F., KHOTOMLYANSKIY, A. L., KURKIN, A. N., PETRUSEVICH, K. F., and BOGDANOV, G. P., Zhdanov Metallurgical Plant imeni Il'ich

"Effect of Straightening on the Changes in Mechanical Properties of Dressed Cold-Rolled Sheet Steel"

Moscow, Stal', No 10, Oct 70, pp 921-923

Translation: The straightening of strips in the lines of transverse cutting units leads to a change in the mechanical properties of cold-rolled dressed steel. The tensile strength increases and the relative elongation, the depth of hole extrusion according to Eriksen, the yield point, and the hardness decrease. The reduction of strip thickness brings about a reduction in the efficiency of straightening according to mechanical properties.

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USSR

UDC 621.394.6.521

BOGDANOV, G.V.

"Keyboard Telegraph Equipment"

USSR Author's Certificate No 265934, filed 2 Dec 68, published 30 June 70 (from RZh--Elektrosvyaz', No 4, April 1971, Abstract No 4.64.342P)

Translation: A keyboard telegraph is patented which contains combination straightedges [lineyko] with tapered teeth, a starting mechanism unit, and key levers with key and return springs. With the object of decreasing the force of the pressure of the keys, with a simultaneous increase of the reliability of operation of the keyboard and simplification of the construction, in it the teeth of the combination straightedge for each row of key levers are made with bevels [skos] varying in height and rake with respect to the direction of movement of the combination straightedge. The starting mechanism is made in the form of a straightedge located in the assembly of combination straightedges parallel to the outermost, lengthwise of which and opposite to each of the key levers, teeth are constructed with bevels equal to the height and rake for each row of keyboard levers. All the keyboard levers are seated by one end, movable on the axis of rotation common for all the levers, which is attached to the keyboard frame. The height and rake of the teeth of the starting and each of the

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USSR

BOGDANOV, G. V., USSR Author's Certificate No 265934, filed 2 Dec 68, published 30 June 70 (from RZh--Elektrosvyaz', No 4, April 1971, Abstract No 4.64.342P)

combination straightedges of the keyboard telegraph equipment are selected in accordance with the relation

$$h = Hl/L;\ tg\ \alpha = h/S$$

where H is the magnitude of the movement for all keys; L is the distance from the axis of rotation of the key levers to the corresponding row of keys; l is the distance from the axis of rotation of the key levers to the corresponding combination of starting straightedges; h is the height of the teeth of the combination or starting straightedge; α is the rake of the teeth; S is the magnitude of the motion of the combination and starting straightedges.

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USSR UDC 612.014.42+612.825.55

BOGDANOV, G. V., GOL'DBURT, S. N., ZUBOVA, T. S., SOKOLOVA, M. L.

"Comparison of Residual and Backward Microinterval Maskings by Means of Measuring Absolute Judgement of Loudness"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 57, No 6, 1971, pp 806-817

Abstract: For clarification of both kinds of masking, the research objective described was to study changes in loudness within the same intervals. This is research not on relative, but absolute, loudness estimation; that is in comparison with a memory-retained standard. Micro-interval and information theory methods were combined for this purpose. Two experimental tasks were set: 1) determination of the amount of transmitted information (ATI) on pure tone loudness which followed, after a 30 to 980 m sec interval a stronger tone of the same frequency (residual masking) or preceded it by the same interval (backward masking); 2) an error comparison was made, i.e., the number of over- and underestimations of loudness on both maskings. Results showed that the ATI on loudness in six categories of pure tone, under the described conditions of interference, showed a sharp ATI decrease not corresponding to concomitant threshold changes. ATI displacements in residual and backward mask-

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USSR

BOGDANOV, G. V., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 57, No 6, 1971, pp 806-817

ings were not symmetrical. There was a contrast of dominant errors (overestimations with residual; underestimations with backward). This is seen as evidence of their differing origins.

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1/2 007 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--ESTERIFICATION WITH ION EXCHANGERS -U-

AUTHOR-(02)-BOGDANOV, K.A., IVANOVA, T.V.

COUNTRY OF INFO--USSR

B

SOURCE--ZASLO,ZHIK. PROM. 1970, 36(1) 35

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ESTERIFICATION, ION EXCHANGE RESIN, CARBOXYLIC ACID ESTER/(U)KU1 ION EXCHANGE RESIN, (U)KU2 ION EXCHANGE RESIN, (U)SDV3 ION EXCHANGE RESIN, (U)MSF3 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0335 STEP NO--UR/9085/70/036/001/0035/0035

CIRC ACCESSION NO--AP0111529

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0111529

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ESTERIFICATION OF A MIXT. OF SYNTHETIC C SUB5-6 CARBOXYLIC ACIDS (I) WITH ISOAMYL ALC. (II) IN THE PRESENCE OF ION EXCHANGERS KU-1 (III), KU-2 (IV), SDV-3 (V), AND MSF-3 (VI) WAS STUDIED. THE ESTERIFICATION MADE IN THE PRESENCE OF 10 G V OR VI UPON REFLUXING 130 G I WITH 140 G II 7 HR GAVE ISOAMYL ESTERS VII, B SUB10-15 106-32DEGREES, OF I, WHICH HAD A HIGHER PERFUMERY QUALITY THAN VII PREPD. IN THE PRESENCE OF H SUB2 SO SUB4. III AND IV DID NOT EXHIBIT CATALYTIC EFFECT ON THE ESTERIVICATION.

UNCLASSIFIED

BOGDANOV, K.F.

Medicine

SO: JPRS 55015
25 JANUARY 1972

UDC: 616-002.77-057:69(571.51)

[illegible] OF RHEUMATISM AMONG CONSTRUCTION WORKERS ON THE KRASNOYARSK HYDRO-[illegible] POWER STATION

(medicine)

[illegible] by I.A. Dudar', Chair of Faculty Therapy (headed by Docent K.F. [illegible]), Krasnoyarsk Medical Institute; Moscow, Sovetskoye Zdravookhraneniye, [illegible] No 12, 1971, submitted 3 May 1971, pp 56-59]

Rheumatism is a widespread illness with great sociohygienic significance. The [illegible] incidence in different countries is related to the distinctions of [illegible] and cultural life, living conditions and diet of the people, and [illegible] of medical care. Investigation of the effect of environmental factors on the clinical course of rheumatism is necessary to organize effective prevention of recurrence of the diseases as well as measures to rehabilitate and preserve the fitness of patients with rheumatic heart lesions with regard to employment. Of some interest is determination of the effect of climate and geographic factors on the extensiveness of rheumatism. In the opinion of [illegible] (1956), A.I. Nesterov (1962), G.M. Danishevskiy (1961), and [illegible] climate and geographic conditions are very important. At the same time a number of investigators (N.P. Savvatimskaya, 1938; L.V. Gargasas, 1964, [illegible] Goryayev, 1964; G.I. Orlova, 1965, and others) indicate there is no [illegible] correlation between climate and geographic factors on incidence of this disease.

A number of authors have indicated that sociohygienic factors affect the incidence of rheumatism and that working and living conditions must be improved for such patients (A.I. Nesterov, 1959; L.V. Gargasas, 1965; N.P. Zaytseva and [illegible], 1961, and others); and in many of their cases a direct relation was established between morbidity and adverse living or industrial conditions.

Hardly anyone studied the incidence of rheumatism in Krasnoyarsk, in spite of the fact that this matter merits attention since the climate of Siberia is most rigorous. It is sharply continental in Krasnoyarsk, and is characterized by a wide amplitude of air temperature fluctuations both during the year and within a single day. The winters are cold, dry, with mild winds and clear skies. The summers are moderately warm, relatively short, with little precipitation.

Acc. Nr: AP0034716 Ref. Code: UR 0241

PRIMARY SOURCE: Meditsinskaya Radiologiya, 1970, Vol 15, Nr 2, pp 40-44

THE EMPLOYMENT OF TRITIUM OXIDE FOR THE STUDY OF THE DYNAMICS OF WATER METABOLISM IN ACUTE CEREBROCRANIAL INJURY

Sanikidze, V. D.; Bogdanov, K. M.; Romanovskaya, L. L.

Summary

A disturbance of the water metabolism in rabbits with an acute injury of the brin complicated by edema occurs during the first hours after trauma, this being testified by disordered discharge of tritium oxide from the blood channel into the intercellular water. During the subsequent days the process stabilizes and differs insignificantly from the dynamics of the water metabolism in controls.

D.M.

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REEL/FRAME

19711422

02

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DETERMINATION OF DIPOLE MOMENTS OF ALIPHATIC ACID MOLECULES -U-

AUTHOR-(02)-KOVRIGINA, L.P., BOGDANOV, L.I.

COUNTRY OF I O--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(6), 1571-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DIPOLE MOMENT, FATTY ACID, DIELECTRIC PROPERTY, ENTROPY, ENTHALPY, ALIPHATIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/F02 STEP NO--UR/0076/70/044/006/1571/1573

CIRC ACCESSION NO--AP0140328

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140328

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIPOLE MOMENTS AND RELAXATION TIMES FOR 14 STRAIGNT CHAIN FATTY ACIDS WERE DETD. IN LOW CONCN. DIOXANE SOLNS. FOR A ERIES OF 12 ACIDS, THE DIELEC. CONSTS. AND DIELEC. LOSS FACTORS WERE MEASURED AT 20-140DEGREES. BASED ON THE EXPTL. DATA, THE DEPENDENCE OF DIELEC. CONSTS. AND DIELEC. LOSS FACTORS ON MOL. WT., CLCD. CORRELATION FACTOR, EQUIL. CONST., ACTIVATION ENERGY, ENTHALPY, AND ENTROPY WERE ESTABLISHED. FACILITY: MOSK. OBL. PEDAGOG. INST. IM. KRUPSKOI, MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 771.531.37.778.33

BOGDANOV, L. M., GRECHKO, M. K., DONSKAYA, S. A., ZHORRES, V. I., KISLITSYN, V. K., and NEFEDCHENKOV, V. M., Shostinskiy Branch, Gosniikhimfotoproyekt Shostinskiy Chemical Combine

"A New X-Ray Film for Rapid Machine Processing"

Moscow, Zhurnal Nauchnoy i Prikladony Fotografii, Vol 18, No 4, 1973, pp 306-307

Abstract: The Shostinskiy branch of the Gosniikhimfotoproyekt and the Shostinskiy Chemical Combine completed in 1972 the development of a new medical X-ray film, the RM-1 "M" which, in distinction from the series-produced RM-1 medical X-ray film, is suitable for rapid machine processing. The specifications of this new film are similar to those of the East German Supervidox Roentgen Film/x-ray. The emulsion layer of the RM-1 "M" film is thinner than that of the RM-1 film, and of the RM-1T film that is being produced in series for tropical use; the emulsion layer of the new film is capable of withstanding the severe temperature conditions of machine processing. During machine processing, each of the operations of developing, fixing, washing, and drying require 45 seconds. The RM-1 "M" film has been tested for machine processing with entirely satisfactory results, and is now being produced in series.
2 tables. 2 references.
1/1

Acc. Nr.: AP0046495 B Ref. Code: UR0094

USSR UDC 621.314.632.004.15

STOLYAREVSKIY, N. A., Engineer, Ust'-Kamenogorsk Lead and Zinc Combine, and BOGDANOV, M. A., Engineer, Ministry of Non-Ferrous Metallurgy USSR

"Experience in the Use of Silicon Current Transformers"

Moscow, Promyshlennaya Energetika (Industrial Power Engineering), No 2, 1970, pp 18-21

Translation: A description is given of the modernization of working mercury transforming substations at the Ust'-Kamenogorsk Lead and Zinc Combine by replacing the mercury-arc rectifiers with high-capacity silicon transformers. During the period of this substitution, part of the mercury-arc rectifiers operated in parallel with the silicon ones. The circuits of the units are presented. (3 illustrations)

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84 4

Reel/Frame
19781748

1/2 015 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--HIGH SHRINKAGE FIBERS BASED ON POLY(ETHYLENE GLYCOL TEREPHTHALATE 5,HYDROXYISOPHTHALATE -U-
AUTHOR-(02)-DYURNBAUM, V.S., BOGDANOV, M.N.

B

COUNTRY OF INFO--USSR

SOURCE--KHIM. VOLOKNA 1970, (1), 63

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--POLYETHYLENE TEREPHTHALATE, SYNTHETIC FIBER, HYDROXYL RADICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/1812 STEP NO--UR/0183/70/000/001/0063/0063

CIRC ACCESSION NO--AP0100386
UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100386

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STAPLE OR FIBERS SPUN FROM POLY(ETHYLENE TEREPHTHALATE, 5,HYDROXYISOPHTHALATE), (TEREPHTHALIC, 5,HYDROXYISOPHTHALIC ACID WT. RATIO 98-98.5:2-1.5), MELT AT 280 TO 2DEGREES OR 292 TO 4DEGREES AND AFTER DRAWING 240 TO 50PERCENT OR 330 TO 60PERCENT, RESP., AT 70 TO 5DEGREES SHRINK 50 TO 60PERCENT WHEN HEATED TO 60DEGREES. SUCH FIBERS ARE USED IN THE MANUF. OF ARTIFICIAL FUR, TRICOTS, AND KNITTED FABRICS. THEY SHOULD BE PROCESSED AT LESSTHAN 80DEGREES AFTER SPINNING TO PRESERVE THEIR SHRINKING ABILITY.

UNCLASSIFIED

Therapy

(2)

USSR

UDC 615.849.19.015:616-091

KHROMOV, B. M., KOROTKEVICH, N. S., OKSOVA, Ye. Ye., KRYLOV, K. I., PROKOFENKO, V. T., and BOGDANOV, M. P., Leningrad Institute of Postgraduate Medicine imeni S. M. Kirov, Leningrad Institute of Precision Optics and Mechanics, and Institute of Psychoneurology imeni V. M. Bekhterev

"Organ Changes Following Experimental Resection With a Laser Beam"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 2, 1973, pp 45-48

Abstract: The liver, spleen, and kidneys of rats were resected with a laser beam (energy density 10 to 18 j/mm^2). Immediately after the operation, a linear area of coagulated tissue could be seen on the surface of the organs. Histologic examination from 1 to 33 days after the operation revealed several distinct zones of altered tissues in the 3 operated organs. Under a surface zone of coagulated tissue was a zone of necrosis and then a zone of reactive changes. Still deeper was normal tissue with solitary hemorrhages. A leukocyte reaction became apparent on day 3. Edema and hemorrhages were most pronounced in the spleen. Connective-tissue fibers began to proliferate in the necrotic zone of the spleen on day 3 after the operation and in the liver and kidneys on day 7. The amount of connective tissue gradually increased and formed a scar.

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USSR

UDC 621.[illegible]

KRYLOV, K.I., PROKOPENKO, V.P., BOGDANOV, N.P.

"CO_2 Laser For Experimental Surgery"

[Nauch.tr.] Leningr. in-ta usoversh. vrachey im. S.M. Kirova ([Scientific Works] Leningrad Institute For The Improvement Of Doctors imeni S.M. Kirov), 1971, Issue 97, pp 41-44 (from RZh--Radiotekhnika, No 9, Sept 1971, Abstract No 9[illegible])

Translation: A CO_2 laser in a continuous regime is described. A mixture of CO_2--N_2--He is continuously pumped through a discharge tube, between the electrodes of which a glow discharge is excited. The gas-discharge tube 1.8-m long and 50-mm in diameter fabricated from molybdenum glass has water cooling and is jointed with the terminal units [blok] by means of sylphons. The supply of 50-Hz alternating current takes place across a ferroresonance stabilizer, a step-up transformer, and a ballast resistance. The resonator is formed by plane and spherical (R = 16.[illegible] m) mirrors. The focusing lens (BaF_2, F = 150 mm) makes it possible to concentrate the beam at a spot 0.5 mm in diameter with a power density up to 35 watt/mm^2. [Leningrad Institute Of Precision Mechanics and Optics.] 3 ill. 14 ref. V.I.

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USSR

UDC 621.[illegible]

[illegible], [illegible], [illegible], [illegible], [illegible], [illegible], V.T., [illegible]

"Test Of The [illegible] During Surgical Operations (Experimental Studies)"

[illegible] (Scientific Works] [illegible], 1971, Issue 97, pp [illegible] (No 9, Sept 1971, [illegible])

[illegible] up to [illegible] watts had a 0.[illegible] wide [illegible]. The depth of [illegible] (after [illegible] day). [illegible] of the organ [illegible] the cut was dry [illegible] about brown [illegible] and necro[illegible] tissues [illegible] 1 [illegible].

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002200420003-8"

USSR

FRADKIN, G. M., BREZHNEVA, N. YE., YERSHOVA, Z. V., BOGDANOV, N. I. (Deceased), KUDYUKOV, V. M., VORONIN, A. N., KOZLOV, A. G., MALYKH, YU. A., NIKIPELOV, B. V., RAGOZINSKIY, A. I., FEDOROV, V. V. and CHUSHKIN, YU. V., State Committee for the Use of Atomic Energy USSR

"Advancement of Research in the Field of Nuclear Power Engineering in the USSR (Report Presented at the Fourth United Nations International Conference on the Peaceful Uses of Atomic Energy held 6 to 16 September 1971 in Geneva)"

Moscow, Atomnaya energiya, Vol 31, no 4, Oct 71, pp 358-365

Abstract: This report cites data on the Soviet development of the thermoelectric generators designed for feeding oceanographic and navigation devices, hydrographic, automatic, radiometeorological, magnetic variation stations, high-mountain cosmic ray stations, and other scientific research land stations. The report covers the scientific and technical fundamentals of such energy sources and cites the characteristics of some generators. Discussed in some detail are various aspects of radio isotopic fuels, selection, properties, distinctive characteristics, evaluation, requirements, cost factors, availability, handling safety factors, and forms of applica-

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FRADKIN, G. M., et al, Atomnaya energiya, Vol 31, no 4, Oct 71, pp 358-365

tion. The potential use of extraction separation of alkali-earth elements for obtaining pure strontium is noted. A table lists the comparative characteristics of various isotopes having potential use in thermoelectric generators. Much consideration is given to topics dealing with energy release in an isotopic unit, biological protection, radioactive decay energy conversion, thermal flow chart selection, and generator designs. Described and illustrated are some thermoelectric generators of various designations (using Ce^{144}, Cs^{137}, Sr^{90}, Pu^{238}, $Cm^{242}(Po^{210})$) including Beta-1, Beta-2, Beta-C, Efir, Penguin, MIG-67 (portable-type), and generators with cascade converters. (8 illustrations).

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USSR

FRADKIN, G. M., BREZHNEVA, N. YE., YERSHOVA, Z. V., BOGDANOV, N. I. (Deceased), KODYUKOV, V. M., VORONIN, A. N., KOZLOV, A. G., MALYKH, YU. A., NIKIFELOV, B. V., RAGOZINSKIY, A. I., FEDOROV, V. V., and CHUSHKIN, YU. V., State Committee on the Use of Atomic Energy USSR, Fourth International Conference of the United Nations on the Peaceful Use of Atomic Energy, Geneva, 6-16 Sep 71

"Development of Isotopic Power Technology in the USSR"

Moscow, Atomnaya Energiya, Vol 31, No 4, Oct 71, pp 358-365

Abstract: The construction in the USSR of isotopic thermoelectric generators for powering oceanographic and navigation devices, hydrographic, automatic radiometeorological, magnetic variation stations, high-elevation cosmic ray stations, and other scientific research stations and ground installations is reported on. The most suitable for fuel applications are isotopes with a half-life period within the limits 100 days to 100 years (approximately 50 isotopes), of which 12-15 can be obtained in large amounts. Most quantities of fission radioactive isotopes and also the most widely used radioactive Sr^{90} are obtained by processing radioactive waste solutions. To simplify isolation of radiochemically pure elements, including Sr^{90}, the group concentration method is used, based on calcium oxalate precipitation. The most promising technique is extraction separation of alkaline-earth elements with the isolation of pure strontium. Here the following extractants are used: a

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FRADKIN, G.M., et al, Moscow, Atomnaya Energiya, Vol 31, No 4, Oct 71, pp 358-365

solution of di-2-ethylhexylorthophosphoric acid in kerosene from a nitric acid medium, and a solution of salicylaldoxime in tributyl phosphate from an alkaline (sodium hydroxide or ammonia) solution. Currently construction has been completed for blocks with activities in the tens and hundreds of kilocuries based on Ce^{144} (20,000 curies), Sr^{90} (9000-100,000 curies), and Cs^{137} (50,000-150,000 curies), and also blocks based on Pu^{238}, Po^{210}, Cm^{242}, and Co^{60}. The thermal capacity of these blocks lies within the range 1-1000 watts. An empirical formula was derived and tested for the power yield in an isotopic (thermal) block. Also discussed is biological protection during development and construction of isotope power sources containing kilocurie amounts of radioactive heat. In dealing with the conversion of radioactive decay energy, the thermoelectric method was found to be most fully mastered at present: low-temperatures semiconductor materials (up to 300°C) have been obtained with quite high efficiencies (5-8%), as well as medium-temperature (300-700°C) and high-termperature (higher than 700°C) semiconductor materials. Combining different materials in the form of cascade elements already permits attainment of 12-15% conversion efficiency in prototypes. Demands of minimum weight and size and also low background of attendant neutron and gamma-radiation led to construction of portable generators of the MIG-67 type based on Pu^{238}. The unique properties of Cm^{242} and Po^{210} (high specific power yield and fairly low-gamma-radiation intensity) made feasible construction of isotopic thermoelectric generators using cascaded converters with efficiencies of 8-10% in the 300-850°K range.

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USSR UDC 632.954

BOGDANOV, N. M., Scientific Research Institute of Fertilizers and Insecto-fungicides, Moscow

"Agrochemical Principles for the Formulation of Complex Herbicides. I. Selection of Components. Initial Evaluation of Selective and Herbicidal Activity of Mixtures"

Moscow, Agrokhimiya, No 4, Apr 73, pp 105-113

Abstract: In selecting components for a complex herbicidal preparation the following aspects should be considered: the product should have sufficiently high selectivity of the action, the herbicidal effect of the complex should be stronger than the total of the component activities, while the toxicity should be lower. It is necessary to carry out field and greenhouse trials on proposed complex agents before a wide scale production of the agents, to obtain direct data on the synergistic effect of their combination. Only after preliminary pilot trials it is reasonable to attempt actual formulation of the complex herbicides.

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USSR UDC 632.954

BOCDANOV, N. M., Scientific Research Institute of Fertilizers and Insecto-fungicides, Moscow

"Agrochemical Principles for Production of Complex Herbicides. II. Determination of a Rational Combination of Doses of Active Substances in Double Herbicide Mixtures"

Moscow, Agrokhimiya, No 5, May 73, pp 120-128

Abstract: Production of complex herbicides represents an uninterrupted sequential process including the following stages: selection of components, preliminary evaluation of selective and herbicidal potentials of these mixtures, and determination of quantitative correlations of active substances in the complex. The preliminary information is derived from the field and vegetational experiments. The criterion used for further evaluation is 80% destruction of the weeds with less than 20% loss of the harvest. The composition of the complex is derived from the minimal sum of herbicidal doses assuring the desired effect; it is calculated by means of nomograms plotted from the formula derived for this purpose.

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USSR

UDC: 632.954

BOGDANOV, N. M., Scientific Research Institute of Fertilizers, Insecticides and Fungicides imeni Ya. V. Samoylov

"Effectiveness of Complex Herbicides on Beet Seedings"

Moscow, Khimiya v Sel'skom Khozyaystve, no 11, Nov 70, pp 43-47

Abstract: Prolonged and systematic use of the same herbicides on seedings does not preclude the propagation of other resistant weed plants. One way of enhancing the effectiveness of herbicides and widening the spectrum of their anti-weed action is the use of complex compounds consisting of several herbicides. Described here are tests which have been conducted for a period of two years involving various mechanical mixtures of herbicides. When applied to beet seedings, complex herbicides exhibited reasonable selectivity. Their herbicidic activity was higher and the anti-weed spectrum was wider than that of Pyramin in its optimum dose. A

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USSR

BOGDANOV, N. M., Khimiya v Sel'skom Khozyaystve, no 11, Nov 70, pp 43-47

particularly high effectiveness was displayed by a mixture of Pyramin with Eptam. The mixtures of Pyramin plus IFK (6.3 kg/ha of active ingredients) and Pyramin plus trichloroacetate (7.4 kg/ha active ingredients) were effective against black bindweed and curltop ladysthumb, while those of Pyramin plus Eptam (5.0 kg/ha active ingredients) affected bindweed and hemp nettle, i.e., weeds resistant to Pyramin. A mixture of Pyramine plus dalapon (4.9 kg/ha active ingredients) affected dicotyledonous weed plants in the same manner as did Pyramin. In order to control bindweed, hemp nettle and the fumitory family it is necessary to add a third component which would specifically affect these types of weed plants.

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USSR

UDC 612.866.08

BOGDANOV, R. S., Laboratory of Physiology of the Vestibular Apparatus, Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Leningrad

"Device for Recording Changing Rotation Velocities During Examination of the Vestibular Apparatus"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 56, No 10, Oct 70, pp 1,500-1,502

Abstract: A device developed by a group of Soviet engineers under the guidance of Professor A. Kh. Min'kovskiy, which permits recording of instantaneous changes in rotation values affecting the vestibular apparatus is described. It consists of a rotating stand, a non-contact tachometer, a pick-up unit containing a semiconductor photodiode tube, and a disk with 120 radial apertures 0.5 millimeters in width located between the light and the diode tube, and connected with the rotating stand. The device makes it possible to record instantaneous rates of change within a range of 10 to 60 degrees a second with linear dependence of the output signal on the rotating velocity of the stand. In addition, it is possible to record the actual beginning of rotation with accelerations of ±0.5 degrees a second, with allowance for error not exceeding 200 milliseconds and to record the output signal in integrated as well as pulse forms. With this device it is possible to compare

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USSR

BOGDANOV, R. S., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 56, No 10, Oct 70, pp 1,500-1,502

precisely the characteristics of vestibular reactions such as the nystagmus threshold, the value of the slow component, and other with the instantaneous rate of change in velocity of the rotating stand, an important factor in the study of control mechanisms in the vestibular apparatus.

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1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--INCOHERENT MULTIPLE SCATTERING OF NEUTRONS -U-

AUTHOR-(02)-MENSHIKOV, A.Z., BOGDANOV, S.G.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 252-5

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--INCOHERENT SCATTERING, MULTIPLE SCATTERING, NEUTR ON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0997 STEP NO--UR/0070/70/015/002/0252/0255

CIRC ACCESSION NO--AP0124656
UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124656

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANGULAR DEPENDENCE WAS INVESTIGATED OF INCOHERENT MULTIPLE SCATTERING OF NEUTRONS BY USING NEUTRON DIFFRACTOMETER DATA ON POLYCRYST. PLATELIKE V SAMPLES WITH THICKNESSES RANGING FROM 1.55 TO 29.75 MM. THE INTENSITY OF INCOHERENTLY SCATTERED NEUTRONS EXHIBITS A WEAK A NG AR DEPENDENCE FOR ALL THE SAMPLES STUDIED, A DECREASE OF THE INTENSITY BEING OBSD. IN THE LOW ANGLE REGION. BY COMPARING THE EXPTL. RESULTS WITH THOSE DEDUCED FROM THE THEORY OF VINEYRD (CA 49: 2200A), THE CONTRIBUTION OF INCOHERENT SCATTERING OF 4TH AND HIGHER ORDERS MAY BE NEGLECTED IN ALL THE CASES WHEN TSIGMA SUBT IS SMALLER THAN OR EQUAL TO 1, WHERE T IS THE SAMPLE THICKNESS AND SIGMA SUBT IS THE TOTAL MACROSCOPIC CROSS SECTION INCLUDING BOTH SCATTERING AND ABSORPTION OF NEUTRONS. IT IS RECOMMENDED THAT INCOHERENT MULTIPLE SCATTERING BE ASSUMED IN EXPTL. DETG. THE EFFECTIVE INTENSITY OF AN INCIDENT NEUTRON BEAM. FACILITY: INST. FIZ. MET., SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--PHOTOGRAPHIC FILMS WITH INCREASED SENSITIVITY IN THE VACUUM ULTRAVIOLET SPECTRAL REGION -U-

AUTHOR-(04)-BOGDANOV, S.G., GINDENBERG, N.O., POLYAKOVA, N.V., GRATSIANSKAYA, Z.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. NAUCH. PRIKL. FOTOGR. KINEMATOGR. 1970, 15(2), 126-9

DATE PUBLISHED-------70

SUBJECT AREAS--METHODS AND EQUIPMENT

TOPIC TAGS--PHOTOGRAPHIC FILM, UV SPECTRUM, PHOTOGRAPHIC CHEMISTRY, PHOTOGRAPHIC EMULSION, OPTIC INSTRUMENT/(U)FSR9 SPECTROSENSITOMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1691 STEP NO--UR/0077/70/015/002/0126/0129

CIRC ACCESSION NO--AP0118669

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118669

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THREE AG (I, BR) EMULSIONS WITH VARIOUS PROPERTIES WERE USED. THE FILMS WERE PREPD. WITH A HORIZONTAL CENTRIFUGE AND THEN EXPOSED IN A FSR-9 SPECTROSENSITOMETER BETWEEN 436 AND 254 NM. THEY WERE DEVELOPED BY A 5 TIMES DILD. D-19 DEVELOPER AT 20DEGREES WITH THE ADDN. OF BENZOTRIAZOLE TO LIMIT FOGGING. THE SENSITIVITY OF ALL FILMS INCREASED SOMEWHAT WITH DECREASING WAVELENGTH OF THE INCIDENT RADIATION. THE SENSITIVITY WAS HIGHER BY ONE ORDER OF MAGNITUDE, AND THE CONTRAST COEFF. WAS HIGHER THAN IN PLATES COATED CONVENTIONALLY WITH THE SAME EMULSIONS. IN THE FAR UV REGION THE SENSITIVITY WAS MUCH HIGHER THAN IN THE CONTROL UF-2T FILM AND WAS EQUAL TO THE SENSITIVITY OF THE FILMS SC-5 AND SC-7. THE APPLICATION OF THE EMULSION LAYER BY CENTRIFUGATION IS A PROMISING METHOD.

UNCLASSIFIED

USSR UDC: 621.396.6-181.5(088.8)

BARASH, Yu. V., BOGDANOV, S. S., SHESTAK, V. V., BELOPOL'SKIY, M. I., SIMDYANOV, G. I.

"A Device for Combining Microelements"

USSR Author's Certificate No 259612, filed 30 Aug 68, published 3 Jun 70 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V190 P)

Translation: This Author's Certificate introduces a device for combining microcomponents such as the microminiature elements of radio electronic circuits. The device is made in the form of a specimen stage which can be moved in two mutually perpendicular directions and is mounted on a rotating base connected to a mechanism for holding and adjusting the position of one of the elements to be combined. In order to increase the resolving power of the device, the adjustment mechanism is made in the form of a column which rotates about a vertical axis. This adjustment mechanism and the specimen table are subjected to the action of micro-adjustment units, each of which is made in the form of a plate which changes its linear dimensions as a result of thermal expansion.

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USSR

UDC 534.231.1:535.42

BOGDANOV, S. V., YAKOVKIN, I. B., Institute of Semiconductor Physics of the Siberian Department of the USSR Academy of Sciences, Novosibirsk

"Optical Properties of an Isotropic Solid Halfspace with a Surface Wave"

Moscow, Akusticheskiy Zhurnal, Vol XVIII, No 1, 1972, pp 130-133

Abstract: A series of papers have appeared previously on the interaction of surface waves in a solid state with coherent light, and the possibility of measuring such characteristics of the surface wave as the amplitude and propagation rate was demonstrated. The distribution of the dynamic deformations in the surface layer of the solid state are now investigated for a more complete characterization of the acoustic properties of the surface. The results of a theoretical and experimental investigation are presented. The presence and nature of deformations in the surface wave were checked experimentally using the volumetric diffraction in the wave. The polarization properties of the irised and unirised light beams were also investigated. The ratio of the light intensities in the irised beam I_1 and the intensity in the zero beam I_0 were measured moving the light beam from the surface into the substrate. The fluctuations of I_1/I_0 at great depth indicates that in the volume of the substrate there are either volumetric waves or "tails" of deformations of the surface wave

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USSR

BOGDANOV, S. V., et al., Akusticheskiy Zhurnal, Vol XVIII, No 1, 1972, pp 130-133

(the fluctuation amplitude of I_1/I_0 is on the order of 10^{-5}-10^{-6}). The polarization of the basic beam is colinear with the polarization of the incident beam, and that of the irised beam is orthogonal to the polarization of the incident beam which indicates that in the region of the first order of diffraction, the interacting light beams are π out of phase. For small excitation voltages with respect to the angle of diffraction the surface wave velocity was measured. It was $3.29 \cdot 10^5$ cm/sec, and this value coincides with the calculated value.

2/2

USSR UDC: 66.076.001.12+002.2

BOGDANOV, S. V., PANAZDYR', V. V., SIKIRYAVYY, V. Ya., SUBBOTOVSKIY, D. Kh., SHEMARIN, V. N.

"Selection of Design and Thermal Insulation of Covers for Underground Compressed Gas Containers"

Moscow, Stroitel'stvo truboprovodov, No. 8, 1972, pp 16-18

Abstract: Underground isothermal containers for storage of compressed methane may use various structural versions of covers. The two most frequently encountered in world practice, the spherical cover and the standard roof with sealing base, are studied in this article. Analysis shows that the standard roofing with sealing base is more economical than the spherical roofing, due largely to the lower capital investments required. Comparison of two types of insulation of this cover indicate that they are equally economical.

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USSR

UDC 621.317.761(088.8)

BOGDANOV, S. YE., SPICHENKOV, M. P., REZNIK, L. YE., BOTVINNIKOV, V. I.

"Device for Measuring the Carrier Frequencies of Shortwave AM Signals"

USSR Author's Certificate No 275223, Filed 16 Dec 68, Published 13 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A289P)

Translation: A device containing a professional superheterodyne receiver and an electronic counter is proposed for measuring the carrier frequencies of shortwave AM signals. It is distinguished by the fact that for automation and improvement of the operation of the measurement process the heterodyne outputs, the second intermediate-frequency amplifier of the receiver and one of the outputs of the standard oscillator are connected to the frequency conversion unit. The second output of the oscillator is connected to the automatic control unit by a counter comprised of a control circuit, divider, and valve, to the second input of which the signal is fed from the frequency conversion unit.

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BOGDANOV, V. A.

space physiology

SO: JPRS 53448
24 Jun 71

UDC 612.76.014.477:533.3 (04.7)

HUMAN MOVEMENTS UNDER LUNAR GRAVITATION CONDITIONS

[Article by V. A. Bogdanov, V. S. Gurfinkel' and V. Ye. Panfilova, Moscow, Kosmicheskaya biologiya i meditsina, Russian, Vol 5, No 2, 1971, pp 3-13, submitted for publication 7 January 1970]

Abstract: This is a review and analysis of data in the literature on the peculiarities of man's execution of different locomotor acts when reduced gravitation is simulated. A classification of different stands and experimental apparatus making it possible to simulate reduced gravity is proposed, operation of these simulators is analyzed, and their positive and negative properties are considered. An attempt is made at a comparison of experimental data obtained during the simulation of lunar gravity under terrestrial conditions and published data on emergence of the Apollo 11 crew onto the lunar surface.

Advances in cosmonautics have made possible the practical implementation of the boldest projects: creation of extraterrestrial scientific stations, travels to the Moon and planets of the solar system. Cosmonauts participating in these projects must know how to move independently on orbital stations and on the surface of the moon and planets. The considerable difference in gravity makes it necessary to clarify the effect of modified gravity on man's motor activity (peculiarities of kinematics, dynamics and energy of motor acts; processes for controlling them; man's adaptability; means and methods facilitating the performance of motor tasks). Human psychology under these conditions has been the subject of special study (Graume and Kuehnegger; Gerathewohl).

Some theoretical and experimental data have been accumulated characterizing man's motor functions under conditions of reduced gravitation. However, these data pertain for the most part to the biomechanical characteristics of movements and only to a very small degree can facilitate clarification of the physiological mechanisms of the studied phenomenon. The latter can become understandable only by taking into account (in addition to the mechanical

MEDICINE

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Aerospace Medicine

USSR

BOGDANOV, V. A., GURFINKEL', V. S., and PANFILOV, V. Ye.

"Changes in Man's Position When Standing Under Conditions of Low Gravity"

Moscow, Biofizika, No 1, 1970, pp 179-183

Abstract: Under conditions of simulated low gravity, human subjects stood and walked bent over, the degree varying with the amount of gravity. This posture was maintained for a long time. The reason for this is that the "decrease in body weight" under the experimental conditions resulted in a weakening of the antigravity activity of the extensors with relative preservation of tension by the flexors. Due to a balancing of the antagonistic muscles, the subjects assumed a new posture characterized by a forward tilting of the trunk and flexion in the joints. The authors expect a stooping position will be the most comfortable for astronauts when standing or walking on the moon.

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1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CHANGES IN THE HUMAN POSTURE WHILE STANDING UNDER DECREASED GRAVITATION CONDITIONS -U-

AUTHOR-(03)-BOGDANOV, V.A., GURFINKEL, V.S., PANFILOV, V.YE.

COUNTRY OF INFO--USSR

SOURCE--BIOFIZIKA 15(1): 179-183. ILLUS. 1970

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--POSTURE, GRAVITATION EFFECT, MOON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0919 STEP NO--UR/0217/70/015/001/0179/0183

CIRC ACCESSION NO--AP0129984

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CIRC ACCESSION NO--AP0129984

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDER SIMULATED SUBGRAVITY CONDITIONS THE POSTURE AND LOCOMOTION OF MAN ARE CHARACTERIZED BY A BENDING POSITION, THE DEGREE OF BENDING DEPENDING ON THE VALUE OF GRAVITY. THIS BENDING POSITION IS MAINTAINED DURING PROLONGED STAYS UNDER THE SAME CONDITIONS. IT CAN BE EXPECTED THAT A CONVENIENT STANCE FOR THE ASTRONAUT ON THE MOON SURFACE WILL BE CHARACTERIZED BY FLEXION IN THE LARGE JOINTS, WHILE THE LOCOMOTION ON THE MOON SURFACE WILL BE OF A DOWN BENDING CHARACTER.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CHANGES IN MAN'S POSITION WHEN STANDING UNDER CONDITIONS OF LOW GRAVITY -U-

AUTHOR-(03)-BOGDANOV, V.A., GURFINKEL, V.S., PANFILOV, V.YE.

B

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, BIOFIZIKA, NO 1, 1970, PP 179-183

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GRAVITATION, HUMAN PHYSIOLOGY, POSTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0822 STEP NO--UR/0217/70/000/001/0179/0183

CIRC ACCESSION NO--AP0121454

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2/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121454

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDER CONDITIONS OF SIMULATED LOW GRAVITY, HUMAN SUBJECTS STOOD AND WALKED BENT OVER, THE DEGREE VARYING WITH THE AMOUNT OF GRAVITY. THIS POSTURE WAS MAINTAINED FOR A LONG TIME. THE REASON FOR THIS IS THAT THE "DECREASE IN BODY WEIGHT" UNDER THE EXPERIMENTAL CONDITIONS RESULTED IN A WEAKENING OF THE ANTIGRAVITY ACTIVITY OF THE EXTENSORS WITH RELATIVE PRESERVATION OF TENSION BY THE FLEXORS. DUE TO A BALANCING OF THE ANTAGONISTIC MUSCLES, THE SUBJECTS ASSUMED A NEW POSTURE CHARACTERIZED BY A FORWARD TILTING OF THE TRUNK AND FLEXION IN THE JOINTS. THE AUTHORS EXPECT A STOOPING POSITION WILL BE THE MOST COMFORTABLE FOR ASTRONAUTS WHEN STANDING OR WALKING ON THE MOON.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--HALF LIFE OF CALIFORNIUM 252 SPONTANEOUS FISSION -U-

AUTHOR-(05)-ALEKSANDROV, B.M., BAK, M.A., BOGDANOV, V.G., BURGORKOV, S.S., SOLOVYEVA, Z.I.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(CT). 361-2

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--HALF LIFE, CALIFORNIUM ISOTOPE, NUCLEAR FISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0563 STEP NO--UR/0089/70/028/000/0361/0362

CIRC ACCESSION NO--AP0137648

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2/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137648

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATIO OF THE NO. OF ALPHA DECAYS TO THE NO. OF SPONTANEOUS FISSIONS OF PRIME252 CF IS 31.34 PLUS OR MINUS 0.08. FROM THIS RATIO A HALF LIFE OF 8.5 PLUS OR MINUS 0.4 YR WAS FOUND FOR THE SPONTANEOUS FISSION OF PRIME252 CF.

UNCLASSIFIED

UDC 539.214;539.374

USSR

GORODETSKIY, V. N., BOGDANOV, V. N., BEKIN, N. G.

"On the Velocity Distribution of a Material in the Rolling Process"

Sb. nauch. tr. Yaroslav. tekhnol. in-t (Collection of Scientific Works of Yaroslavl' Technological Institute), 1972, Vol. 31, pp 16-19 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V473)

Translation: The steady-state nonsymmetric process of the rolling of a non-Newtonian material in the deformation region between cylindrical rolls is discussed. A statistical law for the flow of the material is used: $\tau = A_{eff}(B\dot{\gamma})$. This is approximated by a broken line. In the above expression τ is the shift stress, $\dot{\gamma}$ is the velocity gradient, and A and B are parameters. It is assumed that the reworked material is incompressible. The desired velocity curves are represented in the form of parabolas $v = a + cy + by^2$, the coefficients of which a, b, and c are determined by applying the principle of minimum of total deformation energy. M. I. Rozovskiy.

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