UDC 547.26'118.07

USSR

PETROV, K. A., RAKSHA, M. A., KOROTKOVA, V. P., and SHMIDT, E.

"Synthesis of Alkenylphosphonic Acid Derivatives and Investigation of Their Properties. IV. β-Aldehydophosphonates"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71, pp 324-327

Abstract: Unsubstituted and α-alkylated β-aldehydophosphonates (I) may be obtained by hydrolysis of β-alkoxyvinyl- and β-alkoxy-α-alkylvinylphosphonic acid esters with concentrated hydrochloric acid. The products are colorless or slightly yellow liquids which can be vacuum-distilled with slight tarring; they give a qualitative reaction with fuchsin-sulfurous acid. (I) reacts energetically with sodium dicyclohexylphosphite, forming sodiumdialkyldicyclohexyl-α-alkyloxyethylenediphosphonate. To obtain (I), 3.6 g of concentrated HCl is added to 31 g of diethylester of ethoxyvinylphosphonic acid, heated for 30 min at 70-80° and fractionated under vacuum.

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USSR

UDC 547.26'118.07

PETROV, K. A., LEGIN, G. YA., and TSAREVA, A. KH.

"A Method of Synthesizing Monoalkyl Ethers of Arylphosphonous Acid"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 14, 1970, Author's Certificate no 268423, filed 4 Jan 69, p 24

Abstract: This Author's Certificate introduces: 1. A method of synthesizing monoalkyl ethers of arylphosphonous acid by interacting aryldichlorophosphine with hydroxyl-containing compounds with subsequent isolation of the goal product by conventional methods. As a distinguishing feature of the patent, the process is simplified and a more extensive raw material base is provided by using an equimolar mixture of higher and lower alcohols or a water-alcohol mixture as the hydroxyl-containing compounds. 2. The method described in (1) is distinguished by the fact that the process is carried out in an organic solvent such as benzene.

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1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--MONALKYL, MONARYL, ESTERS OF ALKYLPHOSPHINIC ACIDS -U-

AUTHOR-(03)-PETROV, K.A., YEVDAKOV, V.P., MIZRAKH, L.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 159,824
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--26JAN70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOSPHINIC ACID, ORGANIC PHOSPHORUS COMPOUND, ESTER, CHEMICAL PATENT, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1748 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136988

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136988

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPDS. ARE PREPD. BY TREATING DIALKYLPHOSPHINIC ACID DICHLORIDE WITH 1 MOLE H SUB2 O AND THEN WITH 1 MOLE ALC. OR PHENOL.

UNCLASSIFIED

USSR

UDC 621.357.7:678.029.665

PETROV, Kh., NENOV, D., BAYEVA, V., MIKHAYLOV, M.

"Effect of the Conditions of Pickling Bulgarian Shock Resistant Polystyrene on Its Galvanic Metal Plating"

Polimery 71. Simpoz., Varna, 1971 (Polymers 71. Symposium, Varna, 1971), Place and date of publication not given, 115 (from RZh-Khimiya, No 6 (II), Jun 72, Abstract No 6L324)

Translation: A study was made of the resistance to scaling, the resistance to temperature variations and the corrosion resistance of electrodeposited metal coatings on Bustren U825Yell Bulgarian polystyrene (having antishock properties) pickled before applying the galvanic coating with acid bichromate solutions under various conditions. It was established that the macroroughness of the plastic substrate increases with time during pickling to a defined, later invariant degree for which the resistance to scaling of the metal coating reaches a maximum. A study of the microhardness (by an electron microscope) demonstrated the presence of a correlation of this parameter to the scaling resistance. The conclusion was drawn that the investigated antishock polystyrene can be subjected to metal plating.

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USSR UDC 546.831-38+546.832-38

LEBEDEVA, Ye. N., KOROVIN, S. S., TOMILOV, N. P., and PETROV, K. I.

"Study of the Zirconium and Hafnium Hydroxyperchlorates by Means of IR-spectroscopy"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 3, Mar 71, pp 666-670

Abstract: Infrared spectra were obtained on the crystal hydrates of zirconium and hafnium hydroxyperchlorates containing varying number of water molecules, on deuterated zirconium crystal hydrate and on the compound with a formula $ZrO(OH)ClO_4 \cdot H_2O$. The spectra of corresponding compounds exhibited similarities in the absorption bands with an intensive complex band at 1100 cm^{-1} and another one of medium intensity at 620-630 cm^{-1}, both being assigned to the valence and deformation vibrations of ClO_4^-. The spectra of compounds containing 6 or 8 water molecules indicate absence of the coordination of the perchlorate ion. Spectra of $HfO(ClO_4)_2 \cdot 3H_2O$, $ZrO(ClO_4)_2 \cdot 2H_2O$, and $ZrO(OH)ClO_4 \cdot H_2O$ exhibited definite changes indicating coordination of the ClO_4^- ion with metal cation. No bands were found characteristic of the Me:O group.

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1/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ABSORPTION SPECTRUM OF PRASEODYMIUM ACETATE TETRAHYDRATE SINGLE CRYSTALS -U-

AUTHOR-(03)-PETROV, K.I., ZAYTSEVA, M.G., ORLIN, N.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(5), 868-71

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--ABSORPTION SPECTRUM, LIGHT ABSORPTION, CRYSTAL HYDRATE, PRASEODYMIUM COMPOUND, ACETATE, IONIC BONDING, COVALENT BONDING, ELECTRIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1417 STEP NO--UR/0368/70/012/005/0868/0871

CIRC ACCESSION NO--AP0135091

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135091

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION SPECTRA OF PR(OAC) SUB3 .4H SUB2 O IN THE 4000-9000 ANGSTROM REGION AT 77DEGREESK WERE INVESTIGATED BY USING NATURAL AND POLARIZED LIGHT TO CLASSIFY THE ELECTRON TRANSITONS, THE SYMMETRY OF THE CRYST. FIELD, AND THE CHARACTER OF THE INTERACTION OF PR PRIME3POSITIVE WITH ITS SURROUNDING ATOMS. THE SPLITTING OF THE LEVELS INDICATE THE LOW SYMMETRY OF THE CRYST. FIELD. THE SMALL DIFFERENCE BETWEEN THE POSITIONS OF THE CENTERS OF GRAVITY OF SLJ LEVELS OF PR PRIME3POSITIVE IN CRYSTALS AND IN THE FREE ION INDICATE THE PREDOMINANTLY IONIC CHARACTER OF BONDING IN THE CRYSTALS. THE COVALENT FRACTION IN THE BOND IS ESTD. MORE QUANT. BY USING SLATER INTEGRALS AND IS OF THE ORDER OF A FEW PERCENT.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--INFRARED SPECTROSCOPIC STUDY OF DOUBLE MOLYBDATES OF SOME RARE EARTH AND ALKALI METALS -U-

AUTHOR-(04)-PETROV, K.I., VORONSKAYA, G.N., SHAKHNO, I.V., SAVELYEVA, M.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSR, NEORG. MATER. 1970, 6(3), 515-18

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ALKALI METAL, CRYSTAL LATTICE, IR SPECTRUM, MOLYBDATE, RARE EARTH METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0838 STEP NO--UR/0363/70/006/003/0515/0518

CIRC ACCESSION NO--AP0118014

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118014

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA (400-100 CM PRIME NEGATIVE1) OF DOUBLE MOLYBDATES OF THE MM PRIME (MOO SUB4) SUB2 TYPE (WHERE M EQUALS LI, NA, K; M PRIME EQUALS Y, GD, DY, HO, AND ER) SHOWED SIGNIFICANT DIFFERENCES WITH STRUCTURE TYPE. THE INTERPRETATION OF THESE SPECTRA WAS PERFORMED ON THE BASIS OF THE LOCAL SYMMETRY OF THE MOO SUB4 PRIME2 NEGATIVE IONS IN THE CRYSTAL LATTICE. FACILITY: MOSK. INST. TONKOI KHIM. TEKHNOL. IM. LOMONOSORA, MOSCOW, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--PERRHENATE COMPLEXES OF HOLMIUM AND ERBIUM -U-

AUTHOR--PETROV, K.I., ORLIN, N.A., PLYUSHCHEV, V.YE.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 439-41

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METAL COMPLEX COMPOUND, HOLMIUM COMPOUND, ERBIUM COMPOUND, SPECTROPHOTOMETRIC ANALYSIS, RHENIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1255 STEP NO--UR/0078/70/015/002/0439/0441

CIRC ACCESSION NO--AP0055926

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11SEP70

2/2 008

CIRC ACCESSION NO--AP0055926

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT ROOM TEMP. AND IONIC STRENGTH SIMILAR TO 4.5, THE STABILITY CONSTS. (K) OF HO AND ER PERRHENATES LN(REO SUB4) SUB3 ARE 1.744 TIMES 10 PRIME NEGATIVE1 AND 1.512 TIMES 10 PRIME NEGATIVE1, RESP. K WERE DETD. SPECTROPHOTOMETRICALLY.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--INFRARED SPECTROSCOPIC STUDY OF HIGHER HYDRATES OF SULFATES AND SELENATES OF YTTRIUM, LANTHANUM, AND THE RARE EARTH ELEMENTS -U-
AUTHOR-(03)-PETROV, K.I., VORONSKAYA, G.N., IVANOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 615-21

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, CRYSTAL HYDRATE, SULFATE, SELENATE, RARE EARTH COMPOUND, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0775 STEP NO--UR/0078/70/015/003/0615/0621

CIRC ACCESSION NO--AP0104221
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104221

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA OF LN SUB2 (SO SUB4) SUB3 .8H SUB2 O AND OF LN SUB2 (SEO SUB4) SUB3 .8H SUB2 O, WHERE LN EQUALS LA, ND, SM, Y, GD, TB, DY, HO, ER, TM, YB, OR LU, ARE GIVEN AND INTERPRETED. THE SPECTRA REVEAL THAT BOTH SERIES OF COMPDS. HAVE 1 TYPE OF XO SUB4 PRIME2NEGATIVE GROUP (X EQUALS S OR SE). SMALLER SPLITTING OF V SUB3 (F SUB2) OF SEO SUB4 PRIME2NEGATIVE IN COMPARISON TO THAT OF SO SUB4 PRIME2NEGATIVE IS DUE TO THE LOWER ELECTRON AFFINITY OF SEO SUB4 PRIME2NEGATIVE THAN THAT OF SO SUB4 PRIME2NEGATIVE. WITH THE EXCEPTION OF LA SUB2 (SO SUB4) SUB3 .8H SUB2 O WHICH HAS 2 DELTA (H SUB2 O) BANDS, ALL THE INVESTIGATED OCTAHYDRATES HAVE A SINGLE DELTA (H SUB2 O) BAND WHICH CORRESPONDS TO COORDINATED H SUB2 O.

UNCLASSIFIED

USSR UDC 629.19:533.6

ZHIRNIKOV, B. L., PETROV, K. P.

"Study of the Possibilities of Improving the Aerodynamic Quality of Conical Bodies"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerodynamics Institute), Vol 1, No 1, 1970, pp 140-144 (from RZh-Mekhanika, No 10, Oct 70, Abstract No 10 B312)

Translation: This article contains the results of experimental and calculated investigations of aerodynamic characteristics of truncated cones for which a wedge-shaped forward section was formed by intersection by two inclined planes. In some models the forward section was blunted still more. The experiments were performed for M= 6.1 and R = $= 0.88 \cdot 10^6$ (reduced to the diameter of the bottom cut) and angles of attack from 0 to 18°. It is demonstrated that for defined geometric parameters the model with the wedge-shaped forward section has significantly greater supporting capacity and aerodynamic quality than the corresponding (inscribed) circular cone. A deficiency of models with a

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UR 0482

A0044646

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 01v.

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

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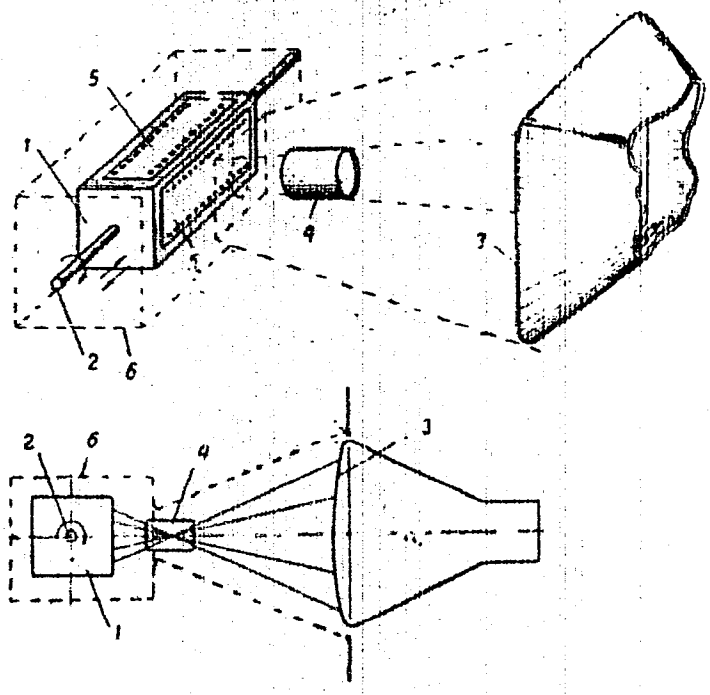
AA0044646



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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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AA0040727 PETROV L.G. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

242338 HEAT-INSULATION of the top part of a steel ingot is provided by a rapidly hardening composition which is poured between the casting mould and a model. In an example, the composition consists of 95-96% of quartz sand and 4-5% of ferrochrome slag, with addition of 7-10% of a binder comprising water glass and a foaming agent). The insulation does not require any additional drying; it is porous and permeable to gases. This method is simpler and more rapid than the conventional methods.

12.5.68 as 1239974/22-2. V.G. DODOKA et alia. "ZAPOROZHSTAL'" WORKS. (2.9.69) Bul 15/25.4.69. Class 31b. Int.Cl.B 22d.

19750379

AA0040727

AUTHORS: Dodoka, V. G.; Zhil'ko, M. M.; Podgorodetskiy, A. A.; Gurskiy, G. L.; Tkachenko, A. S.; Shchastnyy, P. M.; Shevlyakov, N. F.; Petrov, L. G.; Rudichev, K. P.; and Sidorenko, O. A.

Zavod "Zaporozhstal'"

19750380

USSR

UDC 669.295:620.172.2

PETRAKOV, A. F., KHOREV, A. I., PETROV, L. M., and RUBLEV, YA. A.

"Resistance of Titanium Alloys to Repeated Static Loads"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73, pp 46-50

Abstract: The effect of depth and hardness of the gas-saturated layer produced during heating for quenching and aging was studied with respect to the resistance of VT6S and VT14 titanium alloys to repeated static loads under uniaxial and biaxial tension. It was found that the gas-saturated layer (0.1 mm deep) on the surface of these alloys somewhat reduces alloy strength and sharply lowers ductility. Removal of the gas-saturated layer by etching to a depth of 0.1 mm for VT6S alloy and 0.5 mm for VT14 increased the service life of samples by 3-4 times under repeated static loads. A study of the rupture kinetics on samples of VT6S during repeated static loads showed that the gas-saturated layer mainly affects the number of cycles until the development of fatigue cracks, in that these cracks develop with the first load cycles. In short-time biaxial stress of VT14 the presence of the gas-saturated layer has little effect on the strength but severely worsens the nature of fracture. The service life of VT14 under biaxial stress with the gas-saturated layer is two orders less than without the layer. One table, four figures,
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USSR

UDC 621.375.4:621.375.121

ZOLOTAREV, T. V., OSTAPENKO, G. S., PETROV, L. N., UDOVIK, A. P., ARAKCHEYEVA, I. A.

"Problem of the Effect of the Capacitances of an Integrated Transistor on the Pass Band"

Sb. tr. Voronezh. politekhn. in-ta (Collected Works of Voronezh Polytechnic Institute), 1969, vyp. 2, pp 104-110 (from RZh-Radiotekhnika, No 5, May 72, Abstract No 5D109)

Translation: A study is made of the effect of the capacitances of the junctions and substrates of an integrated transistor on the pass band of the high frequency active elements. It is demonstrated that the capacitance of the emitter junction and also the capacitance of the substrate must be calculated by the relation for sharp junctions. It is recommended that transistors with minimal p-n-junctions be selected as the optimal transistors for wide band integrated amplifiers or dielectric insulation of the components be used in place of them, which sharply reduces the stray capacitances. There are 2 illustrations and a 2-entry bibliography.

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USSR

UDC 621.375.4.087.9.083.6

OSTAPENKO, G. S., ZOLOTAREV, T. V., PETROV, L. N., UDOVIK, A. N., ARAKCHEYEVA, I. A., TOROPOV, A. D.

"Instability Coefficients of the Feed Parameters of the Transistors of Monolithic Differential Amplifiers"

Sb. tr. Voronezh. politekhn. in-ta (Collected Works of the Voronezh Polytechnic Institute), 1969, vyp. 2, pp 127-135 (from RZh-Radiotekhnika, No 5, May 72, Abstract No 5D114)

Translation: A study is made of the parameters of monolithic transistors as a function of the parameters of their feed conditions. For the differential amplifier in the monolithic execution, relations are derived by means of which it is possible to define the instability coefficient of the feed parameters. It is demonstrated that these parameters are depicted most conveniently in the form of linear graphs. On the basis of the qualitative analysis of the instabilities, conditions were discovered under which the instability coefficient is minimal. There are 3 illustrations and a 4-entry bibliography.

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USSR UDC 621.375.018.756

ARAKCHEYEVA, I. A., DOMNIN, L. P., YEREMIN, S. A., NIKISHIN, V. I., OSTAPENKO, G. S., PETROV, L. N., TKACHEV, A. I., UDOVIK, A. P.

"A Differential Amplifier"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 4, Feb 72, Author's Certificate No 326704, Division H, filed 19 Jan 70, published 19 Jan 72, p 208

Translation: This Author's Certificate introduces a differential amplifier which contains two emitter-followers, two amplification stages with dynamic load and a common source of direct current. As a distinguishing feature of the patent, the amplification factor is increased and the thermal compensation is improved by basing the dynamic load on a reverse conductivity transistor, and by connecting in each branch of the amplifier a transistor of the same conductivity as that of the amplification stage, and a diode biased in the forward direction. The emitter of the amplification stage is connected to the DC source and to the emitter of the transistor with the same conductivity. The base of this transistor is connected through a diode to the centertap of the supply source, and the collector is connected to the base of the dynamic load transistor.

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USSR UDC 621.382.2

SHAGURIN, I. I., PETROV, L. N., TAT'YANIN, V. I.

"Comparison of Modifications of TTL and DTL Elements Using Shottky Diodes"

Kiev, IVUZ Radioelektronika, Vol 14, No 11, Nov 71, pp 1365-1369

Abstract: The paper describes the results of tests of three models of logic circuit elements in which diodes and transistors with Shottky barriers are used to increase speed. The circuits studied are compared for speed and interference suppression. Two figures, one table, bibliography of six titles.

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Microelectronics

UDC 621.382.002

USSR

ZAVAL'SKIY, Yu. P., NIKISHIN, V. I., PETROV, L. N., SHAPOSHNIK, K. I.

"A Method of Making Integrated Circuits"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 15, May 71, Author's Certificate No 302771, Division H, filed 10 Nov 69, published 28 Apr 71, p 188

Translation: This Author's Certificate introduces a method of making integrated circuits including the operations of producing a heavily doped N+ silicon layer with conductivity type opposite to that of the initial material followed by epitaxial deposition of a high-resistance layer of silicon of the same conductivity type as the heavily doped layer directly on the surface of the heavily doped layer. As a distinguishing feature of the patent, the packing density of the integrated circuits on the plate is increased, and the electrical and operational characteristics of the integrated circuits are improved by creating the N+ layer on the surface of depressions selectively etched in P-silicon, after which the depressions are epitaxially filled with N-silicon in the presence of silicon oxide on the P-silicon surface.

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UDC: 621.396.6-181.5

USSR

ZOLOTAREV, T. V., OSTAPENKO, G. S., PETROV, L. N., UDOVIK, A. P., ARAKCHEYEVA, I. A., NIKISHIN, V. I., and ALEKSENKO, A. G.

"Effect of Distributed Capacitance and Geometric Dimensions of Monolithic Circuit Resistors on Their Frequency Characteristics"

Kiev, Izvestiya VUZ--Radioelektronika, Vol. 13, No. 10, pp 1272-1275

Abstract: This brief communication deals with parasitic effects in integrated circuits manufactured by the planar-epitaxial process, with the elements separated by p-n junctions. The resistors in such a circuit are inserted by diffusion methods, and are thus especially subject to parasitic elements including a distributed transistor and distributed capacitances of p-n junctions. As proof, the cross section of an integrated circuit with its diffusion resistor is shown, and with it the equivalent circuit. From this circuit, the authors conclude that the frequency effect of the resistor is inversely proportional to the width of the resistor -- at least up to the practical limit of resistor width, which is about 10 μ. Nomograms are shown which can be used for determining the geometric dimensions and limiting frequency of the monolithic resistors from the known resistance values, or the reverse. A plot of the frequency characteristics of two monolithic resistors is also given.

UDC: 621.396.6-181.5

USSR

ZOLOTAREV, T. V., OSTAPENKO, G. S., PETROV, L. N., UDOVIK, A. P., ARAKCHEYEVA, I. A., NIKISHIN, V. I., and ALEKSENKO, A. G.

"Effect of Distributed Capacitance and Geometric Dimensions of Monolithic Circuit Resistors on Their Frequency Characteristics"

Kiev, Izvestiya VUZ--Radioelektronika, Vol. 13, No. 10, pp 1272-1275

Abstract: This brief communication deals with parasitic effects in integrated circuits manufactured by the planar-epitaxial process, with the elements separated by p-n junctions. The resistors in such a circuit are inserted by diffusion methods, and are thus especially subject to parasitic elements including a distributed transistor and distributed capacitances of p-n junctions. As proof, the cross section of an integrated circuit with its diffusion resistor is shown, and with it the equivalent circuit. From this circuit, the authors conclude that the frequency effect of the resistor is inversely proportional to the width of the resistor -- at least up to the practical limit of resistor width, which is about 10 μ. Nomograms are shown which can be used for determining the geometric dimensions and limiting frequency of the monolithic resistors from the known resistance values, or the reverse. A plot of the frequency characteristics of two monolithic resistors is also given.

1/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INHIBITION OF THE DISSOLUTION OF STEEL AND ZINC IN NITRIC ACID -U-

AUTHOR-(02)-PETROV, L.N., SAVITSKAYA, O.P.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (1), 113-114

DATE PUBLISHED--------70

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

TOPIC TAGS--ACID CORROSION, CORROSION RATE, CARBON STEEL, ZINC, NITRIC ACID, CORROSION INHIBITOR, ADSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1683 STEP NO--UR/0369/70/006/001/0113/0114

CIRC ACCESSION NO--AP0129053

UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129053

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF A NUMBER OF OLD AND SOME NEW CORROSION INHIBITORS ON THE RATE OF DISSOLUTION OF C STEEL AND ZN IN HNO SUB3 WERE STUDIED. DESPITE THE FACT THAT THESE INHIBITORS (E.G., CATAPINE K) WERE VERY EFFECTIVE IN PREVENTING CORROSION IN HCL AND H SUB2 SO SUB4, THEIR INHIBITING EFFECT IN HNO SUB3 WAS PRACTICALLY NIL IN THE CASE OF STEEL. THIS WAS ATTRIBUTED TO THE POOR ADSORPTION CHARACTERISTICS IN THIS ACID. THE INHIBITORS WERE MORE EFFECTIVE IN THE CASE OF ZN.

UNCLASSIFIED

USSR

VYSOTSKIY, D. A., PETROV, M. D., REKOV, A. I., ROMANOV, A. I., SEPP, V. A., SEREBRENNIKOVA, V. Ye., SMIRNOVA, L. G., KURTEPOVA, O. I., Institute of High Temperatures of the Academy of Sciences USSR

"Test Results on Installations and Electrode Materials in a Plasma Jet"

Moscow, Teplofizika vysokikh temperatur, No. 3, May/Jun 72, pp 635-639

Abstract: The characteristics of electrodes of silicon carbide with additives of alloying metals (Mo, Ti, Cr), interelectrode insulators of refractory concretes based on high-alumina VGB and AFB concretes and magnesian MB concrete and module insulation walls of MB concrete were investigated in a model of an MHD generator. The maximum electrode temperature during the experiments reached 2300°K, the interelectrode insulators reached 2100°K and the installation walls reached 1700°K. The electrode samples were prepared by pressing a mixture of SiC powders and the appropriate alloying additive (Mo, Ti, Cr) with organic binding and subsequent heat treatment at a temperature of 2100°C for 10-15 min. The experimental device in which the materials were tested consisted of the following elements: a plasmatron producing an air flow with a

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VYSOTSKIY, D. A., et al, Teplofizika vysokikh temperatur, No. 3, May/Jun 72, pp 635-639

temperature of 3000°K, a mixing chamber where an easily ionized additive was introduced into the air flow in the form of potassium or K_2CO_3 vapors, a nozzle, the MHD generator channel, and a system for evacuating the gas flow. The flow rate in the channel was approximately 500 m/sec. The advantages of a sectional structure for the channel are shown and it was established that the current density is determined by the conductivity of the films from the interaction products of the electrode and additive materials, independent of the type of alkali additive (potassium or potash vapor) at the temperature of its condensation on the electrode surface. At an electrode temperature of less than 900°K in supplying K-vapors and of 1200°K in supplying K_2CO_3 powder, the current density remains constant at 0.2 a/cm^2. At these temperatures the current density is evidently determined by the conductivity of the liquid film of the interaction products of the additive material, the working gas, and the electrode and of their emission properties. With an increase in electrode temperature above 900-1200°K the emission properties of the electrode material directly begin to play a basic role.

2/2

USSR

UDC: 536.54

PETROV, M. D. and SEPP, V. A.

"Two-Layer Calorimetric Probe for Measuring the Temperature and Full Pressure in High-Temperature Flows"

Moscow, Izmeritel'naya tekhnika, No 4, 1972, pp 49-50

Abstract: The instrument described is a two-layered calorimeter, a structural diagram of which is given, whose operation was studied by the authors under the conditions of a plasma jet with a temperature of about 3000° K flowing from an electric-arc heater into the atmosphere. They estimated the measurement error of the instrument and performed experiments measuring the effect on it of various factors. The instrument was made up of six coaxial tubes made of 1Kh18N9T steel forming two independent cooling systems, an outer layer and an inner layer. The outer has an outside diameter of 6.2 mm and an inside diameter of 4 mm, while the inner layer has an outside diameter of 3 mm and an inside diameter of 1 mm. The ends of the tubes are soldered with a refractory metal, with an air space between the outer and inner layers for thermal insulation. Details of the experiments and the measurement method are given.

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USSR

UDC 547.26'118 + 547.379.1

PETROV, M. L., and PETROV, A. A., Leningrad Technological Institute Imeni Lensovet

"Reactions of Trialkylphosphites With Ethylthioacetylene"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, p 691

Abstract: A mixture of 0.05 g-mole of ethylthioacetylene and 0.05 g-mole of trialkylphosphite in 50 cc of the respective absolute alcohol was refluxed for 10 hrs. The reaction mixture was left standing overnight, the alcohol was then evaporated and the product was isolated by vacuum distillation, yielding the dimethyl ester of 2-ethylthioethylene-1-phosphonic acid, b.p. 124-126°/0.5 mm, d_4^{20} 1.1890, n_D^{20} 1.5060, and the diethyl ester, b.p. 120-122°/2 mm, d_4^{20} 1.1130, n_D^{20} 1.4922.

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USSR

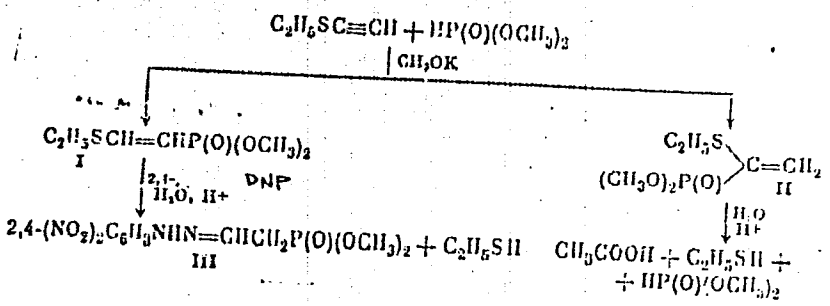
UDC 547.26'118+547.379.1

PETROV, M. L., and PETROV, A. A., Leningrad Technological Institute imeni Lensoveta

"Reaction of Dimethyl phosphite with Ethylthioacetylene"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, p 2345

Abstract: The reaction of dimethyl phosphite with ethylthioacetylene in the presence of an equivalent amount of potassium methoxide yielded dimethyl 2-ethylthioethehylphosphonate:



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USSR

PETROV, M. L., and PETROV, A. A., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, p 2345

Properties of (I) are: b.p. 130-132°C (2 mm); d_4^{20} 1.1881, n_p^{20} 1.5069, MR_D 49.09. Hydrolysis of (I) in the presence of 2,4-dinitrophenylhydrazine yielded compound (III), b.p. 172-173°C. Hydrolysis of the reaction product (II) yielded acetic acid, ethyl mercaptana, and dimethyl phosphite.

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AA0043559 D UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

1/70

240835 MEASURING EQUIPMENT FOR ELECTROCHEMICAL CHARACTERISTIC OF MATERIALS in which reference electrode (2), test sample (1) and polarising electrode (3) are contained in an electrolyte. By repeated change over of contacts from battery (5) to the measuring circuit containing a capacitor and a diode, the capacitor is charged to a polarisation potential measured by instrument (7)

18.8.67 as 1179781/26-25. V.I. GLAZKOV & N.A.PETROV. (26.8.69.) Bul 13/1.4.69. Class 21e. Int.Cl. G 01

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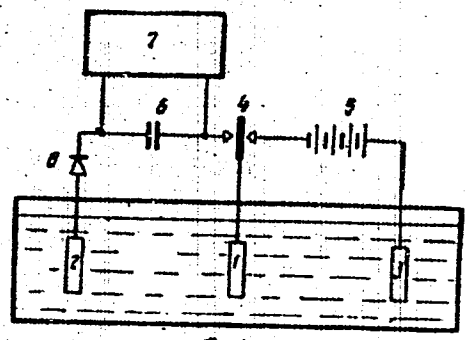

Фиг.1

2/2

19762012

USSR UDC: 621.317.757(088.8)

PETROV, N. B., Khar'kov Scientific Research Institute of Metrology

"A Device for Measuring the Coefficient of Nonlinear Distortions"

USSR Author's Certificate No 282458, filed 4 Apr 68, published 11 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A314 P)

Translation: A device is proposed for measuring the coefficient of nonlinear distortions. The unit contains a spectrum analyzer and first harmonic filter. As a distinguishing feature of the patent, to reduce error and cut down the labor expended on measurements, an effective-value voltmeter is connected to the output of the i-f amplifier in the above mentioned spectrum analyzer.

1/1

USSR

UDC 614.3/.4.08:658.386.3

PETROV, N. M., Mariinsko-Posadskaya Rayon Sanitary Epidemiological Station, Chuvash Autonomous SSR

"Raising the Qualifications of the Personnel in Sanitary Epidemiological Stations in Rural Areas"

Moscow, Zdravookhraneniye Rossiyskoy Federatsii, No 8, 1971, pp 18-20

Abstract: To prevent and eradicate infectious diseases, sanitary epidemiological stations in rural areas perform vaccinations, run bacteriological tests, check the purity of food articles, enforce sanitary regulations in indoor and outdoor facilities, and supervise transportation, storage, and application of pesticides. To keep up with progress, physicians take advanced courses at medical institutes in the Chuvash ASSR and in other republics. Each physician is assigned a medical journal on which he makes periodic reports at conferences. Once every 3 months, the paramedical personnel have study session for which physicians prepare lectures on new facts, theories, methods, and their practical application. New, promising approaches are immediately tested and, if found suitable for the Chuvash ASSR, they are incorporated as new standard procedures. When enough interesting material on local conditions has accumulated, individual physicians or the stations publish articles in medical

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PETROV, N. M., Zdravookhraneniye Rossiyskoy Federatsii, No 8, 1971, pp 18-20

journals. Due to this organization, sanitary epidemiological stations in the Chuvash ASSR have curbed many infectious diseases, for example, diphtheria has been nonexistent for the last 10 years, and only sporadic cases of whooping cough and measles have been recorded during the last 3 years.

2/2

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ON THE SOLUTION OF THREE PARTICLE INTEGRAL EQUATIONS BY THE SEPARABLE EXPANSION METHOD -U-

AUTHOR-(03)-KHARCHENKO, V.F., PETROV, N.M., KUZMICHEV, V.E.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETTERS B (NETHERLANDS), VOL. 32B, NO. 1, P. 19-22 (25 MAY 1970)

DATE PUBLISHED--25MAY70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELEMENTARY PARTICLE, INTEGRAEQUATION, ALGEBRAIC EQUATION, PAIR THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605030/E02 STEP NO--NE/0000/70/032/001/0019/0022

CIRC ACCESSION NO--AP0141849

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0141849

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. USE OF A SEPARABLE EXPANSION FOR THE TWO PARTICLE T MATRIX REDUCES THE PROBLEM OF THREE PARTICLES WITH PAIR INTERACTION TO A SET OF ONE DIMENSIONAL INTEGRAL EQUATIONS. BY THE SUBSEQUENT SEPARABLE REPRESENTATION OF KERNELS OF SUCH INTEGRAL EQUATIONS (BASED ON THE BATEMAN METHOD) THE PROBLEM OF THREE IDENTICAL PARTICLES IS REDUCED TO THE SOLUTION OF ALGEBRAIC EQUATIONS. (13 REFS).

FACILITY: ACAD. SCIS., UKRAINIAN SSR, KIEV, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--THE DETERMINATION OF HEMODYNAMIC INDICES WITH THE AID OF RADIOIODINE ALBUMIN IN CIRCULATORY INSUFFICIENCY -U-

AUTHOR-(02)-TRUSOV, V.V., PETROV, N.M.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 6, PP 35-41

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIOACTIVE TRACER, CIRCULATORY SYSTEM DISEASE, HEMODYNAMICS, ALBUMIN, IODINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1512 STEP NO--UR/0241/70/015/006/0035/0041

CIRC ACCESSION NO--AP0128907

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128907

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RADIOIODINE LABELLED ALBUMIN WAS USED FOR DETERMINING THE VOLUME OF CIRCULATING BLOOD, PLASMA AND ERYTHROCYTES I 63 HEALTHY PERSONS AND 275 PATIENTS WITH ATHEROSCLEROTIC CARDIOSCLEROSIS AND RHEUMATISM. IN PATIENTS WITH CIRCULATORY INSUFFICIENCY THERE WAS A DISTINCT RISE OF THE MASS OF CIRCULATING BLOOD, WHICH DEPENDED ON THE MARKEDNESS OF CARDIAC DECOMPENSATION. IN 45 PATIENTS WITH ATHEROSCLEROTIC CARDIOSCLEROTIS DYNAMIC DETERMINATION OF THE BLOOD VOLUME WAS CARRIED OUT BEFORE AND AFTER TREATMENT. THE PROCESS OF RECOMPENSATION IS USUALLY ATTENDED BY REDUCTION OF THE PREVIOUSLY INCREASED BLOOD VOLUME. THE CIRCULATION RATE WAS DETERMINED IN 16 HEALTHY PERSONS AND 67 PATIENTS WITH ATHEROSCLEROTIC CARDIOSCLEROSIS. IT CHANGES IN ACCORDANCE WITH THE SEVERITY OF CARDIAC DECOMPENSATION. THE AUTHORS COMPARED THE RESULTS OF DETERMINING THE CIRCULATION RATE WITH RADIOIODINE ALBUMIN AND WITH STAIN, WHICH DEMONSTRATE THE GREATER ACCURACY OF THE FORMER TECHNIQUE. UNTOWARD REACTIONS WERE OBSERVED. FACILITY: KAFEDRA GOSPITAL'NOY TERAPII IZHEVSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 014

TITLE--EXISTENCE OF PURSUIT GAME VALUE -U-

AUTHOR--PETROV, N.N.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, DOKLADY AKADEMII NAUK SSSR, VOL 190, NO 6, 1970, PP 1289-1291

DATE PUBLISHED-------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--GAME THEORY, SET THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0020/70/190/006/1289/1291

PROXY REEL/FRAME--1993/0462

CIRC ACCESSION NO--AT0113365

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

2/2 014
CIRC ACCESSION NO--AT0113365
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE CONSIDERS PURSUIT GAMES OF THE FOLLOWING THREE TYPES: I. F(X(T), Y(T)) EQUALS PARELLEL X(T) MINUS Y(T) PARALLEL. II. F(X(T), Y(T)) EQUALS MIN PARALLEL X (T) MINUS Y(T) PARALLEL. THE HYPOTHESIS OF GAM T IN BOTH CASES IS PREASSIGNED AND KNOWN TO BOTH PLAYERS. III. F(X(T), Y(T)) EQUALS MIN T, T INTERSECTS DELTA. WHERE DELTA IS THE SET OF ALL T FOR WHICH PARALLEL X(T) MINUS Y(T) PARALLEL EQUALS L. THE NUMBER L, THE CAPTURE RADIUS, IS PREASSIGNED AND KNOWN TO BOTH PLAYERS. IT CAPTURE DOES NOT TAKE PLACE IN SCME SITUATIONS, THEN IT IS CONSIDERED THAT F(X(T), Y(T)) EQUALS INFINITY. THEOREMS ARE FORMULATED ON THE EXISTENCE OF VALUES OF
THE GAMES.
ZHDANOV.
FACILITY: LENINGRAD STATE UNIVERSITY IMENI A. A.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THE SOLUTION OF ONE PROBLEM ON THE THEORY OF THE CONTROLLABILITY -U-

AUTHOR--PETROV, N.N.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK LENINGRADSKOGO UNIVERSITETA, NO 1, MATEMATIKA, MEKHANIKA, ASTRONOMIYA, 1970, NR 1, PP 39-51

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., MATHEMATICAL SCIENCES

TOPIC TAGS--VECTOR, DIMENSION ANALYSIS, AUTOMATIC CONTROL THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0377 STEP NO--UR/0043/70/000/000/0039/0051

CIRC ACCESSION NO--AP0055162

UNCLASSIFIED

2/2 008 PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0055162

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANALYTICAL SYSTEM X EQUALS F(X, U), WHERE X AND F ARE TWO DIMENSIONAL VECTORS, U IS R DIMENSIONAL VECTOR FUNCTION OF CONTROL, IS CONSIDERED. U CAN ASSUME VALUES U SUB1, ..., U SUBM. IN THIS CASE THE NECESSARY AND SUFFICIENT CONDITIONS OF THE N LOCAL CONTROLLABILITY ARE OBTAINED.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202420002-7"

USSR

PETROV, N. N., Leningrad State University imeni A. A. Zhdanov

"Existence of Pursuit Game Value"

Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 6, 1970, pp 1289-1291

Abstract: The article considers pursuit games of the following three types:

$$\text{I. } F(x(t), y(t)) = \| x(T) - y(T) \|.$$

$$\text{II. } F(x(t), y(t)) = \min_{t \in [0,T]} \| x(t) - y(t) \|.$$

The hypothesis of game T in both cases is preassigned and known to both players.

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PETROV, N. N., Doklady Akademii Nauk SSSR, Vol 190, No 6, 1970, pp 1289-1291

III. $F(x(t),y(t)) = \min_{t\in\Delta} t,$

where Δ is the set of all t for which $\|x(t) - y(t)\| = l$.

The number l -- the capture radius -- is preassigned and known to both players. If l-capture does not take place in some situations, then it is considered that $F(x(t), y(t)) = \infty$.

Theorems are formulated on the existence of values of the games.

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USSR

UDC: 532.546.013.2

PETROV, N. P.

"Concerning Displacement of the Interface of 'Varicolored' Compressible Fluids"

V sb. Materialy 8-y Fiz. nauch. konf. Khabarovsk. gos. ped. in-t (Materials of the 8-th Physical Sciences Conference. Khabarovsk State Pedagogical Institute--collection of works), Khabarovsk, 1971, pp 59-63 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B1129)

Translation: A method is given for tracking the motion of the interface during filtration of a system of two "varicolored" compressible fluids, assuming that the complex potential is known for the given filtration flow. For the case where the relation

$$\rho = ce^{P}, \quad c = \text{const} \qquad (1)$$

holds between the density ρ and the pressure P (see Pykhachev, G. V., "Podzemnaya gidravlika" [Subterranean Hydraulics], Moscow, Gostoptekhizdat, 1961; RZhMekh, 1962, 6B800 K), the author derives a system of parametric equations of the interface at an arbitrary instant in the

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PETROV, N. P., Materialy 8-y Fiz. nauch. konf. Khabarovsk. gos. ped. in-t, Khabarovsk, 1971, pp 59-63

form

$$F_1(x, y) - F_1^*(\tau) = t \qquad \varphi(x, y) = \varphi_1^*(\tau), \qquad f^*(\tau) \equiv f[x_0(\tau), y_0(\tau)] \qquad (2)$$

where

$$F \int \frac{\sigma\mu}{k} \rho(\Phi, \psi) \left[\left(\frac{\partial x}{\partial \Phi} \right)^2 + \left(\frac{\partial y}{\partial \Phi} \right)^2 \right] d\Phi \qquad (3)$$

Here σ is the porosity of the soil, μ is the viscosity of the fluid, Φ is Leybenzov's function, ψ is the stream function, k is permeability, $z = x + iy$ are the Cartesian coordinates of the region of flow, and τ is a parameter which appears in the equations of the interface at the initial instant

$$x_0 = x_0(\tau), \quad y_0 = y_0(\tau) \qquad (4)$$

Solution of the problem requires inversion of the complex potential

$$w = w(z) = \Phi + i\psi \qquad (5)$$

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USSR

PETROV, N. P., Materialy 8-y Fiz. nauch. konf. Khabarovsk. gos. ped. in-t, Khabarovsk, 1971, pp 59-63

The author shows that if the problem is solved for any single flow, then the solution may be found for a large class of other flows by the use of conformal mapping (in this way solution of the inversion problem can be eliminated for a large class of flows). M. I. Khmel'nik.

3/3

USSR

UDC 632.954:635.342

NALETOV, B. G., PETROV, N. P., Scientific Research Institute of Vegetable Farming, TRUBNIKOVA, T. I., TIMOFEYEVA, T. A., KIRYUKHINA, N. N., Saratov Scientific Research Institute of Farm Hygiene

"Application of Semeron in Cabbage Fields"

Moscow, Khimiya v sel'skom Khozyaystva, No 8, 1972, pp 39-41

Abstract: Optimal doses of semeron for soddy alluvial soils of different mechanical composition were established, and the economic advantage of applying semeron to white cabbage was demonstrated. In medium-weedy cabbage fields of medium loamy and light loamy soils in flood plain areas, the optimal dosage of semeron is 0.5 kg/hectare. In heavy, very weedy ground the dosage should be increased to 0.7 kg/hectare. Chemical analysis of the cabbage demonstrated that semeron does not lower the quality or the food value. A study was also made of the hygienic conditions of labor of workers applying the herbicide and the effect of the compound on the organism of the workers. No deviations from the norm in the functional state of the organism was discovered for a semeron concentration in the respiratory zone of 0.003-0.42 mg/m3, on the clothes, 0.001-0.33 and on the skin, 0.001-0.073 mg/dm^2.

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USSR

UDC 534.852

CHERNITSEV, V. M., PETROV, N. S., and KNYAZEV, YU. M.

"Electronic Methods of Compensation in Instruments for Fine Magnetic Recording"

Tr. Taganrog. radiotekhn. in-ta (Works of the Taganrog Radio Engineering Institute), 1972, vyp.28, pp 22-30 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 V75)

Translation: This is a survey of various methods for compensating the effect of recording rate variation and of nonuniformity in carrier sensitivity including during spectral analysis. Original article: six illustrations and 12 bibliographic entries. V.K.

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USSR

UDC 621.317.757

CHERNITSER, V. M., PETROV, N. S., KNYAZEV, YU. M., and SAL'NIKOV, B. A.

"Phase System for Distortion Compensation in Heterodyne Analyzers With Preliminary Time Compression"

Tr. Taganrog, radiotekhn. in-ta (Works of the Taganrog Radio-Engineering Institute), 1972, vyp.28, pp 43-50 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A287)

Translation: The described phase system for compensation with respect to the type of closed automatic control system is designed to eliminate a series of difficulties which arise during the technical realization of this type of compensation system (readout ambiguity, the necessity of using two expensive high-stability generators for recording and producing the reference signal). The system is also designed to raise compensation stability. The basic element of the system is a pulse, phase discriminator. A trigger was used as the discriminator, terminated on a low frequency filter. The conducted experiments showed a sufficiently high effectiveness of the phase system for compensating distortions which were evoked by rate variation in the time compressors. The use of a phase system for compensation raises the permissible discrimination capacity of a spectra analyzer which is coupled to a time compressor. A.K.

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USSR UDC: 621.317.757(088.8)

CHERNITSER, V. M., PETROV, N. S., Taganrog Radio Engineering Institute

"A Sequential Spectrum Analyzer With Time Compressor"

USSR Author's Certificate No 260007, filed 28 Feb 68, published 27 Apr 70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A344 P)

Translation: Existing methods of combatting detonation in spectrum analyzers with time compressors based on magnetic recording do not eliminate the effect of detonation on the signal being analyzed, but only partially attenuate this effect. The proposed analyzer provides for completely compensating signal distortions caused by detonation by correcting the distortion with a feedback signal according to a law of change in instantaneous recording rates and playback speeds. A block diagram of the analyzer is presented and described. E. L.

1/1

BOYKO B B
VASHKEVICH I M

PETROV N S

VALYAVKC V V

9561 68 048 002 0351 J1 NFL

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02APR68

LASER DEVICE WITH A TWO DIMENSIONAL RESONATOR

ZHURNAL PRIKLADNOY SPEKTROSKOPII

USSR

UDC 612.833.81

KOZAROVITSKIY, L. B., PETROV, O. P., and STARODUBTSEV, Yu. D., Department of Physiology of Higher Nervous Activity, Moscow State University

"Formation of a Food-Obtaining Reflex to a Chain Stimulus in the Dolphin and Some of Its Behavioral Characteristics"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti, No 4, 1971, pp 700-704

Abstract: Report on the dynamics of formation of a conditioned reflex to a chain acoustic stimulus (3 tones each sounded for 2 sec) in an unrestrained adult female Black Sea dolphin (Tursiops truncatus Mont). At the signal the animal swam to a lever and was immediately rewarded with a fish if it pressed the lever correctly. The reflex was formed to the complex stimulus as quickly as to a similar simple reflex and the process was approximately the same as in other higher animals. The location of the dolphin at the time the stimulus was presented and especially the position that it took under the lever served as unique signals that had an effect on the animal's conditioned activity. Experiments were performed with another dolphin to study the reciprocal influence of food and play reactions, competitive relations, and capacity for imitation.

1/1

USSR

UDC 619:576.851.45

PETROV, O. V., All-Union Institute of Experimental Veterinary Medicine

"Some Cultural, Morphological, and Biochemical Properties of Pasteurella multocida"

Moscow, Veterinariya, No 10, 1971, pp 116-119

Abstract: Beef-extract broth with 6% sodium chloride is a good medium for growing E. coli, Proteus, Salmonella, Staphylococci and some other microbes but not Pasteurella multocida serotypes A, B, C, D, and E. Consequently this medium is a useful means of differentiating Pasteurella from morphologically similar microorganisms. P. multocida forms D, H, and other shaped colonies, and stability of colonies vary with the composition and properties of the culture medium used. The type of medium also affects qualitatively and quantitatively the biochemical properties of P. multocida. Indicator media at pH 7.1-7.2 are required to study the enzymatic properties of this microbe qualitatively. Quantitative changes appear on indicator media at pH 7.8-8.0. Ordinary beef-extract broth can be used to detect indole formation. The fermentation of maltose cannot be used as a reliable criterion for identifying Pasteurella species or distinguishing biochemical types within a species.

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USSR

UDC 911.3:616.981.452(479.2)

YELKIN, Yu. M. and PETROV, P. A.

"The Mechanism of Circulation of the Plague Microbe at a High-Altitude Focus in Transcaucasia"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of Works), Saratov, No 4(14), 1970, pp 105-109 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.114) by B. Dobrokhotov

Translation: It appears that the main plague vector at a high-altitude focus in Transcaucasia is the common vole. The predominant fleas of the focus, Ctenophthalmus teres and Ct. wladimiri, appeared incapable of forming a plug and of transmitting the agent. As a result an opinion about the alimentary mechanism of infection and about the existence of a focus due to cannibalism among common voles was advanced. This hypothesis proved to be incorrect: there are data concerning the possibility of formation of plugs in Ceratophyllus caspius and C. consimilis fleas and the transmission of plague bacteria by them to the rodents. In the Transcaucasian natural focus, the transmission mechanism of inducers is basic, whereas the alimentary mechanism is only of secondary importance.

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1/2 029 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--DEVELOPMENT OF ACTIVE IMMUNITY IN PERSONS AFTER AN ACTIVE PASSIVE PROPHYLAXIS OF TETANUS -U-
AUTHOR-(05)-MATVEYEV, K.I., BYCHENKO, B.D., PETROV, P.N., KASPAROVA, YE.M., TRUNOVA, Z.N.
COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5, PP 26-32
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ACTIVE IMMUNITY, PROPHYLAXIS, TETANUS, TETANUS TOXOID, VACCINATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0103 STEP NO--UR/0016/70/000/005/0026/0032

CIRC ACCESSION NO--AP0114499
UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114499

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OF 39 INJURED PERSONS WHO WERE NOT SUBJECTED FORMERLY TO IMMUNIZATION AGAINST TETANUS 45PERCENT IN 3 MONTHS, AND 73PERCENT IN 12 MONTHS, AFTER AN URGENT ACTIVE PASSIVE PROPHYLAXIS (TOXOID PLUS SERUM), WERE PREPARED TO REVACCINATION WITH TOXOID AND REQUIRED NO ADMINISTRATION OF TETANUS ANTISERUM IN REPEATED TRAUMAS. AMONG HEALTHY PERSONS GIVEN A SINGLE INJECTION OF TETANUS TOXOID IN A DOSE OF 20 BU (50 PERSONS), 84PERCENT IN 3 MONTHS, AND 100PERCENT IN 8-12 MONTHS WERE PREPARED TO REVACCINATION WITH THE USUAL DOSE OF THE TOXOID (10 BU). THIS POINTED TO THE POSSIBILITY OF WIDE SINGLE IMMUNIZATION OF ADULT POPULATION WITH SUBSEQUENT REVACCINATION IN 8 TO 12 MONTHS. ANTITOXIC TETANUS ANTISERUM (3,000 IU) INJECTED TOGETHER WITH THE TOXOID (20 BU) PRODUCED SOME DEPRESSIVE EFFECT ON THE DEVELOPMENT OF ACTIVE IMMUNITY IN FORMERLY NON IMMUNIZED PERSONS. PERSONS IMMUNIZED AGAINST TETANUS IN WHOM THE ANTITOXIN TITRE WAS 0.001 IU-ML, EVEN AFTER SEVERE TRAUMAS PRODUCED THE ANTITOXIN RAPIDLY IN RESPONSE TO THE ADMINISTRATION OF THE TOXIN TOGETHER WITH THE SERUM.

FACILITY: INSTITUT EPIDEMIOLOGII I MIKROBIOLOGII IM. GAMALEI AND INSTITUT IM. SKLIFOSOVSKOGO, MOSCOW.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THE DURATION OF PASSIVE IMMUNITY IN PROPHYLAXIS OF TETANUS -U-

AUTHOR-(05)-MATVEYEV, K.I., KASHINTSEVA, N.S., PETROV, P.N., KASPAROVA, YE.M., KHARMOVA, S.A.
COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5, PP 32-36
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PASSIVE IMMUNITY, PROPHYLAXIS, TETANUS TOXOID, TETANUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0104 STEP NO--UR/0016/70/000/005/0032/0036

CIRC ACCESSION NO--AP0114500
UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114500

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHANGES OF ANTITOXIN TITRE AFTER THE ADMINISTRATION OF 3,000 AU OF ANTITOXIN SERUM WERE STUDIED ON 98 PATIENTS OF THE TRAUMATOLOGICAL DEPARTMENT OF THE SKLIFOSOVSKY INSTITUTE. BLOOD ANTITOXIN TITRE WAS DETERMINED ON THE 2ND, 4TH, 6TH, 8TH, 10TH, 12TH, 15TH, 20TH AND 30TH DAYS. IN THE MAJORITY OF CASES THE ANTITOXIN TITRE REMAINED WITHIN THE RANGE OF 0.01 AU-ML UP TO THE 8TH-12TH DAY. LATER ITS TITRE DISPLAYED A RAPID FALL. TO INCREASE THE EFFICACY OF TETANUS PROPHYLAXIS IN NONIMMUNIZED WOUNDED PERSONS AN ACTIVE PASSIVE PROPHYAXIS WITH THE SERUM AND TOXOID IS NECESSARY. FACILITY: INSTITUT EPIDEMIOLOGII I MIKROBIOLOGII IM. SAMALEI AMN SSSR AND INSTITUT IM. SKLIFOSOVSKOGO, MOSCOW.

UNCLASSIFIED

USSR

UDC: 534.222.2

ISAKOV, Yu. I., PETROV, R. L.

"Propagation of Shock Waves in a Pipeline with Fast-Acting Valves"

Tr. Leningr. politekhn. in-ta (Works of Leningrad Polytechnical Institute), 1970, No 313, pp 127-130 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B261)

Translation: A description is given of a stand for studying the operation of a fast-acting pneumatic valve in a high-pressure pipeline system. Gas flow in the pipeline (diameter 32 mm) when the valve is opened (time of opening $8 \cdot 10^{-3}$ s) is compared with the operation of a shock tube. Data are given on experimental determination of the attenuation of a shock wave in a low-pressure pipeline at various distances from the valve (up to 1000 diameters). The damping factor is found from the experimental data and compared with that calculated from the coefficient of surface friction.

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USSR

UDC 621.643:532.5

ISAKOV, YU. I., PETROV, R. L.

"Propagation of Shock Waves in a Line with a High-Speed Valve"

Trudy Leningradskogo Politekhnicheskogo Instituta, Aerotermodinamika (Works of the Leningrad Polytechnical Institute, Aerothermodynamics), No 313, 1970, pp 127-220

Translation: This article contains a description of a test unit for studying the operation of a high-speed pneumatic valve in a system of high-pressure lines. The characteristic features of the gas flow in the line (∅32mm) on opening the valve (opening time 8.10^{-3} seconds) are compared with operation of a shock tube. Data are presented on the experimental determination of damping of the shock wave in a low pressure line at various distances from the valve (up to 1,000 gages). The damping coefficient is found by the experimental data, and it is compared with the data calculated by the surface friction coefficient. There are 2 illustrations and a 3-entry bibliography.

1/1

1/2 033 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ADAPTIVE VARIABLE PARAMETER CONTROL OF VEHICLES -U-

AUTHOR-(03)-PETROV, R.N., RUTHKOVSKY, V.YU., ZEMLYAKOV, S.D.

COUNTRY OF INFO--USSR, FRANCE

SOURCE--3RD IFAC SYMPOSIUM ON SPACE CONTROL, TOULOUSE, FRANCE, MARCH 1970

DATE PUBLISHED--------70

SUBJECT AREAS--MATHEMATICAL SCIENCES, SPACE TECHNOLOGY, NAVIGATION

TOPIC TAGS--LINEAR EQUATION, MATHEMATIC MODEL, SPACECRAFT, SATELLITE CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1876 STEP NO--FR/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AT0138768

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0138768

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. USUALLY THE METHOD OF LINEARIZATION ALLOWS TO GET A MATHEMATICAL MODEL OF A VEHICLE AS A LINEAR EQUATION (1, 2) SHOWN ON MICROFICHE. IT IS OBVIOUS FROM (1) THAT THE ORDER OF THE PLANT EQUATION IS CONSTANT. THE SYNTHESIS OF A CONTROL SYSTEM MAY BE REPRESENTED AS A MINIMIZATION OR RESTRICTION PROBLEM OF A FUNCTIONAL, Q, (3) SHOWN ON MICROFICHE. AT PRESENT THE METHOD WHICH IS WIDELY APPLIED FOR THE CONSTRUCTION OF A CONTROL SYSTEM IS TO MAKE THE VARIABLE MOVE SO AS TO PROVIDE THE DESIRED MOTION OF THE CONTROL VARIABLE. WE SHALL NAME THIS METHOD OF PLANT CONTROL AS THE VARIABLE METHOD. USUALLY THERE IS A SERVOMECHANISM IN THE STRUCTURE OF A CONTROL SYSTEM TO MOVE THE FINAL CONTROL ELEMENT (4)(SHOWN ON MICROFICHE). OFTEN A CONTROL SYSTEM IS DESIGNED AS A COMBINED SYSTEM WHERE BOTH CLOSE LOOP CONTROL AND OPEN LOOP CONTROL ARE APPLIED. IF DYNAMIC PROPERTIES VARY WIDELY OVER ONE FLIGHT REGIME OR FROM ONE REGIME TO ANOTHER, A REGULATOR ALSO HAS TO BE ADJUSTABLE TO PROVIDE MINIMIZATION OR RESTRICTION OF FUNCTIONAL (3). AS A RESULT WE OBTAIN ADAPTIVE VARIABLE CONTROL OF A PLANT. SOMETIMES ADAPTIVE VARIABLE CONTROL DOES NOT PROVIDE RESTRICTION OF FUNCTIONAL (3) WITHOUT SPECIAL CHANGING THE PLANT DYNAMIC PROPERTIES. PURPOSEFUL CHANGE OF PLANT PARAMETERS WILL BE TERMED AS THE PARAMETER CONTROL METHOD.

UNCLASSIFIED

USSR

UDC 621.396.62.029.7

DUSHKOV, I. I., KARLOV, N. V., KRYNETSKIY, B. B., MISHIN, V. A., PETROV, R. P.

"Application of the Duality Theorem to Investigate the Antenna Characteristics of Superheterodyne Photoreceivers [Infrared Heterodyne Detection]"

Moscow, Radiotekhnika i elektronika, Vol XVII, No 2, 1972, pp 345-350

Abstract: Results are presented from measuring the radiation directivity pattern of a heterodyne receiver of CO_2-laser emission. Application of the heterodyne receiver constricts the directivity pattern to 0.007-0.01 rads.

Figures are presented showing the results of measuring the directivity patterns of the heterodyne receiver in the 10.6 micron range. For comparison of the directivity pattern of direct and heterodyne reception, the directivity was measured for Ge-Au and Ge-Zn-Sb receivers operating as videodetectors. The application of the heterodyne method of reception narrows the directivity pattern by 15 times and provides significant (20 decibels) gain in the signal.

The application of the duality theorem when measuring the directivity pattern of a heterodyne receiver in the infrared range permits quite exact and simple estimation of the antenna characteristics of the optical heterodyne

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DUSHKOV, I. I. et al, Radiotekhnika i Elektronika, Vol XVII, No 2, 1972, pp 345-350

receiver. Use of the method of direct measurement of the directivity pattern permits more exact measurement of the antenna characteristics of the heterodyne receiver of infrared radiation and estimation of the quality of different optical elements.

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USSR UDC: 621.385:530.145.6:623

DUSHKOV, I. I., KARLOV, N. V., KRYNETSKIY, B. B., MISHIN, V. A., PETROV, R. P.

"Antenna Characteristics of a Heterodyne Receiver of CO_2 Laser Emission"

Kratkiye soobshch. po fiz. (Brief Reports on Physics), 1971, No 1, pp 40-44 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D487)

Translation: The directivity of a heterodyne receiver of CO_2 laser emission was studied directly and by means of the generalized reciprocity theorem. The gain in the output signal with the use of heterodyne reception is 20 DB. The radiation pattern is narrowed by a factor of 15 to 0.007 radian. A. K.

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Instruments and Measurements

USSR UDC: 621.3.038.8:621.317.1

DUSHKOV, I. I., KARLOV, N. V., KRYNETSKIY, B. B., MISHIN, V. A., and PETROV, R. P.

"Heterodyne Method for Measuring the Diffusion Component of Laser Mirrors"

Kratkiye soobshch. po fiz. (Short Communications in Physics) No 10, 1971, pp 10-15 (from RZh--Radiotekhnika, No 4, 1972, Abstract No 4A311)

Translation: The description is given of a heterodyne method for determining the diffusion component; its advantages, narrow reception diagram and high sensitivity, make it an effective measurement method. A single-mode CO_2 laser with a 5-W output power is used. The radiation receiver is a Gelig photoresistor operating at the temperature of solid nitrogen. The results are given of measurements of the diffusion component losses for gold mirrors made by various methods with a coating thickness of 1500 Å, and an estimate is made of the contribution of the diffusion component and of the dimensions of the microscopic inequalities in the mirror surfaces. A. K.

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JPRS 54767
22 Dec 1971

UDC: 612.6.02:001

DIRECTIONS OF DEVELOPMENT OF RESEARCH (TARGET TREE) ON THE PROBLEM OF 'ORGAN AND TISSUE TRANSPLANTATION'

[Article by Yu.M. Lopukhin R.V. Petrov, Second Moscow Medical Institute imeni N.I. Pirogov; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 11, 1971, pp 81-89]

Organ and tissue transplantation is one of the rapidly developing branches of modern medical and biological science. With each year an increasing number of immunologists, biochemists, surgeons, experimenters, pharmacologists, and geneticists is being drawn to develop the diverse problems dealing with this complex subject. There is an ever increasing amount of scientific information about the transplantation problem and an annual increase in number of scientific laboratories and clinical centers, both in our country and abroad, dealing with theoretical and clinical aspects of this problem. A special Institute of Organ and Tissue Transplantation has been organized in the USSR Academy of Medical Sciences.

In this situation an urgent need has arisen to coordinate rationally the efforts of the numerous army of scientists, to have a scientifically substantiated approach to distribution of material resources in accordance with the most important directions of scientific research holding the promise of the greatest effect and with a high coefficient of "mutual usefulness."

For expressly this purpose, an effort was made to prepare an All-Union program of scientific research on organ and tissue transplantation, called upon to become an instrument of the problem commission in work pertaining to coordination and stimulation of scientific research in our country.

When preparing a major scientific program there are six main prerequisites: 1) distinct formulation of the target and chief aspects whose integration result in reaching it; 2) determination of the key issues of each aspect on the solution of which the general success relies the most; 3)clear-cut illustration of distribution of scientific forces at a given time, i.e. a supply of key problems with demonstration of elements not taken care of; 4) possibility of bringing any item on the program up to the level of concrete subjects; 5) the program as a whole should be as clear and graphic as a topographic map; 6) in spite of being interrelated, each element in the

PETROV, R.V.

Radiobiology

USSR UDC 577.391:612.419

PETROV, R. V., and KHAITOV, R. M., Institute of Biophysics, Ministry of Health USSR, Moscow

"Migration of Stem Cells From Screened Bone Marrow Following Irradiation in Varying Doses"

Moscow, Radiobiologiya, Vol 12, No 1, Jan/Feb 72, pp 69-76

Abstract: A series of experiment ., using exogenous and endogenous methods of cloning hemopoietic elements were performed to assess quantitatively the migration and repopulation of colony-forming stem cells (CFC) when a portion of bone marrow in mice is screened during x-ray irradiation. During the first 2 days following irradiation in 800-850 r doses, CFC content decreased by 58-60%; on the 14th day, it increased to 124%; in 21-30 days, it became normal. Data from a supplementary experiment showed that CFC reduction is due to emigration of stem cells into the blood stream, and that rapid repopulation of hemopoietic tissue is related to CFC emigration and circulation. Another study showed that all colonies in irradiated tissue were formed by stem cells migrating from screened bone marrow. Using this data as the starting point, a quantitative assay was made of intensity of migration. It was found that the number of colonies increases linearly in relation to

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USSR

PETROV, R. V., and KHAITOV, R. M., Radiobiologiya, Vol 12, No 1, Jan/Feb 72, pp 69-76

the length of time between screening and "turning off" screened bone marrow (with a second exposure); it constitutes about 4 colonies per hour. The rate of CFC migration remains intense for at least 24 hours. When compared with the protective activity of transplanted bone marrow, it was found that 10-100 times more colonies are required with screened bone marrow to achieve equal results. There was no evidence that screening is related to intensified CFC migration.

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USSR

UDC 577.391:612.016.1

PETROV, R. V., KOVAL'CHUK, L. V., and CHEREDEYEV, A. N., Institute of Biophysics, Ministry of Health USSR, Moscow

"Quantitative Aspects of Present-Day Radiation Immunology and the Action of Radiation on Intercellular Cooperative Processes"

Moscow, Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 483-494

Abstract: During the past 15-20 yrs a considerable amount of research has been done on the effects of irradiation on immunity. This research was done principally on the level of changes in the immunity of the entire organism; relatively few studies have been concerned with quantitative aspects of the action of radiation on immunocompetent cells. For a number of years, systematic research has been conducted at the authors' laboratory on the effects of sublethal irradiation of mice with gamma-rays upon the dynamics of changes in cells of the lymph system. In this research quantitative estimates were made for 2 mos after irradiation of the number and functional activity of lymphocytes, immunocompetent precursors, stem hemopoietic cells, and antibody-forming cells. This work is reviewed. The results showed that changes in the immunological response of the irradiated organism were not due solely to a shortage of cells participating in this response (principally precursors

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USSR

PETROV, R. V., Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 483-494

of antibody-forming cells and immunocompetent cells exhibiting homotransplantation activity); there were also radiation-produced deficiencies in intracellular cooperative processes necessary for immunological effects. Specifically, disturbance in the cooperation between lymphoid cells and stem hemopoietic cells could be assumed. Stem hemopoietic cells, in the absence of lymphocytic stimulation in the direction of immuno- and lymphopoiesis, differentiated towards hemopoiesis. One of the aims of the research being conducted is development of methods for restoration of the immunological reactivity of the irradiated organism by transplantation of one or several types of cooperating cells.

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MEDICINE

Aerospace Medicine

USSR

UDC 577:391:612.017.1

LEBEDEV, K. A., and PETROV, R. V., Institute of Biomedical Problems and Institute of Biophysics, Ministry of Health USSR

"Immunological Problems of Closed Spaces and Gnotobiology"

Moscow, Uspekhi Sovremennoy Biologii, No 2, 1971, pp 235-252

Abstract: Conditions in spacecraft are conducive to the development of a fundamentally new and different microflora characterized by a simplification of the species composition, increase in number of mutations, and tendency toward an increase in the total number of microbial units per unit of volume. The level of immunity is certain to fall on long-duration flights because of relative inactivity and insufficient antigenic stimulation. This enhances the danger of infections of unusual type and severity occurring during flight and of "microbial shock" arising upon the return to earth. Resistance to infections can be increased or complications prevented by regular, continuous introduction into the body of pure antigens or by vaccination with live microorganisms. The simplest approach is via enteral immunization which can be achieved by adding a variety of antigens to the cosmonauts' diet. Prior to flight their microflora can be regulated by using the principles developed in research on germfree animals.

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1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--RADIATION IMMUNOLOGY AND TRANSPLANTATION -U-

AUTHOR-(02)-PETROV, R.V., ZARETSKAYA, YU.M.

COUNTRY OF INFO--USSR

SOURCE--(RADIATSIONNAYA IMMUNOLOGIYA I TRANSPLANTATSIYA) MOSCOW.
ATOMIZDAT. 1970. 544 PP.
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IMMUNITY, BIOLOGIC TRANSPLANT, RADIATION SICKNESS, ANTIBODY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605010/D05 STEP NO--UR/0000/70/000/000/0001/0544

CIRC ACCESSION NO--AM0140141

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AM0140141

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 3. CHAPTER I NONSPECIFIC FACTORS OF IMMUNITY 7. II SPECIFIC FACTORS OF IMMUNITY 39. III TRANSPLANTATION IMMUNITY 78. IV THE REACTION OF THE TRANSPLANT AGAINST THE HOST 150. V THE EFFECT OF IONIZING IRRADIATION ON TRANSPLANTATION IMMUNITY 182. VI IMMUNOLOGICAL TOLERANCE AND RADIATION 203. VII TRANSPLANTATION OF HEMOPOIETIC TISSUES AS A MEANS TO COMPENSATE FOR RADIAL AFFECTIONS 250. VIII IDENTIFICATION OF RADIATION CHIMERISM AND THE REGULARITIES OF MULTIPLICATION OF TRANSPLANTED CELLS IN THE ORGANISM OF AN IRRADIATED RECIPIENT 292. IX THE HEMATOLOGICAL STATUS OF RADIATION CHIMERAS 315. X THE IMMUNOLOGICAL STATUS OF RADIATION CHIMERAS 332. XI THE MECHANISM OF SECONDARY DESTRUCTION OF RADIATION CHIMERAS 380. XII TRANSPLANTATION OF CELLS TO IRRADIATED RECIPIENTS, A MODEL OF BIOLOGICAL INVESTIGATIONS 411. XIII ANTIGEN PROPERTIES OF TISSUES OF IRRADIATED ANIMALS 444. XIV C REACTIVE PROTEIN AND RADIATION SICKNESS 481. XV AUTOIMMUNE DISORDERS AND THE IMMUNOGENETIC CONCEPTION OF THE EFFECTS OF RADIAL AFFECTIONS 503. LITERATURE 535. EXAMINED IS THE EFFECT OF RADIATION ON THE ANTIBODY GENESIS AND ANTIMICROBE IMMUNITY, NONINFECTUOUS IMMUNOLOGY (AT THE CELL AND SUBCELL LEVEL). THE BOOK IS DESIGNED FOR RESEARCHERS WORKING IN THE FIELD OF RADIO BIOLOGY, IMMUNOLOGY AND FIELD CONNECTED WITH THE USE OF RADIOLOGICAL AND IMMUNOLOGICAL METHODS, SCIENTISTS WORKING WITH THE PROBLEM OF TRANSPLANTATION OF TISSUES AND ORGANS.

UNCLASSIFIED

1/2 041 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--THE PRESENT AND THE FUTURE OF ASTRONAUTICS -U-

AUTHOR--PETROV, S.

COUNTRY OF INFO--USSR, UNITED STATES

SOURCE--IZVESTIYA, JUNE 21, 1970, P 3, COLS 3-5

DATE PUBLISHED--21JUN70

SUBJECT AREAS--SPACE TECHNOLOGY

TOPIC TAGS--ASTRONAUTICS, SPACE PROGRAM, SPACE STATION, AUTOMATIC SPACECRAFT CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1605 STEP NO--UR/9003/70/000/000/0003/0003

CIRC ACCESSION NO--AN0108025

UNCLASSIFIED

2/2 041 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AN0103025

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PETROV CLAIMS THAT BASIC DIRECTIONS OF SOVIET AND U.S. SPACE EXPLORATIONS COINCIDED. BUT TODAY SOME DIFFERENCES HAVE DEVELOPED BETWEEN THE TWO SPACE PROGRAMS. HE SEES THE FLIGHT OF "APOLLO-11" AS THE PRIME TARGET OF THE ENTIRE U.S. SPACE PROGRAM OF THE LAST DECADE. THE SOVIETS, HE CLAIMS, ARE CONDUCTING A MULTIPURPOSE PROGRAM WITH THE LEADING ROLE GIVEN TO AUTOMATED VEHICLES IN THE EXPLORATIONS OF SPACE, THE MOON, AND OTHER PLANETS. MANNED FLIGHTS ARE ONLY A PART OF THE ENTIRE PROGRAM AND THEY WILL PLAY AN IMPORTANT ROLE IN THE NEAR THE EARTH SPACE EXPLORATIONS, ERECTION OF SPACE STATIONS, AND OTHER STUDIES WHICH ARE OF IMPORTANCE TO THE NATIONAL ECONOMY OF THE U.S.S.R.

UNCLASSIFIED

PETROV, S.I.

PLANNING ATOMIC ELECTRIC POWER STATIONS WITH STEAM-COOLED REACTORS

UDC 621.311.2:621.039(-87)

[Article by S. D. Zalmfarb, doctor technical sciences, and S. I. Petrov and V. V. Ignatov, engineers, Moscow; Teploenergetika, Russian, No 3, 1972, pp 68-92]

The coolants currently used in atomic reactors are water under pressure or boiling water, liquid metals, and gases. It is possible, however, to use also superheated steam as a coolant for atomic reactors. Steam-cooled reactors differ from boiling-water reactors with steam superheat in that there is no boiling of the coolant in them.

Even in the combined system of a boiling reactor (BWR) connected in tandem with a reactor for separate steam superheat (SSR) [1 - 3], the second reactor is in essence steam-cooled, but does not constitute in this case an independent power installation.

As an independent power installation one can use a steam-cooled reactor with external evaporation in two variants:

with the steam coolant obtained at saturation temperature in a mixed-type boiler (Loeffler scheme);

with a surface-type steam generator.

The Loeffler scheme was previously used in steam generators using fossil fuel, and some of them are in operation to this day in a number of European countries. Such a steam generator was in operation until 1969 on the VVR-M at the Physical Power Institute imeni A. F. Ioffe. The Loeffler scheme for atomic electric stations is characterized by the fact that the reactor is cooled with superheated steam (Fig. 1).

About 1/4 of the superheated steam from the reactor goes to the turbine, and the remaining 3/4 is diverted for intermediate superheating, after which it enters into a steam generator of the mixing type, where superheated the steam from the feedwater results in dry saturated steam that is fed with a compressor into the reactor for new superheating [4, 5]. The intermediate

Acc. Nr: AP0048919 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR0075

104581t Acidity scale for nonaqueous solvents. Bykova, L. N.; Petrov, S. I. (Chem.-Technol. Inst., Moscow, USSR). *Zh. Anal. Khim.* 1970, 25(1), 5–10 (Russ). The single acidity scale according to N.A. Izmailov (1962), $pA = pH_s - \log \gamma^{\circ}_{H^+}$ and the relative acidity scale $E_s' = (E_{1/2}^{HClO_4} - E_{1/2}^{B_4NClO_4})/59$, related by the approxn. equation $pK_s = E_s' - \log a_{H^+} a_{OH^-} + (E_j/59)$, where E_j is a diffusion phase potential, pH_s is the spread of the scale, $\gamma^{\circ}_{H^+}$ is the activity coeff. of proton in infinite dild. aq. soln., and a_{H^+} and a_{OH^-} are the activities of H^+ and OH^-, resp., in a half-neutralized soln., were compared. Acidity scales for alcs. are somewhat higher then the pA scales due probably to the incomplete dissocn. of $HClO_4$. E_s' and pA for MeCOEt, MeCN, and Me_2SO in the acid range are in good agreement. There is a linear relation between pK_s and E_s' for H_2O, ethylene glycol, alcs., ethylenediamine, MeCOEt, and MeCN. For *tert*-BuOH, MeCOEt, MeCN, $HCONMe_2$, and Me_2SO, only slightly acidic relative to H_2O in these solvents, E_s' is higher than pK_s. One of the main causes for low pK_s is the ionization of H_2O molecules, small amts. of which are present in the solvent. The pK_s estd. on the basis of E_s' were as follows: ≧24 for $HCONMe_2$, ≧26 for Me_2SO, ≧30 for MeCN, ≧31 for MeCOEt, ≧23 for *tert*-BuOH, and ≧22 for iso-PrOH.

Chaim Weiner

REEL/FRAME
19800691

USSR

UDC 547.562+532.74+543.422

PETROV, S. M., PILYUGIN, V. S., EREDZHEPORIA, Z. A., and FATKULLIN, F. A., Bashkir State University imeni 40-Letiya Oktyabrya.

"Study of the Reaction of Halogenated Phenols With Tributylphosphate and Trioctylphosphenoxide"

Leningrad, Zhurnal Obshchey Khimii, Vol 429(104), Vyp 4, 1972, pp 762-765

Abstract: The size of the equilibrium constant and the size of the bathochrome shift were studied for the reaction of various mono-substituted chloro-, bromo-, and iodophenols and the di-, tri-, tetra-, and pentachlorophenols with tributyl phosphate (TBP) and trioctylphosphenoxide (TOPP). The value of the equilibrium constant for the reaction of phenols with TOPP was larger than with TBP; however, the equilibrium constants for both of the above classes of reactions were significantly larger than previously reported values for the reaction of such phenols with ketones, amides, and sulfoxides. The value of the equilibrium constant for the title reaction due to hydrogen bonding in related to three factors: 1) the presence of intramolecular hydrogen bonding in the studied phenols; 2) the acidity of the phenol; and 3) the basicity of the acceptor (in this case the TBP and TOPP).

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1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CHEMICAL PROCESS FOR REMOVING SCALE FROM FERROCHROME -U-

AUTHOR--PETROV, S.V.

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, 1, 240

DATE PUBLISHED-------70

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

TOPIC TAGS--METAL SCALING, CHROMIUM OXIDE, CHROMIUM ALLOY, CLEANING TECHNIQUE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1712 STEP NO--UR/0120/70/001/000/0240/0240

CIRC ACCESSION NO--AP0115541

UNCLASSIFIED

2/2 018 UNCLASSIFIED

CIRC ACCESSION NO--AP0115541 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SCALE CONSISTS BASICALLY OF FE AND CR OXIDES. A HEATED WATER SOLN. OF A MIXT. OF HCLO SUB4 AND H SUB2 SO SUB4 REMOVES SCALE FROM FERROCHROME WITHIN 30 MIN WITHOUT HARMING THE FUSION OF GLASS TO METAL. TWO VOLS. OF CONCD. H SUB2 SO SUB4 ARE POURED INTO 3 VOLS. OF WATER WITH EXTENSIVE MIXING AND ADDN., AFTER COOLING, OF 1 VOL. OF HCLO SUB4 TO MAKE THE ETCHING SOLN.

FACILITY: INST. FIZ., PROBL., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: AP0043663

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 475-485

EXCITON AND EXCITON-MAGNON ABSORPTION IN ANTIFERROMAGNETIC $CsMnF_3$

Belyayeva, A. I.; Yeremenko, V. V.; Silayev, V. I.; Petrov, S. V.

The absorption spectrum of antiferromagnetic $CsMnF_3$ is studied in detail in the C-group band region of the Mn2 ion shifted from the inversion center. The temperature was varied between 1.2 and 60° K and the external magnetic field between 0 and 25 kOe. Identification of the spectrum is performed within the framework of group theory analysis. It is shown that $CsMnF_3$ is an unusual crystal among antiferromagnetic substances. For the Mn2 ion in it pure exciton transitions are allowed in the electric dipole approximation. The main properties of pure exciton and exciton-magnon absorption bands are obtained in accordance with the Loudon scheme [2]. «Hot» and «cold» magnon satellites and also two-magnon satellites of pure exciton absorption bands are detected in the absorption spectrum and investigated. The maximal magnon frequency at the boundary of the Brillouin zone is determined, $\Delta_2 = 38$ cm^{-1}. The problem of distortion of this quantity due to exciton — magnon interaction in processes induced by excitation of one or two magnons together with the exciton is discussed.

REEL/FRAME
1977006?

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space medicine

So: JPRS 53801
12 Aug 71

BRIEF COMMUNICATIONS

UDC 612.842.6-058.9:061.12

NATURE AND DISTRIBUTION OF INTRAOCULAR PRESSURE IN HEALTHY PERSONS AGES 25-40 ENGAGED IN MENTAL WORK

[Article by T. A. Petrov (Space Medicine) and M. P. Kuz'mina, Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 2, 1971, pp 80-82, submitted 23 March 1970]

One of the most important problems in expert examination and selection of cosmonauts and predicting the dependability of their health during prolonged space flights is the detection of latent pathology, which is closely related to the upper limit of age for cosmonauts.

Most anthropometric indices (height, weight, physical strength, etc.) now differ considerably from these parameters characteristic for the late 19th and early 20th centuries (Bennholdt, 1940; N. A. Pletneva, 1928; M. M. Romanovskiy, 1960; V. S. Solov'yeva, 1967).

This makes it essential to reexamine the indices of the anatomic and functional state of human organs and systems.

A solution of the problem of normalcy limits and pathology is impossible without determining the limits of physiological variations in definite functions in the human body, taking into account age, occupation and observation period.

One of the most important physiological functions ensuring normal operation of the visual analyzer is the maintenance of normal intraocular pressure. However, ophthalmologists are not unanimous in their conclusions concerning the range of normal intraocular pressure.

In the method for measuring ophthalmological tone adopted in the Soviet Union some authors feel that the physiological limit of intraocular pressure variation falls in the range from 15 to 30 mm Hg (A. Ya. Sazbylov, 1960; L. K. Vasil'yeva, 1960; Yu. V. Perlin, 1962; V. S. Solov'yeva, 1965; E. S. Avetisov, et al., 1970); others consider the normal range to be from 15 to 26 mm Hg (V. P. Odintsov, 1938; D. V. Kantor, et al., 1962; V. G. Erikman, 1963), and finally, individual researchers

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UDC 548.58

RUBAL'SKAYA, E. V., PETROV, T. G., and TITOVA, A. G.

"Study of the Solubility of Lithium, Nickel, and Magnesium Ferrites in PbO—B_2O_3"

Moscow, Kristallografiya, Vol 15, No 5, Sep-Oct 70, pp 1094-1096

Abstract: A study was made of the temperature dependence of the solubility of lithium, nickel, and magnesium ferrites in the solvent PbO—B_2O_3. The solubility data were obtained by determining the solution saturation temperature on the basis of growth -- the dissolution of seeds from the crystallized materials. A somewhat smoothed bend of the solubility curve was found in the 1000° C region for lithium ferrite and the 1200° C region for nickel ferrite, most clearly expressed on the plot by the derivative $\partial c/\partial T = f(T)$.

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1/3 016 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--COMPLEXITY OF GEOCHEMICAL SYSTEMS FROM THE POSITION OF INFORMATION THEORY -U-

AUTHOR--PETROV, T.G.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 924-6

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOCHEMISTRY, ROCK, INFORMATION THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0165 STEP NO--UR/0020/70/191/004/0924/0926

CIRC ACCESSION NO--AT0132444

UNCLASSIFIED

2/3 016 UNCLASSIFIED

CIRC ACCESSION NO--AT0132444 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPLEXITY OF A SYSTEM IN THE MOST GENERAL CASE IN CONTROLLED BY THE VOL. OF INFORMATION, NECESSARY TO DESCRIBE A GIVEN SYSTEM, AND, ACCORDING TO SHANNON, IS A FUNCTION OF THE PROBABILITY OF EVENTS OCCURRING DURING A TEST OF THE SYSTEM. THIS FUNCTION, WHICH IS CALLED ENTROPY (H), HAS THE FORM OF: H EQUALS SIGMAP(X SUBI)LOG P(X SUBI); WHERE P(X SUBI) IS A PROBABILITY P SMALLER THAN 1 OF AN EVENT X SUBI. DURING EVALUATION OF THE COMPLEXITY OF THE CHEM. COMPN. OF ROCKS, MINERALS, ETC., THE EVENT X SBUI COULD BE THE DETECTION OF AN ATOM OF A GIVEN TYPE AND THEN P(X SUBI) SHOULD BE THE AT. CONCN. OF INDIVIDUAL ELEMENTS. DURING EVALUATION OF THE COMPLEXITY OF MINERAL COMPN., THE DETECTION OF THE MOL. OF A CHEM. COMPD. IS AN EVENT AND MOL. PARTS OF EACH MINERAL ARE P(X SUBI). THE OCCURENCE OF GRAINS IN A GIVEN SIZE RANGE IS AN EVENT DURING EVALUATION OF THE COMPLEXITY OF PARTICLE SIZE DISTRIBUTION IN IGNEOUS OR SEDIMENTARY ROCKS. THEREFORE, THE COMPLEXITY OF A SINGLE ROCK CAN BE EVALUATED FROM AT LEAST 3 DIFFERENT CHARACTERISTICS. THE CONTACT REACTION BETWEEN ROCKS, HAVING DISTINCTLY DIFFERENT COMPNS. (E.G. SYENITES OR GRANITES WITH MARBLE) RESULTS IN THE APPEARANCE OF A MAX. H IN THE HYBRID ROCKS. THE INTERACTION BETWEEN ROCKS, HAVING MORE SIMILAR CHEM. COMPN. (E.G. FENITIZATION), RESULTS IN THE APPEARANCE OF A SERIES OF ROCKS WITH MONOTONICALLY CHANGING H FROM ONE ROCK TO ANOTHER. GREISENIZATION AND OTHER METASOMATIC PROCESSES RESULT BOTH IN AN INCREASE AND IN A DECREASE OF THE H. A DISTINCT RELATION IS OBSD. BETWEEN INDIVIDUAL STAGES OF GREISEN DEVELOPMENT AND ENTROPY.

UNCLASSIFIED

3/3 016 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132444

ABSTRACT/EXTRACT--THE COMPLICATION OF COMPN. (INCREASE IN H), THEN PASSING OF H THROUGH A MAX., AND THE DECREASE TO A DEGREE DEPENDING ON THE REWORKING OF INITIAL ROCK ARE OBSO. IN METAMORPHIC ROCKS, ENTROPIES OF COMPLEXES OF MAIN ROCK TYPES ARE GIVEN. THE USE OF ENTROPY, AS A PARAMETER OF COMPLEXITY, WILL HELP ELUCIDATE THE GENERAL TENDENCIES OF GEOCHEM. AND OTHER PROCESSES IN THE EARTH'S CRUST BECAUSE OF ITS OBJECTIVITY AND MATH. JUSTIFICATION. FACILITY: LENINGRAD. GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

AN0016982

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UR9008

AUTHORS-- PETROV, V., ENGINEER, AND YEFIMOV, V., CANDIDATE OF MEDICAL SCIENCES

TITLE-- ATTENTION, RADIATION

NEWSPAPER-- KRASNAYA ZVEZDA, FEBRUARY 1, 1970, P 4, COL 1

ABSTRACT-- THE ARTICLE DISCUSSES THE DANGER OF SPACE RADIATION IN POPULAR-SCIENCE TERMS AND GIVES THE TOTAL RADIATION DOSE OF THE THREE "SOYUZ" SPACE SHIPS /THE RECENT FLIGHT/ AS 36-54 MILLIRADS WHICH, PRESUMABLY, IS MANY TIMES LESS THAN THE PERMISSIBLE DOSE OF 15 RADS.

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UDC: 681.32.001

BURTOV, A. I., PETROV, V. A., SAVUTKIN, V. V., SHAGULIN, V. I., VOLKOV, A. F., SOROKIN, G. K., TRAPEZNIKOV, V. A., CHEGLAKOV, Ye. A., CHEKMAREV, Yu. D.

"A Device for Determining the Region of Operability of a Digital Computer With Respect to Supply Voltages"

USSR Author's Certificate No 291206, filed 7 Aug 68, published 29 Mar 71, (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B146 P)

Translation: There is a well-known device which determines the region of operability of a digital computer with respect to supply voltages. This device contains a control unit, voltage commutation module, an element for controlling the sign of the independent voltage increment, and a device for visual display. However, such devices are incapable of monitoring the changes in digital computer elements which occur as a result of various ambient factors while the computer is in operation. To speed up determination of the limits of the region of operability and improve the reliability of measurements, the signal input of the element for controlling the sign of the independent voltage increment in the device intorduced by this Author's Certificate is connected to the output of the voltage commutation module, while the controlling input and the

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UDC: 536.2

PETROV, V. A., PETROVA, I. I., NESHPOR, V. S., FRIDLENDER, B. A., KAPRALOV, V. K., BELIK, R. V., Institute of High Temperatures of the Academy of Sciences of the USSR, State Institute of Applied Chemistry

"Some Thermophysical Properties of Isotropic Pyrolytic Graphite"

Moscow, Teplofizika Vysokikh Temperatur, Vol 11, No 2, Mar/Apr 73, pp 308-313

Abstract: A study is done on the electrical resistance, thermal conductivity and radiative characteristics of pyrolytic graphite which lacks a preferred orientation of the crystallographic planes with respect to the deposition surface. The measurements were made on specimens with densities ranging from 1.76 to 2.19 g/cc over a wide temperature interval. The behavior of the properties as a function of density and temperature is explained in terms of peculiarities of the defect structure of isotropic pyrographite.

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BURTOV, A. I. et al., Soviet Patent No 291206

output of the sign controller are connected to the control unit, the auxiliary output of the control unit being connected to the device for visual display, which is connected in turn to the voltage commutation module. This enables observation of the change in the region of operability of the digital computer with respect to supply voltages during operation, as well as evaluation of various computer characteristics (e.g., the availability factor, operability margin with respect to drift of element parameters, operating stability with respect to random perturbations of the power supply and the ambient medium). One illustration.

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