1/2 015 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--EXPERIMENTAL DETERMINATION OF THE SPECIFIC HEAT C SUBV LIQUID CARBON DIOXIDE -U-

AUTHOR-(03)-AMIRKHANOV, KH.I., POLIKHRONIDI, N.G., BATYROVA, R.G.

COUNTRY OF INFO--USSR

SOURCE--TEPLOENERGETIKA 1970, 17(3), 70-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECIFIC HEAT, MEASUREMENT, CARBON DIOXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0752 STEP NO--UR/0046/70/017/003/0070/0072

CIRC ACCESSION NO--AP0107294

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0107294

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HEAT CAPACITY OF CO USB2 AT CONST. VOL C SUBV WAS EXPTL. DETD. IN AN ADIABATIC CALORIMETER AT 7-120DEGREES AND AT THE SP. VOL V 1.203-2.002. ON THE ISOCHORES ABOVE THE CRIT. POINT A MIN. IN C SUBV WAS OBSERVED, WHICH SHIFTED TO HIGHER TEMPS. WITH INCREASE IN V. A SHARP MAX. IN C SUBV OCCURRED AT THE CRIT. POINT.

UNCLASSIFIED

USSR

UDC 546.623'131+546.35'185

YASTREBOVA, L. F., and POLINA, L. YU.

"Interaction of Aluminum Chloride with Rubidium and Cesium Pyrophosphates in Aqueous Solutions"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 8, No 2, 1972, pp 308-311

Abstract: The interaction is studied in the systems $AlCl_3$-$Rb_4P_2O_7$-H_2O and $AlCl_3$-$Cs_4P_2O_7$-H_2O at 25° C with a constant concentration of $AlCl_3$ of 0.05 M by the methods of residual concentrations and measurement of pH of solutions. Depending on the initial ratio of concentrations of pyrophosphate and aluminum, the solid phase contains the medium pyrophosphate of aluminum $Al_4(P_2O_7)_3 \cdot 12\ H_2O$, the binary salts $RbAlP_2O_7 \cdot 3H_2O$ and $CsAlP_2O_7 \cdot 4H_2O$, and the binary basic pyrophosphates $M_2AlOHP_2O_7 \cdot 2H_2O$ (M = Rb or Cs). The compounds separated were studied by methods of derivatography and x-ray phase analysis; the presence of the hydroxyl group in complex salts of the composition $M_2AlOHP_2O_7 \cdot 2H_2O$ is confirmed by IR spectra.

1/1

USSR

UDC: 669.35'725:620.16

POLINA, T. V., POTAPOV, B. S., STERELYUKHIN, V. A.

"Erosion Wear of PER Contacts of Copper-Beryllium Alloys"

Vychisl. Sistemy [Computer Systems -- Collection of Works], No 52, Novosibirsk, 1972, pp 143-148 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 81703, by the authors).

Translation: Conditions and method of conduct of an experiment for determination of the erosion wear of film contacts are described. For the range of switched dc voltages of 3-50 v, currents 2-10 ma, it is established that material transfer is determined primarily by the switched voltage, and is practically independent of current. It is also demonstrated that the amount of material transferred in a switching cycle (closing-opening) for V_c = const, I_c = 2-10 ma in independent of the number of switchings N and remains constant with an accuracy of ±20% up to $N = 10^6$. Based on experimental data, an empirical formula is suggested, satisfactorily describing the erosion wear of film contacts of Cu-Be alloy for the range of switched voltages 20-50 v. 6 figures, 2 biblio. refs.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CATALYSTS FOR DEHYDROCYCLIZATION OF N PARAFFINS -U-

AUTHOR-(05)-KAZANSKIY, B.A., SLINKIN, A.A., POLININ, V.I., ROZENGART, M.I., DULOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,076

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

DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLIZATION, ALKANE, HIGH TEMPERATURE HEAT TREATMENT, POLYMER, ALIPHATIC KETONE, CHROMIUM OXIDE, CATALYST, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1745 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136985

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 025

CIRC ACCESSION NO--AA0136985

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRODUCT OF THERMAL TREATMENT (400-600DEGREES) OF A POLYMER BASED ON PURE METHYL BETA,CHLOROVINYL KETONE OR WITH AN ADDITIVE CONSISTING OF 0.1-5 WT. PERCENT CR SUB2 O SUB3 IS USED AS A CATALYST FOR DEHYDROCYCLIZATION OF N PARAFFINS.

FACILITY: INSTITUT ORGANICHESKOY KHIMI I IM. N. D. ZELINSKOGO.

UNCLASSIFIED

UDC 621.372.831.1(088.8)

USSR

IVANOV, A. YA., POLINOV, YU. S.

"Device for Joining Waveguide Sections"

USSR Author's Certificate No 250233, Filed 14 Mar 68, Published 21 Jan 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B148P)

Translation: The proposed device consists of two waveguide sections to which flanges are soldered. The latter are hinged on a pin on which plates with grooves are fastened perpendicular to its axis. A metal tape is rigidly connected to the moving flange. The lateral edges of this tape enter into the grooves of the plates. At the same time, the point at which the sections are joined is protected on all sides from dust and dirt. The electrical contact between the waveguide sections is realized with the help of contact gaskets with clasps. To seal the joint packing rings are inserted in the grooves. The design of the device permits the mutual arrangement of the joined waveguide sections to be varied, for example, during transportation of them. There are two illustrations.

1/1

USSR

UDC: 621.396.67:624.97

BOL'SHUNOV, F. F., VANYUSHIN, V. M., DUBROVIN, V. F., DMITRIYEVSKIY, N. M., POLINOV, Yu. S., REZNIK, A. P.

"Antenna-Mast Support"

USSR Author's Certificate No 266868, filed 10 Jun 68, published 3 Jul 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B102 P)

Translation: The proposed support consists of interconnected elements, a support framework mounted on a truck platform, an antenna with attached feeder channel, and mechanisms for folding and unfolding the support. To simplify folding and unfolding of the support, the feeder channel is made in the form of individual sections which are securely fastened to the elements of the mast and hinged together.

1/1

USSR

UDC 621.396.677(088.8)

ZAGREBEL'NYY, A. A., POLINOV, YU. S., STESIN, V. V., KHAVKIN, I. M., TSYGANKOV, O. S., YUSHIN, S. I.

"Telescopic Cylindrical Rod"

USSR Author's Certificate No 275177, Filed 17 Oct 68, Published 26 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B85P)

Translation: The proposed rod contains a drive mechanism for unwinding a metal elastic tape from a drum and formation of a hollow tube from it.

1/1

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DISPERSE CONDENSATION STRUCTURES OF POLYESTER URETHANES -U-

AUTHOR-(04)-YABKO, YA.M., POLINSKIY, S.L., ZHDANOVA, V.I., VLODAVETS, I.N.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 155-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--PLASTIC FILM, POLYURETHANE RESIN, POLYGLYCOL, ORGANIC ISOCYANATE, CAPROLACTAM, POROSITY, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1091 STEP NO--UR/0020/70/191/001/0155/0157

CIRC ACCESSION NO--AT0124748

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124748

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POROUS POLYURETHANE FILMS WERE PREPD. FROM THE REACTION PRODUCTS OF POLY(PROPYLENE GLYCOL), MOL. WT. SIMILAR TO 2000, H SUB2 NNH SUB2 .H SUB2 O, AND TOLYLENE DIISOCYANATE, OR OF POLYCAPROLACTAM, BUTANEDIOL, AND BIS(ISOCYANATOPHENYL)METHANE. THESE POLYMERS WERE SOL. IN ALL PROPERTIONS IN HCONME SUB2, HOWEVER THE ADDN. OF 5-10PERCENT H SUB2 O (PREFERABLY BY THE ABSORPTION OF H SUB2 O VAPOR) CAUSED THE SEPN. OF THE POLYMER GLOBULES WHICH SETTLED, FORMING POROUS AND ELASTIC FILMS (ELONGATION AT BREAK SMALLER THAN OR EQUAL TO 700PERCENT, H SUB2 O (G) PERMEABILITY SIMILAR TO 6 MG-CM PRIME2-HR). THE EFFECT OF THE AMT. OF H SUB2 O, AND THE TEMP. ON THE SOLN. METASTABILITY AND THE FILM PROPERTIES WERE ESTABLISHED. FACILITY: VSES. NAUCH.-ISSLED. INST. PLENOCHNYKH MATER. ISKUSSTV. KOZHI, MOSCOW, USSR.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--MODIFICATION OF POLYESTER URETHANES BY RIGID POLYMERS FOR PREPARING ARTIFICIAL LEATHER FOR CLOTHING -U-

AUTHOR-(04)-FREIDGEIM, K.I., ALEKSEYENKO, V.I., YABKO, YA.M., POLINSKIY, S.L.

COUNTRY OF INFO--USSR

SOURCE--KOZH.-OBUV. PROM. 1970, 12(2) 41-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LEATHER, POLYURETHANE RESIN, POLYOXYPROPYLENE, GLYCOL, ORGANIC ISOCYANATE, POLYVINYL CHLORIDE, NITROCELLULOSE, ACRYLONITRILE, COPOLYMER, ACETATE, POLYMER PHYSICAL PROPERTY, PLASTIC MECHANICAL PROPERTY, CLOTHING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0489 STEP NO--UR/0498/70/012/002/0041/0044

CIRC ACCESSION NO--AP0107094

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0107094

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A POLYESTER URETHANE (I) (BASED ON A PREPOLYMER PREPD. FROM POLY(OXYPROPYLENE) GLYCOL OF MOL. WT. 1000 AND 2,4,TOLYLENE DIISOCYANATE IN A MOLE RATIO OF 1:2) WAS MODIFIED WITH POLY(VINYL CHLORIDE) (II), CHLORINATED II, NITROCELLULOSE, AND A 30PERCENT ACRYLONITRILE VINYL ACETATE COPOLYMER (III) DISSOLVED IN HCONME SUB2. III MODIFIED I HAD SUPERIOR PHYSICOMECH. PROPERTIES, I.E. MIN. RIGIDITY AND VAPOR PERMEABILITY (3.9 MG-CM PRIME2 HR).

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510005-4"

USSR

UDC 576.858.75

KANEL', I. A., INDULEN, M. K., RYAZANTSEVA, G. M., DZEGUZE, D. R., and POLIS, YA. Yu., Institute of Microbiology imeni A. Kirkhenshteyn, Academy of Sciences, Latvian SSR, Riga

"Antiviral Activity of 2-Aminoadamantane"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, No 11, 1972, pp 42-47

Abstract: Studies were undertaken on the antiviral effectiveness of 2-aminoadamantane (2-AA) on the following viruses: influenza types A0, A1, A2, and B, Sindbis virus, and smallpox virus. Comparison with 1-aminoadamantane (1-AA) showed that 2-AA was less toxic for KhA0 tissue culture and cultures of chick embryo fibroblasts, equally toxic for the chick embryo, and evidenced greater toxicity than 1-AA for white mice. The TD_{50} of 2-AA for a monolayer of chick fibroblasts was 250 μg/ml, and 100-150 μg/ml for a suspension of these cells. Evaluation of 2-AA in terms of inhibition of multiplication of the different viruses in KhA0 tissue culture showed that the greatest decrease in the lg ID_{50} was obtained with influenza types A2/Frunze and A2/Hong Kong; 2-AA was less effective against A0/WSN and A1/Pan, and showed no significant inhibition of B/Amakuza and B/Sofia viruses. A2 hemagglutinin titers were also depressed, and the effects were dependent on 2-AA concentration and the dose

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USSR

KANEL', I. A., et al., Izvestiya Akademii Nauk Latviyskoy SSR, No 11, 1972, pp 42-47

of the infecting virus. For chick embryo studies the eggs were injected with 500 µg of 2-AA and the results evaluated in terms of the fall of lg EID_{50}. The most pronounced effects were obtained with A2/Frunze and A2/Hong Kong, but antiviral activity against AO/WSN, A1/Pan, B/Tokyo, and B/Amakuza was also significant. Again, the viral hemagglutinating activity was found to be decreased and the effects of 2-AA were dependent on the size of the viral inoculum. Further in vivo studies showed that 2-AA protected white mice against death as a result of infection with A2/Frunze or B/Tokyo: the mortality rate among the untreated controls was about 50% greater. Furthermore, 2-AA decreased the lung titers of mice infected with A2/Hong Kong and B/Amakuza by about 1.5 lg ID_{50} in both instances. Thus, 2-AA was shown to be an effective agent against influenza viruses and its therapeutic index in white mice was 21. 2-AA also inhibited influenza B virus. 2-AA was ineffective with respect to Sindbis and smallpox viruses.

2/2

AA0036111

UR 0482

1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

240725 ARC STEELMAKING IN FURNACES WITH BASIC LINING AND NEUTRAL SLAG ZONE by performing the oxidising under a basic slag which is worked up as the metal melts inside the furnace; after the oxidising period, this slag is run off and a fresh slag worked up for the pure boil. Then the basic slag is once more run off and an acid slag worked up which is used as a blanket for the remainer of the melt.
12.3.65 as 947323/22-2. POLISADOV V.N. (26.8.69) Bul 13/ 1.4.69. Class 18b. Int.Cl.C 21c.

LD

18

19720885

P

UDC 621.315.593:535.215.6

USSR

KIREYEV, P. S., FEDOROVSKIY, A. M., POLISAN, A. A., YUKHTANOV, Ye. D.

"Photomagnetoelectric Effect in P-Type Cadmium Telluride"

Elektron. tekhnika. Nauchno-tekhn. sb. (Electronic Technology. Scientific-Technical Collection), 1970, Series 14, No 1, pp 72-74 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8B204)

Translation: The photomagnetoelectric effect is investigated in p-type cadmium telluride. Complete conformity of the results obtained with theory is established. The spectral characteristics of the effect are presented and the diffusion length and life time of minority carriers is determined. Summary.

1/1

USSR

POLISHCHUK, A. I., Kiev

"On the Stability of Single-Rotor Correctable Gyrocompasses"

Moscow, Mekhanika Tverdogo Tela, No 6, Nov/Dec 70, pp 37-41

Abstract: The author investigates the Lyapunov stability of undisturbed motion of a single-rotor gyrocompass with fluid-torsion suspension of the sensitive element. Particular attention is given to finding the characteristic indices for solutions of a system of linear differential equations with nonperiodic coefficients. The results of the analysis show why a correctable gyrocompass is considerably more stable than the noncorrectable instrument.

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AA0044641

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

238214 QUALITY CHECK RIG FOR ADHESIVE JOINTS has a rotating brush cylinder with a thin line of bristles arranged as a spiral with a pitch equal to the length of the cylinder. The sandwich strip to be tested is pulled by rollers under the brush. A defective bond leads to a sharp rise of the sonic vibrations in the 8 kHz range. This is picked up by a microphone with filters and cathode followers, amplified and operates an electromagnetic marker for the defective spot.
1.8.67 as 1176930/29-33.A.A.PIZHURIN et al.MOSCOW TIMBER INST. (3.7.69) Bul 9/20.2.69. Class 42k. Int.Cl.G 01 n.

AUTHOR: Pizhurin, A. A.; Polishchuk, A. N.; Kaynov, Ye. S.;

Moskovskiy Lesotekhnicheskiy Institut

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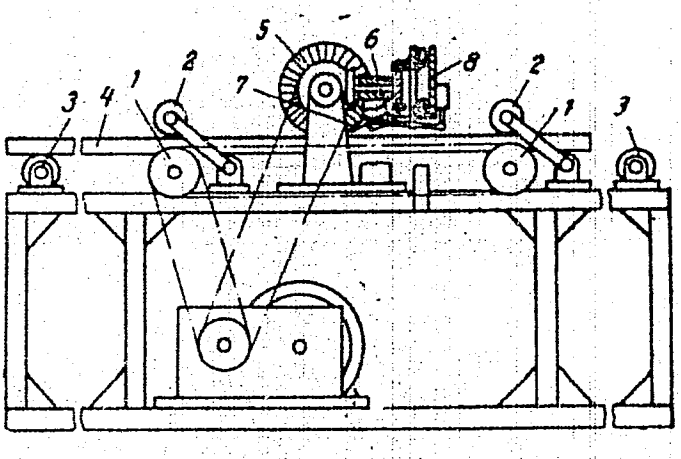
1/2

19771343

AA0044641



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19771344

Acc. Nr: AP0047315 P Ref. Code: UR 0300

PRIMARY SOURCE: Ukrayns'kiy Biokhimichniy Zhurnal, 1970, Vol 42, Nr 1, pp 16-19

TRANSPORT INTO CYTOPLASM OF NUCLEAR DNA SIMILAR TO RNA IN THE PROCESS OF LIVER REGENERATION AND CHEMICAL HEPATOCANCEROGENESIS

O. M. Platonov, V. P. Korotkoruchko, A. S. Polishchuk, V. G. Pinchuk

Institute of Biochemistry, Academy of Sciences, Ukrainian SSR, Kiev, Institute of Experimental and Clinical Oncology, Ministry of Public Health, Ukrainian SSR, Kiev

Summary

The transfer of nuclear RNA into the liver cytoplasm in normal rats was studied 24 hrs after partial hepatectomy and in the process of chemical hepatocancerogenesis by the method of hybridization of nuclear RNA (D-RNA-1 and D-RNA-2) with DNA at the presence of non-labelled RNA.

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AP0047315

It is shown that in all the cases D-RNA-1 is presented in cytoplasm by a considerable amount of the hybridizable kinds of RNA.

The cytoplasmic RNA of the rat normal liver is a weak competitor for D-RNA-2 for corresponding cytrones of DNA.

In the process of regeneration and hepatocancerogenesis there observed a considerable amount of RNA capable of competiting with D-RNA-2 for places on DNA.

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19790834

USSR

KONSTANTINOV, N., and POLISHCHUK, D.

"Dolphins on School Benches"

Moscow, Izvestiya, 7 Mar 71, p 4

Translation: The smooth, blue surface of the bay is cleaved by the bodies of dolphins. They are lying still along a wideswung start line. The pool attendant gives a command and begins a lesson in... geometry. Afalina /Tursiops truncatus/ make no mistakes in distinguishing a sphere from a pyramid and a cylinder from a cube.

A lesson on materials follows. Again, the animals are scintillating with their remarkably bright wits. It costs them no effort to distinguish lead from steel or brass from plastic.

A large group of Soviet scientists -- acousticians, physiologists, and oceanographers -- who are studying the language, psyche, and hydrodynamic properties of the inhabitants of our southern seas, have reported the results of their investigations in lectures given during the All Union Acoustic Conference in Leningrad.

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USSR

KONSTANTINOV, N. and POLISHCHUK, D., Izvestiya, 7 Mar 71, p 4

Soviet scientists have elucidated the secret of the Azov dolphins' phenomenal ability to detect the presence, in the water, of a 1 mm thick wire. Experiments have shown that the Azov dolphins emit, from their natural echo sounders, not only low-frequency sounds, as was previously established, but also ultrasound signals.

2/2

1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--THYROID FUNCTION IN MENTAL STRESS -U-

AUTHOR-(02)-POLISHCHUK, I.A., SIVACHENKO, T.P.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 6, PP 46-49

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PSYCHOLOGIC STRESS, THYROID GLAND, FUNCTION, SCHIZOPHRENIA, PSYCHOSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1749 STEP NO--UR/0475/70/000/006/0046/0049

CIRC ACCESSION NO--AP0129117
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0129117

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS INDICATE THAT PATIENTS WITH PRESENILE AND SENILE PSYCHOSES, OLIGOPHRENS SHOW A REDUCTION OF THYROID FUNCTION. IN SCHIZOPHRENIA, CYCLOTOMY THE THYROID FUNCTION WAS MOSTLY WITHIN NORMAL LEVELS BUT IN SOME OF THEM ABNORMAL THYROID FUNCTION WAS SEEN (INCREASE OF DECREASE DEPENDING ON THE STAGE OF THE DISEASE). IT IS CONCLUDED THAT INVESTIGATION OF THYROID FUNCTION IN PSYCHOTIC DISEASES MAY BE OF VALUE IN BETTER UNDERSTANDING OF THE MAIN PATHOLOGICAL PROCESS AND OF HELP IN PLANNING ADEQUATE TREATMENT. FACILITY: KAFEDRA PSIKHIATRII I MEDITSINSKOY RADIOLOGII KIYEVSKOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY.

UNCLASSIFIED

UDC 632.96

USSR

PTITSYNA, N. V., and POLISHCHUK, L. R.

"Determination of Trace Quantities of Bromophos and Iodophos in Fruits"

Byul. Nikitsk. botan. sada (Bulletin of Nikitsk Botanical Gardens), 1972, vyp 1(17), pp 52-55 (from RZh-Khimiya, No 22, Nov 72, Abstract No 22N418)

Translation: Over a weighed portion of fruit (50 g) is poured 100-150 ml of CCl_4 and 10-15 g of Na_2SO_4 are added. After 18-20 hours the extract is separated, the Na_2SO_4 is dried, and the specimen is evaporated to a volume of 0.2-0.3 ml. The residue is subjected to thin-layer chromatography on KSK silicagel or acid-activated Crimean bentonite (40 g of sorbent, 1-1.5 g of starch and 125 ml of water; plates dried in air) in the CCl_4-C_6H_6 system (9:1), treated with a developer (0.5 g of $AgNO_3$ is dissolved in 5 ml of distilled water, 2.5 ml of 25% NH_4OH are added and brought to 100 ml with acetone), and exposed to ultraviolet rays for 15-20 minutes. The method may be suitable for determining chemicals in cherries and apples. T. A. Belyayeva.

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Acc. Nr: AP0044665

Ref. Code: UR 0497

PRIMARY SOURCE: Klinicheskaya Meditsina, 1970, Vol 48, Nr 2, pp 53-56

THE CLINICAL ASSESSMENT OF THE USE OF STROPHANTHIN AND NEROBOL IN CARDIAC INSUFFICIENCY

Polishchuk, M. A.

Summary

Nerobol intensifies the cardiotonic effect of strophanthin and is conducive to fixation of intracellular potassium. This conclusion was made on the basis of analysis of the markedness of congestive manifestations before and after treatment, analysis of hemodynamic indices and polycardiograms. The intracellular content of cations was studied by the level of the latter in erythrocytes by means of flame photometry.

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REEL/FRAME 19771396

DI 02

USSR

POLISHCHUK, N. P. UDC 621.396.679.4

"Methodology for Calculating a Sequence Pattern Forming Circuit"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp.119, pp 40-52 (from RZh-Radiotekhnika, No 11 Nov 72, Abstract No 11 B66)

Translation: The author studies a pattern forming circuit consisting of two mutually intersecting systems of feeder lines which are connected at the places of intersection by directional couplers. The inputs of one system of lines are the inputs of the antenna, while the inputs of the other are connected to the emitters of the array. The free ends of the lines are loaded with matched loads. Original article: four illustrations and three bibliographic entries. N.S.

1/1

USSR

UDC 621.396.677.494.001.24

POLISHCHUK, N. P. and SAZONOV, D. M.

"Calculation of Phased Annular Aerial Arrays of Interacting Emitters Excited by Butler Circuit"

Moscow, Antenny, No 13, 1971, pp 3-17

Abstract: The present work considers an aerial array consisting of several emitters equally spaced along an equatorial ring.

A method is presented for determining the amplitudes and phase relations of the emitter signals which would result in maximum power in a given direction. This direction may vary in the meridianal plane as well as in the equatorial one. The emitters are excited by a passive, reactive Butler circuit.

The numerical examples show that the emitter interaction has to be considered only for scanning at or near the equatorial plane. If the beam deviates from this plane by over 20°, the emitter interaction can be ignored.

1/1

USSR

UDC 621.396.677.4.001.5

POLISHCHUK, N. P.

"Synthesis of a Pattern-Shaping Circuit With Compensation of Mutual Coupling in a Phased Antenna Array"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 7, Jul 71, pp 1163-1169

Abstract: A method is proposed for synthesizing a nondecoupling pattern-shaping circuit based on two decoupled and matched multipoles and one matching multipole. The method is applicable to antenna arrays whose mutual impedance matrix has real eigenvectors. The resultant pattern-shaping circuit for feeding a ring antenna array with compensation of mutual coupling between radiators consists of a Butler matrix circuit, two adders, and a matching multiple-terminal network between the adders. The adders may be made up of hybrid rings without coupling between them. In conclusion, the author thanks D. M. Sazonov for his considerable interest in the work.

1/1

USSR

UDC 621.396.677.4:621.372.552

POLISHCHUK, N. P., SAZONOV, D. M.

"Synthesis of a Multiterminal Network Which Compensates Mutual Coupling in a Ring Antenna Array"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 7, Jul 71, pp 1158-1162

Abstract: A procedure is proposed for synthesizing a multiterminal network which compensates for mutual coupling between radiators in a ring antenna array, and guarantees minimum rms deviation of the system of realized radiation patterns from the initial pattern. The proposed method of calculating a multiple-terminal compensating network can be extended to arbitrary antenna arrays.

1/1

USSR UDC: 621.372.8.049.75-416

POLISHCHUK, N. P.

"Scattering Matrix of a Strip Transmission Line With Random Variation in the Width of the Inner Conductor"

V sb. Antenny (Antennas--collection of works), Vyp. 9, Moscow, "Svyaz'", 1970, pp 81-89 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B172)

Translation: The author considers the scattering matrix of a strip transmission line section with a weak random change in the width of the inner strip along the line. The law of change in width is approximated by a step function with independent steps. The statistical characteristics of the scattering matrix elements and distribution law of the absolute value of the coefficient of reflection are found. Examples of calculation of the permissible variation in width of the strip for a given coefficient of reflection are given. Four illustrations, one table, bibliography of ten titles. Resumé.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--HYDRATED MERCURY AND CADMIUM FLUORIDES -U-

AUTHOR-(05)-POLISHCHUK, S.A., KHMELEVA, M.G., ZADNEPROVSKIY, G.M.,
KAIDALOVA, T.A., KUPTSOVA, N.V.
COUNTRY OF INFO--USSR

SOURCE--J. LESS-COMMON METALS 1970, 21(1), 63-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MERCURY COMPOUND, CADMIUM COMPOUND, FLUORIDE,
THERMOGRAVIMETRIC ANALYSIS, HYDRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0939 STEP NO--NE/0000/70/021/001/0063/0069

CIRC ACCESSION NO--AP0133025

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133025

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY. RELATIONS IN THE HGO-HF-H SUB2 O SYSTEM WERE INVESTIGATED AT 25DEGREES IN THE 5-75PERCENT HF CONCN. RANGE. THE COMPN OF THE SOLID PHASES FORMED WAS ESTABLISHED BY THE USE OF SCHREINEMAKER'S METHOD. TWO COMPDS. WERE ISOLATED: HGF SUB2 .2H SUB2 O, AND ITS HYDROLYSIS PRODUCT, HGOHF. IN THE CDOHF-H SUB2 O SYSTEM, CDF SUB2 .2H SUB2 O WAS ISOLATED AT SMALER THAN OR EQUAL TO 10PERCENT HF CONCN. ONLY. THE COMPOS. OBTAINED WERE INVESTIGATED BY SEVERAL PHYSICOCHEM. METHODS. THERMOGRAVIMETRIC ANAL. SHOWED A LOW THERMAL STABILITY OF HGF SUB2 .2H SUB2 O AND CDF SUB2 .2H SUB2 O. THEIR SPECTRA INDICATED THE PRESENCE OF STRONG H BONDS IN THESE HYDRATES. BY THE USE OF X RAY POWDER TECHNIQUES, THE 2 HYDRATES WERE SHOWN TO BE ISOTYPICAL AND PRESUMABLY, ISOSTRUCTURAL. THEY ARE ORTHORHOMBIC, WITH SPACE GROUPS PNMM OR PNM2 SUB2, AND 8 FORMULA UNITS PER UNIT CELL, WITH CELL PARAMETERS: A 9.931 PLUS OR MINUS 0.003, B 7.078 PLUS OR MINUS 0.002, C 8.767 PLUS OR MINUS 0.003 ANGSTROM FOR CDF SUB2 .2H SUB2 O AND A 10.002 PLUS OR MINUS 0.002, B 7.151 PLUS OR MINUS 0.001, C 8.891 PLUS OR MINUS 0.001 ANGSTROM FOR HGF SUB2 .2H SUB2 O.

UNCLASSIFIED

TITLE--FLUORINE 19 NMR IN CADMIUM AND MERCURY ANHYDROUS AND HYDRATED DIFLUORIDES -U-

AUTHOR--GAGARINSKIY, YU.V., POLISHCHUK, S.A., YAROSHEVSKAYA, N.F., AVKHUTSKIY, L.M.
COUNTRY OF INFO--USSR

P

SOURCE--SPECTROS. LETT. 1970, 3(1), 23-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NMR SPECTRUM, MERCURY COMPOUND, CADMIUM COMPOUND, FLUORIDE, FLUORINE, ISOTOPE, MAGNETIC MOMENT, CRYSTAL HYDRATE, HYDROGEN BONDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1331 STEP NO--US/0000/70/003/001/0023/0026

CIRC ACCESSION NO--AP0107804

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510005-4"

2/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107804

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRIME19 F NMR SPECTRA OF HGF SUB2 AND HGF SUB2.2H SUB2 O WERE OBSD. AT 150DEGREESK AND COMPARED WITH THOSE OBSD. BY A., ET AL. (1969) FOR CDF SUB2 AND CDF SUB2.2H SUB2 O. THE CHEM. SHIFTS FOR HGF SUB2 AND HGF SUB2.2H SUB2 O WERE 636 PLUS OR MINUS 8 AND 538 PLUS OR MINUS 8 PPM, RESP., AND THE 2ND MOMENTS WERE 5.9 PLUS OR MINUS 0.3 AND 17.1 PLUS OR MINUS 0.8 OE PRIME2, RESP. THE H POSITIVE 2ND MOMENT FOR HGF SUB2.2H SUB2 O WAS 28.5 PLUS OR MINUS 0.8 OE PRIME2, DEMONSTRATING THE EXISTENCE OF H BONDING, APPARENTLY OF THE OH,F TYPE, IN THE CRYSTAL HYDRATES.

ZZZZZZZZZZZZ UNCLASSIFIED

USSR

UDC 621.396.677.31

ANYUTIN, A. P., PERMYAKOV, V. A., POLISHCHUK, V. K.

"Radiation Characteristics of Aperture Antennas in a Planar Stratified Medium"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp. 100, pp 27-31 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No 7B37)

Translation: Formulas are derived for calculating the radiation pattern of a circular wave guide located in an infinite metal plane under a dielectric layer and a layer of plasma. Results are presented from the calculations for the cases of absence of a plasma and in the presence of a plasma with ϵ varying linearly or quadratically. It is demonstrated that the presence of the plasma layer leads to a sharp decrease in radiation level in the fields of slip observation angles. The radiation pattern must depend on the laws of variation of the ϵ-plasma.

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POLISHCHUK, V. P.

(4)

JPRS 60634
27 November 1973

NONUNIFORMITY OF THE VELOCITY AND PRESSURE FIELDS IN A MAGNETODYNAMIC PUMP

[Abstract of a Paper by R. K. Gorn, V. P. Polishchuk, V. I. Shekhovtsov, V. S. Yakovlev Given at a Magnetohydrodynamic Conference, pp 118-119]

In the papers devoted to the investigation of magnetodynamic pumps [1], the complexity of the flow structure of a liquid-metal in the core has been noted, and a proposition has been stated regarding the presence of turbulence there. In order to discover the nature of the flow in the core and the channels adjacent to it, experimental studies were made on models with liquid gallium and a transparent electrolite (30% H_2SO_4), and a numerical calculation was made of the velocity and pressure fields based on the Navier-Stokes equation with the given distribution of the electromagnetic forces. The procedure used in the study in the gallium loop is described in [2]. The velocities in the electrolite were measured optically by photographing the visualized flow. A numerical study was made of the equations of laminar flow of a viscous liquid [3].

Introducing the current function ψ and the eddy function Ω, we obtain the system of differential equations

$$\frac{\partial\psi}{\partial x}\cdot\frac{\partial\Omega}{\partial y}-\frac{\partial\psi}{\partial y}\cdot\frac{\partial\Omega}{\partial x}-\frac{1}{Re}\Delta\Omega=-\frac{M}{Re^2}\frac{\partial f}{\partial y}, \qquad (1)$$

where

$$\Delta\psi=\Omega;\quad M=\frac{F_0 a}{U_0^2}, \qquad (2)$$

$R_e = U_0 a/\nu$; a is the halfwidth of the transport channel; U_0 is the maximum velocity at the input to the core; F_0 is the scale of the electromagnetic force; $\partial f/\partial y$ is the variation of the electromagnetic force in the lateral channel.

The numerical calculations were performed for the core with different ratios of the dimensions l/a and M, Re. In Figure 1, a, the calculated pictures of the movement of the liquid in a crisscross core (Re = 600, $M = 3\cdot10^5$) and the

POLISHCHUK, V. P.

JPRS 60634
27 NOVEMBER 1973

(17)

NUMERICAL STUDY OF THE FLOW OF A LIQUID-METAL IN MAGNETODYNAMIC PUMPS

[Abstract of a Paper by R. V. Birikh, V. A. Briskman, G. I. Burde, R. K. Gorn, Yu. P. Polishchuk, V. I. Yakushin Given at a Magnetohydrodynamic Conference, pp 121-122]

In order to determine the optimal parameters of the structural design of a magnetohydrodynamic pump, it is necessary to have a concept of the nature of movement of the liquid-metal in the zone of effect of the electromagnetic forces. This movement is described by the system of equations of magnetic hydrodynamics. The solution of this system for regions of complex configuration even by numerical methods presents significant difficulties. However, in a number of cases of interest for practical applications, it is possible to introduce some simplifying assumptions.

If the distributions of the magnetic and electric fields are caused only by external sources and do not depend on the movement of the liquid (the induction approximation), then the problem can be reduced to the solution of the equations of ordinary hydrodynamics in the given nonuniform force field.

In this approximation a study has been made of the two-dimensional movement of a viscous incompressible liquid in a cross core with a linear decrease in magnitude of the force with respect to both coordinates. The finite-difference equations written for the current and vorticity functions were solved by the iteration method with a successive lower relaxation on a computer.

The nonuniform force distribution in the lateral channel (pocket) leads to the occurrence of turbulence in it. Depending on the force distribution in the core and also the parameters characterizing its configuration, the turbulence in the pocket will to a greater or lesser degree affect the movement of the liquid in the central channel, that is, the pump parameters.

A study was made of the dependence of these parameters (the magnitude of the head Δp and the drag C) on the flow rate of the liquid through the transverse cross section of the central channel (the Reynolds number Re) and the force distribution in the core.

USSR

UDC: 669.715.046.54/55

YUDKIN, S. A., DUBODELOV, V. I., POLISHCHUK, V. P.

"Refining of Aluminum Alloys in Induction Channel Furnaces"

Moscow, Tsvetnyye Metally, No 8, Aug 73, pp 45-47.

Abstract: A system is developed for protection of the channel of induction furnaces from overgrowth. The optimal purification of aluminum alloys using active fluxes was observed at 720-730° C, with a flow rate of the stream at the nozzle of 0.22-0.25 mm/sec, using T-shaped fittings 0.30-0.32 m/sec.

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USSR

UDC: 532.5:621.313.3:538.4

GORN, R. K., POLISHCHUK, V. P., SHEKHOVTSOV, V. I., and YAKOVLEV, V. S.

"Investigating Velocity and Pressure Fields in a Magnitodynamic Pump"

Riga, Magnitnaya gidrodinamika, No 1, 1973, pp 105-110

Abstract: This article describes experiments to investigate magnetohydrodynamic processes in the channel of a magnetodynamic pump. The experiments were done with liquid gallium and a transparent electrolyte consisting of 30% H_2SO_4. From the distribution of electromagnetic forces thus obtained, the numerical computations of the velocity fields and the pressures were made using the Nav'ye-Stokes equations. The method of the investigations is described in earlier papers by the same authors named above (Materialy k V Tallinskomu soveshchaniyu po elektromagnitnym raskhodomeram -- Materials for the Fifth Tallin Conference on Electromagnetic Flowmeters -- Tallin, 2, 1971, 46) and a diagram of the cruciform active zone of the pump used in the tests is shown. The theory of the experimental situation is developed, and theoretical results are compared with experimental to show that the change in

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UDC: 532.5:621.313.3:538.4

GORN, R. K., et al, Magnitnaya gidrodnamika, No 1, 1973, pp 105-110

pressure in the active zone and in the side channel of the pump is the same in both.

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USSR

UDC 621.313.333:538.4

SHEKHOVTSOV, V. I., POLISHCHUK, V. P., GORN, R. K., and YAKOVLEV, V. S.

"Field of a Magnetodynamic Pump Stator"

Riga, Magnitnaya Gidrodinamika, No 4, Oct-Dec 72, pp 62-70

Abstract: The problem is presented on determining the electromagnetic field of a stator in the active zone of a magnetodunamic pump, approximated by a thin cross-shaped plate located between the ferromagnetic surfaces and consisting of individual sections with varying equivalent parameters. The general boundary conditions were formulated considering pump design and arrangement of stator windings. The Helmholtz equation was solved for two components of the complex current density in the "cross" with infinitely long rays by the Fourier-Lamb method using superposition of the fields in the central region of the "cross." Simplified solutions were obtained, considering the relationships in actual pumps for the pole and an infinitely wide electromagnet. Uniform relationships, found in the latter, enter into the general solutions for the "cross" and poles, the remaining members of which take into account the longitudinal and lateral fringe effects. A comparison of the experiment and calculation for a solid brass coil showed the

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USSR

SHEKHOVTSOV, V. I., et al., Magnitnaya Gidrodinamika, No 4, Oct-Dec 72, pp 62-70

acceptability of the field calculation in the pump channel for the experimentally found coefficient of current spread and equations for the pole. 4 figures, 7 bibliographic references.

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USSR

POLISHCHUK, V. P.

UDC 539.376+532.135

"Certain Relaxation Problems in a Centrally Loaded Prism"

Sb. nauch. tr. Chelyabinsk. politekhn. in-ta (Collection of Scientific Works of Chelyabinsk Polytechnical Institute), 1971, No. 96, pp 101-105 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6V529)

Translation: Two relaxation problems when deformation of the prism remains constant in time and when it changes according to the law of concrete creep are considered on the basis of the equation of the theory of aging of the form

$$E_c d\varepsilon_{Sc} = (1 + \phi_0)d\sigma_{Sc} + (\sigma_{Sc} + E_c\, \varepsilon_{yk}/\phi_k)d\phi_t$$

where the deformation of the prism remains constant in time when it changes according to the law for creep of concrete. ε_{Sc} and σ_{Sc} are the deformation and stress of the concrete, ε_{yk} and ϕ_k are the minimum values of the deformation of a free precipitate and the characteristics of creep ϕ_t of concrete and E_c is the constant elasticity modulus of concrete. It is assumed that

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POLISHCHUK, V. P., Sb. nauch. tr. Chelyabinsk. politekhn. in-ta, 1971, No. 96, pp 101-105

the mounting works in the elastic stage. The problem of the relaxation of stresses in a composite-monolith prism is also considered when the deformation changes in proportion to the creep of one of the concretes. Corresponding expressions are obtained for a reinforced prism of two concretes which are valid under any law of change in deformation of the prism with time. M. I. Rozovskiy.

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USSR

POLISHCHUK, V. P.

UDC 539.4:624.012

"On Calculating Losses of Prestressing Considering Nonlinear Creep of Concrete"

Sb. nauch. tr. Chelyabinsk. politekhn. in-ta (Collection of Scientific Works of Chelyabinsk Polytechnical Institute), 1971, No. 96, pp 106-109 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6V877)

Translation: The problem stated in the title is solved as applied to a centrally pressed reinforced concrete element with an initial physical relationship of the form

$$\sigma_{c_{add}} = f(\sigma_{c_0})/E_c \, \phi_t + \sigma_{c_{add}}/E_c \, \gamma_1 ,$$

where $\gamma_1 = 1 + \phi_t(0.5 + \beta_0\sigma_{c_0})$, ϕ_t is the characteristic of the creep of the concrete, σ_{c_0} are the basic stresses of the concrete, E_c is the elastic modulus of the concrete. The equation for additional stresses $\sigma_{c_{add}}$ and

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POLISHCHUK, V. P., Sb. nauch. tr. Chelyabinsk. politekhn. in-ta, 1971, No. 96, pp 106-109

deformations $\varepsilon_{c_{add}}$ of the concrete was obtained from the equation of the theory of creep of concrete as given by N. Kh. Arutyunyan and formulated for current stresses and deformations when the nonlinear function of the stresses has the form $f(\sigma_c) = \sigma_c + \beta_0 \sigma_c^2$, where β_0 is a constant. Formulas are obtained giving the losses of prestress in the concrete and the reinforcement rods. Comparative numerical calculations for prestress losses in the reinforcement rods are given for the case when $\beta_0 = 0.001$ and $\beta_0 = 0.005$. M. I. Rozovskiy.

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1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DETERMINATION OF THE BASICITY OF N SUBSTITUTED LACTAMS BY AN IR SPECTROSCOPIC METHOD -U-

AUTHOR-(05)-GORSHKOVA, G.N., KOLODKIN, F.L., POLISHCHUK, V.V., PONOMARENKO, V.A., SIDELKOVSKAYA, F.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 550-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--LACTAM, IR SPECTRUM, PHENOL, DEUTERIUM COMPOUND, HYDROXYL RADICAL, DETONE, PYRROLES, HETEROCYCLIC NITROGEN COMPOUND, CYCLOHEXANONE, SOLUTION ALKALINITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0741 STEP NO--UR/0062/70/000/003/0550/0554

CIRC ACCESSION NO--AP0124411

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0124411
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IR SPECTRA WERE USED TO ASSESS THE VALUES OF THE ASSOCN. CONSTS. OF THE FOLLOWING COMPDS. WITH PHOH, FROM THE VALUES OF SPECTRAL SHIFTS OF OH AND OD BANDS (VALUES OF K SUBASS IN L.-MOLE SHOWN): PYRROLIDONE 160, N,METHYLPYRROLIDONE 175, N,(2,3,EPOXYPROPYL)PYRROLIDONE 140, N,ALLYLPYRROLIDONE 135, N,VINYLPYRROLIDIONE 48, PIPERIDONE 225, N,ALLYLPIPERIDONE 180, N,VINYLPIPERIDONE 52, CAPROLACTAM 185, N,ALLYLCAPROLACTAM 145, N,VINYLCAPROLACTAM 49, PYRROLIDINE 185, PIPERIDINE 170, CYCLOPENTANONE 11, AND CYCLOHEXANONE 12. THUS, A RELATION OF BASICITY OF THESE COMPDS. TO THE NATURE OF THE N SUBSTITUTENT WAS DEMONSTRATED. THE ASSOCN. OF PHOH WITH THESE RING SYSTEMS AT THE CARBONYL GROUP DOES NOT EXCLUDED THE POSSIBLITY OF ASSOCN. AT THE N ATOM. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

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243044 PHASE-SHIFTING NETWORK is simplified. Magnetic amplifier (2) is fed by a voltage that leads the supply voltage by 15° caused by RC network (1), and by a voltage which lags the supply voltage by 45° caused by RC network (3). The output signal of the magnetic amplifier is constant in amplitude and its phase can be varied through a range of 180°.

4.8.66 as 1095532/24-7. IA.A.POLISHCHUK & M.I.KOLKER. ELECTROTHERMAL EQUIPMENT RES.INST. (30.9.69.) Bul 16/ 5.5.69. Class 21d^2. Int.Cl. H 02m.

AUTHORS: Polishchuk, Ya A., Kolker, M. I.,

Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Elektrotermicheskogo Oborudovaniya

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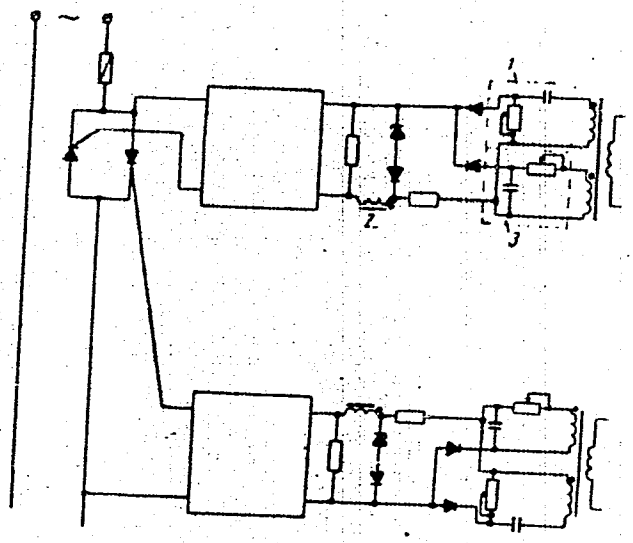

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USSR

UDC 621.396.4(088.8)

POLISHCHUK, Ya. L., TIKHOMIROV, Ye. V., OSTAPENKO, V. A., DAVIDENKO, V. I.

"A Device for Eliminating and Introducing Communications Channels"

USSR Author's Certificate No 259188, Filed 19 Aug 68, Published 28 Apr 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D416 P)

Translation: This Author's Certificate introduces a device for eliminating and adding IF communications channels in radio relay systems. The device contains an IF amplifier, a frequency and pulse-position modulator, a frequency-modulated oscillator and a synchronization module. To reduce transient interferences from channel to channel when pulse-position relative FM is used with elimination of the nonstationary processes which arise at the beginning and end of the temporarily added interval, keying stages are connected respectively between the IF power amplifier, the FM oscillator and the IF amplifier. The control circuits of these keying stages are connected to the outputs of the synchronizing module for coherent pedestal pulses, and the phase AFC circuit connected between the IF amplifier and the outputs of the synchronization module and FM oscillator is matched by actuation to time periods a little greater than the duration of the leading and trailing fronts of the blocking pedestal pulses. V. P.

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USSR

UDC 621.396.4(088.8)

POLISHCHUK, YA. L., VASSER, V. F., OSTAPENKO, V. A.

"Service Channel for an FM Radio Relay Communications Line"

USSR Author's Certificate No 253180, Filed 15 Jul 68, Published 24 Feb 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D318P)

Translation: This author's certificate introduces a service channel for an FM radio relay line containing a frequency detector, a pilot signal receiver, a pilot signal generator, a service channel modulator and a demodulator. In order to improve the frequency characteristic and decrease the cross noise, an assembly containing series-connected selectors of the pilot signal shape and a pilot signal harmonic separator is connected to the basic channel on the service channel side with simultaneous simplification of the equipment between the pilot signal generator, the modulator and the demodulator of the service channel.

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USSR UDC: 621.372.826

USIK, V. Ya., ROZHKO, A. V., MIKHAYLOVSKIY, S. A., MARCHENKO, P. I., BURLAKOV, O. V., POLISHCHUK, Ya. L.

"A Single-Conductor Transmission Line"

USSR Author's Certificate No 259195, filed 19 Aug 68, published 28 Apr 70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B151 P)

Translation: The proposed single-conductor transmission line consists of a section of metal wire with a dielectric coating, two coaxial-horn surface--wave exciters and a tension device of the winch type. To simplify connection of reception and transmitting equipment to the transmission line and ensure tightening of the wire, this wire is seated loosely in a cylindrical hole made through one of the exciters in the central conductor of the branch of the angle connector which is coaxial with the horn. In the tension device, the winding drum is connected to a hand crank through a slip clutch. Five illustrations.

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USSR UDC 616:003.87+616.5-003.871-085.849.19:015

LAZAREV, I. R., EPSHTEYN, A. B., POLISHCHUK, YE. I., and ALPATYEVA, S. YU., Kiev Institute of Experimental and Clinical Oncology, Ukrainian Academy of Sciences

"LAser Treatment of Bowen's Disease Associated With Fungus"

Kiev, Vrachebnoye Delo, No 4, 1972, pp 133-135

Abstract: Description of a case history of a 55-year-old female who had been suffering for 12 years from Bowen's disease (diagnosis histologically confirmed) did not respond to steroid or antibiotics therapy. Examination of biopsy material revealed the presence of the fungus Geotrichum. Eleven lesions on the abdomen, buttocks, back, upper and lower extremities were exposed to laser rays (total energy on each lesion 910 to 2760 joules). Coagulation necrosis occurred in each lesion in the form of a dry crust with slight edema, and hemorrhage and erythema of the sorrounding tissue. These phenomena gradually subsided and the crusts darkened, became compact, and fell off within 3 to 5 weeks, leaving a pink smooth scar at the exposure site. Analysis of the blood and urine showed no abnormalities. No new lesions or traces of Geotrichum were detected in the follow-up period (duration not specified).

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USSR

POLISHCHUK, Ye. M. (Agrophysical Scientific Research Institute of the All-Union Academy of Agricultural Sciences, Leningrad)

"Some New Relationships between Controllable Systems and Equations of Mathematical Physics. Part II"

Minsk, Differentsial'nyye Uravneniya; May, 1972; pp 857-70

ABSTRACT: This work is an immediate continuation of a paper by the same author in a previous issue of the same journal (8, No. 2, 1972) bearing the same title, Part I, in which basic definitions and necessary lemmas are presented.

The integral of the differential equation $\frac{dy}{dt} = f(t,y,x)$, $x(t) = (x_1(t), \ldots, x_s(t))$, with the initial condition

$$y|_{t=\tau_0} = \int_a^{t_0} f_0(t,x(t))dt,$$

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POLISHCHUK, Ye. M., Differentsial'nyye Uravneniya, May 1972, pp 857-70

is considered as the functional $Y[x \mid t]$, given in the control region D.

The author solves the functional Dirichlet problem with boundary value Y for the regions which in the paper referred to above were called uniform. It is shown that the functional that is sought for it may be obtained by means of the solution of the classical Dirichlet problem in s-dimensional space (s is the dimension of the vector x) and some iteration process. This functional is expressed in the form of a continual average over the measure which is constructed by means of the normal derivative of the corresponding Green function.

There are six bibliographic references.

2/2

USSR UDC 536.531:546.92

SALAMAKHA, V. A., Engineer, LAKH, V. I., KITS, A. I., POLISHCHUK, YE. S., Candidates of Technical Sciences

"Stability of Platinum Resistance Thermometers"

Moscow, Pribory i Sistemy Upravleniya, No 2, Feb 71, pp 49-51

Abstract: The variations in metrological parameters (R_0 and R_{100}/R_0) of platinum resistance thermometers during prolonged use at operating temperatures are investigated in this article. A special test unit and procedure were devised to run the tests. Presented are results of subjecting the resistance thermometers to cyclic tests under this procedure. Each cycle of the tests (whose over-all duration is 2,000 hours) has the following sequence:

In an oxidizing environment at a temperature of 400-600°C for 400 hours;

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SALAMAKHA, V. A., et al, Pribory i Sistemy Upravleniya, No 2, Feb 71, pp 49-51

At low temperature (-196°C)for 150 hours;

Under high-humidity conditions (98-100%) and at a temperature of 30-40°C for 120 hours;

With vibration in the frequency range to 60 hertz and acceleration to 1.5 g lasting 60 hours;

In an oxidizing environment at a temperature of 400-600°C for 450 hours;

At a temperature of -196°C for 150 hours;

Under conditions of impact vibration with acceleration to 1,000 g and a pulse length of 0.5-2 milliseconds lasting 10 hours;

In an oxidizing environment at a temperature of 400-600°C for 450 hours;

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SALAMAKHA, V. A., et al, Pribory i Sistemy Upravleniya, No 2, Feb 71, pp 49-51

At a temperature of -196°C for 200 hours.

Three batches of platinum resistance thermometers with calibrations 21 (R_0 = 46±0.046 ohms) and 22 (R_0 = 100±0.1 ohms) with a wire diameter of 0.05 mm and with 25 thermometers of each calibration were subjected to stability testing. The three batches included 1) series resistance thermometers with a sensitive element with a mica housing [6], 2) resistance thermometers with a sensitive element in a ceramic housing [2], and 3) resistance thermometers with an improved sensitive element in a ceramic housing using inhibitors to protect the platinum.

The first batch of thermometers demonstrated low resistance to mechanical and thermal loads and very low stability. The second batch demonstrated satisfactory resistance to mechanical and thermal loads at the same time as the metrological characteristics changed somewhat. The third batch were subjected to five

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SALAMAKHA, V. A., et al, Pribory i Sistemy Upravleniya, No 2, Feb 71, pp 49-51

cycles of testing (10,000 hours) with good results. The variations in R_0 and R_{100}/R_0 in 10,000 hours do not exceed the calibration tolerances provided by GOST 6651-59, and the thermometers have high resistance to the cyclic mechanical and thermal variations. The test results are presented graphically for the three batches of resistance thermometers.

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USSR

UDC 621.396.932.1

POLISHCHUK, Ye. P.

"Comparative Estimate of Direction-Finding Systems With Instantaneous and Integral Equal-Signal Zones"

Tr. Mosk. energ. in-ta (Transactions of the Moscow Energy Institute) No 117, 1972, pp 81-86 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10G61)

Translation: For different variants of amplitude and phase monopulse compasses and conical survey systems in the semi-active and active regimes, the potential accuracy and power, taken in the direction of equal signal, are compared. The compared variants differ in the choice of the direction-finding plane, the type of antenna, and the antenna converter system. It is shown that according to the indices considered, phase monopulse systems are better but their range of monotonic variation of directional characteristics is narrower. Three illustrations, one table, bibliography of eight. M. S.

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USSR

UDC 621.371.334

KASHKAN, A. A. and POLISHCHUK, Yu. M.

"Kirchhoff Diffraction in a Nonuniform Atmosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 2 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 2--collection of works) "Nauka," 1972 pp 102-106 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A358)

Translation: The diffraction field of a system of parallel absorbing half-planes in a nonuniform atmosphere, whose field of dielectric permeability fluctuations is assumed statistically uniform and isotropic, is examined. Two illustrations, bibliography of eight. A. L.

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USSR

UDC: 621.371

POLISHCHUK, Yu. M.

"Parameter of Field Amplitude m-Distribution in Far Tropospheric Propagation"

Moscow, Radiotekhnika i Elektronika, No 5, 1970, pp 891-896

Abstract: Analysis of the experimental data concerning the distribution of rapidly fluctuating amplitudes in tropospheric propagation fading has shown that the generalized Rayleigh law cannot be depended upon for determining the fading characteristics. The model adopted by Beckmann for the field, which takes into account the phase distribution nonuniformities of the dispersed field component causing this failure of the Rayleigh law, is physically reliable. In the author's opinion, the m-probability distribution proposed by Nakagami is a good simplification of the Beckmann model, and the purpose of this article is to show that there is a physical basis for application of the m-distribution to tropospheric propagation. The author also derives

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POLISHCHUK, Yu. M., Radiotekhnika i Elektronika, No 5, 1970, pp 891-896

computation formulas and curves for determining the m-distribution parameter from the experimental data. It is demonstrated that the use of the m-distribution does not prove the invalidity of the Rayleigh law but rather supplements it. The author expresses his gratitude to V. F. Slyusarchuk, who suggested the need for this paper, and to R. N. Semenov and V. A. Melititskiy for their comments.

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1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--THE M DISTRIBUTION PARAMETER OF FIELD AMPLITUDE IN LONG DISTANCE TROPOSPHERIC PROPAGATION -U-

AUTHOR--POLISHCHUK, YU.M.

COUNTRY OF INFO--USSR

SOURCE--RADIOTEKHNIKA I ELEKTRONIKA, VOL. 15, MAY 1970, P. 891-896

DATE PUBLISHED--------70

SUBJECT AREAS--NAVIGATION, ATMOSPHERIC SCIENCES

TOPIC TAGS--TROPOSPHERIC PROPAGATION, DISTRIBUTION FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1491 STEP NO--UR/0109/70/015/000/0891/0896

CIRC ACCESSION NO--AP0125119

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125119

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF FORMULAS AND GRAPHS FOR DETERMINING NAKAGAMI'S (1960) DISTRIBUTION PARAMETER ON THE BASIS OF MEASURED FADING DEPTH. BY ANALYZING A LARGE NUMBER OF EXPERIMENTAL SIGNAL AMPLITUDE DISTRIBUTION FUNCTIONS BEYOND THE RADIO HORIZON, NAKAGAMI WAS ABLE TO CONSTRUCT A DISTRIBUTION WHICH IS DESCRIBED BY A SINGLE PARAMETER AND SUFFICIENTLY ACCURATELY APPROXIMATES THE TEST DISTRIBUTIONS. THE MORE GENERAL DISTRIBUTION OF BECKMANN IS ANALYZED IN ORDER TO SUBSTANTIATE THE APPLICABILITY OF NAKAGAMI'S DISTRIBUTION IN EXPLAINING AVERAGE EXPERIMENTAL DATA FOR RAPID FADING IN LONG DISTANCE TROPOSPHERIC COMMUNICATIONS.

UNCLASSIFIED

USSR

UDC 539.4

ANDRONIKASHVILI, E. L., POLITOV, N. G., PAPERNO, I. M., RAZMADZE, A. K.

"Particularities of the Plastic Flow and Deformation Strengthening of Ionic Crystals"

Khar'kov, Fiz. Mekhanizmy Plastich. Deform. pri Nizkikh Temperaturakh -- Sbornik (Physical Mechanisms of Plastic Deformation at Low Temperatures -- Collection of Works) 1971, p 33 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V1247 by L. I. Mirkin)

Translation: An investigation was made of the influence of irradiation in a reactor, mechanical loading, and cooling upon the properties of crystals. During the stretching of an irradiated crystal, failure takes place prior to the attainment of plasticity due to the high strength of fixation of the dislocations during irradiation. The irradiation of prestressed crystals permits the strength to be increased by a factor of 2, and the plasticity by a factor of 3. On the basis of the example of lithium fluoride crystals it was shown that irradiation fixes structural changes during loading. Lowering the irradiation temperature decreases the ultimate strength of nonloaded crystals and does not affect the ultimate strength of crystals under load. Decreasing the temperature to 77°K and x-ray irradiation brings about a threefold increase

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1/3 049 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--THERMAL TRANSFORMATIONS OF RADIATION DEFECTS IN LITHIUM FLUORIDE CRYSTALS -U-

AUTHOR-(02)-POLITOV, N.G., VOROZHEYKINA, L.F.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 343-50

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LITHIUM FLUORIDE, CRYSTAL DEFECT, RADIATION EFFECT, ANNEALING, NEUTRON IRRADIATION, F CENTER, IMPURITY CENTER, OPTIC SPECTROMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1619 STEP NO--UR/0181/70/012/002/0343/0350

CIRC ACCESSION NO--AP0054468

UNCLASSIFIED

2/3 049 UNCLASSIFIED

CIRC ACCESSION NO--AP0054468 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN LIF CRYSTALS, BY THE METHOD OF OPTICAL SPECTROSCOPY, THE PROCESSES WERE STUDIED OF THERMAL TRANSFORMATION OF RADIATION DEFECTS OF FRENKEL AND F CENTERS INTO ASSOCD. QUASIMETALLIC METALLIC, AND AT. CENTERS. THE CRYSTALS WERE IRRADIATED WITH DOSES OF 10 PRIME14 MINUS 1.5 TIMES 10 PRIME18 NEUTRONS-CM PRIME2. THE TEMP. AND TIME OF ANNEALING WERE VARIED, DEPENDING ON THE DOSE OF RADIATION. AT THE INITIAL STAGE OF ANNEALING OF THE CRYSTALS IRRADIATED IN A REACTOR WITH A DOSE OF GREATER THAN OR EQUAL TO 10 PRIME17 NEUTRONS-CM PRIME2, A SET OF QUASIMETALLIC CENTERS IS PRODUCED IN THE CRYSTALS. WITH FURTHER ANNEALING THEY CHANGE INTO METALLIC CENTERS AND AT. CENTERS. TO METALLIC AND AT. CENTERS CORRESPOND ABSORPTION BANDS AT 490 AND 275 NM (W SUB2 AND W SUB1). BETWEEN THESE BANDS A W SUBK BAND IS OBSD. DUE TO QUASIMETALLIC CENTERS; AMONG THEM THE SHARPEST IS THE BAND AT 350 NM. THE COLLOIDAL ORIGIN OF THE W SUB2 BAND IS CONFIRMED BY ITS BEHAVIOR WHEN THE TEMP. OF THE CRYSTAL DECREASES, WHEN THE CONCN. OF HYDROXYL AND O CONTG. GROUPS CHANGES, ON VARIATION OF THE ANNEALING TIME, ETC., AND ALSO COINCIDENCE OF ITS SPECTRAL POSITION WITH THE CALCD. VALUE OBTAINED BY THE DOYLE THEORY. IN THE PROCESS OF PROLONGED ANNEALING, THERMAL DISSOCN. OF METALLIC CENTERS IS ACCOMPANIED BY AN INCREASE IN THE CONCN. OF AT. CENTERS. INITIALLY, ON DECOMPN. OF METALLIC CENTERS, ASSOCD. AT. CENTERS ARE FORMED WITH A W SUB1 BAND AT 295 NM, WHICH THEN DECOMPD., FORMING SIMPLE AT. CEN ERS WITH W SUB1 BAND AT 270-5 NM.

UNCLASSIFIED

3/3 049 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0054468

ABSTRACT/EXTRACT--QUASIMETALLIC AND METALLIC CENTERS BECOME LARGER ON INJECTION OF ELECTRONS INTO THE CRYSTALS (BETA DECAY OF TRITIUM, OPTICAL DECAY OF F CENTERS). THE APPEARANCE OF METALLIC CENTERS IS CONFIRMED BY EPR SPECTRA AND ELECTRON MICROSCOPY. FACILITY: INST. FIZ., TBILISI, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--QUASI METALLIC CENTERS IN LITHIUM FLUORIDE CRYSTALS -U-

AUTHOR-(02)-VOROZHEYKINA, L.F., POLITOV, N.G.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(1), 124-7

DATE PUBLISHED-------70

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

TOPIC TAGS--LITHIUM FLUORIDE, CRYSTAL, GAMMA RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0216 STEP NO--UR/0181/70/012/001/0124/0127

CIRC ACCESSION NO--AP0055012

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0055012

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORMATION WAS INVESTIGATED OF QUASI METALLIC CENTERS IN LIF CRYSTALS AS A RESULT OF THERMAL TRANSFORMATIONS OF RADIATION DEFECTS. IN THE OPTICAL ABSORPTION SPECTRUM OF CRYSTALS WITH QUASI METALLIC CENTER, BANDS WERE OBSD. WITH MAX. AT 320 AND 375 NM. THE SPECTRAL POSITION OF THESE MAX. IS SHIFTED TOWARD LONGER WAVELENGTHS AS THESE CENTERS BECOME BIGGER. FORMATION AND STABILITY OF QUASI METALLIC CENTERS DEPEND IN A COMPLEX MANNER ON THE CONCN. OF ANIONIC IMPURITIES AND THE TEMP. OF ANNEALING. VARIATION WAS STUDIED OF THE DIMENSIONS AND CONCN. OF QUASI METALLIC CENTERS ON UV AND GAMMA IRRADN.

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1/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ANISOTROPY OF PARAMAGNETIC Y CENTERS IN LITHIUM FLUORIDE CRYSTALS -U-

AUTHOR-(05)-DAVITASHVILI, T.SH., OZHORDZHISHVILI, L.I., KALABEGISHVILI, T.L., POLITOV, N.G., SOBOLEVSKAYA, S.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(1), 289-91

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ANISOTROPY, LITHIUM FLUORIDE, OPTIC PROPERTY, LIGHT ABSORPTION, SINGLE CRYSTAL, PARAMAGNETIC MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0222 STEP NO--UR/0181/70/012/001/0289/0291

CIRC ACCESSION NO--AP0055018

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202510005-4"

2/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0055018

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EPR SPECTRA WERE INVESTIGATED OF SINGLE CRYSTALS OF LIF AFTER IRRADN. WITH A PRIME60 CO SOURCE IN A REACTOR WITH EMPHASIS ON THE Y LINE, APPEARING AFTER NONISOTHERMAL ANNEALING OF IRRADIATED CRYSTALS. OPTICAL ABSORPTION SPECTRA WERE ALSO RECORDED BEFORE AND AFTER ANNEALING. IN GAMMA IRRADIATED NONANNEALED CRYSTALS F AND M ABSORPTION BANDS WERE OBSD. AFTER NONISOTHERMAL ANNEALING OF THESE CRYSTALS, A WEAK F BAND REMAINED IN THE OPTICAL ABSORPTION SPECTRUM AND ONLY A Y LINE IN THE EPR SPECTRUM. DEPENDENCES WERE MEASURED OF THE WIDTH DELTA H AND G FACTOR ON ORIENTATION OF THE CRYSTAL IN AN EXTERNAL CONST. MAGNETIC FIELD H. WHEN H PARALLEL TO (010) ALL OF THE AXES (111) FORM AN ANGLE OF 54.7DEGREES WITH H, CENTERS OF GRAVITY OF ALL 4 LINES COINCIDE AND DISPLACEMENTS RELATIVE TO THE LINES ARE ABSENT. WHEN H PARALLEL TO (110), 1 PAIR OF THE 4 AXES (111) FORMS WITH H AN ANGLE OF 35.3DEGREES, AND 2ND PAIR AN ANGLE OF 90DEGREES. THE CENTERS OF GRAVITY COINCIDE FOR THE SEP . LINES IN EACH PAIR. WHEN H PARALLEL TO (111), THE REMAINING 3 AXES (111) FORM WITH H AN ANGLE OF 72DEGREES. THE LINES ARE SEPD. INTO 2 GROUPS CONSISTING OF 1 AND 3 LINES, RESP. THE WIDTH AND G FACTOR ARE DETD. BY THE DISPLACEMENTS BETWEEN THE GROUPS OF LINES. IT FOLLOWS THAT Y CENTERS POSSES AN AXIS OF AXIAL SYMMETRY ALONG (111).

UNCLASSIFIED

POLITOVA, A. YE.

AA0044234 UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 2/70

243680 CABLE LAYING MACHINE digs trenches for cables along an old cable. A track laying motor vehicle pulls a plough. The couplingbetween the plough and the towing motor is pneumatic and it is controlled by radio signals. The level and the direction of ploughing are determined by the relative position of the plough to the cable.
23.3.68 as 1228413/29-14. YA.I.MARCHEVSKI et al(3.10.69) Bul 17/14.5.69. Class 21c. Int.Cl. H 02g.

AUTHORS: Marchevskiy, Ya. I., Furto, G. S., Fishgal, S. I., Balaban, A. S., Pil'ganchuk, P. N., Imereli, V. B., Stepanenko, L. K., Parkhomenko, A. I., Min'kovskaya, S. M., Voznesenskiy, I. A., Vishnyakov, I. Ye., Zinoveyev, A. I., Razumovskiy, O. V., Khrulev, V. V., Politova, A. Ye., Khayzeruk, Ye. M., Smirnov, V. I., Malakhova, V. M.

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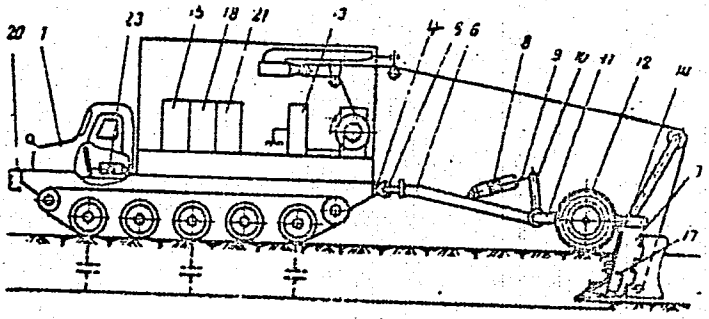

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USSR

UDC 621.315.592.054.2

LOZOVSKIY, V. N., KALINYUK, A. I., and POLITOVA, N. F.

"Experimental Investigation of the Kinetics of Zone Melting With Temperature Gradient in the System Si-Al-Sn"

Tr. Novocherk. politekhn. in-ta (Works of the Novocherkassk Polytechnical Instistute), 1970, 208, pp 34-38 (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G385)

Translation: For conducting zone melting with temperature gradient in the system Si-Al-Sn, flat zones are used in the form of foil, made of Al-Sn alloy with 20 to 80% Si, and Si of the brand KEF with resistivity of 20-30 ohm·cm in the form of rectangular parallelepiped 1 x 4 x 8 mm. The zone melting with temperature gradient is carried out in a vacuum gradient furnace. The temperature gradient is estimated on the basis of special measurements conducted on model specimens without zone, but within the same temperature interval and under the same geometrical conditions as the specimens. The temperature dependence of the rate of migration of the liquid zone of Si-Al-Sn disregarding the composition is well approximated by the exponential function in the temperature range 700-1000°. The preexponential multiplier depends on the zone composition and temperature gradient, and the indicator of the degree of the

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LOZOVSKIY, V. N., et al., Tr. Novocherk. politekhn. in-ta, 1970, 208, pp 34-38 (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G385)

exponent diminishes with increased concentration of Sn in the liquid zone. This fact corresponds well with the decrease in activation energy of the process of diffusion of Sn atoms in Sn-Al melt during the increase of Sn concentration. 12 bibl. entries.

YU. Zotov

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USSR

UDC 547.26'118

BOCHKAREV, V. N., POLIVANOV, A. N., BUGERENKO, YE. F., AKSENOV, V. I., and CHERNYSHEV, YE. A.

"Mass-Spectrometric Fragmentation of Triphenyl Phosphite"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), Vyp 10, 1972, pp 2348

Abstract: When $P(OPh)_3$ was subjected to electron bombardment, using mass-spectrometer MKh-1303 at 250°C, with an ionizing potential of 30, an interesting rearrangement took place. The mass-spectrum of $P(OPh)_3$ showed an intensive peak (10%) of an ion with m/e 199 $(M-OPh-H_2O)^+$ along with peaks M^+ (m/e 310, 21%), $(M - 1)^+$ (m/e 309, 10%), $(M - OPh)^+$ (m/e 217, 100%), Ph^+ (m/e 77, 27%). Transitions $310^+ \rightarrow 217^+ \rightarrow 199^+$ were verified by the presence of corresponding metastable peaks. It is assumed that an ion with m/e 199 is formed in the following way: at first the diphenoxyphosphinyl cation with m/e 217 rearranges into the isomeric o-hydroxyphenylphenoxyphosphinyl cation, followed by ortho linking of two aromatic rings that leads to the formation of

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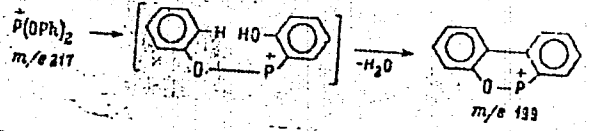
BOCHKAREV, V. N., et al., Zhurnal Obshchehy Khimii, Vol 42 (104), Vyp 10, 1972, pp 2348

9-phospha-10-oxa-9,10-dihydrophenanthrenyl cation.



The spectrum of (I) also showed the rearrangement peaks of ions with m/e 170 $(PhOPh)^+$ 70%, m/e 153 $(PhC_6H_4)^+$ 12%, and m/e 94 $(PhOH)^+$ 20%. When the ionizing voltage in the mass spectrum of (I) reached 15 volts, the relative intensity of ions with m/e 310, 217, 77, 199, 170, 153, and 94 amounted to 47, 100, 2, 2, 4, 5, and 15%, respectively. In other words, the intensity of the rearranged ions decreased sharply.

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USSR

UDC: 621.318.1

POLIVANOV, K. M., MIROSHNIK, I. A., YEZHOV, S. N., PIGAREV, Ye. N., SHUKHMIN, L. N., Voronezh Polytechnical Institute

"A Method of Sorting Magnetically Soft Ferrites"

USSR Author's Certificate No 282454, filed 25 Apr 69, published 17 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V464 P)

Translation: This Author's Certificate introduces a method of sorting magnetically soft ferrites used for work in weak magnetic fields as cores in wide-band transformers. As a distinguishing feature of the method, the sorting process is simplified by using double grading of the ferrites on the lower and upper frequency of the working band with measurement of the absolute value of the permeability of a ferrite.

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USSR

POLIVANOV, N.D.

"Influenza Prophylaxis"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 2, 1970, pp 95-96

Translation: The usual influenza epidemic was predicted for the winter and spring of 1969-1970 well ahead of time by the All-Union Influenza Center and virological laboratories of the military districts, army and navy units. In December 1969, and January 1970, the Soviet and foreign press carried reports of an influenza epidemic caused by the A_2 (Hong Kong 68) virus, which spread to many European countries (Italy, France, Belgium, Britain, Yugoslavia, Turkey, and others). Although the disease had a benign course and was not accompanied by serious complications, the number of victims reached frightening proportions. The incidence of influenza can be as high as 40-50%, especially in large cities. Accordingly, the Ministry of Health USSR directed the ministries of health of the union republics to take urgent steps to prevent influenza from spreading widely in the country. The Central Military Medical Administration of the Ministry of Defense also sent appropriate information and instructions on preventive measures to the military districts and fleet. Why is it still impossible to block new waves of influenza? The main reason is the periodic changes that take place in the structure of the causative agent, and the appearance of new variants against which people have no immunity. There are only conjectures about the way in which the structure of the influenza virus changes to cause worldwide epi-

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POLIVANOV, N.D., Voyenno-Meditsinskiy Zhurnal, No 2, 1970, pp 95-96

demics. Influenza sometimes occurs in a mild, asymptomatic form, and is therefore difficult to diagnose. The development of effective preventive and therapeutic agents is complicated by the fact that influenza viruses are intracellular parasites, which makes it hard to find specific drugs capable of killing them without harming the cell. However, even though we still are unable to eradicate the infection, we can do much to weaken the intensity of an outbreak or reduce the danger of its aftereffects. It is recommended that (i) all medical personnel familiarize themselves beforehand with the instructions of the Central Military Medical Administration, Ministry of Defense USSR, on the diagnosis, treatment, and prevention of influenza and other acute respiratory diseases; (ii) personnel regularly exchange information on the incidence of the disease among the staff, office and manual workers of the Army and Navy; (iii) the epidemic control organizations and military hospital laboratories be made ready to diagnose these infections and all the health facilities (military hospitals, sick bays, medical battalions, health stations, etc.) be prepared to receive large numbers of persons suffering from influenza and other acute respiratory diseases; (iv) sufficient medical supplies, drugs, vaccines, and disinfectants be on hand; (v) medical observation of the personnel of army and navy units and members of their families be increased, in order to be able promptly to detect, isolate, and hospitalize those suffering from the disease. The effectiveness of preventive

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POLIVANOV, N.D., Voyenno-Meditsinskiy Zhurnal, No 2, 1970, pp 95-96

and control measures is largely dependent on the efficiency of the commanders, heads of organizations, political workers, and officers in charge of the units' supply services. Plans must be made ahead of time. If necessary, places must be set aside to provide the required number of beds to isolate the sick (approximately 10 beds per 100 persons). Bedside items and housekeeping implements must also be provided, and transport arranged to evacuate patients to hospitals. In addition, a strick anti-epidemic regime must be maintained in all facilities, with quarantine conditions approximated as closely as possible. Rigorous compliance with official regulations on maintenance of barracks, auxiliary and teaching areas, as well as kitchens, dining halls, baths, stores, barber shops, and other public places is necessary, including regular ventilation, maintenance of the authorized temperature, careful cleaning using solutions of chlorine-containing preparations etc. Every army unit (and ship) should have a team of non-T/O personnel (one soldier per company, one sailor per combat unit on a ship) for disinfection work. Personnel should be prohibited from leaving their units during a quarantine. Soldiers serving their normal period of compulsory enlistment on arriving from detached service, leaves, or separations cannot be admitted to their units until they have been given medical examinations. If they are suspected of having the disease or if they have come from influenza-affected regions, they must be kept in isolation for medical observation for three days, for

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POLIVANOV, N.D., Voyenno-Meditsinskiy Zhurnal, No 2, 1970, pp 95-96

which purpose each unit must set aside a special place. Officers and men serving voluntarily beyond the required period, who have returned from detached service or leave, must also be kept under observation for three days and not allowed to return to duty unless properly certified by a physician. Medical facilities must observe an especially strict regime. The personnel should carry on extensive educational work, explaining to all the rules for personal and social hygiene. Systematic conditioning of the body plays a fairly important role in preventing influenza. It should be done under medical supervision and adjusted to the time of year and degree of hardiness of the soldiers and sailors in different periods of their service. The personnel should not be permitted to get chilled when being transported, (especially in open vehicles), when doing guard duty, on field and training exercises, when servicing machines or doing other work outdoors. For these purposes they should be furnished warm clothing and footwear, hot tea three times a day; also warming points should be equipped with dryers for the footwear and uniforms. Besides organizational and preventive measures, vaccination and drugs are also useful. Our scientists are very active in searching for and improving influenza vaccine. Clinical trials of new drugs are under way, including donor anti-influenza lactoglobulin, gossypol, oxoline, interferon, amantadine, and others. The preliminary trials have shown, unfortunately, that these agents provide only partial protection against the disease, and they will cannot be recommended for general use. The medical service of the

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USSR

POLIVANOV, N.D., Voyenno-Meditsinskiy Zhurnal, No 2, 1970, pp 95-96

military districts, army and navy groups must not only intensify preventive measures among the troops in this epidemic season, but also improve the quality of diagnosis in the epidemic-control and medical facilities. The virological laboratories of the epidemic-control organizations must continuously monitor the viral strains in circulation and study changes in group immunity. Epidemiologists, together with hygienists, specialists in infectious diseases, and internists, must continue to investigate the main factors responsible for the incidence of influenza and other acute respiratory diseases among army and navy personnel. The military districts and army and navy units in which the personnel received inoculations against influenza in December, 1969, and January 1970, should be thoroughly investigated, with a view to determining the epidemiological and immunological results. Experience has shown that influenza epidemics do not break out suddenly. They are generally preceded by individual cases of the disease. Therefore, efforts should be made to detect and isolate promptly persons suffering not only from influenza, but also from other acute respiratory infections.

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USSR

UDC: 389.0:621.311.6

KAFTANENKO, E. I. and POLIVANOV, V. V.

"Glow Discharge Gas Stabilitrons as Reference Voltage Sources"

Moscow, Izmeritel'naya Tekhnika, No. 7, 1970, pp 50-51

Abstract: Modern electron microscopes with a resolution of 5 Å and less require stabilized current and voltage supplies. Consequently, a stable reference voltage on which these stabilized values can depend is required. This requirement can be satisfied by glow discharge stabilitrons which are highly reliable in operation for periods of as much as hundreds and thousands of hours, have small dimensions and low mass, are simple in operation, and have a firing voltage of from 80 to 150 volts. The authors assert that there is little literature known to them on short-term stability of gas stabilitrons. They investigated SG1P, SG16P, and SG201S types from the point of view of short-term voltage stability in a parametric stabilizer, and the instability of the stabilitron output voltage as a function of the amplitude of the current flowing through the device and as a function of the input voltage instability. The experimental data showed that the instability of the parametric stabilizer output voltage for any instability of the input voltage varied with changes in the current trhough the device. A table of the three types of stabilitron and their characteristics is given.
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USSR

DOBRZHANSKIY, G. F., KITAYEVA, V. F., KULEVSKIY, L. A., POLIVANOV, YU. N., POLUEKTOV, S. N., PROKHOROV, A. M., SOBOLEV, N. N., Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR

"Spontaneous Parametric Radiation of the α-HIO_3 Crystal"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No. 11, 5 Dec 70, pp 505-508

Abstract: The first observation of spontaneous parametric radiation in the biaxial crystal α-HIO_3 belonging to class 222 of the rhombic system is recorded. It is noted that if a crystal having quadratic nonlinearity is exposed to a laser beam, there is a probability of a laser photon with frequency ω_H spontaneously decaying into two photons: a photon of the signal frequency ω_1 and a photon of an additional frequency ω_2 so that

$$\omega_H = \omega_1 + \omega_2.$$

The frequencies of the spontaneous parametric radiation ω_1 and ω_2 are determined by the dispersion characteristics of the crystal, since the process is effective if

DOBRZHANSKIY, G. F., et al, Pis'ma v Zhurnal eksperimental'noy i teoreticheskoy fiziki, No. 11, 5 Dec 70, pp 505-508

the following condition is fulfilled:

$$k_H = k_1 + k_2,$$

where k_H, k_1, and k_2 are the wave vectors of the pumping and of the signal and additional waves. The phenomenon is termed particularly interesting, since it is observed even at pumping powers too small to excite parametric generation, and in the absence of a resonator it can be used to obtain angular, temperature, and electrooptical curves of active media suitable for use in parametric generators of light. The α-HIO_3 crystal was transparent in the region 0.4-1.4 μ and had high nonlinear constants. No optical inhomogeneities were observed in the refractive index under the action of optical radiation of high power density, a feature very important in developing parametric generators of light. A continuous argon laser with wavelengths λ_{H_1} = 4880 Å and λ_{H_2} = 5145 Å with an output power of up to 1 w on each of the wavelengths was used for pumping. Parametric radiation arising in the crystal and polarized along the Y-axis was recorded in the direction of pumping propagation. Typical spectrograms of the spontaneous parametric radiation signal are given which illustrate the dependence of the signal frequency ω_1 on the direction of propagation of pumping in the crystal. It was noted that such crystals can be used as a material to produce both pulsed and continuous parametric generators tuned in the region 0.6-1.3 μ.

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USSR

UDC 548.004.12:621.319.1

KRIVOSHCHEKOV, G. V., KRUGLOV, S. B., MARENNIKOV, S. I., and POLIVANOV, Yu. V.

"A Method for Measuring the Temperature Dependence of the Electro-Optical Coefficients of Ferroelectric Crystals"

Moscow, Metrologiya, No 7, 1972, pp 50-55

Abstract: When using optically transparent ferroelectric crystals for controlling laser emission, their electro-optical constants must be known within a wide temperature range. A simple method is proposed for determining the temperature dependence of the linear r_{ijk} and the quadratic R_{ijkl} electro-optical coefficients within the temperature range from 27° C to -195° C, which includes the Curie points (T_c) of KDR and ADR crystals, as well as their deuterated isomorphs. The method consists in measuring the transmission value of the light beam of an He-Ne laser, passed through an optical system containing a polarizer, a crystal, and an analyzer, at a constantly changing temperature and a fixed electrical field. This method avoids the possibility of transmitting the temperature properties of the electro-optical constants near the points of phase transition. 4 figures. 6 references.

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USSR UDC:621.313.12:539.172.12

BOL'SHOV, V. I., DUBININ, A. A., DMITRIYEV, V. M., KAPCHIGASHEV, S. P., KON'SHIN, V. A., MATUSEVICH, YE. S., POLYANSKIY, V. P., TUPKO, V. Ya., REGUSHEVSKIY, V. I., STAVISSKIY, Yu. Ya., and YUR'YEV, Yu. S.

"Physical Investigation of the Target in an Electronuclear Neutron Flux Generator"

Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 388-392

Abstract: Fluxes of thermal neutrons on the order of 10^{17}-10^{18} $n/cm^2 \cdot sec$ open new possibilities for investigations in many areas of science and technology. There is great interest in the study of the possibility for increasing neutron fluxes by using the process of multiple neutron birth upon interaction of nucleons with energies in the hundreds of MeV with heavy nuclei. This article presents the results of experiments and calculations concerning the neutron-physical characteristics

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of the target in an electronuclear device for the generation of neutron fluxes. The yield of neutrons and distribution of the number of reactions in a heavy target and moderator are measured. The space-energy distribution of neutron flux in the moderator is calculated and the accumulation of transuranium elements in a system with high neutron flux is computed.

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UDC:621.373.12:539.172.12

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Moscow, Atomnaya Energiya, Vol 28, No 5, May 70, pp 388-392

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UDC 616.9-036.21]:681.3(476)

KARDASH, I. B., KLIMENKO, Ye. P., DROSDOVA-TIKHOMIROVA, A. A., POLIVODA, Z. M., RUBANOVA, F. G., LEPESHINSKAYA, I. V., RYTIK, P. G., and KNYSH, I. N., Ministry of Health Belorussian SSR, Central Institute of Epidemiology of the Ministry of Health USSR, Belorussian Institute of Epidemiology and Microbiology, and Belorussian Republic Sanitary Epidemiological Station

"Experience Gained in the Belorussian SSR During Introduction of a New Epidemiological Investigation Card Adapted for Processing on IBM Computer Minsk-22"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, pp 124-128

Abstract: A new IBM card with a detachable statistical stub, developed for epidemiological investigations at the Central Institute of Epidemiology, was tested in 1968-1970 in a feasibility study conducted throughout the Belorussian Republic. The project was a success not only because the IBM card is useful and convenient but also because the personnel at district and municipal epidemiological stations had received through advance training in how to fill in the cards and code the stubs. A control staff routinely examined the cards and corrected errors detected in a total of 3.1% of the stubs. Procedural improvements were introduced throughout the 3 year period as dictated by expediency. After each quarter-year, the stubs were checked at the local

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KARDASH, I. B., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, pp 124-128

stations and submitted to the municipal or oblast stations where they were recorded and checked again. Next, they were sent to the Belorrusian Institute of Epidemiology and Microbiology for the third check, and from there to the Computer Center of Belorussia's Central Statistical Administration where the data were transferred on perforated tapes and processed on the computer. The method yielded statistical charts with more accurate and detailed information than was ever available in the past. The method was approved by the Ministry of Health USSR and, in 1970, it was introduced on a permanent basis in epidemiological stations throughout the Belorussian SSR.

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UDC 621.394

POLIYEVSKIY, G. A., ROZHKOV, M. M.

"Phasing Device"

USSR Author's Certificate No 253121, Filed 1 March 68, Published 23 January 70 (from RZh--Elektrosvyaz', No 9, September 1970, Abstract No 9.64.217P)

Translation: A phasing device is patented, which contains a quartz-crystal oscillator, a limiter with a pulse shaper, a phase discriminator, a reversible counter, a unit for formation of twin alternating pulses (AP), an amplitude modulator of the degree of asymmetry of the twin AP, and a resonance circuit. With the object of simplifying the apparatus, reducing the frequency of the quartz-crystal oscillator, and obtaining an automatically varying capture band, the series-connected unit for formation of the twin AP and the resonance circuit are connected between the output of the quartz-crystal oscillator and the limiter with a pulse shaper, while the control input of the amplitude modulator of the degree of asymmetry of the twin AP is connected with the output of the digital-code-to-voltage converter, whose inputs are connected to the reversible counter. Between the phase discriminator and reverse counter mentioned, two "AND" circuits are connected, the control inputs of which are combined with a generator of time pulses whose frequency is determined by the minimum compensation interval.
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UDC 621.396.4(088.8)

POLIYEVSKIY, G. A., VAKUROV, L. M.

"Device for Synchronizing the Radio Relay Line with Double Modulation and Time Multiplexing"

USSR Author's Certificate No 250227, Filed 4 Apr 68, Published 16 Jan 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D319P)

Translation: This author's certificate introduces a device for synchronizing the radio relay line with double modulation and time multiplexing. In order to improve the noiseproofness of the operation in the case of interruptions of the input signal, two pulse multipliers with conversion of each phase mismatch pulse into a pulse train proportional to the length of the preceding signal break and varying in time with respect to an exponential law with restoration of the input signal after the break are included between the "lead" and "lag" outputs of the input signal phase analyzer and the corresponding inputs of the integrating reversing counter.

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