

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--PHYSICOCHEMICAL AND BIOLOGICAL PROPERTIES OF SEPARATE FRAGMENTS OF  
THE THYREOCALCITONIN MOLECULE -U-  
AUTHOR--(C4)-STEKOLNIKOV, L.I., TEPELINA, O.M., ABDUKHARIMOV, A.,  
KONGPATSKAYA, V.M.  
COUNTRY OF INFO--USSR **K**

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 476-9, BIOCHEM

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--THYROID HORMONE, HYDROLYSIS, FRACTIONATION, CALCIUM COMPOUND,  
METABOLISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1488

STEP NO--UR/0020/70/191/002/0476/0479

CIRC ACCESSION NO--AT0130417

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--ATO130417

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOUR POLYPEPTIDE FRAGMENTS OF BOVINE THYROCALCITONIN, OBTAINED BY ACID HYDROLYSIS, WERE ASSAYED FOR HYPICALCEMIC ACTIVITY ON RATS. THE MOST ACTIVE FRAGMENT CONTAINED A REGION IN WHICH ALANINE, TYROSINE, AND TRYPTOPHAN RESIDUES OCCURRED CONSECUTIVELY. SWINE THYROCALCITONIN ALSO CONTAINS A REGION WITH THIS SEQUENCE, INDICATING THAT THIS MAY BE THE ACTIVE SITE OF THE HORMONE.

FACILITY: VSES. NAUCH.-ISSLED. INST. ANTIBIOT., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 591.1.15

KONOPEL'KO, K. G., BURDIYAN, L. I., Editorial Staff of Izv. AN KirgSSR"

"Change of Nitrogen Metabolism and Enzyme Activity in the Brain and Liver of Rats With Tumors Under Ionizing Radiation"

Frunze, Izmeneniye azotistogo obmena i fermentativnoy aktivnosti v golovnom mozge i pecheni krys-opukholenositeley pri ioniziruyushchey radiatsii (cf. English above), 1973, 17 pp, bibl. of 36 titles (manuscript deposited in VINITI 28 Feb 73, No 5551-73 Dep.) (from RZh-Biologicheskaya Khimiya, No 14, 25 Jul 73, Abstract No 14F1285 Dep by the authors)

Translation: It is shown that in the brain of tumorous animals (with RS-1 hepatoma and M-1 sarcoma) exposed to gamma rays the amide nitrogen of glutamine is a source of free ammonia. Under the effect of gamma rays in a dose of 4500 rads the content of amide nitrogen of proteins and free ammonia in the brain tissue of rats approaches the norm. In the brain of exposed animals with RS-1 hepatoma there is a noticeable increase in the concentration of free ammonia and a considerable reduction in the content of amide nitrogen of glutamine, the amide nitrogen of proteins remaining within the norm. In the brain of exposed rats with M-1 sarcoma there is a considerable increase in the quantity of free ammonia and the amide nitrogen of glutamine and proteins.

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USSR

KONOPEL'KO, K. G., et al., *Izmeniye azotistogo obmena i fermentativnoy aktivnosti v golovnom mozge i pecheni krys-opukholenositaley pri ioniziruyushchey radiatsii*, 1973, 17 pp, bibl. of 36 titles

It is found that under the effect of gamma rays in a dose of 2500 rads tumor growth is retarded although the tumors are not resorbed. The action of gamma rays in a dose of 4500 rads retards tumor growth and reduces the size of the tumor. In the liver of tumorous animals an increase is noted in the concentration of ammonia with a relatively constant glutamine content and a considerable reduction in the amount of amide nitrogen of proteins.

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USSR

KONOPEL'KO, K. G., MALISHEVSKAYA, N. I.

"Changes in Carbohydrate Metabolism and Enzyme Activity in the Mouse Brain as a Result of Exposure to Ionizing Radiation"

Redkollegiya Zh. "Izv. AN Kirg. SSR" (Editorial Board of the journal "Bulletin of the Kirghiz SSR), Frunze, 1973, 15 pp, 42 refs. (Manuscript received at VINITI (All-Union Institute for Scientific and Technical Information) 30 May, 1973, accession No 6201-73 (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya, No 18, 25 September 1973, Abstract No 18F1135 Dep.)

Translation: In the development of radiation sickness in experimental animals, at different times after gamma irradiation ( $^{60}\text{Co}$ ) it was established that the phase nature of changes in the brain glycogen content depended on the activity of the glycogen-forming enzyme system. The phosphorylase and the gamma- and alpha-amylase activities depended on the time after irradiation and were also phasic in nature.

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CSO: 1841-W

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USSR

UDC:669.017:539.434

KONOPLENKO, V. P., PLEKHANOV, V. A. and POLYAKOV, V. N., Moscow  
Engineering Physics Institute

"The Accumulation of Deformation and Changes in the Nature of Rupture  
of KH18N12T Steel During Thermal Cycling Loading"

Kiev, Problemy Prochnosti, No 2, Feb 74, pp 38-40

Abstract: The change in the nature of rupture of KH18N12T steel during  
thermal cycling loading is studied as a function of the unidirectional  
accumulation of deformations after various degrees of hardening. It is  
shown that with preliminary exhaustion of ductility of the material,  
the probability of brittle fatigue rupture increases.

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USSR

UDC:539.4

KONOPLENKO, V. P., ARTYUKHINA, L. L., OVSEPYAN, Ye. S., VINOGRADOVA, V. S.,  
Moscow

"The Level of Equicohesive Temperature of VM-1A Molybdenum Alloy Upon  
Short-Term Testing in a Vacuum"

Kiev, Problemy Prochnosti, No 10, Oct 73, pp 51-55

Abstract: It is established that the equicohesive temperature of VM-1A alloy in a vacuum of  $5 \cdot 10^{-4}$  or  $5 \cdot 10^{-5}$  mm Hg is approximately  $1250^{\circ}$  C and increases both as a result of preliminary triple washing of the chamber with argon (to about  $1450^{\circ}$  C) and as a result of protection of the surface of specimens with a heat-resistant coating (to over  $1500^{\circ}$  C). The level of the equicohesive temperature of the alloy results from the rate of development of surface microscopic cracks which develop at points of separation of hard and brittle oxygen-containing phases on grain-boundary surfaces, which are enriched with residual oxygen during high-temperature testing.

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Polymers and Polymerization

USSR

UDC 678.049.9

VASILENOK, YU. I., KONORLEV, B. A., LAGUNOVA, V. N., SIMONOV, A. M.,  
POSHARSKIY, A. F., AVEZDINA, E. A., and ADREYCHIKOV, YU. P.

"Novel Antistatic Agents for Plastic"

Moscow, Plasticheskiye Massy, No 10, 1971, pp 11-13

Abstract: Results are reported of a study of the antistatic efficiency of imidazolinium bronohydrates, sodium salts of imidazolinium hydroxides, and adipic salts of imidazolinium and pyridinium after deposition on the surface of low density polyethylene, high density polyethylene, block polyethylene, and polymethylmetacrylate as well as with introduction of these agents directly into the polymer mass. It has been determined that deposition of these substances on the surfaces of polymers decreases the specific surface resistance at  $20 \pm 2^\circ\text{C}$  and relative humidity  $65 \pm 3\%$ . The sodium salts of the substituted imidazolium hydroxides are especially effective in lowering the surface resistance. Addition of 1-4 weight-% of the investigated antistatic agent directly into the polymer mass has practically no effect on the mechanical properties of low density polyethylene; high density polyethylene shows a lower relative elongation at the tearing point after addition of the antistatic agents.

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1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--PROPERTIES OF ANTISTATIC AND CONDUCTING POLYMERIC MATERIALS -U-

AUTHOR--(06)-VASILENOK, YU.I., DEYANOVA, A.S., KONOPLEY, B.A., LAGUNOVA,  
V.N., LELCHUK, SH.L., SAZHIN, B.I.  
COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (5), 57-60

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--SURFACE ACTIVE AGENT, POLYETHYLENE, PROPYLENE, COPOLYMER,  
BUTENE, ACETATE, POLYMETHYLMETHACRYLATE, ELECTRIC RESISTANCE, PLASTIC  
FABRICATION, ANTISTATIC ADDITIVE, MONOETHANOLAMINE, AMMONIUM CHLORIDE,  
ALCOHOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0923

STEP NO--UR/0191/70/000/005/0057/0060

CIRC ACCESSION NO--AP0134652

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDITION OF SURFACE ACTIVE COMPS. TO POLYETHYLENE, ETHYLENE, PROPYLENE COPOLYMER, ETHYLENE, ALPHA, BUTYLENE COPOLYMER, ETHYLENE, VINYL ACETATE COPOLYMER, OR POLY(ME METHACRYLATE) REDUCED THEIR SP. SURFACE ELEC. RESISTANCE (RHO SUBS). THE REON. OF RHO SUBS INCREASED THE RATE OF THE ELEC. CHARGE DISSIPATION AND IMPROVED THE ANTISTATIC PROPERTIES. THE REON. OF RHO SUBS DEPENDED ON THE THICKNESS OF THE SURFACTANT LAYER ON THE POLYMER SURFACE, WHICH WAS THE FUNCTION OF THE SURFACTANTS DIFFUSION TOWARDS THE SURFACE. THE BEST METHOD OF ADDING THESE SURFACTANTS (HYDROXYETHYLATED CETYL ALC., STEARYL ALC., OCTADECYLAMINE, MONOETHANLAMINE, OR DIMETHYLOCTADECYLAMMONIUM CHLORIDE) WAS DURING THE EXTRUSION.

UNCLASSIFIED

USSR

UDC 621.039.51

VASIL'EV, G. YA., KONOPLEV, K. A., and SEMENOV, YU. P.

"Measurement of Total Fluxes of Thermal and Fast Neutrons in the Active Zone and in the Experimental Channels of the VVR-M Reactor"

Moscow, Metrology of Neutron Radiation on Reactors and Accelerators, 71, p 113  
(from RZh-Yadernyye Reaktory, Otdel'nyy Vypusk, No 1, 1972, Abstract No 1.50.109)

Abstract: Methods and results of measuring total fluxes of thermal neutrons of from  $10^{16}$  to  $10^{21}$  neutr/cm<sup>2</sup> when activating Co-59 and Fe-58 by the (n,  $\gamma$ ) reaction and fluxes of fast neutrons of from  $10^{16}$  to  $10^{21}$  neutr/cm<sup>2</sup> when activating Fe-54 by the (n, p) reaction are examined.

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USSR

UDC: 621.317.341.3

KONOPLEV, V. P.

"Methods and Means for Precision Measurements of Weak Reflections in Coaxial Microwave Lines (Survey)"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. No 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 38-42 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A388)

Translation: Various methods of measuring weak reflections in coaxial microwave channels are considered -- with the use of measurement lines or directional couplers, radar methods, etc. The difficulty of error estimation and analysis is noted. The importance of the method of directed graphs is pointed out. The methods recommended by the IEEE (United States) for testing precision coaxial connectors are enumerated. It is reported that precision installations used in industry for measuring the parameters of coaxial connectors in the 0.5-10 GHz range have been developed at the SNIIM [expansion unknown]. The operating principle of these installations is described. Two types of measurement lines (slotted and non-slotted)

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USSR

KONOPEV, V. P., Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. No 2, 1970, pp 38-42.

are compared. The complications caused in this field by the variety of measurement circuits are pointed out. Bibliography of 18 titles. E. L.

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UDC: 621.317.373

KONOPLEV, V. P.

"A Frequency-Independent Oscillographic Method of Measuring Phase Difference"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 75-78 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A333)

Translation: A new method of measuring phase difference developed by the author is described. Two voltages with an unknown phase difference or two voltages (generally speaking on another frequency) with a known phase difference which may be regulated by a graduated phase shifter are alternately fed to the plates of a CRT using an electronic commutator for the purpose. A figure in the form of two intersecting ellipses is produced on the screen. The ellipses are made to coincide by adjusting the known phase difference. Thanks to the possibility of using fairly accurate phase shifters (e. g. with a fixed low frequency), a phase accuracy of up to  $1^\circ$  may be achieved over a wide frequency band. Bibliography of three titles. E. L.

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USSR

UDC: 621.373.531.1(088.8)

KONOPLEV, Ya. I., All-Union Scientific Research Institute of Electric Power

"A Pulse Generator With Controllable Pulse Repetition Frequency"

USSR Author's Certificate No 262947, filed 23 May 68, published 3 Jun 70  
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G188 P)

Translation: This Author's Certificate introduces a pulse generator with controllable prf containing a multivibrator based on two transistors with collector-base connections having diode-fixed collector voltages, and two controlling transistors. To reduce nonlinear distortions and improve measurement accuracy, the input of a two-terminal-pair network is connected in parallel with the input voltage source. The output of this network is connected to the cathodes of the semiconductor diodes which fix the voltage across the collectors of the multivibrator transistors.

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USSR

UDC 539.12.01.12:517.933.2

IOSIF'YAN, A. G., Academician of the Armenian SSR Academy of Sciences and  
KONOPEVA, N. P.

"Isoperimetric Variational Problems in Field Theory"

Moscow, Doklady Akademii Nauk SSR, Vol 198, No 5, 11 Jun 71, pp 1036-1039

Abstract: Isoperimetric problems are problems in seeking an arbitrary extremum of a certain functional  $S$  when the supplementary condition for variation is the retention of another functional  $S_1$ ; that is, when the supplementary conditions are integral ones. The authors show that a number of variational problems in field theory can be studied as isoperimetric ones: for example, transition from a system of noninteracting Dirac fields to a system with interaction, as well as others. The author then examines the variational problem of finding the extremum of a certain functional under the condition that another functional [equation (1)] exists. Then according to general law it is necessary to construct an auxiliary functional [equation (2)] and find its extremum. The supplementary conditions remove the extraneous variables, and only one given spin remains. The supplementary conditions equate the number of existing variables and the number of equations for the extremal. Such a

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USSR

IOSIF'YAN, A. G., Doklady Akademii Nauk SSR, Vol 198, No 5, 11 Jun 71, pp 1036-1039

situation corresponds to a narrowing of the invariance of extremals  $S$  relative to the infinite group  $G_{\infty T}$  up to invariance of the equations in (3) relative to  $G_T$ . The article contains a bibliography of 4 titles.

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1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--INTEGRAL CONSERVATION LAWS IN THE GENERAL THEORY OF RELATIVITY -U-  
AUTHOR--KONOPLEVA, N.P. K  
COUNTRY OF INFO--USSR  
SOURCE--AKADEMIJA NAUK SSSR, DOKLADY, VOL. 1969, FEB. 11, 1970, P.  
1070-1073  
DATE PUBLISHED--11FEB70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--RELATIVITY THEORY, VECTOR, SPACE TIME  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/2040 STEP NO--UR/0020/70/190/000/1070/1073  
CIRC ACCESSION NO--AT0112995  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0112995

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEMONSTRATION THAT INTEGRAL CONSERVATION LAWS OF A SYSTEM OF BODIES IN A CURVED SPACE TIME CAN BE OBTAINED FROM ONE COVARIANT DIFFERENTIAL LAW OF CONSERVATION OF THE SYMMETRICAL ENERGY MOMENTUM TENSOR OF THIS SYSTEM. IN THIS CASE THE NATURE AND THE NUMBER OF QUANTITIES WHICH ARE INTEGRALLY CONSERVED ARE DETERMINED BY THE STRUCTURE OF A GROUP OF MOTIONS OF THE SPACE TIME I.E., BY THE FORM OF THE KILLING VECTOR. A GROUP OF MOTIONS OF A FOUR DIMENSIONAL SPACE OF CONSTANT CURVATURE IS CONSIDERED, SHOWING THAT ONLY IN THE LIMIT OF A FLAT SURFACE DOES A 4 MOMENTUM OPERATOR ACQUIRE THE SENSE OF A SHEAR OPERATOR WITH RESPECT TO THE COORDINATES.

UNCLASSIFIED

USSR

UDC 537.311.33:546.289

KONOPLEVA, R.F., NOBIKOV, S.R., RUBINOVA, E.E., ZAPOROZHCHENKO, YU.A.

"Investigation Of Radiation Defects In Germanium With Irradiation By High Energy Protons"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 106-111 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B25)

Translation: The results are presented of an investigation of the temperature dependence and spectral curves of the impurity photoconductivity for n-type Ge with an initial concentration of Sb of  $2 \cdot 10^{15} \text{ cm}^{-3}$  and of p-type with a concentration of Ga of  $4 \cdot 10^{14} \text{ cm}^{-3}$  irradiated by protons with an energy of 660 Mev with various integrated fluxes (from  $1 \cdot 10^{11}$  to  $1 \cdot 10^{14} \text{ r/cm}^2$ ). The initial rate of formation is determined for the defects, which for n- and p-Ge proved to be on the order of  $10^2 \text{ cm}^{-1}$ . The theoretical computation presented of the number of displaced atoms shows that the portion in the formation of defects as a result of Rutherford scattering is small. The number of displaced atoms owing to nuclear elastic and nonelastic interactions amount to  $10^3$  and  $10^2 \text{ cm}^{-1}$ , respectively. It is found that during irradiation, acceptor levels are primarily found

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USSR

KOPOLEYA, R. F., et al., Radiatsion. fiz. nemet. kristallov, 1970, pp 106-111 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B25)

in n- and p-type Ge. From the temperature dependence of the Hall constant and the spectral curves of the impurity photoconductivity, the eight levels pertaining to the radiation defects are determined ( $E_c - 0.1$  e.v.,  $E_c - 0.20$  e.v.,  $E_c - 0.27$  e.v.,  $E_c - 0.34$  e.v.,  $E_v + 0.27$  e.v.,  $E_v + 0.20$  e.v.,  $E_v + 0.12$  e.v.,  $E_v + 0.065$  e.v.) 6 ill. 2 tab. 2 ref. Summary.

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USSR

UDC 537.311.53:546.289

KONOPLEVA, R.E., NOBIKOV, S.R., RUBINOVA, E.E., ZAFOROZHCHENKO, YU.A.

"Investigation Of Radiation Defects In Germanium With Irradiation By High Energy Protons"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 106-111 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B25)

Translation: The results are presented of an investigation of the temperature dependence and spectral curves of the impurity photoconductivity for n-type Ge with an initial concentration of Sb of  $2 \cdot 10^{15} \text{ cm}^{-3}$  and of p-type with a concentration of Ga of  $4 \cdot 10^{14} \text{ cm}^{-3}$  irradiated by protons with an energy of 660 Mev with various integrated fluxes (from  $1 \cdot 10^{11}$  to  $1 \cdot 10^{14} \text{ r/cm}^2$ ). The initial rate of formation is determined for the defects, which for n- and p-Ge proved to be on the order of  $10^2 \text{ cm}^{-1}$ . The theoretical computation presented of the number of displaced atoms shows that the portion in the formation of defects as a result of Rutherford scattering is small. The number of displaced atoms owing to nuclear elastic and nonelastic interactions amount to  $10^3$  and  $10^2 \text{ cm}^{-1}$ , respectively. It is found that during irradiation, acceptor levels are primarily found in n- and p-type Ge. From the temperature dependence of the Hall constant and the spectral curves of the impurity photoconductivity, the eight levels pertaining to the radiation defects are determined ( $E_c - 0.1 \text{ e.v.}$ ,  $E_c - 0.20 \text{ e.v.}$ ,  $E_c - 0.27 \text{ e.v.}$ ,  $E_c - 0.34 \text{ e.v.}$ ,  $E_v + 0.27 \text{ e.v.}$ ,  $E_v + 0.20 \text{ e.v.}$ ,  $E_v + 0.12 \text{ e.v.}$ ,  $E_v + 0.06 \text{ e.v.}$ ) 6 ill. 2 tab. 2 ref. Summary.

USSR

UDC: 621.396

KONOPLEVA, Ye. N. and KHMEL'NITSKIY, Ye. A.

"Possible States of a Short-Wave Communication Channel According to Radio Wave Propagation Conditions"

Moscow, Elektrosvyaz', No 12, 1970, pp 19-24

Abstract: This paper considers the possibility of transmitting discrete signals with minimum error over short-wave communication lines of 3000 km. Although it is impossible at the present time to compute the trajectory of the signal propagation with certainty for most line lengths, it can always be ascertained for ranges of 1000-3000 km. This paper also presents experimental data concerning the frequency of appearance of the various models of radio wave propagation at the specified range as well as data for the number of cycles with and without discontinuities in each model. The data consists of measurements made over a number of years for signal level, noise, and the number of discontinuities over a line of about 2900 km. The equipment used RG65/4-1 antennas for the receiver and BS-2 antennas for the transmitter. The authors find that the frequency of appearance for any one model of radio wave propagation is independent of the radiated power or the noise level.

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1/2 043 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--RELATION BETWEEN EXPERIMENTAL VALUES OF MUTUAL CORRELATION  
COEFFICIENTS FOR CHANGES IN SHORT WAVE SIGNAL LEVELS DURING SPACE  
AUTHOR-(02)-KONOPLEVA, YE.N., KHMELNITSKIY, YE.A.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROSVIAZ\*, VOL. 24, JAN. 1970, P. 20-26

DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION

TOPIC TAGS--ELECTROMAGNETIC WAVE PROPAGATION, RADIO WAVE PROPAGATION,  
IONOSPHERIC SCATTER COMMUNICATION, SPACE COMMUNICATION, ELECTROMAGNETIC  
NOISE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0391

STEP NO--UR/0106/70/024/000/0020/0026

CIRC ACCESSION NO--AP0122571

UNCLASSIFIED



2/2 043

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0122571

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL DETERMINATION OF THE MUTUAL CORRELATION COEFFICIENTS FOR SIGNAL LEVEL CHANGES DURING SHORT WAVE SPACE DIVERSITY RECEPTION OVER TWO MID LATITUDE PATHS ABOUT 3000 KM IN LENGTH. THE EXPERIMENTAL VALUES OF THE MUTUAL CORRELATION COEFFICIENTS ARE COMPARED WITH THE IONOSPHERIC PARAMETERS AND ARE CLASSIFIED ACCORDING TO RADIO PROPAGATION CONDITIONS. A ROUGH ESTIMATE IS OBTAINED FOR THE FREQUENCY OF OCCURRENCE OF THE DIFFERENT PROPAGATION MODELS USED IN ANALYZING THE NOISE STABILITY AND RELIABILITY OF SHORT WAVE COMMUNICATIONS.

UNCLASSIFIED

Acc. Nr:

AP0045917

Abstracting Service: 5/70  
INTERNAT. AEROSPACE ABST.

Ref. Code:  
UR3663

K

A70-22463 # Study of the durability of turbine blade alloys and structural elements under cyclic heating conditions (Issledovaniia vynoslivosti turbolopatochnykh splavov i konstruktivnykh elementov v usloviakh termotsiklirovaniia). V. I. Troshchenko, B. A. Griaznov, Iu M. Shemegan, and E. G. Konopliannikov (Akademiia Nauk Ukrainskoi SSR, Institut Problemy Prochnosti, Kiev, Ukrainian SSR). *Problemy Prochnosti*, vol. 2, Jan. 1970, p. 19-25, 11 refs. In Russian.

Study of the effect of a cyclic heating accompanied by large changes in thermal stresses, on the fatigue strength and durability of heat resistant alloys E1612, and ZhS6-K. An expression is derived for calculating the durability of heat resistant alloys when subjected to thermal cycles.

Z.W.

ALS

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USSR

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UDC 621.397:621.396.4

KONDRATYEV, A. G., KONOV, K. I., SHUTOVICH, Yu. A.

"System of Allowable Control of Television Signal Parameters"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 3 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 3), Leningrad, 1970, pp 11-16 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8G224)

Translation: This article contains an investigation of the necessity of introducing variable values of the tolerances on individual parameters of a complete TV signal as a function of the quality class of TV transmission. It also contains descriptions of devices for signal coding and decoding of the transmission class and automatic setting of current allowable values of the controllable parameters of the complete TV signal.

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USSR

UDC 621.397.61

K  
KONOR, K. I.

"Electronic Synthesis of Characters on a Television Raster"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 3 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 3), Leningrad, 1970, pp 33-36 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8G150)

Translation: This article contains an investigation of a discrete method of synthesizing character images on a TV raster. The element common to all characters are formed (horizontally and vertically), and the letters and numbers are obtained by summing the individual elements.

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Water Treatment

USSR

UDC: 541.183.1.004.67:681.3

MARKOVA, T. S., KOZHEVNIKOV, A. V., VOL'F, I. V., KONOREV, ~~Mikhail~~, Leningrad Technological Institute of the Paper and Pulp Industry

"Investigation of the Effect of Various Factors on the Coefficient of Utilization of the Reductive Capacity of Electron Ion exchange Resins in the Process of Absorption of Oxygen Dissolved in Water"

Leningrad, Zhurnal Prikladnoy Khimii, Vol. 45, No 5, May 72, pp 1046-1049

Abstract: Studies were done on optimizing the process of deoxygenating water by electron ion-exchange resins. Experimental data were analyzed to determine the relationship between the coefficient of utilization of the reductive capacity of KU-11 cation-exchange resin and a combination of six independent factors:  $X_1$  -- grain size,  $X_2$  -- temperature,  $X_3$  -- oxygen concentration in the water,  $X_4$  -- concentration of copper in the ion-exchange resin,  $X_5$  -- rate of filtration and  $X_6$  -- height of the filtering layer. The analysis showed that grain size could be disregarded. Calculations on the "Minsk-22" computer gave a linear regression equation after elimination of  $X_1$ . The relative influence of different factors on the dependent variable  $Y_0$  was accounted for by introducing coefficients of elasticity, where  $a_i$  is the regression coefficient of the i-th factor,  $\bar{X}_i$  is the average value of the i-th factor, and  $\bar{Y}$  is the average value of the dependent variable.

1/1

1/3 030 UNCLASSIFIED PROCESSING DATE--20NDV70  
TITLE--EFFECT OF THERMAL DEFECTS ON THE LIFETIME OF CURRENT CARRIERS IN  
GERMANIUM -U-  
AUTHOR-(02)-BELTAKS, B.I., KONOROVA, L.F. K  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TEKH. PCLUPROV. 1970, 4(4), 754-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--GERMANIUM SEMICONDUCTOR, THERMAL EFFECT, CRYSTAL DEFECT,  
CARRIER DENSITY, ELECTRON SPECTRUM, TEMPERATURE DEPENDENCE,  
PHOTOMAGNETIC EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/0854 STEP NO--UR/0449/70/004/004/0754/0759  
CIRC ACCESSION NO--AP0131444

2/3 030

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131444

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THERMAL DEFECTS OBTAINED IN N-GE IN EQUALS 3.5 TIMES TO PRIME13-CM PRIME3, TAU EQUALS 250 MINUS 300 MU SEC) ON THE LIFETIME OF MAJORITY AND MINORITY CARRIERS AND ON THE ENERGY SPECTRUM OF ELECTRONS WAS STUDIED. THERMAL DEFECTS WERE GENERATED DURING TEMPERING AT 673-773DEGREEK WITH A RATE, V EQUALS 100DEGREEK-SEC AND AT 773-1073DEGREEK AT V EQUALS 300DEGREEK-SEC. THE THERMAL TREATMENT WAS CARRIED OUT IN WET O, ACTING AS A GETTER FOR CU IMPURITY ATOMS. PRIOR TO THE MEASUREMENT, THE SAMPLES WERE POLISHED AND ETCHED IN BOILING 30PERCENT H SUB2 O SUB2. LIFETIMES WERE CALCD. FROM EXPTL. DATA ON THE STEADY STATE PHOTOMAGNETIC EFFECT, ON PHOTOCOND., AND IN HALL COEFF. IN A WIDE RANGE OF TEMPS, WITH GE SAMPLES SUBJECTED TO THERMAL TREATMENT. THE DEPENDENCE OF TAU ON THE TEMPERING TEMP., T SUBT WAS DETC. AS TAU SIMILAR EXP (DELTA E SUBO-K T SUBT) WITH DELTA E SUBO EQUALS 1 PLUS OR MINUS 0.1 EV, WHEREBY THE COND. REMAINED CONST. THE VARIATION OF TAU IS ASCRIBED TO GENERATION OF RECOMBINATION CENTERS WITH A CONCN. N, WHEREBY TAU IS SIMILAR TO 1 OVER N. N INCREASES WITH THE RATE OF TEMP. RISE DURING TEMPERING. DURING HEAT TREATMENT OF N SAMPLES AT 823-973DEGREEK, THE INCREASE OF TAU WITH T SUBT IS ACCOMPANIED BY A DECREASE OF COND. DURING TREATMENT AT 973-1073DEGREEK, THE SAMPLES BECAME P TYPE AND TAU DECREASES WITH INCREASING T SUBT, WHEREBY THEIR COND. DIMINISHES. ON SLICING TEMPERED SAMPLES, IT IS REVEALED THAT AT 673-773DEGREEK THE THERMAL DEFECTS ARE UNIFORMLY DISTRIBUTED, WHILE THOSE GENERATED AT 823-1073DEGREEK HAVE A HIGHER CONCN. IN THE SURFACE LAYERS.

UNCLASSIFIED

3/3 Q30

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131444

ABSTRACT/EXTRACT--THE TEMP. DEPENDENCE OF MINORITY CARRIER LIFETIME,  $\tau_{SUB1}$ , AT 100-300DEGREEK IS SIGNIFICANTLY AFFECTED BY T SUBT. THE ACTIVATION ENERGIES IN THE DIFFERENT TEMP. RANGES ARE ATTRIBUTED TO THE DIFFERENT ENERGIES OF RECOMBINATION CENTERS. THE RATIO  $\tau_{SUB2}$  OVER  $\tau_{SUB1}$  ( $\tau_{SUB2}$  IS THE MAJORITY CARRIER LIFETIME) IS CLOSE TO 1 AT ROOM TEMP., BUT GROWS WITH DECREASING TEMP., REACHING SIMILAR TO 100 AT 100DEGREEK FOR SOME SAMPLES. FOR N SAMPLES,  $\tau_{SUB1}$  GROWS WITH T SUBT ON ACCOUNT OF THE INCREASED D. OF TRAPS, ABOVE 773DEGREEK, THE R SUBH (1-T) RELATION SHIFT TO HIGHER R SUBH WITH INCREASING TEMP., WHEREBY THE N SAMPLES ARE COMPENSATED. A SHALLOW DONOR LEVEL IS REVEALED IN N SAMPLES:  $E_{SUBC} - E_{SUB3} = 0.05$  EV. TWO ACCEPTOR LEVELS,  $E_{SUBV} + E_{SUB4} = 0.15$  EV AND  $E_{SUBV} + E_{SUB5} = 0.03$  EV, ARE EVALUATED FROM R SUBH MINUS 1-T RELATIONS. THE UNUSUAL TEMP. DEPENDENCE OF  $\tau_{SUB1}$  OF P SAMPLES WITH A MAX. AND A PLATEAU IS EXPLAINED BY A MODEL IN WHICH THE RECOMBINATION CENTERS ARE VACANCIES WITH ZERO, 1, OR 2 NEG. CHARGES. THE INCREASE NO.  $\tau_{SUB1}$  OF SAMPLES HEATED AT 823-973DEGREEK IS ASCRIBED TO GENERATION OF DONOR LEVELS INTRODUCED BY GE INTERSTITIALS WITH AN ACTIVATION ENERGY OF 0.05 EV. FIVE ACCEPTOR AND 1 DONOR LEVELS IN ALL CAN BE OBSD., DEPENDING ON T SUBT.

FACILITY: INST. POLUPROV., LENINGRAD, USSR,

UNCLASSIFIED



USSR

UDC: 621.315.592

VAVILOV, V. S., GUKASYAN, N. A., KONOROVA, Ye. A., and MILYUTIN, Yu. V.

"Ionic Insertion of Antimony into Diamonds"

Leningrad, Fizika i tekhnika poluprovodnikov, No 12, 1972, pp 2384-2391

Abstract: In the experiments described in this paper, ions of arsenic, antimony, and bismuth were introduced into diamond. The method of an earlier paper (V. S. Vavilov, et al, FTP, 4, 10, 1970) in which phosphorus ions were introduced into a diamond layer with n-type conductivity, was followed. Since ions like those used in the experiments of the present paper have high masses, the concentration of radiation defects created in the introduction process is high, and even slight radiation doses result in graphitization of the layer during annealing. For that reason, the introduction process took place at high temperature levels, around 800° C. Curves are given for the electrical conductivity of specimens treated with antimony ions as functions of the annealing temperature and the thickness of the treated layer. Reproductions of electronograms of the irradiated diamond surfaces for specimens receiving various  
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• USSR

UDC: 621.315.592

VAVILOV, V. S., et al, Fizika i tekhnika poluprovodnikov, No 12, 1972, pp 2384-2391

dosages are shown; they indicate that higher doses of irradiation lead to destruction of the crystal lattice while annealing restores the crystallinity. It is noted that the electronograms were taken and interpreted by R. I. Nazarova of the Institute of Physical Chemistry, USSR Academy of Sciences. Others credited with assisting the authors are B. M. Vul and V. N. Vinogradov for their comments and discussions, V. V. Krasnopevtsev for his assistance with the ion insertions, and V. A. Mizonova and N. A. Shvalova for preparing the specimens.

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- 112 -

USSR

UDC 537.311.33

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VAVILOV, V. S., GUEASYAN, M. A., GUSEVA, M. I., KONOROVA, Ye. A.,  
and SERGIYENKO, V. P.

"Electron-Hole Junction in a Diamond Obtained Through the Infiltration of Boron and Phosphorus Ions"

Moscow, Doklady Akademii nauk SSSR, No. 4, vol. 200, 1971, pp 821-824

**Abstract:** The results are given of experiments performed to establish a p-n junction in diamonds by the ion impurity method. Boron was used as the acceptor impurity and phosphorus as the donor. The reasons for this choice were that, as one of the elements of the V group in the Mendeleev table of elements and consequently as a "natural" donor, phosphorus has the greatest amount of interest; and that, on the basis of the graph of the annealing of layers infiltrated by phosphorus, it can be assumed that a greater number of active donor centers can be obtained with the same dosage of phosphorus doping than can be obtained with such interstitial atoms as lithium and carbon. Curves are plotted for the voltage characteristic of the junction and for the photovoltage of the junction as a function of the excitation light wavelength. The authors conclude that they have proved the possibility of obtaining p-n junctions in diamonds, and express their gratitude to E. M. Vul,

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USSR

VAVILOV, V. S., et al, Doklady Akademii nauk SSSR, No. 4, vol. 200, 1971, pp 821-824

Corresponding Member of the USSR Academy of Sciences, for his support of the work, to V. M. Gusev for his assistance with the infiltration experiments, and to Yu. A. Kuznetsov and Yu. A. Salikov for their help with the measurements. The authors are associated with the Lebedev Physics Institute, USSR Academy of Sciences, Moscow.

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1/2 041

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--HALL EFFECT IN P TYPE SEMICONDUCTOR DIAMONDS DOPED WITH BORON BY  
THE ION INJECTION METHOD -U-  
AUTHOR--(04)--VAVILOV, V.S., GUSEVA, M.I., KONOROVA, E.A., SERGIENKO, V.F.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1) 17-22

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--HALL EFFECT, SEMICONDUCTOR MATERIAL, DIAMOND, BORON,  
IONIZATION, IMPURITY SEMICONDUCTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1468

STEP NO--UR/0449/70/004/001/0017/0022

CIRC ACCESSION NO--AP0054324

UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--APO054324

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HALL EFFECT AND CARRIER MOBILITY IN SEMICONDUCTOR DIAMOND LAYERS DOPED WITH B BY ION INJECTION WERE STUDIED. THE MEASUREMENTS WERE CARRIED OUT AT 300-1200 DEGREES K. THE PLOT OF THE LOG R SUBS (THE MEASURED HALL CONST.) VS 1-T EXHIBITS A MAX. IN THE SAME TEMP. REGION IN WHICH A DISCONTINUITY IS OBSD. IN THE PLOT OF LOG SIGMA VS. 1-T (WHERE SIGMA IS THE ELEC. COND.), THIS BEING A CONSEQUENCE OF THE FORMATION OF AN IMPURITY ZONE. AT THE DOPING LEVEL USED, THE IONIZATION ENERGY OF THE B ACCEPTOR LEVEL WAS 0.19 EV. THE OBSD. ACCEPTOR LEVELS OF THE RADIATION DEFECTS HAD IONIZATION ENERGIES OF 0.29 AND 0.4 EV. AT 500-600 DEGREES K, THE MOBILITY IS 30-50 CM PRIME 2-V-SEC, AND DECREASES WITH RISE IN TEMP. THE OBSD. RELATION BETWEEN MOBILITY AND TEMP. CAN BE EXPLAINED BY THE INTERACTION BETWEEN THE CARRIERS AND THE IONIZED IMPURITIES AND LATTICE VIBRATIONS, ASSUMING DUE ALLOWANCE IS MADE FOR THE FACT THAT THE IMPURITY CONC. IS NOT UNIFORM OVER THE LAYER THICKNESS.

UNCLASSIFIED

I/2 042 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--ELECTRICAL CONDUCTIVITY OF N AND P TYPE SEMICONDUCTOR DIAMONDS  
PREPARED BY AN ION INJECTION METHOD DURING STEPPED ISOCHRONOUS ANNEALING  
AUTHOR--(04)-VAVILOV, V.S., GUSEVA, M.I., KONROVA, E.A., SERGIYENKO, V.F.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1) 10-16

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--DIAMOND, LITHIUM, COPPER, POTASSIUM, ALUMINUM, BORON,  
IONIZATION, ELECTRIC CONDUCTIVITY, SEMICONDUCTOR CRYSTAL, ANNEALING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1983/1469

STEP NO--UR/0449/70/004/001/0010/0016

CIRC ACCESSION NO--AP0054325

UNCLASSIFIED

2/2 042

CIRC ACCESSION NO--AP0054325  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT. THE ELEC. COND. OF SEMICONDUCTOR DIAMOND LAYERS OBTAINED BY INJECTION OF LI, C, P, AL, AND B IONS WAS STUDIED. INJECTION OF LI, C, AND P IONS LEADS TO THE FORMATION OF AN N TYPE LAYER, WHILE THE INJECTION OF AL AND B LEADS TO A PHO TYPE LAYER. THE ELEC. COND. ACTIVATION ENERGY IS 0.25-0.45 EV. DURING ISOCHRONOUS STEPPED ANNEALING, THE ELEC. COND. OF THE LAYERS DOPED WITH B FALLS, AND THEN INCREASES WITH INCREASING TEMP. TO A VALUE SEVERAL ORDERS OF MAGNITUDE HIGHER THAN THE ORIGINAL. ON PROLONGED ANNEALING AT 1200DEGREES, THE COND. OF PREVIOUSLY ANNEALED LAYERS DOES NOT CHANGE. THREE VALUES OF THE ELEC. COND. ACTIVATION ENERGY WERE OBSD: 0.2 PLUS OR MINUS 0.02, 0.29 PLUS OR MINUS 0.02, 0.29 PLUS OR MINUS 0.02, AND 0.4 PLUS OR MINUS 0.02 EV. THIS ATTRIBUTED TO THE PRESENCE OF RADIATION DEFECTS. IN SPECIMENS DOPED WITH LI, C, P, AND AL, THE COND. BEGINS TO DECREASE AT AN ANNEALING TEMP. OF 600DEGREES, WHILE AT HIGHER TEMPS. THE RESISTANCE OF THE LAYERS IS RESTORED ALMOST TO THAT OF THE UNDOPED CRYSTAL.

UNCLASSIFIED



(12)

UDC 533.92:621.039.61

USSR

ALEKSIN, V. F., BIRYUKOV, O. V., VISHNEVETSKIY, V. N., GEORGIYEVSKIY, A. V.,  
GROT, Yu. I., DIKIY, A. G., ZISER, V. Ye., KITAYEVSKIY, L. KH., KONOTOP,  
P. I., POGOZHEV, D. P., PELETMINSKAYA, V. G., SERGEYEV, Yu. F., SMIRNOV,  
V. G., SUPRUNENKO, V. A., TOLOK, V. T., and TARAN, V. M.

"Development and Synthesis of the "Uragan" Stellarator and Investigation  
of Magnetic Surfaces of High Shear"

Kiev, Fizika Plasmy i Problemy Upravlyayemogo Termoyadernogo Sinteza  
(Plasma Physics and Problems in Controlled Thermonuclear Synthesis --  
collection of works) "Naukova dumka," No 3, 1972, pp 73-112

Abstract: After an initial section devoted to a review of the literature  
on the magnetic surfaces of toroidal stellarators and the principles of  
stellarators in general, the authors analyze the "Uragan" specifically.  
In particular, this paper is concerned with the problems involved in  
choosing the parameters of the magnetic system for the racetrack stel-  
larator to obtain magnetic surfaces with high shear. This last term is  
defined as the extent of crossing of the magnetic lines of force. The  
synthesis and adjustment of the magnetic system are also examined, and  
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USSR

ALEKSIN, V. F., et al., Fizika Plasmy i Problemy Upravlyayemogo Termoyadernogo Sinteza, "Naukova dumka," No 3, 1972, pp 73-112

the results are given of an investigation into the instrument's magnetic surfaces. Computations worked out on an electronic computer for the design of the magnetic system are described, and differences between the "Uragan" and the "Sirius" stellarators are indicated. A comparative table of the parameters for various types of stellarator is given; it shows that the "Uragan" is one of the more powerful thermonuclear machines, with a high shear value for its substantial 10 koeersted magnetic field intensity. This article is liberally illustrated with photographs and line drawings and has a bibliography of 51 titles.

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- 65 -

UDC 533.92:621.039.61

USSR

ALEKSLIN, V. F., BIRYUKOV, O. V., VISHNEVETSKIY, V. N., GEORGIYEVSKIY, A. V., GROT, Yu. I., DIKIY, A. G., ZISER, V. Ye., KITAYEVSKIY, L. Kh., KONOTOP, I., POGOZHEV, D. P., PELETNENSKAYA, V. G., SERGEYEV, Yu. P., SMIRNOV, V. G., SUPRUNENKO, V. A., TOLOK, V. T., TARAN, V. M.

"Development and Production of the Magnetic System of the 'Uragan' Stellarator and a Study of Magnetic Surfaces With Large Shear"

Fiz. plazmy i probl. upravl. termoyad. sinteza. Resp. mezhved. sb.  
(Plasma Physics and Problems of the Controlled Thermonuclear Fusion. Republic Interdepartmental Collection), 1972, No. 3, pp 73-112 (from RZh-Fizika, No 11, Nov 72, Abstract No 116279)

Translation: This paper concerns the study of the magnetic system of the three-loop "Uragan" stellarator-racetrack. Considerations concerning the selection of optimal parameters of the magnetic system of the stellarator are discussed. The equipment of the "Uragan" is briefly described. An experimental study of the magnetic surfaces made with the aid of low-energy electron beams showed that in the "Uragan" stellarator-racetrack with

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USSR

ALEKSIN, V. F., et al, Fiz. plazmy i probl. upravl. termoyadern. sinteza.  
Resp. mezhved. sb., 1972, No. 3, pp 73-112

individually controlled cylinders there are closed magnetic surfaces with high shear values ( $\sim 0.09$ ) and angle of rotational conversion ( $\sim 240^\circ$ ). The experimental data are compared with calculated values obtained on the BESM-6 computer.

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USSR

UDC 533.9

VISHNEVETSKIY, V.N., VOYTENKO, D. A., VOLKOV, YE. D., DIKIY, A. G., ZALKIND, V. M., ~~KOMOTON~~ P. I., MOISEYEV, S. S., PAVLICHENKO, O. S., BASHNEV, V. K., SUPRUNENKO, V. A., TOLOK, V. T., TERESHCHENKO, F. F., TONKOPRYAD, V. M., and TARASENKO, V. P., Physico-Technical Institute of Academy of Sciences Ukrainian SSR, Kharkov

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

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

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

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EQUIPMENT  
Aeronautical

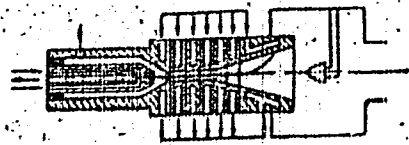
USSR

BLOKHIN, V. I., KONOTOP, V. A., FILATOV, A. S.

"High Temperature Supersonic Wind Tunnel with Arc Heating of Gas"

Otkrytiya Izobretmeniya Promyshlennye Obraztsy Tovarnyye Znaki, No 5, 1972,  
Patent No 359565.

Translation: A high temperature supersonic wind tunnel with arc heating of gas, containing a working portion and attached stabilizing cooled multisection nozzle with centrally cooled cathode with an insert of refractory material in its subsonic portion and an anode in its supersonic portion, differing in that in order to increase the effectiveness of testing, the cathode is installed a distance of 1.5-2 diameters before the critical cross section of the nozzle.



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USSR

UDC 621.039.543.4:621.039.544.57

VOLOSHCHUK, A. I., GAYDAMACHENKO, G. S., GOLOVCHENKO, YU. M.,  
ZELENSKIY, V. F., IVANOV, V. YE., and KONOTOP, YU. F.

"Uranium Hardened With Beryllium Oxide Particles"

Moscow, Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 178-183

Abstract: The article describes results of a study of uranium hardened with beryllium oxide particles. Compositions were prepared by mixing uranium hydride and beryllium oxide powders. Several types of beryllium oxide powder were used, viz. ordinary commercial BeO and BeO obtained from beryllium acetate by the Funston method. The results indicate that the strengthening of uranium with dispersed beryllium oxide particles significantly increases its heat resistance. The creep rate declines with a drop in the annealing temperature of beryllium oxide during its preparation. The creep rate is highly sensitive to load. At 600° C the creep rate of precipitation-hardened uranium is the same as or below that of unalloyed uranium at 500° C and under the same stresses. The creep activation energies calculated

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USSR

VOLOSHCHUK, A. I., et al., Atomnaya Energiya, Vol 29, No 3, Sep 70, pp 178-183

from the slope of the curves  $\ln \dot{\epsilon} = f\left(\frac{1}{T}\right)$  for the most heat-resistant compositions are considerably less than the self-diffusion activation energy and the creep activation energy of unalloyed commercial uranium. High-temperature softening in precipitation-hardened uranium is delayed 50-100° C as compared to unalloyed commercial uranium. Preliminary radiation test results indicate the high radiation resistance of precipitation-hardened uranium.

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UDC 547.241

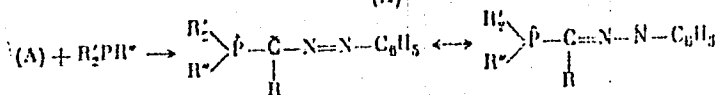
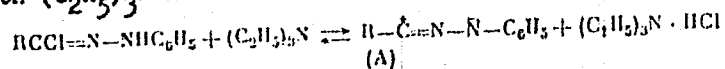
USSR

KONOTOPOVA, G. P., CHISTOKLETOV, V. N., and PETROV, A. A., Leningrad  
 Technological Institute imeni Lensoveta

"The Reaction of Nitrilimines with Phosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2412-2415

Abstract: A study was made of the influence of the substitutions in nitrilimines having the general formula  $RCCl=N-NHC_6H_5$  on the direction of the reaction with  $(C_2H_5)_3N$  as follows:



The R' and R'' groups were mainly short chain alkanes or aromatics. The R group was general either an aromatic or an ester. It was determined that the nature of the substitutions on the phosphorus atoms did not change the path

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USSR

KONOTOPOVA, C. P., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2412-2415

of the reaction significantly; however, the substitution on the carbon atom in the nitrilimines governed whether the products were azoylides or phosphonous salts. An R group such as  $C_2H_5OOC$  resulted in the former and  $C_6H_5$  in the latter. Preparations, physical data and IR spectra are given.

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- 18 -

USSR

UDC 547.341

KONOTKOVA, S. P., CHISTOKLETCH, V. N., and PETROV, A. A., Leningrad Technological Institute Imeni Lensovet

"Reactions of Trivalent Phosphorus Acid Amides With Nitrileamines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp 987-991

Abstract: The reactions of trivalent phosphorus acid amides with nitrileimines was studied by reacting tripiperidyl-, trimorpholyl-, hexaethyl-, hexamethyl-triamides of phosphorous acid, phenyldipiperidyl diamide of phosphonous acid and diphenyldimethylamide of phosphinous acid with C-carbethoxy-, C-acetyl-, C-(4-nitrophenyl)- and C-phenyl-N-acylnitrylimines. It was established that the substituents on the phosphorus component have no effect on the course of the process, the C-atom substituents leading to the formation of azomethylene phosphoranes or salts. For example, C-carbethoxy- and C-acetyl-N-arylnitrileimines form stable azomethylenephosphoranes with all the amides studied, while C-phenyl- and C-(4-nitrophenyl)-N-phenylnitrylimines yield salts.

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USSR

UDC 547.341

KONOTOPOVA, S. P., CHISTOKLETOV, V. N., and PETROV, A. A., Leningrad  
Technological Institute imeni Lensovet

"Reactions of Aminophosphines With 1,3-Bipolar Systems"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 1, Jan 71, p 235

Abstract: Tertiary phosphines react with nitrileimines to give phosphoranes. The authors found that the reaction of nitrileimines with aminophosphines proceeds analogously, apparently through the intermediate formation of betaines.

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USSR

UDC: 621.397

KONDRAT'YEV, A. G., KONOV, K. I., Leningrad Electrical Engineering Institute of Communications

"A Device for Electronic Formation of a Vertical Gray Scale for a Television Test Chart"

USSR Author's Certificate No 284069, filed 11 Jun 69, published 24 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6G118 P)

Translation: A device is proposed for electronic formation of a vertical gray scale for a TV test pattern. The device contains a controlling step voltage shaper, an impact excitation oscillator, a mixer, a coincidence circuit and a frequency mark generator. In order to produce radially converging vertical wedge-shaped lines with sinusoidal brightness distribution, line and frame synchropulses are sent to the input of the impact excitation oscillator through a shaping flip-flop and delay elements such as slave multivibrators, and the output of the impact excitation oscillator is connected to the input of an electronic counter which produces a pulse to cut off the signal from the impact excitation oscillator.

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1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70 *2*

TITLE--CLINICAL TRIALS OF CHLORACIZIN IN ISCHEMIC CARDIAC DISEASE -U-

AUTHOR--(05)--LEVINA, TS.A., ROMANOVSKAYA, A.I., DMITRIYEVA, I.T.,  
KONOVALENKO, A.V., SIVKONEVA, N.A.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 69-72 *L*

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, ATHEROSCLEROSIS, ARTERY, DRUG TESTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3002/1685

STEP NO--UR/0475/70/006/004/0069/0072

CIRC ACCESSION NO--AP0129055

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129055

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHLORACIZIN WAS EMPLOYED IN 70 PATIENTS WITH CHRONIC CORONARY INSUFFICIENCY AND IT WAS FOUND THAT THIS DRUG IS ONE OF THE METHODS OF CHOICE IN THE TREATMENT OF ISCHEMIC CARDIAC DISEASE, DUE TO ATHEROSCLEROSIS OF THE CORONARY ARTERIES.  
FACILITY: ODESSKOBU MEDITSINSKOBU INSTITUTA.

UNCLASSIFIED

USSR

UDC 621.582

BASAN, A.R., GERASIMOV, A.B., DOLIDZE, N.D., KAKHIDZE, H.G., KONOVALENKO, B.M.,  
SHILLO, A.G.

"Isothermic Annealing Of Radiation Defects In Ge Irradiated By Fast Electrons  
At 77° K"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics Of Nonmetallic  
Crystals--Collection Of Works), Vol 5, Part 1, Kiev, "Nauk.dumka," 1971, pp  
207-210 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract  
No 10E404)

Translation: The results are presented of an investigation of the processes of isothermic annealing of Ge at certain stages of reinsertion of the initial concentration of current carriers. It is shown, for example, that at the stage of abrupt reinsertion of the concentration of electrons during annealing of specimens with a resistivity of 1--10 ohm. cm., doped with antimony, after irradiation by fast electrons, a complex process of change of the complexes of defects takes place. For the process of reinsertion of the concentration at  $T = 77^{\circ} \text{C}$  an activation energy of 1.1 plus or minus 0.1 ev is obtained and for the process of forming a level, 1.7 plus or minus 0.2. During annealing after irradiation at a  $240^{\circ} \text{C}$  temperature on p-type specimens with a resistivity of 5 ohm.cm, the activation energy equals 0.95 plus or minus 0.1 ev at the stage of reinsertion of holes. Here a simple bimolecular process takes place. 4 ref. I.M.

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USSR

UDC 5.35.215.1

BASHAN, A. R., GERASIMOV, A. B., DOLIDZE, N. D., KASHIDZE, N. G.,  
KONOVALENKO, B. M., SHILO, A. G.

"Concerning 'Photosensitive' Defects in Ge Irradiated at  $T = 77^{\circ} K$ "

V sb. Radiats. fiz. nemet. kristalloy (Radiation Physics of Nonmetallic Crystals -- Collection of Works), Vol 3, Part 1, Kiev, "Nauk. dumka," 1971, pp 210-216 (from RZh-Elektronika i yeye primeneniya, No 10, October 1971, Abstract No 108235)

Translation: Photo-sensitive defects in Ge were studied, which form during irradiation of crystals by electrons at  $77^{\circ}K$ . If after annealing, the irradiated crystals are illuminated by white light, then the concentration of holes increases and remains constant after cessation of the illumination. N-type specimens doped with Sb and As, which changes the type of conductivity as a result of irradiation, and also p-type specimens doped with Ga were investigated. It is assumed that the effect of the action of light on the concentration of holes is the result of a change of the structure of the defects during heating and illumination. 3 ill. 6 ref. 1. V.

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USSR

UDC 537.311.33:546.289

GERASIMOV, A.B., DOLIDZE, N.D., KAKHIDKHE, N.G., KONOVALENKO, B.M.

"Kinetics Of Forming Radiative Defects Which Are Produced In Germanium By Gamma-Rays At A Temperature of 77°K"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 112-115 (from RZh--Elektronika i yeye primeneniye , No 1, January 1971, Abstract No 1823)

Translation: Specimens were used for measurement with the initial concentration of the chemical impurity  $(Sb)N_d = (2.0 - 2.5) \times 10^{12} \text{ cm}^{-3}$  irradiated by integrated fluxes of gamma quanta. The spectra of the impurity photoconductivity were taken after a number of isochronous annealings. It was discovered that the low-temperature irradiation of n-type Ge leads to the appearance of a complex spectrum of energy levels located in the middle of the forbidden zone, and which as the result of irradiation at 77° K forms a great number of different types of defects, the majority of which are connected in complexes. 2 ill. 1 ref. Summary.

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USSR

KONOVALENKO, V. A., and YAMSHANOV, V. A., Scientific Research Institute of Oncology imeni N. N. Petrov, Leningrad

"Dielectric Parameters of Human Blood Serum at Frequencies Ranging From 1 to 30 MHz"

Moscow, Biofizika, No 1, 1971, pp 265-269

Abstract: The dielectric parameters of human blood serum at frequencies ranging from 1 to 30 mg are determined mainly by the presence of salts. When the concentration of salts in the serum is decreased to 0.01 N NaCl, its dielectric parameters are determined by proteins. The Sel'kov-Balygin effect (change in the parameters of serum as a result of heating) does not take place within the above range of frequencies. No differences were found between the properties of heated and unheated serum from healthy donors. Serum from cancer patients was indistinguishable from that of healthy persons in the frequency range studied.

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USSR

UDC: 8.74

VASIL'YEV, V. I., KONOVALENKO, V. V.

"Self-Teaching of Pattern Recognition by a Method of Mixed Distributions"

Kiev, Samoorganizatsiya kibernetich. sistem--sbornik (Self-Organization of Cybernetic Systems--collection of works), 1972, pp 89-97 (from RZh-Matematika, No 10, Oct 73, abstract No 10V777)

Translation: The authors propose a self-teaching procedure called the method of mixed distributions based on the hypothesis of compactness, which is formulated as follows: if certain subsets of objects comprise a pattern, then the maximally invariant statistic relative to the perturbing parameter  $\beta$  generates compact sets in space  $X$ . The algorithms of the proposed method, in the case where the hypothesis of compactness is satisfied, do not require information on the number of patterns and can be organized in the form of iteration procedures which do not require additional information other than the mixed instruction sample of images. The following are assumed given when the hypothesis of compactness is satisfied: 1) the metric on set  $X$  (the space of features); 2) the mixed instruction sample of images. Mixed sample is the term given to some set of images without any indication of

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USSR

VASIL'YEV, V. I., KONOVALENKO, V. V., Samoorganizatsiya kibernetich. sistem, 1972, pp 89-97

the pattern to which each image belongs. It is assumed that either the patterns are represented by the maximally invariant statistic in some given space  $X$ , or the space  $X$  itself has the property of maximum invariance with respect to parameter  $\beta$ . It is assumed moreover that the noise which arises in mapping has the property that its statistic is unimodal in each pattern.

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USSR

VASIL'YEV, V. I. and KONOVALENKO, V. V.

"Self-Teaching of Pattern Recognition Using the Method of Mixed Distribution"

Samoorganizatsiya Kibernetich. Sistem [Self-Organization of Cybernetic Systems -- Collection of Works], Kiev, 1972, pp 89-97 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V777)

Translation: A method is suggested for self-teaching, called the method of mixed distributions, based on the hypothesis of compactness. The hypothesis of compactness is formulated as follows: if certain subsets of objects represent a pattern, the maximally invariant statistics relative to disturbing parameter  $\beta$  generates compact sets in space  $X$ . The algorithms for the method suggested, if the hypothesis of compactness is fulfilled, require no information on the number of patterns and can be organized as iterational procedures, requiring no additional information except for the mixed learning sample of images. When the hypothesis of compactness is fulfilled, we assume the following to be fixed: 1) the metrics in set  $X$  (space of characteristics); 2) the mixed learning sample of images. A mixed sample refers to a certain set of images without indicating membership of each image in any given pattern. It is assumed that either the patterns are represented by the maximally invariant statistics in a cer-

USSR

VASIL'YEV, V. I. and KONOVALENKO, V. V., Samoorganizatsiya Kibernetich. Sistem, Kiev, 1972, pp 89-97

tain fixed space  $X$ , or space  $X$  itself has the property of maximum invariance in relationship to parameter  $\beta$ . Furthermore, it is assumed that the noise arising during imaging has the property that its statistics are unimodal in each pattern.

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USSR

UDC 51:155.001.57:681.3.06

VASTIL'YEV, V. I., KONOVALENKO, V. V.

"Self-Teaching in the Problem of Pattern Recognition"

Tekhn. Kibernetika, Vyp. 6, [Engineering Cybernetics, No 6--Collection of Works], Kiev, 1970, pp 68-86, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V676 by E. Vagner).

Translation: The problem of pattern recognition can be formulated as follows: Suppose set of objects  $M$  includes  $m$  non-intersecting subsets, called classes. Each object corresponds to a certain description  $x = x(x^1, \dots, x^k)$ . In the space of descriptions  $X$ , the sets corresponding to various classes may intersect. The problem is to construct an algorithm allowing the class to which any object from set  $M$  belongs on the basis of the description of the object. It is suggested in this work that the ability of pattern recognition is developed after preliminary self-teaching and subsequent training. Self-teaching of the system is taken to mean development by the system without instructions from a teacher of the capability for achievement of identical reactions to objects which are similar in the sense of the description selected, that is the ability of generalization. Training is the assignment of names to individual reactions or a certain set of reactions. The solution of the problem of self-teaching can be reduced to restoration of the probability density function of a mixture and determination of the "centers" and then the boundaries of classes on this basis. It is suggested that the probability density function be estimated

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USSR

UDC 51:155:001.57:681.3.06

VASIL'YEV, V. I., KONOVALENKO, V. V., Tekhn Kibernetika, Vyp. 6, Kiev, 1970, pp 68-86.

using the method of normal contributions, in which each point of the learning sequence is related to a certain contribution function, and the estimate is sought as the average of these contributions. It is proven that the estimates produced with the normal distribution of the contribution function is an unbiased, consistent estimate of the probability density function.

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1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70  
 TITLE--INITIATION OF RADICAL POLYMERIZATION IN EMULSIONS -U-  
 AUTHOR--(04)-IVANCHEV, S.S., SOLOMKO, N.I., KONOVALENKO, V.V., YURZENKO,  
 V.A.  
 COUNTRY OF INFO--USSR  
 SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 593-5  
 DATE PUBLISHED-----7C  
 SUBJECT AREAS--CHEMISTRY  
 TOPIC TAGS--RADICAL POLYMERIZATION, POLYMERIZATION KINETICS, STYRENE,  
 PEROXIDE  
 CTRL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--3005/0223 STEP NO--UR/0020/70/191/003/0593/0595  
 CIRC ACCESSION NO--AT0132495  
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 018

CIRC ACCESSION NO--AT0132495

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE EMULSION POLYMERIZATION KINETICS OF STYRENE IN THE PRESENCE OF VARIOUS INITIATORS SUGGESTED THAT COMPOUNDS HAVING AN OPTIMUM RATIO BETWEEN THE POLAR (PEROXIDE) AND NONPOLAR MOIETIES IN THE MOL. WERE THE MOST EFFECTIVE INITIATORS. THESE INITIATOR MOLES. WERE ORIENTED IN SUCH A WAY THAT THE PEROXIDE BONDS ENTERED THE SPHERE OF INFLUENCE OF THE SURFACE FORCES WHICH FACILITATED ITS CLEAVAGE.

FACILITY: ODESS. GOS. UNIV. IN. MECHNIKOVA, ODESSA, USSR.

UNCLASSIFIED

USSR

UDC: 624.131.379:551.345

KONOVALOV, A. A., Krasnoyarsk

"Estimating the Load Capacity of Permafrost Taking into Consideration Its Temperature Variation in Time"

Moscow, Osnovaniya, fundamenty i mekhanika gruntov, No 3, 1971, pp 25-27

Abstract: The author proposes a graphoanalytic method for determining the rated resistance of frozen soil which takes into consideration a decrease in its temperature after building up. A formula is derived for determining the two-dimensional, non-stationary fields of permafrost under buildings on the basis of generalizing a series of calculations on an electronic digital computer and hydrointegrator. An example is given using the proposed methodology where the temperature of permafrost and its maximum lasting resistance are calculated. Original article: two tables, one figure, 13 formulas, and three bibliographic entries.

1/1

ELECTRICAL ENGINEERING

USSR

Equipment.

KONOVALOV, A. D.

UDC: 621.396.6.72:621.791(088.8)

"An Electric Soldering Iron"

USSR Author's Certificate No 268558, filed 12 Apr 69, published 7 Aug 70  
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V258 P)

Translation: This Author's Certificate introduces an electric soldering iron designed chiefly for soldering radio parts. To improve soldering quality by precision measurement of the solder, a tip made from a material which is not wettable by solder is set flush with the working end on a soldering rod made from a material which is highly wettable by solder.

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USSR

UDC 547.26'118+543.226

ROMANOV, G. V., YAGFAROV, M. Sh., KONOVALOV, A. I., FUDOVIK, A. N.,  
KONOVALOVA, I. V., and YUSUPOVA, T. N., Institute of Organic and Physical  
Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, and Kazan' State  
University imeni V. I. Ul'yanov-Lenin, Kazan'

"The Thermodynamic and Kinetic Characteristics of the Phosfonate-Phosphate  
Rearrangement"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, pp 2378-2386

Abstract: The thermal effects in the rearrangement

$$\begin{array}{c} \text{R} \\ \diagdown \\ \text{P}(=\text{X})-\text{C}(\text{OH}) \\ \diagup \\ \text{R}' \end{array} \begin{array}{c} \text{R}'' \\ \diagup \\ \text{C} \\ \diagdown \\ \text{R}''' \end{array}$$

(I)  $\rightarrow$   $\begin{array}{c} \text{R} \\ \diagdown \\ \text{P}(=\text{X})-\text{O}-\text{CH} \\ \diagup \\ \text{R}' \end{array} \begin{array}{c} \text{R}'' \\ \diagup \\ \text{C} \\ \diagdown \\ \text{R}''' \end{array}$  (II) were studied, where R=Alk, AlkO, Ph; R' =Alk,

AlkO, Ph, OH; R'' = H, Me, Ph, COOalk; R''' = COOalk, COMe, P(O)(OR)<sub>2</sub>, CN;  
X = O, S. The heat capacities at -50 - +120° and the changes in enthalpy  
during the rearrangement I  $\rightarrow$  II at the temperature of the reaction were deter-  
mined for a number of compounds I. It was shown that an approximately liner  
relation exists between the temperatures at which the reaction begins and the  
logarithms of the velocity constants of the isomerization of compounds I deter-  
mined at a single temperature.

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Fluid Dynamics

USSR

UDC: 532

SHUSHPANOV, P. I., ZAKHAVAYEVA, N. N., MIKHAYLOV, G. D., KONOVALOV, A. I.

"Effect of Ultrasound on Water in Fine Quartz Capillaries"

V sb. Primeneniye ul'traakust. k issled. veshchestva (Application of Ultra-acoustics to the Study of Matter--collection of works), vyp. 25, Moscow, 1971, pp 335-339 (from RZh-Fizika, No 6, Jun 72, Abstract No 6Ye96)

Translation: The authors investigated crystallization and melting of water in capillaries  $\sim 10^{-4}$  cm in diameter. It was found in microscope studies that dark spots randomly distributed throughout the entire column of water appear in the premelting region. These spots disappear completely by the time the ice has completely melted. Ultrasonic exposure of water-filled capillaries led to the appearance of dark lines periodically spaced perpendicular to the axis of the capillary instead of the chaotically spaced points. These lines constitute a pattern of standing waves. Two series of normal modes were observed which form doublet and triple configurations when superimposed. This effect is explained within the framework of the theory of longitudinal oscillations of tubes and rods. Ultrasonic exposure was done on various frequencies in the 0.2-1.2 MHz range. The intensity of

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USSR

SHUSHPANOV, P. I. et al., Primeneniye ul'traakust. k issled. veshchestva,  
vyp. 25, Moscow, 1971, pp 335-339

the ultrasound was  $0.5-2 \text{ w/cm}^2$ . The maximum value of energy density leading to destruction of the ice lattice was  $w_{\text{max}} \approx 9 \cdot 10^9 \text{ ergs/cc}$ . Corresponding to this value of  $w_{\text{max}}$  is the Poisson ratio  $\mu = -\frac{1}{2}$ , which coincides with  $\mu$  for steel and glass. N. P. Pokrovskiy.

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USSR

UDC 518:517.944/.947

BAUTIN, A. V., KONOVALOV, A. P., ISAYEV, Yu. V., and SLIVA, A. V.

"Problems in Constructing Algorithms for Solving Equations in Mathematical Physics as Applied to Electrical Engineering Problems"

Moscow, Primeneniye vychisl. tekhn. v elektrotekhn. prom-sti -- Sbornik (Application of Computers in the Electrotechnical Industry -- Collection of Works), 1971, pp 347-353 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B957, by I. Shelikhova)

Translation: Problems associated with constructing algorithms for solving nonlinear equations of the elliptical and parabolic types as applied to electrotechnical problems are examined. An algorithm is presented for solving the first boundary value problem that arises when calculating the nonstationary mode of a thermoelectric transformer using a locally one-dimensional problem in conjunction with the method of successive approximations. Sufficient conditions for the convergence of the iterative process are derived.

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1/4 024 UNCLASSIFIED PROCESSING DATE--02OCT70  
 TITLE--GOLYSHEV REVIEWS TASKS OF WEATHER SERVICE AND PLANS FOR NEAR FUTURE  
 -U-  
 AUTHOR--KONOVALOV, B. *R*  
 COUNTRY OF INFO--USSR  
 SOURCE--MOSCOW, IZVESTIYA, 24 MARCH 1970, P 3  
 DATE PUBLISHED--24MAR70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY  
 TOPIC TAGS--WEATHER FORECAST, METEOROLOGIC DATA, METEOROLOGIC SATELLITE,  
 NUMERIC WEATHER FORECAST, WEATHER MODIFICATION/(U)METEOR METEOROLOGIC  
 SATELLITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAME--1989/0952

STEP NO--UR/9003/70/000/000/0003/0003

CIRC ACCESSION NO--ANO107481

UNCLASSIFIED

PROCESSING DATE--02OCT70

UNCLASSIFIED

2/4 . 024

CIRC ACCESSION NO--AN0107481  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. EVERY YEAR THE WEATHER SERVICES OF ALL THE COUNTRIES IN THE WORLD MARK INTERNATIONAL WEATHER DAY ON THE 23RD OF MARCH. ON THIS OCCASION IZVESTIYA CORRESPONDENT B. KONOVALOV ASKED G. I. GOLYSHEV, FIRST DEPUTY DIRECTOR OF THE MAIN ADMINISTRATION OF THE HYDROMETEOROLOGICAL SERVICE USSR, TO DISCUSS THE WORK OF THIS ORGANIZATION. AS A SCIENTIFIC TECHNICAL SERVICE, THE HYDROMETEOROLOGICAL SERVICE ALWAYS DEPENDS TO A CONSIDERABLE EXTENT ON THE GENERAL LEVEL OF SCIENTIFIC TECHNICAL PROGRESS IN THE COUNTRY. IT IS A "LINK" IN THE TOTAL CHAIN. FOR EXAMPLE, THE CONQUERING OF OUTER SPACE PROVIDED METEOROLOGISTS WITH THE OPPORTUNITY OF USING SATELLITES TO PERFORM AN ENTIRE SERIES OF OBSERVATIONS OF THE STATE OF THE ATMOSPHERE ABOVE THE WHOLE EXPANSE OF OCEANS, SEAS AND ARID REGIONS OVER THE GLOBE. SATELLITES HAVE GAINED A FIRM FOOTHOLD IN THE SYSTEM OF COLLECTING INFORMATION ON THE STATE OF THE EARTH'S ATMOSPHERE. AT PRESENT WE HAVE PLACED IN OPERATION THE PERMANENTLY ACTIVE "METEOR" SYSTEM WHICH USES SATELLITES. ACHIEVEMENTS IN THE FIELD OF COMPUTER TECHNOLOGY HAVE ENABLED US TO MAKE BROAD USE OF THEORETICAL STUDIES ON NUMERICAL WEATHER FORECASTING METHODS WHICH HAD BEEN DEVELOPED EARLIER. NOW THROUGH THE USE OF HIGH SPEED COMPUTERS WE CAN COMPILE CHARTS OF ATMOSPHERIC PRESSURE AND TEMPERATURE FIELDS FOR THE ENTIRE NORTHERN HEMISPHERE ONE TO THREE DAYS IN ADVANCE. SCIENTISTS OF THE HYDROMETEOROLOGICAL SERVICE USSR ARE CONDUCTING INVESTIGATIONS FROM A LARGE FLEET OF MODERN SCIENTIFIC VESSELS.

UNCLASSIFIED

PROCESSING DATE--020CT70

3/4 024

CIRC ACCESSION NO--AN0107481

ABSTRACT/EXTRACT--THE EQUIPMENT ON 15 OCEAN GOING VESSELS INCLUDES METEOROLOGICAL ROCKETS, ELECTRONIC COMPUTERS AND A NUMBER OF OTHER COMPLEX AUTOMATIC DEVICES. BUT OF COURSE THE MAIN TASK OF THE USSR WEATHER SERVICE HAS BEEN AND WILL CONTINUE TO BE TO PROVIDE SERVICE TO THE NATIONAL ECONOMY. IN ADDITION TO PROVIDING ADVANCE WEATHER FORECASTS, A GREAT DEAL OF EFFORT HAS BEEN DEVOTED TO PROVIDING OPERATIONAL FORECASTS TO CIVIL AVIATION. THE VOLUME OF SUCH WORK MAY BE CHARACTERIZED BY ONE EXAMPLE: THE CENTRAL AVIATION METEOROLOGICAL STATION IN MOSCOW, WHICH SERVED THE MOSCOW AIRPORTS, HANDLED 200,000 FLIGHTS IN 1969 ALONE. DURING THIS TIME NOT ONE AIRCRAFT WAS FORCED TO RETURN BECAUSE OF AN INCORRECT FORECAST. THE HYDROMETEOROLOGICAL SERVICE USSR SYSTEMATICALLY PROVIDES INFORMATION ON AGRICULTURAL CROP PLANTING CONDITIONS. ANNUAL FORECASTS ON THE EXTENT OF SPRING FLOODING AND THE DATES OF ICE BREAKUP ON RIVERS ARE OF CONSIDERABLE IMPORTANCE. THIS PERMITS LOCAL SOVIET GROUPS TO TAKE TIMELY MEASURES TO REDUCE LOSSES DURING SPRING FLOODING. IN THE AREA OF HYDROLOGY, FORECASTS OF THE PROBABLE AMOUNT OF WATER FLOW INTO RESERVOIRS ARE EXTREMELY IMPORTANT. IF WE SPEAK OF THE FUTURE, THE CHIEF EFFECT WHICH MIGHT BE DERIVED FROM A SUBSTANTIAL IMPROVEMENT IN HYDROMETEOROLOGICAL SERVICE TO THE ECONOMY IS THE EARLY WARNING OF PARTICULARLY DANGEROUS WEATHER PHENOMENA. OUR MAIN TASK IN 1970-1971 WILL BE TO DEVELOP GREATLY THE DANGEROUS PHENOMENA WARNING SERVICE. IN ADDITION TO PROVIDING THIS SERVICE, SCIENTISTS IN THE HYDROMETEOROLOGICAL SERVICE USSR ARE DEVELOPING METHODS OF ARTIFICIAL WEATHER MODIFICATION.

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UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AN0107481

ABSTRACT/EXTRACT--THE MOST INTERESTING EXAMPLE IN THIS FIELD ARE THE EFFORTS WHICH HAVE BEEN MADE TO CONTROL HAIL AND PROTECT VALUABLE AGRICULTURAL CROPS. IN 1969, USING METHODS DEVELOPED BY SEVERAL OF OUR INSTITUTES, ORGANIZATION OF THE HYDROMETEOROLOGICAL SERVICE USSR WERE ON HAILSUPPRESSION ASSIGNMENTS IN THE KABARDINO BALKARSKAYA ASSR, GEORGIAN SSR, KRASNODARSKIY KRAY AND IN THE MOLDAVIAN SSR. THE TOTAL LAND AREA PROTECTED AGAINST HAIL DAMAGE COMPRISED NEARLY 2,300,000 HECTARES. THESE EFFORTS BROUGHT A SAVINGS OF APPROXIMATELY 30 MILLION RUBLES. IN 1969 THE HYDROMETEOROLOGICAL SERVICE UNDERTOOK AN ENORMOUS AMOUNT OF WORK ON THE TECHNICAL REOUTFITTING OF THE NETWORK OF STATIONS AND THE BROAD INTRODUCTION OF AUTOMATIC EQUIPMENT FOR HYDROMETEOROLOGICAL OBSERVATIONS. THE CONSTRUCTION AND OUTFITTING OF FOUR LARGE REGIONAL HYDROMETEOROLOGICAL STATIONS IS CURRENTLY UNDER WAY, IN MOSCOW, NOVOSIBIRSK, Khabarovsk and Tashkent. IN BELORUSSIA MUCH WORK HAS ALREADY BEEN DONE IN 1970 IN PUTTING INTO OPERATION THE COUNTRY'S FIRST AUTOMATED SYSTEM OF HYDROMETEOROLOGICAL OBSERVATIONS, DATA PROCESSING AND INFORMATION SERVICE. SPECIAL RADAR STATIONS FOR OBSERVING CLOUD COVER, 50 AUTOMATIC WEATHER STATIONS AND MANY OTHER AUTOMATIC FACILITIES AND DEVICES HAVE BEEN SET UP IN BELORUSSIA. THE TERRITORY OF THIS REPUBLIC WILL BE THE FRONT LINE FOR THE HYDROMETEOROLOGICAL SERVICE'S AUTOMATED SYSTEM. THE SUBSEQUENT INTRODUCTION OF SIMILAR FACILITIES IN THE USSR WILL PERMIT US TO CREATE AN AUTOMATED HYDROMETEOROLOGICAL SYSTEM FOR THE ENTIRE COUNTRY WITHIN THE NEXT 10 YEARS.

1/2 035 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--THE CREATION OF A PLANET -U-  
AUTHOR--KONOVALOV, B. K  
COUNTRY OF INFO--USSR  
SOURCE--NEDELYA, JUNE 8-14, 1970, P 4, COLS 1-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--CHLORELLA, CARBON DIOXIDE, WHEAT, OXYGEN, BIOMEDICAL CHAMBER,  
CLOSED ECOLOGY SYSTEM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/1239 STEP NO--UR/9030/70/000/000/0004/0004  
CIRC ACCESSION NO--AN0118291  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--16OCT70

2/2 035

CIRC ACCESSION NO--AN0118291

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ARTICLE MAKES REFERENCE TO CHLORELLA EXPERIMENTS THAT WERE REPORTED TWO YEARS AGO BY IZVESTIYA. THEY WERE CONDUCTED AT THE KRASNOYARSK INSTITUTE OF PHYSICS OF THE SIBERIAN BRANCH OF THE ACADEMY OF SCIENCES UNDER THE DIRECTION OF NOW DECEASED ACADEMICIAN L. V. KIRENSKIY. RECENTLY THE INSTITUTE HAS CARRIED OUT AN EXPERIMENT IN WHICH THE BIOLOGICAL CYCLE CONSISTED OF THREE COMPONENTS, MAN, CHLORELLA GROWING UNIT, AND A SPACIAL CHAMBER WITH ARTIFICIAL CLIMATE, THE PHYTOTRON, FOR GROWING WHEAT. THE OXYGEN SUPPLY FOR INVESTIGATORS LOCKED IN A PRESSURIZED CHAMBER WAS PRODUCED BY THE CHLORELLA AND WHEAT IN EXCHANGE OF THE CARBON DIOXIDE. FLUIDS ELIMINATED BY MAN WERE USED TO FEED THE CHLORELLA. THE THREE COMPONENTS PROVED TO BE COMPATIBLE. THE RESULTS OF THE EXPERIMENT HAVE BEEN PUBLISHED IN "THE THEORETICAL AND EXPERIMENTAL SOLUTIONS OF THE PROBLEM OF DEVELOPING ARTIFICIAL ECOLOGICAL SYSTEMS FOR MANNED SPACE FLIGHTS", A PAPER PRESENTED BY L. V. KIRENSKIY, I. I. GITEL'ZON, I. A. TERSKOV, G. M. LISOVSKIY, AND YU. N. OKLADNIKOV AT THE INTERNATIONAL ASTRONAUTICAL CONGRESS IN LENINGRAD.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--DETERMINATION OF OPTIMUM CONDITIONS FOR SEPARATION OF  
UNSATURATED COMPOUNDS IN SYNTHETIC FATTY ACID PRODUCTION -U-  
AUTHOR--(03)-SHAFRANSKIY, YE.L., KONVALOV, B.S., NAURUVA, R.I.  
COUNTRY OF INFO--USSR K  
SOURCE--NEFTEPEREAB. NEFTEKHIM. (MOSCOW) 1970, (5), 39-40  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--INDUSTRIAL PRODUCTION, FATTY ACID, CHEMICAL SYNTHESIS,  
CHEMICAL SEPARATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAHE--3005/1945 STEP NO--UR/0318/70/000/005/0039/0040  
CIRC ACCESSION NO--AP0133789  
UNCLASSIFIED



2/2 009

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133789

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SEPN. DEPENDS ON THE OIL  
CONTENT AND FRACTIONAL COMPN. OF THE PARAFFIN USED FOR SYNTHESIS OF THE  
FATTY ACIDS AND ON THE TIME FOR SETTLING THE PRODUCT IN TANKS. THE  
OPTIMUM SEPN. CONDITIONS WERE 95DEGREES AND 4 HR SETTLING.  
FACILITY: NPK, NOVOKUIBYSHEVSK, USSR.

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Acc. Nr.

AP0105535

Abstracting Service:  
CHEMICAL ABST.

C 70

Ref. Code

UR 0370

K

125823p Coefficient of the extraction of an impurity during zone melting. Kononov, B. E.; Peizulaev, Sh. I.; Minashina, L. Ya. ~~(USSR)~~. *Izv. Akad. Nauk SSSR, Metall.* 1970, (1), 48-50 (Russ). The extrn. coeff. is detd. as a function of the crystn. rate, of the equil. distribution coeff., of the no. of zones, and of the mixing conditions of the melt in the zone. The results are plotted in several graphs, enabling detn. of the efficiency of the process. Z. Klimova

EB

REEL/FRAME  
19880550

172 019 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--MACHINING OF APERTURES WITH METAL BARS -U-

AUTHOR--(02)-KONOVALOV, E.G., KHODYREV, V.I.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. AKAD. NAUK BELORUSS. SSR, 1970, (FIZ.-TEKHN.), (1),  
105-106

DATE PUBLISHED-----70

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

TOPIC TAGS--CARBON STEEL, CAST IRON, CUTTING TOOL, METAL MACHINING, METAL  
REMOVAL, SURFACE ROUGHNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3003/0443

STEP NO--UR/0201/70/000/001/0105/0106

CIRC ACCESSION NO--AP0129668

UNCLASSIFIED

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PROCESSING DATE--04DEC70

272 019

CIRC ACCESSION NO--AP0129668  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A HIGH PRODUCTIVITY METHOD OF MACHINING APERTURES IN C STEEL AND CAST IRON BLOCKS AND PLATES BY MEANS OF METAL BARS (MADE OF HIGH SPEED CUTTING STEEL AND FURNISHED WITH CUTTING TEETH) IS DESCRIBED. THE BARS HAVE A DIA. A FEW MM SMALLER THAN THAT OF THE APERTURES BEING MACHINED. ONE PARTICULAR MERIT OF THIS PROCESS IS THAT THE SURFACE OF THE MACHINED PART RETAINS A HIGH DEGREE OF FINISH. THE RATE OF METAL REMOVAL IS 60 TIMES GREATER THAN THAT ACHIEVED IN CONVENTIONAL MACHINING.

UNCLASSIFIED

1/2 034 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--ELECTRIC SPARK ALLOYING OF A CUTTING TOOL IN A MAGNETIC FIELD -U-

AUTHOR--(02)-KONOVALOV, E.G., MARCHENKO, I.F. *K*

COUNTRY OF INFO--USSR

SOURCE--IZVEST. AKAD. NAUK BELORUSS. SSR, 1970, (FIZ.-TEKHN.), (1),

102-104

DATE PUBLISHED-----70

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

TOPIC TAGS--ELECTROSPARK HARDENING, TOOL STEEL, CUTTING TOOL, ALLOY  
ADDITIVE, TITANIUM CARBIDE, MAGNETIC FIELD EFFECT, WEAR RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3003/0442

STEP NO--UR/0201/70/000/001/0102/0104

CIRC ACCESSION NO--AP0129667

UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129667

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFICIENCY OF THE ELECTRIC SPARK METHOD OF ALLOYING STEEL CUTTING TOOLS, FOR EXAMPLE, WITH HARD ALLOYS OF THE TIC-CD TYPE IN A MAGNETIC FIELD WAS STUDIED. THE PRINCIPAL EFFECT OF THE MAGNETIC FIELD WAS THAT OF PRESERVING THE ORIGINAL SURFACE FINISH OF THE TOOL, WHICH IN THE ABSENCE OF SUCH A FIELD TENDED TO DEPRECIATE SHARPLY IN THE COURSE OF THE ELECTRIC SPARK TREATMENT. THE WEAR RESISTANCE OF TOOLS PROCESSED IN A MAGNETIC FIELD WAS UP TO 15 TIMES GREATER THAN THAT OF THOSE PROCESSED IN ITS ABSENCE.

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AA0010983

KONOVALOV

UR 0482

E. V.

Soviet Inventions Illustrated, Section II Electrical, Derwent,

222740 MULTIPLYING DEVICE contains a data storage, an address-giving scheme of the data storage, a register of the first co-factor, a register of the second co-factor, and a scheme for result reception. In order to reduce equipment and increase speed of action, single exits of amplifiers of readers of divisions from first to the seventh of the data storage are connected correspondingly with the first entrances of reception valves into first, second, third and fourth divisions of the register of the first co-factor, and into the first, second and third divisions of the register of the second co-factor. The second entrances of the reception valves are connected with the exit of the source of signal for permission of reception on the control device. The exits of reception valves of the register of the first co-factor are connected with the corresponding single entrances of the register of the first co-factor; the exits of reception valves into the first, second and third

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divisions of the register of the second co-factor are correspondingly connected with the single entrances of the first, second and third divisions of the register of the second co-factor. Single exits of triggers of divisions from the first to the fourth registers of the first and second co-factors are connected with the entrances of the address-giving scheme, the exits of which are connected with the entrances of the address-exciting scheme of the data storage. Single exits of triggers of the first and the fourth divisions of the registers of the first and second co-factors are connected with the entrances of the coincidence scheme. The exit of the coincidence scheme is connected with the first entrance of the coincidence scheme through the scheme of denial. The exit of the coincidence scheme is also connected with the

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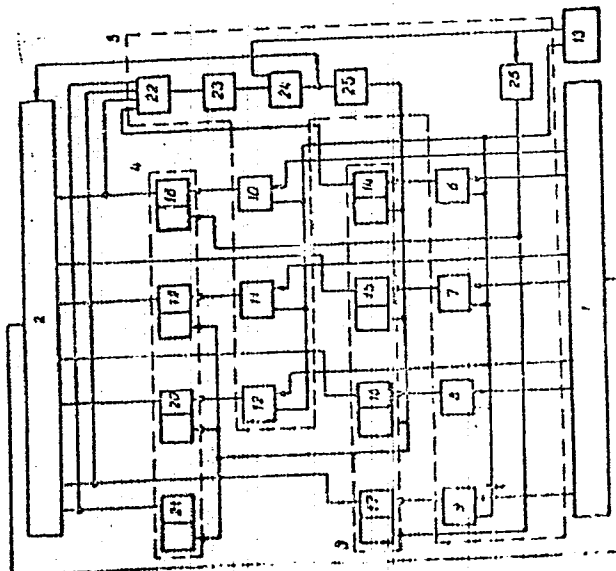
AA0010983

gating entrance of the address-delivery scheme; through the first delay element it is connected with the zero entrances of the first, second and third divisions of the register of the first co-factor and of the second, third and fourth divisions of the register of the second co-factor. The second entrance of the coincidence scheme is connected with the source of signal for starting up the multiplying device, and through the second delay element it is connected with the zero entrances of the triggers of the fourth division of the register of the first co-factor and the first division of the register of the second co-factor. 6.3.67. as 1139758/25-24. E.V. KONOVALOV et alia (12.12.68.) Bul.23/22.7.68. Class 42m<sup>3</sup>. Int.Cl. G06f.

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19561744

AA0010983



19561745

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1/2 032 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--DETERMINATION OF HYDROGEN IN A SODIUM HEAT TRANSFER AGENT --U-

AUTHOR--(03)-KOPYLOV, V.S., KOROTAYEVA, M.N., KUNOVALOV, E.YE.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(3), 241-2

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--LIQUID METAL COOLED REACTOR, SODIUM, METAL IMPURITY, HYDROGEN,  
THERMAL ANALYSIS, HYDRIDE, HYDROXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0054

STEP NO--UR/0089/70/028/003/0241/0242

CIRC ACCESSION NO--AP0120754

UNCLASSIFIED

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PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0120754

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TOTAL H CONTENT IN THE NA USED AS COOLANT IN NUCLEAR REACTORS IS DETD. BY A THERMAL DECOMP. METHOD (IVANOVSKII, ET AL., 1968); THE H BOUND AS HYDRIDE IS DETD. BY THE METHOD OF WHITE, ET AL. (1954); AND THE H BOUND AS HYDROXYL IONS IS DETD. BY THE DIFFERENCE. A STATISTICAL ANAL. OF THE RESULTS OF 35 DETNS. (AT A TOTAL H CONTENT OF  $4.7 \times 10^{-4}$  MINUS  $8.6 \times 10^{-2}$  WT. PERCENT) SHOWS THAT THE RELATIVE ERROR RANGES FROM 6 TO 24 PERCENT, THAT THERE IS NO SYSTEMATIC ERROR, AND THAT THE SENSITIVITY OF DETN. OF HYDRIDE AND HYDROXYL H IS  $1 \times 10^{-4}$  AND  $2 \times 10^{-4}$  WT. PERCENT. RESP.

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UDC 534.232

*K*  
DZYGALO, V. I., KONOVALOV, G. P., INOZEMTSEV, V. M., SHPALTANOV, V. F.,  
MALAKHOV, YU. V., Institute of Metallurgy and Enrichment, Academy of Sciences  
of the Kazakh SSR

"A Piezoelectric Radiator"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzy, Tovarnyye Znaki,  
No 23, 1970, Author's Certificate No 276552, Filed 11 Nov 68, p 147

Abstract: This author's certificate introduces a piezoelectric radiator which contains a piezoelectric element and electrode plates. As a distinguishing feature of the patent, the reliability is improved by making each of the windings in the device in the form of a conductive layer of liquid which is isolated from the ambient medium by an acoustically transparent membrane tightly connected to the piezoelectric element around the periphery.

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USSR

K  
UDC 621.791

KONOVALOV, YE. G., Member of the Academy of Sciences BSSR.  
KONOVALOV, G. YE., MEDVEDEV, E. M., Minsk Radio-Engineering Institute

"The Effect of Sonic and Ultrasonic Vibrations on Semiconducting Resistors"

Minsk, Doklady Akademii Nauk BSSR, Vol 14, No 2, 1970, pp 125-127

Abstract: The effect of vibrations on semiconducting thermistors of the MMT-1 and MMT-4 type has been investigated. The thermistors were tested on a specially designed testing unit which could simulate sinusoidal vibrations with a frequency of 3,500 and 23,500 Hz and amplitude of 94. The tests were carried out at 25 and 45°C to determine the effect of initial temperature of thermistors on the magnitude and nature of the investigated effect. The results were plotted on a series of graphs shown in the article. Analysis of the graphs shows that the resistance deviation of the thermistors increases with increasing frequency, amplitude, and duration of vibrations. The effect is more pronounced in the case of a lower initial amplitude. The process of resistance recovery in the latter case is of a  
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KONOVALOV, YE. G., et al, Doklady Akademii Nauk BSSR, Vol 14, No 2, 1970, pp 125-127

nonlinear character, and the duration of recovery is significantly shortened. It can be concluded, on the basis of this investigation, that the possibility of such effects should be taken into consideration in the design of similar instruments and proper measures should be taken for their prevention.

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UDC 517.917

USSR

KONOVALOV, I. A.

"On the Existence of Limit Cycles of One Dynamic System"

Uch. zap. Kazan. gos. ped. in-t (Scientific Notes of Kazan State Pedagogical Institute), 1970, No. 83, pp 57-66 (from RZh-Matematika, No 4, Apr 71, Abstract No 4B206)

Translation: Certain sufficient conditions are given under which a second-order system of the form

$$x' = y, y' = Q(x, y)$$

has at least one limit cycle. Criteria are derived for the existence of a unique limit cycle in the case in which  $Q(x, y)$  is a third-degree polynomial. Authors abstract.

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USSR

KONOVALOV, I. A. (Kazan' State Pedagogical Institute)

"Certain Sufficient Indications of the Existence of Limiting Cycles of a Dynamic System"

Minsk, *Differentsial'nyye Uravneniya*; February, 1971; pp 226-31

ABSTRACT: The article concerns a system of the form  $\dot{x} = y, \dot{y} = Q(x, y)$ : where  $Q(x, y)$  is single-valued and analytic in the  $(x, y)$ -plane. Certain sufficient conditions under which the system studied has at least one limiting cycle are indicated. New coefficient criteria for the existence of limiting cycles in the case in which  $Q(x, y)$  is a third-degree polynomial in  $x$  and  $y$  are determined. Under a given assumption the existence of a unique limiting cycle of the original system if the right-hand side of the first equation has the form  $\beta y$  is proven.  $\beta$  is a positive parameter.

Four theorems are presented. The article includes 15 equations. There are 8 references.

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USSR

UDC 619:616.981.42-078:636.22/.28

MUF'EYEV, F. G. and KONOVALOV, I. F., Bashkir Scientific and Practical  
Veterinary Laboratory, ASHATKIN, A. F., YUREYCHUK, V. P., and GUS'KOV, V. V.,  
Primorskiy Kray

"Allergic Diagnosis of Brucellosis"

Moscow, Veterinariya, No 11, 1972, pp 59-61

Abstract: The use of brucellin resulted in the detection of diseased cattle that did not react serologically to brucellosis. In herds where the course of the disease was acute, 7.8 to 24% more animals reacted positively to the preparation than in the agglutination and complement-fixation tests. Antibodies were found in almost half of the positive within 15 to 30 days. Brucellin was injected subcutaneously into the lower lid of one of the animal's eyes. A positive reaction in a sick animal was manifested within 48 hours by pronounced edema at the injection site, readily evaluated by inspection or palpation.

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USSR

UDC 669.046.5

YAVOYSKIY, V. I., SVYAZHIN, A. G., GRIGOR'YEV, N. S., LEZGIN, V. P.,  
KOKOVALOV, I. M., TAT'YANSHCHIKOV, A. G., TRUBETSKOV, K. K., RUKOVICH, S. Z.,  
and RECHAYEV, E. A.

"Metal Acidity in Intense Oxygen Bath Blowing"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISI) (Collection of  
Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys).  
Izd-vo "Metallurgiya," No 61, 1970, pp 84-90

Translation of Abstract: Results are presented of an investigation on metal  
heterogeneity in intense blowing. Comparable data on the average metal  
acidity level in a two-bath furnace and in other steel-melting furnaces are  
given. The effect of various technological factors on metal acidity in the  
two-bath furnace is considered. 5 figures, 3 references.

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USSR

UDC 669.183.218.5

TRUVETSKOV, K. M., TARASOV, V. M., ~~KONOVALOV, I. M.~~, MOKRUSHIN, K. D., TAT'YANSECHIKOV, A. G., and YAKUSHIN, V. I.

"Operation of a Dual Bath Steel Melting Furnace at the Cherepovetsk Metallurgical Plant"

Proisvodstvo Chernykh Metallov (Production of Ferrous Metals - Collection of Works), No 75 Metallurgiya Press 1970, pp 56-68

Translation: The operating indicators of a dual bath steel-making furnace for 1968 are analyzed. The productivity of the dual bath furnace was 1.024 million tons. The technology of melting of steel in the dual bath furnace has a number of specifics in the mode of carbon oxidation, steel heating, and desulfuration and dephosphoration of the metal. Over 60% high-quality structural steel is produced by the furnace. The quality of the metal is equal to that of open-hearth steel. 8 figures; 3 tables; 5 biblio. refs.

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