

UDC 577.842:595.79

USSR

VICTOROV, G. A., KOCHETOVA, N. I. (Institute of Evolutionary Morphology and Animal Ecology, USSR Academy of Sciences

"Role of Trace Pheromones in Regulation of the Sex Ratio in *Trissolcus grandis* (Hymenoptera, Scalionidae)"

Zhurnal Obshchei Biologii, 1973, Vol 34, No 4, pp 559-562

Abstract: The ratio of males to females in the offspring from 16 *T. grandis* females placed for a day in test tubes in which five specimens of the same species has been kept for 24 hr and then offered 14 eggs of *Graphosoma lineata* for 24 hr was almost three times that in the controls (37.5% vs 13.3%). The results indicate that the stimulus is chemical in nature and that traces of pheromones are an external factor affecting sex determination in parasitic hymenoptera.

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UDC 617-001.170.66.17-001.36-092.9

USSR

KOCHETYGOV, N. I., Military Medical Academy imeni S. M. Kirov, Leningrad

"Topography of the Thermal Lesion of Tissues in Burns and Burn Shock Under Experimental Conditions"

Moscow, Experimental'naya Khirurgiya i Anesteziologiya, Vol 16, No 4, Jul/  
Aug 71, pp 67-68

Abstract: In experiments carried out on rabbits and rats, it was established that the effect of burns depends to a considerable extent on the topography of the burn lesion, particularly as far as the depth of the lesion is concerned. A large amount of heat acting for a short time may damage the skin only, while a smaller amount of heat acting for a longer time may produce a deep lesion. To distinguish between the effects of heat on the skin only and on deeper tissues, experimental burns covering an equal skin area were applied under the same conditions to skin isolated by introducing air under it and to skin not isolated in this manner. While animals with burns of the skin only either recovered or survived for a relatively long period, those with lesions reaching skeletal muscles died rapidly. In the isolated heating of skin the loss of plasma, the decrease in the volume of circulating plasma, and the

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USSR

KOCHETYGOV, N. I., Eksperimental'naya Khirurgiya i Anesteziologiya, Vol 16,  
No 4, Jul/Aug 71 pp 67-68

oliguria during the first few days after the injury were much greater upon heating of the skin to 50-55° than upon infliction of a more intensive injury to the skin. The reasons for this were that on stronger heating of the skin the nerve endings in it were destroyed rapidly and circulation of blood in the capillaries ceased. As a result, afferent impulses from the site of the trauma were reduced and there was no loss of plasma in the damaged skin. Under these conditons, resorption of products of tissue decay was also reduced.

2/2

Acc. Nr: **AP0047360**

**K**

Ref. Code: **UR0589**

PRIMARY SOURCE: Vestnik Khirurgii imeni I. I. Grekova, 1970,  
Vol 104, Nr 1, pp **93-95**

**THE EFFECT OF MOIST NECROSIS IN BURN WOUND ON THE COURSE  
OF BURN DISEASE**

By N. I. Kochatava, A. N. Orlov and O. S. Krasnoperchikova

In burns with moist necrosis local inflammatory reaction, hemoconcentration during the period of shock, hyperazotaemia are more pronounced, and earlier than in lesions with dry necrosis psychic disturbances and generalization of infection occur. Experimentally, burns with moist necrosis result in mortality more promptly. A grave course of burns with moist necrosis is stipulated, probably, by the formation of great amounts of tissue destruction products in the burn wound and their getting in blood.

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*tdh*

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REEL/FRAME

**19790886**

USSR

UDC 621.355.8.035.2

TEPLINSKAYA, T. K., KOCHETOVA, Y. I., and NOVAKOVSKIY, A. M.

"The Influence of Aluminum Dissolved in an Alkali Electrolyte on the Behavior of a Powdered Iron Electrode"

Sb. rabot no khim. istochnikam toka. Vses. n.-n akkumulyator. in-t (Collection of Works on the Chemical Source of Current. All-Union Scientific Study Institute for Storage Batteries) Vyp 7, 1972, pp 149-155 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No BL239 by V. S. Levinson)

Translation: A study was made of the influence of aluminum dissolved in 5 N KOH in concentration of 0.5 to 20. grams/l on the behavior during charging and discharging of powdered iron electrodes and on the nature and properties of the product formed. The poisoning of the electrode by aluminum caused a strong inhibition on the process of the cathode reduction of  $\text{Fe}(\text{OH})_2$  to metallic iron. Most harmful was the presence in the electrolyte of small quantities of aluminum (0.5 to 1.0 grams/l), insufficient for the formation of the mixed iron-aluminum hydrates and therefore strongly interfering with reduction of  $\text{Fe}(\text{OH})_2$  during the discharge of the electrode.

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USSR

UDC: 621.372.412

SNOPOV, Yu. S., KOCHETYGOV, V. V.

"On the Problem of Measuring the Static Capacitance of Piezoceramic Resonators of Radial Oscillations"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 5, pp 107-112 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A289)

Translation: A theoretical basis is given for measuring the static capacitance  $C_0$  of piezoceramic resonators of radial oscillations on a frequency above the main resonance frequency, and experimental data are presented.  
Resumé.

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1/2 007 UNCLASSIFIED PROCESSING DATE--09OCT70  
 TITLE--COMMITTEE OF STANDARDS AND LOCAL STANDARDIZATION AUTHORITIES IN  
 PROFESSIONAL TRAINING AND QUALIFICATION IMPROVEMENT OF SPECIALISTS IN  
 AUTHOR--KUCHIN, V.P. *K*  
 COUNTRY OF INFO--USSR  
 SOURCE--STANDARTY I KACHESTVO, 1970, NR 4, PP 36-38  
 DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
 TOPIC TAGS--METROLOGY, INDUSTRIAL STANDARD, TRAINING PROGRAM, INDUSTRIAL  
 MANAGEMENT, INDUSTRIAL FACILITY WORKFORCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAME--1985/1767

STEP NO--UR/0422/70/000/004/0036/0038

CIRC ACCESSION NO--AP0101814

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--09OCT70

2/2 007

CIRC ACCESSION NO--AP0101814  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ARTICLE TELLS ABOUT THE FORMS AND METHODS OF THE ACTIVITIES OF THE COMMITTEE OF STANDARDS IN TRAINING AND QUALIFICATION IMPROVEMENT OF SPECIALISTS IN STANDARDIZATION AND METROLOGY FOR INDUSTRY AND MANAGERIAL BODIES. ACCORDING TO THE AUTHOR, FUNDAMENTAL OF STANDARDIZATION SHOULD BE TAUGHT AT SECUNDAS AND FIGHER SCHOOLS OF THIS COUNTRY. THE TASKS FOR THE IMMEDIATE FUTURE ARE FORMULATED.

UNCLASSIFIED



UDO 621.382.002 (088.8)

USSR

KOCHKAREV, G.V., KRACHKOVSKIY, O.I., LEYBOVICH, A.SH., CHARVYY, YU.S.,  
PETRAKOVSKIY, YA.SH., SIDORENKO, L.D., LEVAKOV, V.P., GLADCHENKO, V.P.,  
RATNEK, YU.A.

"Classifier Of Semiconductor Devices"

USSR Author's Certificate No 296180, filed 14 July 1969, published 18 May 1971  
(from RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3B557)

Translation: The classifier of semiconductor devices (principally transistors) contains a unit [uzel] for connection of a device to the measuring equipment, the measuring equipment, logical equipment, mechanism for marking the polarity, and a unit for allocation of the measured devices into a container; it has a rotating tube connected with an electric motor. With the object of increasing the speed of operation and the efficiency of the classifier, the unit for connection, made in the form of a revolving reversible disk, supporting two blocks [kolodka] for the devices, diametrically located and connected by a flexible braid [zhgut] with the measuring device, and two withdrawing devices, mounted on the axis of the blocks, is partially arranged inside a guiding hopper, connected with the rotating tube of the unit for allocation, and under the disk of the unit for connection, in a groove of the lateral surface of the hopper, the mechanism for marking the polarity is located.

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1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--SYNTHESIS AND REACTIONS OF 5,BROMO,3,PHENYLTHIAZOLIDINE,2,4,DIONE  
-U-  
AUTHOR--(02)-BARANOV, S.N., KOCHKANYAN, R.O.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM.-FARM. ZH. 1970, 4(3), 25-8  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BROMINATED ORGANIC COMPOUND, BENZENE DERIVATIVE, ORGANIC  
SULFUR COMPOUND, ORGANIC AZOLE COMPOUND, AROMATIC KETONE, CHEMICAL  
SYNTHESIS, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/0047

STEP NO--UR/0450/70/004/003/0025/0028

CIRC ACCESSION NO--AP0119043

UNCLASSIFIED

PROCESSING DATE--23OCT70

UNCLASSIFIED

2/2 010

CIRC ACCESSION NO--AP0119043

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BROMINATION OF  
 3, PHENYL, 2, 4, THIAZOLIDINE-DIONE (I) IN ACOH YIELD 93PERCENT 5-BR DERIV.  
 (II), M. 106-7DEGREES (MEOH). BROMINATION OF II GAVE 85-90PERCENT  
 5, 5, DI, BR DERIV., M. 127DEGREES (MEOH). A MIXT. OF 0.1 MOLE II, 0.02  
 MOLE ARYLAMINE, AND 20 ML MEQH WERE REFLUXED 30 MIN TO YIELD 13 III (R  
 PRIME1 EQUALS H, ME, OR ET, R PRIME2 EQUALS H, O, M, OR P-ME, O, OR  
 P-MEO, OR P-BR, OH, CO SUB2 H, OR CO SUB2 ET). REFLUXING A MIXT. OF  
 0.01 MOLE III (R PRIME1 EQUALS H), 2 ML ACCL, AND 15 ML ACOH 40 MIN GAVE  
 III (R PRIME1 EQUALS AC, R PRIME2 EQUALS H, O, M, OR P-ME, O OR P-MEO,  
 OR P-BR). BOILING II WITH CYCLIC SECONDARY AMINES IN MEQH YIELDED THE  
 FOLLOWING DERIVS. OF I: 5, TETRAHYDROQUINOL, 1, YL, 5, (L, INDOLYL), AND  
 5, (PIPERIDINO). FACILITY: DONETS. UNIV., DONETSK, USSR.

UNCLASSIFIED

Nitrogen Compounds

UDC 615.31:547.789.5

USSR

*K*  
BARANOV, S. N., KOCHKANYAN, R. O., Donets University; Donets Branch  
of Physical and Organic Chemistry, Academy of Sciences Ukrainian SSR

"Synthesis and Transformations of 5-Bromo-3-phenylthiazolidindione-2,  
4"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol IV, No 3, 1970,  
pp 25-28

Abstract: 3-Phenylthiazolidindione-2,4 was brominated in glacial acetic acid to form 5-bromo- and 5,5-dibromo derivatives which possess high reactivity. Reaction of the 5-bromo derivative with aromatic amines yields amine derivatives of normal structure. The course of the reaction is similar to that by Menshutkin. Reaction of 5-bromo derivatives with heterocyclic bases also readily yields 5-amino derivatives. With primary and tertiary aliphatic amines 5-bromo derivatives react according to a different mechanism. Instead of normal amination products, secondary amines and quaternary ammonium salts, 5-bromo derivatives go through dehydrobromination and form 5,5'-bis-(3-phenylthiazolidindione-2,4). Microbiological investigations of the synthesized 5-halo- and 5-aminothiazolidindione-2,4 indicate their bacteriostatic effect in a 1:100,000  
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USSR

BARANOV, S. N., et al, Moscow, Khimiko-Farmatsevticheskiy Zhurnal,  
Vol IV, No 3, 1970, pp 25-28

solution with respect to tubercular saprophytic microbacteria B<sub>5</sub>, smegma and Rabinovich bacilli. The synthesized compounds also included 5-arylamino-3-phenylthiazolidindiones-2,4 which are described as N-aceto derivatives. Their infrared spectra showed absorption bands in the 3300-3700 cm<sup>-1</sup> region corresponding to stretching vibrations of the NH-group.

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Vector Studies

USSR

UDC 576.895.4

KOCHKAREVA, A. V., ZAGNIBORODOVA, Ye. N., ZHERNOVOV, I. V., ZAYTSEVA, V. I., SHILENKO, V. I., ZABEGALOVA, M. N., AVAKOV, S. M., TASHLIYEV, A. O., BEL'SKAYA, G. S., and VAZHEV, A. P., Republic Antiplague Station, Institute of Zoology, Academy of Sciences Turkmen SSR

"Regional Distribution of Ixodid Ticks in Turkmenia"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Biologicheskikh Nauk, No 5, 1971, pp 36-42

Abstract: The 31 species and subspecies of Ixodid ticks (of the total of 49 living in Turkmenia) gathered from 699 geographic points and included in the collection of the station are analyzed for the distribution of their natural habitats and their geological and botanic living conditions. *Hyalomma asiaticum asiaticum* proliferates in large numbers in all four regions (clay desert, sandy desert, cultivated river valleys, and southern mountains). *H. detritum* an. *anatolicum*, *H. an. excavatum*, and *H. pl. plumbeum* thrive mainly in cultivated areas. The most numerous species are *H. as. asiaticum* and *H. numidiana turanica* living in sandy desert and *Ornithodoros tartakovskyi* living in clay desert. *Ixodes redikorzevi*, *Haemaphysalis punctata*, *Rhipicephalus schulzei*, and *R. leporis* were recorded for the first time in the republic.

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USSR

KOCHKIN, A. P., Institute of High-Pressure Physics, Academy of Sciences USSR

"Quasibound Electron States in a Strong Magnetic Field"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, Vol 13, No 2, Nov 72, pp  
251-265

Abstract: The article solves the problem of bound states for spherically symmetric short-range potentials of an arbitrary type and calculates the magnitude of damping for levels situated above the Landau zero level (quasibound states), as well as determining the character of the approximations obtained in a strong magnetic field. The results can be generalized for the more physical case in a strong magnetic field of an axially symmetric impurity potential. The author thanks L. F. VERESHCHAGIN and R. G. ARKHIPOV for their support and attention.

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## Hydrobiology

USSR

UDC 576.8.097.29:591.524.1

STROGANOV, N. S., KHGBOT'YEV, V. G., KOLOSOVA, L. V., KOCHKIN, D. A., and  
EL'KHANOV, G. E., Chair of Hydrobiology, Moscow State University imeni M. V.  
Lomonosov, Moscow

"The Toxic Action of Some Organometallic Compounds on Aquatic Life. II. The  
Action of Alkyl(aryl) Lead-Organic Compounds"

Moscow, Nauchnyye Doklady Vyshey Shkoly, Biologicheskiye Nauki, No 3, 1971,  
pp 21-24

Abstract: The action of the compounds  $\text{Me}_3\text{PbCl}$  (I),  $\text{Me}_2\text{PbCl}_2$  (II),  $\text{Et}_3\text{PbOH}$   
(III), and  $\text{Ph}_4\text{Pb}$  (IV) on the algae *Scenedesmus quadricauda* and *Chlorella*  
*vulgaris* and the crustacean *Daphnia magna* was studied. I, II, and III were  
more toxic towards the *Daphnia* than the algae, whereas IV was more toxic  
towards algae, exerting an algicidal effect even in a concentration of 0.01  
mg/l, while producing no toxic action on the *Daphnia* in concentrations  $\approx 8$   
mg/l. A compound with a selective action such as that of IV can be used for  
the control of aquatic life in industrial water reservoirs in cases in which  
the blooming of water must be suppressed, while it is desirable to preserve  
the propagation of the zooplankton. Water from reservoirs of this type is  
used neither for drinking nor for household purposes.

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USSR

UDC 547.25'541.64:632.953

~~KOCHUKIN, D. A.~~, VORONKOV, N. A., VORONKOV, V. A., and AZIERBAYEV, I. N.,  
Institute of Physical Chemistry, Academy of Sciences USSR, Moscow, and  
Institute of Chemical Sciences, Academy of Sciences KazSSR, Alma-Ata

"Biologically Stable Grafted Copolymers of Perchlorovinyl Resin and Organotin  
Acrylates and Formation of Films Based on Them"

Alma-Ata, Izvestiya Akademii Nauk KazSSR, Seriya Khimicheskaya, No 1,  
Jan-feb 72, pp 78-80

Abstract: Copolymers of trialkylmetacryloxystannates with perchlorovinyl  
(PCV) resin were obtained by heating the components in a mixture of acetone,  
toluene, butyl acetate, in presence of isobianitrylisobutyric acid. These  
copolymers provide strong protective coverings with high antifungal activity.  
Optimal tensile strength, heat conductivity and temperature conductivity  
were obtained with 1% content of organotin metacrylates. PCV films modified  
with 1-2% organotin additives showed improved physico-mechanical properties  
and higher heat stability. The new copolymers were tested on: Chaetomium  
globosum, Stachybotrys atra, Aspergillus niger, Aspergillus anstclodany,  
Pecylomyces variety, Penicillium cyclopius, Penicillium brevicompactum.  
None of these cultures showed any growth on samples protected by experimental  
copolymer films.

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## Radiation Chemistry

UDC 678.01:53:66.095.26-13

USSR

KABANOV, V. YA., VORONKOV, V. A., KOCHKIN, D. A., and Academician Vict. I. SPITSYN, Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Radiation-Chemical Synthesis of Grafted Polymer Materials With Fungicidal Properties"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 3, 1971, pp 628-629

Abstract: Triethylmethacryloxystannane was grafted onto polyethylene, polypropylene, polyamides, polyethyleneterephthalate, and polyvinyl chloride from solutions in suitable organic solvents. The direct radiation-chemical method of grafting from the liquid phase of pre-irradiation of the polymer was applied. Irradiation was carried out with gamma-rays at dosage rates of 0.3-5 rad/sec. Total doses of 0.1-15 mrad were applied. The solutions of the monomeric Sn compound were deaerated by passing Ar through them. Wood slabs (spruce, pine, birch, and oak) were grafted with the Sn compound by direct irradiation after this compound. The fungicidal properties of the treated materials were tested by applying seven species of fungi and using the method recommended by the International Electrotechnical Association. The materials exhibited fungicidal characteristics which, at a degree of grafting amounting to 0.5-1%, were

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USSR

KABANOV, V. YA., et al., Doklady Akademii Nauk SSSR, Vol 200, No 3, 1971,  
pp 628-629

retained for 1 yr notwithstanding repeated treatment of the samples with solvents, exposure of the samples to the action of sunlight and water, and other procedures applied in connection with the tests. One may assume that at a higher degree of grafting the physiological action towards fungi will persist for several years. Materials that had been treated by simple impregnation with solutions of tin-organic compounds had a higher antifungal activity than those which had compounds of this type such as triethylmethacryloxystannane grafted onto them, but this activity persisted for a considerably shorter period of time. The fungicidal action of the polytriethylmethacryloxystannane chains grafted onto the materials was based on gradual decomposition of the bound Sn-organic groups resulting in formation of tin-organic radicals that diffused into various parts of the materials modified by grafting.

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Hydrobiology

UDC 576.8.097.29:591.524.1

USSR

STROGANOV, N. S., KHOBOT'YEV, V. G., KOCHKIN, D. A., KOLOSOVA, L. V., and EL'KHANOV, G. E., Chair of Hydrobiology, Moscow State University imeni M. V. Lomonosov

"Toxicity of Some Organometallic Compounds for Hydrobionts. I. The Effect of Alkylmethacryloxyplumbanes"

Moscow, Nauchnyye Doklady Vysshey Shkoly, Biologicheskiye Nauki, No 10, 1970, pp 13-17

Abstract: Experiments with organolead derivatives, tri- and di alkylmethacryloxyplumbanes showed that these compounds are a thousand times more toxic to the crustacean *Daphnia magna* Strauss than to the algae *Scenedesmus quadricauda* and *Chlorella vulgaris*. Even at concentrations of 0.001 mg/liter, the survival rate of the crustaceans was 10 to 75% lower than that of the controls. The compounds were toxic to the algae only at concentrations of 0.5 to 1 mg/liter or higher. The survival rate of the crustaceans in solutions of the substances was very low by the 15th day, whereas the number of algae decreased by only 50% during this time. Toxicity was clearly manifested only at the 30th day, when the number

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USSR

STROGANOV, N. S., et al, Nauchnyye Doklady Vyshey Shkoly, Biologicheskiye Nauki, No 10, 1970, pp 13-17

of cells decreased sharply. These results suggest that alkylmethacryloxy-plumbanes might be used in commercial bodies of water to suppress the population of certain zooplankton organisms.

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USSR

UDC: 621.384.633

KOCHKIN, V. A., NOVIKOV, D. L. and ONISHCHENKO, L. M.

"Coherent Transversal Oscillation Frequency in an Electronic Model of Ring Cyclotron"

Moscow, Pribory i Tekhnika Eksperimenta, Zhurnal Akademii Nauk SSSR, No 1, Jan/Feb 72, pp 31-33

Abstract: The magnetic field of the electronic model of a ring cyclotron is produced by 13 concentric windings and by a spiral variation winding. The magnitude of field variation is obtained by varying the spacing between the turns of the variation winding.

The frequency of coherent transversal oscillations as a function of the field and radius are given by formulae (2) and (3) for the vertical and radial directions respectively. This frequency was determined experimentally by exciting the oscillations with a high-frequency electrostatic field and finding the resonant condition.

Graphs of the frequency versus radius are presented. The agreement between the theoretical and experimental data is good.

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1/2 010 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--INFECTIVITY OF THE ACTINOMYCES STREPTOMYCINI II TYPE ACTINOPHAGE  
DNA FOR PROTOPLASTS OF THIS CULTURE -U-  
AUTHOR--(02)-KUCHKINA, Z.M., RAUFENSHTEYN, YA.I. *K*

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 125-128

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ACTINOMYCES, ACTINOPHAGE, DNA, FORMALDEHYDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1458

STEP NO--UR/0220/70/039/001/0125/0128

CIRC ACCESSION NO--AP0109518

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109518

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DNA, INFECTIVE FOR PROTOPLASTS OF ACT. STREPTOMYCINI KRAS B-1, WAS ISOLATED FROM THE ACTINOPHAGE TYPE II FOR ACT. STREPTOMYCINI BY PHENOLIC DEPROTEINIZATION. INFECTIOUS DNA HAS TWO STRANDED STRUCTURE WHICH WAS PROVED BY DNA REACTION WITH FORMALDEHYDE. UNDER OUR EXPERIMENTAL CONDITIONS THIS DNA WAS NOT INFECTIOUS FOR PROTOPLASTS OF ACT. OLIVACEUS 8238, RESISTANT TO THE ACTINOPHAGE TESTED. CONCENTRATIONS OF THE ACTINOPHAGE NUCLEIC ACID, INFECTIOUS FOR PROTOPLASTS, WERE NOT INFECTIVE FOR THE INTACT MYCELIUM OF ACT. STREPTOMYCINI AND ACT. OLIVACEUS.

UNCLASSIFIED



USSR

UDC: 681.332.65

DOLGOPOLOV, V. N., BOVKUNENKO, G. A., KOCHKONOGOV, A. S., KOSTORNICHENKO,  
V. F., Taganrog Radio Engineering Institute

"A Device for Stabilizing the Average Frequency in Random Pulse Generators"

USSR Author's Certificate No 291213, filed 22 Sep 69, published 29 Mar 71  
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct  
71, Abstract No 10B223 P)

Translation: The device can be used for stabilizing the intensity of any random pulse train varying over a wide range. Streams of random pulses with stabilized intensity are used in studying various queuing systems, determining the interference suppression of data transmission systems, and modeling various technical systems. Devices are known for stabilizing the average frequency in random pulse generators. These devices are constructed on the principle of automatic control of the noise discrimination level and contain converters, filters, a comparison circuit, and an amplifier. The purpose of the invention is to simplify the electrical circuit of the stabilization device, to improve its reliability by reducing the number of component

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USSR

DOLGOPOLOV, V. N. et al., Soviet Patent No 291213

parts in the circuit, and to provide stabilization of the average frequency throughout the entire range of variation without additional switching in the feedback circuit, while maintaining effective and simple control of the average frequency of the random pulse generator. In the proposed device, which is constructed on the principle of a closed automatic control system and contains a random pulse generator, a device for converting the average frequency of the random pulses to DC voltage, a DC amplifier, a low-frequency filter and a device for regulating the average frequency, the above-mentioned purpose is achieved by combining the comparison element, DC amplifier, and device for controlling the average frequency of the random pulses into a bridge-type balanced DC amplifier. Two illustrations.

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USSR

K  
UDC 621.395.385.4

DOLGOPOLOV, V. N., VASIL'YEV, V. I., ~~KOCHKONOGOV, A. S.~~

"Multichannel Additive Noise Imitator"

Leningrad, Priborostroyeniye, No 5, 1970, pp 5-8

Abstract: Description is given of a multichannel imitator of fluctuating and pulse noise, a development of the Taganrog Radio Engineering Institute, bearing the type number MIP-2. It is a modification of a preceding model, type MIP-1. The purpose of the newer device is to investigate the noise immunity of remote control, acoustic, telephone, electronic, and other equipment under laboratory conditions. It can also be used as the transmitter of random analog functions and random pulse signals in the design of random number generators, system modeling devices for mass servicing, as well as biological and hydroacoustic systems. It is all transistorized, and its block arrangement -- the diagram of which is given -- includes such units as a four-range noise oscillator with several distribution laws, a two-channel pulse noise oscillator, a block for forming various regular and random noise samples, a device for stabilizing the effective noise voltage, a circuit for modulating the amplitude of random pulses according to internal and external modulating voltages, and an arrangement for measuring the output intensity. A full list of technical specifications for the device is presented.

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USSR

UDC 778.86

ALEKSIDZE, M. A., and KOCHLADZE, O. SH., Academy of Sciences  
Georgian SSR, Computer Center

"Criminalistic Examination of Photographs"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 61, No  
3, Mar 71, pp 557-560

Abstract: The article describes a method for analytic determination of the congruence of a photograph based on the assumption that the human face possesses a number of points related to the structure of the skull and that these points retain their strictly defined arrangement throughout a person's life. These points are called constant points. The parameters of congruent transformation can be found by attempting to bring two pairs of constant points into coincidence or by the least-squares method.

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USSR

KOCHLADZE, Z. YU., CHAVCHANIDZE, Corresponding Member of the Georgian Academy of Sciences, (Cybernetics Institute of Georgian Academy of Sciences)

"The Feasibility of Developing Conceptual Management Games"

Tbilizi, Bulletin of the Academy of Sciences of the Georgian SSR; Sept 73,  
pp 565-567

Abstract: The authors demonstrate the feasibility of developing conceptual management games. They show that the concepts related to all physical systems and to their structures and behavior can be defined on a digital compute by the method of the analytical heuristic of concept formation, pattern recognition, and object classification. Some versions of such games and the range of their application are presented.

There are seven references.

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USSR

KOCHLADZE, Z. YU.; CHAVCHANIDZE, Corresponding Member of the Georgian Academy of Sciences V. V. (Cybernetics Institute of the Georgian Academy of Sciences)

"Visual Image Recognition Based on an Analytic Method of Concept Formation"

Tbilisi, Bulletin of the Academy of Sciences of the Georgian SSR; June, 1973;  
pp 565-7

Abstract: An attempt is made to use the methods of analytic heuristics of pattern recognition and of concept formation in recognizing plane visual images. It is noted that since the characteristics of visual images are -- unlike non-visual images -- topologically interconnected, the method is in need of a modification which takes into account the noninterchangeability of the characteristics. A recognition algorithm for Arabic numerals based on the modified method is proposed by way of illustration.

The article included two figures. There are six bibliographic references.

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USSR

UDC 621.357.71660.65'5(088.8)

KOCHMAN, E. D., KRAVTSOVA, R. I., and KOMAROV, N. V., Kazakstan Agricultural Institute

"Process for the Electrolytic Precipitation of Tin Zinc Alloys"

Author's Certificate 344027, filed 28 Dec 70, published 11 Aug 72 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L322P)

Translation: A process is patented for the electrochemical precipitation of tin zinc alloys. It is improved in that in order to increase the stability of the electrolyte and the velocity of the precipitation of the alloy, hydrazine sulfate and ethylamine are added to the electrolyte resulting in the following composition: (g/liter)  $\text{SnCl}_2$ , 12-18;  $\text{ZnSO}_4$ , 25-38;  $\text{K}_4\text{P}_2\text{O}_7$ , 150-230; the hydrazine sulfate 2-6; the ethylamine (20% solution), 1-3; gelatin, 0.5-1; the process is carried out at a pH of 8.5-9, a temperature of 40-70°, during the application of a variable current density of 1-10 amps/decimeter<sup>2</sup> on a stationary current density 0.5-10 amps/decimeter<sup>2</sup> using different alloys of zinc and tin. The concentration of tin in the alloy was 80-60%. Theoretical yield was about 81%.

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UNCLASSIFIED

PROCESSING DATE--20NOV70

1/2 073

TITLE--IONIZATION BEHIND A SHOCK WAVE FRONT IN ARGON -U-

AUTHOR--(04)-KUCHMANOVA, L.V., BREIDG, TS.G., GORYACHEV, V.L., SUKHOV, G.S.

COUNTRY OF INFO--USSR

*K*

SOURCE--Zh. TEKH. FIZ. 1970, 40(3), 600-4

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--IONIZATION, SHOCK WAVE, SHOCK WAVE PHYSICS, ARGON, MACH NUMBER, GAS PRESSURE, ELECTRIC CONDUCTIVITY, PLASMA CONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1992/1443

STEP NO--UR/0057/70/040/003/0600/0604

CIRC ACCESSION NO--AP0112437

UNCLASSIFIED



2/2 073

UNCLASSIFIED

PROCESSING DATE--20NDV70

CIRC ACCESSION NO--AP0112437

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE IONIZATION EQUIL. BEHIND A SHOCK WAVE FRONT IN AR FOR PRESSURES OF 1-10 MM AND MACH NOS. OF 8.8-11. THE SHOCK WAVE WAS SET UP IN THE DIAPHRAGM TUBE DESCRIBED PREVIOUSLY (G., AND S., 1967). AN INCREASE IN THE MACH NO. AND TEMP. BEHIND THE WAVE OWING TO THE DECREASE IN THE INITIAL GAS PRESSURE IN THE LOW PRESSURE CHANNEL RESULTS IN AN INCREASE IN THE ELEC. COND. OF THE PLASMA ONLY UP TO A CERTAIN PRESSURE. BELOW THIS PRESSURE, THE DECAY OF THE PLASMA SETS IN EARLIER THAN THE EQUIL. VALUE OF THE ELECTRON CONCN. IS REACHED AND THEREFORE THE COND. DECREASES. THE OPTIMUM STARTING PRESSURE FOR THE AR (FOR THE MAX. COND.) IS 5 MM HG.

UNCLASSIFIED

1/2 021 UNCLASSIFIED  
TITLE--WE ARE WAITING FOR YOU AT MIIT -U-

PROCESSING DATE--20NOV70

AUTHOR--KCCHNEV, F.

K

COUNTRY OF INFO--USSR

SOURCE--GUDCK, JULY 28, 1970, P 3, COLS 1-3

DATE PUBLISHED--28JUL70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--RAILWAY TRANSPORTATION, ACADEMIC INSTITUTION, COMPUTER CENTER, ACADEMIC INSTITUTION SIZE, ACADEMIC PROFESSIONAL STAFF SIZE, TRAINING PROGRAM/(U)URAL DIGITAL COMPUTER, (U)SETUN DIGITAL COMPUTER, (U)PROMIN DIGITAL COMPUTER, (U)HAIRI DIGITAL COMPUTER, (U)BESUM 4 DIGITAL COMPUTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/0559

STEP NO--UR/9002/70/000/000/0003/0003

CIRC ACCESSION NO--AN0122680

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AN0122680

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOSCOW INSTITUTE FOR RAILROAD ENGINEERS -MOSKOVSKIY INSTITUT INZHENEROV ZHELEZNOGOROZHNOGO TRANSPORTA, MIIT- IS A COMPLEX OF 10 SCHOOLS, 55 CHAIRS, 100 SPECIAL LABORATORIES, 4 SCHGGL BUILDINGS, AND COMPUTATION CENTERS USING "BESM-4", "URAL-14", "SETUN", "PROPIN", AND "NAIRY" ALL-PURPOSE ELECTRONIC DIGITAL COMPUTERS, AND ANALOGUE COMPUTERS. THE SCHOOL OFFERS 25 SPECIALTIES TAUGHT BY 1,300 INSTRUCTORS AMONG THEM 90 PROFESSORS -DOCTORS OF SCIENCES-, AND ABOUT 500 DOCENTS -CANDIDATES OF SCIENCES-. A MONTH AGO A 13 STORY DORMITORY, WHICH WILL HOUSE 1,400 STUDENTS, HAS BEEN ADDED TO ITS 4 OLD DORMITORIES. THE ARTICLE GIVES THE ACCOUNT OF SPECIALTIES TAUGHT AT THE INSTITUTE.

UNCLASSIFIED

USSR

UDC: 519.2

KOCHNEV, L. V.

"Reducing Dimensionality in Optimizing Statistic Models"

Tomsk, Kibernetika i vuz--sbornik (Cybernetics and Higher Education--collection of works), vyp. 5, 1972, pp 89-96 (from RZh-Kibernetika, No 5, May 73, abstract No 5V388 by the author)

Translation: The paper considers a procedure for reducing dimensionality in solving optimization problems on statistical models; the method of principal components is used and the results of solution of a practical example are presented.

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USSR

KOCHNEV, I. V.

"Optimization of Nonlinear Functionals with One Type of Limitation"

Kibernetika i vuz. [Cybernetics and the University -- Collection of Works],  
No 4, Tomsk University Press, 1971, pp 133-140, (Translated from Refera-  
tivnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V423 by D. F.).

Translation: A limitation such as  $\sum_{i=1}^n x_i = 1$  is reduced to the limitation

$\sum_{i=1}^{n-1} y_i < 1$ , allowing effective utilization of a simplex search algorithm.

USSR

UDC 512.25/.26+519.3:330.115

OKOCHNEV, L. V.

"Optimization of Priority Systems in Scheduling Problems"

Kibernetika I Vuz, [Cybernetics and the University--Collection of Works], No 3, Tomsk University Press, 1970, pp 114-122, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V545 by I. Romanovskiy).

Translation: As a set of solutions for scheduling problems, it is suggested that the priorities be analyzed and used for a basis for construction of "Heuristic" algorithms for direct construction of schedules.

1/1

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USSR

UDC: 8.74

~~KOCHNEV, V. A.~~, CHEMYAKINA, G. M.

"Calculation of Potential Functions"

Tr. Zap.-Sib. n.-i. geologorazved. neft. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 215-219 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V665 [authors' abstract])

Translation: A standard program in Minsk-22 codes. The program is designed for computing the potential function of objects having number parameters of  $m$  distinctive features. It can be used to develop a pattern recognition program.

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USSR

UDC: 8.74



KOCHNEV, V. A., KOCHNEVA, N. K.

"Calculating Smoothed Values of a Function and its Variance on a Sliding Interval of Length 1 With Spacing  $\Delta 1$ "

Tr. Zap.-Sib. n.-i. geologorazved. nef. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 191-192 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V648)

Translation: A standard program in Minsk-22 codes. The program is used for calculating the average values of a function and its variance on a sliding interval of length 1 with spacing  $\Delta 1$ .

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USSR

UDC: 8.74

KOCHNEV, V. A.

"Calculation of an Autocorrelation Function"

Tr. Zap.-Sib. n.-i. geologorazved. neft. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 176-178 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V644 [author's abstract])

Translation: A standard program in Minsk-22 codes. The program is used for calculating  $n$  values of an autocorrelation function of a random process having  $m$  preassigned ordinates ( $m > n$ ).

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USSR

UDC: 8.74

KOCHNEV, V. A.

"Calculating a Normalized Function of Mutual Correlation With Data in Both Blocks of a Core Store"

Tr. Zap.-Sib. n.-i. geologorazved. neft. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 182-185 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V646 [author's abstract])

Translation: A standard program in Minsk - 22 codes. The program is used for calculating the normalized correlation function of two functions S and T given in tabular form with different intervals. If the function S has n values and the function T has m values, then the result gives  $m - n + 1$  values of the mutual correlation function.

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USSR

UDC: 8.74

KOCHNEV, V. A.

"Finding n Maximum Extrema of a Function of m Values"

Tr. Zap.-Sib. n.-i. geologorazved. neft. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 186-190 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V647 [author's abstract])

Translation: A standard program in Minsk-22 codes. The program is used for isolating n maximum extrema of functions given in the form of a table. The program can be used to isolate all extrema of a given function if we set  $n \geq k$ , where k is the number of extrema of the given function. In addition, only those extrema can be isolated which exceed a given level.

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USSR

UDC: 8.74

KOCHNEV, V. A.

"Calculation of a Mutual Correlation Function"

Tr. Zap.-Sib. n.-i. geologorazved. nef. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 179-181 (from RZh-Kibernetika, No 10-, Oct 72, abstract No 10V645 [author's abstract])

Translation: A standard program in Minsk-22 codes. The program is used for computing the mutual correlation of the functions S and T given in tabular form for different intervals.

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USSR

UDC: 8.74

KOCHNEV, V. A., KOCHNEVA, N. K.

"Calculating Smoothed Values of a Function and its Variance on a Sliding Interval of Length  $l$  With Spacing  $\Delta l$ "

Tr. Zap.-Sib. n.-i. geologorazved. nefi. in-t (Works of the West Siberian Scientific Research Institute of Geological Petroleum Prospecting), 1972, vyp. 55, pp 191-192 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V648)

Translation: A standard program in Minsk-22 codes. The program is used for calculating the average values of a function and its variance on a sliding interval of length  $l$  with spacing  $\Delta l$ .

1/1

UNCLASSIFIED

PROCESSING DATE 07867

1/2 015

TITLE--COPOLYMERS STUDIED FROM GELATION CURVES --U-

AUTHOR--(05)--PETERBURGSKAYA, L.D., BALAKIRSKAYA, V.L., KRONMAN, A.G.,  
SVETZARSKIY, S.V., KOCHNEVA, N.N.  
COUNTRY OF INFO--USSR



SOURCE--PLAST. MASSY 1970, (3), 9-11  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY  
TOPIC TAGS--COPOLYMER, GELATION, PLASTICIZER, POLYVINYL CHLORIDE,  
ACRYLATE, PHTHALATE, LATEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1992/1823

STEP NO--UR/0191/70/000/003/0009/0011

CIRC ACCESSION NO--AP0112807  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112807

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

ABSTRACT. GELATION CURVES MAY BE USED TO DET. CONTENT AND HOMOGENEITY OF SIMILARLY PREPD. COPOLYMERS BY DETG. TEMP. BEHAVIOR IN PLASTICIZERS. GELATION CURVES FOR POLY(VINYL CHLORIDE) (I) AND ME ACRYLATE (II) VINYL CHLORIDE (III) COPOLYMERS (IV), PREPD. BY (NH SUB4) SUB2 S SUB2 O SUB8 CATALYZED EMULSION POLYMN., IN BU BENZYL PHTHALATE PLASTICIZER DIFFERED WITH CONTENT OF II. THE TEMPS. OF SWELLING AND OF SOLN. DECREASED LINEARLY WITH INCREASE IN COMONOMER (II OR VINYL ACETATE (V)) CONTENT SO THAT COMPNS. OF NEW COPOLYMERS CAN BE DETD. FROM SUCH CURVES. A MIXT. (A) OF I WITH IV SHOWED THE CHARACTERISTIC VISCOSITY MAX. OF IV AND I AND THE GELATION CURVE OF A WAS BROADER THAN THAT OF I. GELATION CURVES OF III-V COPOLYMERS PREPD. BY 3 DIFFERENT METHODS (DISPERSION, LATEX, AND SOLN. POLYMN.) DIFFERED BY SWELLING TEMPS. AND SOLN. TEMPS. AND IN WIDTH (DISTANCE FROM EACH OTHER).

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--INDUCED REACTIONS IN RADIOCHEMISTRY. III. EFFECT OF RADIOLYSIS  
PRODUCTS ON THE COURSE OF INDUCED REACTIONS -U-  
AUTHOR-(03)-POSVOLSKIY, M.I., TSIRLIN, I.I., KOCHNOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(2), 367-73

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RADIOCHEMISTRY, RADIOLYSIS, CHROMIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0122

STEP NO--UR/0186/70/012/002/0367/0373

CIRC ACCESSION NO--AP0132415

UNCLASSIFIED



2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132415

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISTORTION FUNCTION F EQUALS  $F(C) = \frac{C}{C_0} \text{SUBO}$ , WHERE C IS THE CONVERTED ACCEPTOR AND I THE INDUCTOR, OWING TO PRODUCTS OF RADIOLYSIS IS EVALUATED BY MEANS OF MECH. EXPT. THE TRADITIONAL METHOD OF DETN. OF THE MAX. VALUE OF THE INDUCTION FACTOR IS UNSUITABLE FOR SOLNS. OF RADIOACTIVE SUBSTANCES. THE SO CALLED "DIRECT" OXIDN. OF PU(IV) BY CHROMIC ACID AT ROOM TEMP. IS CAUSED, TO A SIGNIFICANT DEGREE, BY THE INDUCTION REACTION CR(VI) PLUS HNO SUB2 PLUS PU(IV) WHICH OCCURS SIMULTANEOUSLY. BY MEANS OF COMPARISON OF MECH. AND CHEM. EXPTS, IT IS SHOWN THAT HNO SUB2 IS CHARACTERIZED BY A HIGHER REACTION RATE WITH THE INTERMEDIATE FORM OF CR, THE OXIDIZING AGENT, THAN PU(IV).

UNCLASSIFIED

USSR

UNC 669.046.5

KOCHO, V. S., BOGUSHEVSKIY, V. S., and SOBOLEV, S. K.

"Improving the System for Determining the Time of Shutting Down Blowing in an Oxygen Converter"

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 178-180

Abstract: Results are presented of an investigation of the dynamics of carbon burning in a 100-ton converter of the Krivoy Rog metallurgical plant. A close relationship is established between the rate of converter bath decarburization and the pressure of exhaust gases under the dome. An algorithm is presented for determining the carbon content in the converter bath, based on the balance-statistical method, taking into account the variation pattern of parameters closely related to the decarburization rate of the converter bath. An analog computing system was developed for the continuous determination of carbon content in the converter bath. Problems related to self-alignment of the converter process are considered.

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Foundry

USSR

UDC 669.187.25

KOCHO, V. S., IVANCHENKO, Yu. I., KOROBKO, I. M., SHEKHOVTSOV, O. A., MALIKOV, G. P., and ANTIPENKO, G. I., Kiev Polytechnical Institute; Zaporozhye Electro-Metallurgical Works (Dneprospetsstal')

"Determination of the Instant of the End of the Power Melting Period in a Steel-Melting Arc Furnace"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 11, 1970, pp 70-72

Abstract: The possibility of determining the instant at which the steel melting period ends is discussed. A computation method is presented which is based on solution of a derived function from experimental data on melting ball-bearing steel in an arc furnace of the Dneprospetsstal' plant. A schematic of the computer is included.

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L/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--PROPER CONTROL OF THE MELTING PERIOD WHEN MAKING STAINLESS STEEL IN  
ELECTRIC FURNACES -U-  
AUTHOR--(03)-KOCHO, V.S., YEREMIN, V.E., GRUNIN, V.S.  
COUNTRY OF INFO--USSR  
SOURCE--STAL' 1970, 30(2), 133-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--STAINLESS STEEL, ELECTRIC FURNACE, CHROMIUM, SILICON, STEEL  
SCRAP  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAHE--1994/1947 STEP NO--UR/0133/70/030/002/0133/0134  
CIRC ACCESSION NO--AP0115755  
UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70  
CIRC ACCESSION NO--AP0115755  
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. CR LOSSES WERE STUDIED  
STATISTICALLY AS A FUNCTION OF THE O VOL. USED FOR BLOWING IN A 50 TON  
ARC FURNACE REMELTING OF STAINLESS STEEL SCRAP. THE SI IN THE CHARGE  
SHOULD BE RAISED TO 0.8PERCENT, THE ARC HEAT SUPPLEMENTED WITH A 5-10  
MIN MILD O BLOWING, AND STRONG BLOWING STARTED WHEN THE BATH IS AT  
1600-1610DEGREES. HEATS MADE IN THIS WAY SHOWED A CR LOSS OF 600-700  
KG. FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UNCLASSIFIED

USSR

(3)

PETROV, B. N., PETROV, V. V., ULANOV, G. M., AGEYEV, V. M., ZAPOROZHETS, A. V., USKOV, A. S., KOCHUBIEVSKIY, I. D.

"Origin of the Information Theory of Control"

Tr. IV Vses. Soveshch. po Avtomat. upr., 1968. Teoriya Avtomat. upr. [Works of Fourth All-Union Conference on Automatic Control, 1968. The Theory of Automatic Control], Moscow, Nauka Press, 1972, pp 145-154, Discussion 256-262 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V277 by the authors).

Translation: This work studies the information characteristics of control processes of general form. The conclusion of information characteristics is based on thresholds of differentiability of states of an object of control at a given level of organization, introduced by the authors. The information conditions of basic modes of control and regulation are studied, including stabilization of the states of a control object, reproduction of required states and information conditions of invariance (absolute and with accuracy to  $\epsilon$ ). General equations are produced for the balance of enthalpy, corresponding to the basic modes of control. A general analogy is discovered between problems in statistical physics and information processes in control. Examples are presented of the design of control systems by the methods suggested. 12 Biblio. Refs.

1/1

USSR

UDC: 550.834

BRODOV, L. Yu., VEDERNIKOV, G. V., KOCHUGOV, N. A., LUKASHENKO, V. F.,  
MUKHUTDINOV, R. A., "Tatneftegeofizika" Trust

"A Device for Automatic Processing of Seismic Recordings"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obrastzy, Tovarnyye Znaki,  
No 11, Apr 72, Author's Certificate No 333511, Division G, filed 25 Jan 71,  
published 21 Mar 72, pp 183-184

Translation: This Author's Certificate introduces a device for automatic processing of seismic recordings. The device contains operational drums with the primary information media, readout units, a computer unit, a correction unit and a registration unit. As a distinguishing feature of the patent, in order to suppress regular interference waves and retain the shape of the primary signal, the outputs of the readout units are connected through adders and subtractors, the computer unit and a discriminator to a switching element connected in the registration circuit to connect the output of the subtractor to the correction unit and the registration unit.

1/1

USSR

UDC 621.317.761

*K*  
KOCHUGUROV, V. V., TAYMANOV, R. YE.

"A Frequency Comparator"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzsy, Tovarnyye Znaki,  
No 23, 1970, Author's Certificate No 276245, Filed 20 May 68, p 78

Abstract: This author's certificate introduces a frequency comparator which contains a source of reference frequency oscillations, a frequency multiplier for the frequency to be measured, mixers, filters and a phase meter. As a distinguishing feature of the patent, the accuracy of measurements is improved by incorporating into the comparator a converter which changes the reference frequency to a fractional number of times, and also frequency dividers. Connected to the input of the unit which converts the reference frequency to a fractional number of times is the second output of the source of reference frequency oscillations, while the second input of the first mixer and the outputs of the frequency dividers are connected to the converter output. The frequency dividers are connected between the output of the converter which changes the reference frequency to a fractional number of times on the one hand, and the second inputs of the second and following mixers on the other hand.

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USSR

UDC: 621.791:62-415.62-42

KOCHUKOV, N. S. (Candidate of Technical Sciences), SMIRNOV, I. V.  
(Technician), BOGDANOV, YE. M., BABONIN, I. V. and SEMERIKOV, N. V.  
(Engineers)

"Welding of Tee and Multi-Tee Sections From Sheet Metal"

Moscow, Svarochnoye proizvodstvo, No 12, Dec 71, pp 29-31

Abstract: Thin-walled tee shapes are finding ever-increasing application on account of lighter weight and greater rigidity. The recent trends and techniques of producing tee structures include automatic argon arc welding. Discussed here is the method of full-penetration welding to produce a convex (reinforced) weld (over 2 mm thick) successfully tested on various sheet materials (0.6-2 mm thick), including steels and alloys 1Kh18N9T, VZh-102, VNS-16, EI435, OT4-1, VT-5. The weld strength is rated on the basis of tensile and tear tests of the welded flange. In tensile tests the failures occurred along the transition zone; the tear-induced failures were in the parent metal indicating the significance of the reinforced weld.

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USSR  
KOCHUKOV, N. S. (Candidate of Technical Sciences), et al, Svarochnoye  
proizvodstvo, No 12, Dec 71, pp 29-31

Complete adherence of parts to be welded is facilitated by the use of rolls  
enabling greater productivity at lower expenditures for assembly and welding  
jigs. (7 illustrations, 1 table).

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USSR

UDC 681.325.5

ZAKHARCHENKO, O. YE., KOCHUR, A. P., PETRUSHENKO, YE. I., and FORMOZOV, B. N.

"Cryotron Adder"

USSR Authors' Certificate No 306461, Cl. G06 f 7/50, filed 29 Sep 69,  
published 7 Sep 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya  
Tekhnika, No 5, May 72, Abstract No 5B243P)

Translation: Cryotron adders are well known. However, they are not economical in terms of energy consumption (use of direct current sources) they contain a large number of current-conducting buses which are a source of undesirable heat, and they have complex control and synchronization involving the need to combine two-line control to be applied to reset-logic circuits. The proposed adder is unique in that in it the production circuit is four logic elements of the NOT-OR and NOT-AND type, one of which controls the other; the carry generating circuit contains two logic elements -- NOT-OR-AND and NOT and each logic element takes the form of a superconducting self-excited storage loop. This makes it possible to simplify the control, reduce the number of current-conducting buses, and make the device more economical. The favorable effect is achieved by a circuit using an all one-line control according to an input variable; this does not require a special adjusting signal, and the feed requires a pulse current rather than direct current. Undamped current induced in the device itself is used to store and maintain the state of the cryotron adder.

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UDC 681.327.02

USSR

KOCHUR, A. P., FORMOZOV, B. N.

"A Cryotron Decoder"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 7, Mar 71, Author's Certificate No 292596, Division H, filed 20 Feb 69, published 4 Feb 71, p 214

Translation: This Author's Certificate introduces a cryotron decoder which contains series-connected load loops with controlling cryotron diodes, and series-connected code storage self-excitation loops with controlling cryotrons. As a distinguishing feature of the patent, the speed of the decoder is increased and the design is simplified by including the grids and diodes of the controlling cryotrons in the shunting circuits of the code loops and the load loops respectively.

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USSR

UDC: 681.325.65

KOCHUR A. P., VOYTOVICH, I. D., MIKHAYLOV, G. A.

"Cryotron Logic NOR Element"

USSR Authors' Certificate No 248766, Filed 15 February 1968, Published 22 January 1970 (Translated from Reverativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B100P, by N. V.)

Translation: The element suggested contains a superconducting circuit with an input cryotron for each input, output and regulating cryotrons. It differs from known circuits in that the superconducting circuit contains two branches. One branch consists of the series-connected input cryotron tubes, while the other consists of the series-connected grids of the output cryotron and tube of the control cryotron. One output of the grid of this latter cryotron is connected to the cycling voltage supply; the other, to the point of connection of the two branches of the circuit. This assures functional compatibility with similar elements and decreases power consumption. Two illustrations.

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UDC 621.438.531

USSR

KOCHUROV, V.I., and TARAKANOV, V.I.

"Investigation of Dynamic Characteristics of the Parts of a Twin-Shaft Gas Turbine Unit"

V Sb. "Dinamika Teplov. Protsessov v Energetike i Tekhnol." [In the Collection "Dynamics of Thermal Processes in Power Engineering and Technology"], Kiev, "Nauk. Dumka", 1971, pp 31-45 (from Referativnyy Zhurnal, No 6, Jun 72. 49. Turbostroyeniye. Abstract No 6.49.131]

Translation: Investigations of dynamic properties of gas turbine units as controlled members are conducted in the Central Scientific Research Planning and Design Boiler and Turbine Institute imeni I. I. Polzunov. Experimental-analytical investigation of dynamic characteristics of parts of a twin-shaft gas turbine unit was begun in the Division of Automation in the year 1966. In this task, a comparative analysis of analytically determined dynamic characteristics was carried out on the basis of obtained experimental frequency characteristics of the unit. The dynamic properties of the gas turbine unit were experimentally investigated on a header sample of the GT-750-6 gas turbine unit of the Neva Machinery Plant imeni V.I. Lenin type. The experimentally derived dynamic characteristics make possible an evaluation of various models of gas turbine parts; they can be used for a more exact definition of the calculation method of the dynamics of a gas turbine unit. Five illustr., two biblio. refs.

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UDC 621.791.856.3.037

USSR

KOCHUKOV, N. S., and SMIRNOV, I. V., Rybinsk

"Device for Argon Arc Welding of Thick Sheet Materials"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 71, pp 37-40

Abstract: A description is given of a device based on the principle of obtaining welds between rotating rollers and a fixed tungsten electrode. The device is analogous to a seam contact machine in which the rollers perform the identical process at each point of the seam, and simultaneously provide continuous assembly and welding operations. A diagram of the machine is given together with a description of its operation. Photographs of welds are also reproduced. The results of tests performed on these welds are given in tabular form. The machine is inexpensive, is economical to operate, occupies little space, and improves production output.

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- 66 -

UDC 621.438.001.5

USSR

K

KOCHUROV, V. I., Candidate of Technical Sciences, TARAKANOV, N. I., SARANTSEV, ~~Engineers~~, VLASENKO, I. V., Candidate of Technical Sciences

"Experimental Dynamic Characteristics of the GTK-10 NZL Gas Turbine"

Leningrad, Energomashinostroyeniye, No 2, February 1970, pp 1-3

Abstract: This article contains the results of experimental investigations to determine the dynamic characteristics of an open cycle gas turbine engine with a free power turbine and regeneration of the exhaust gas heat. The experimental phase-amplitude characteristics of the GTK-10 which were obtained offer the possibility of refining the procedure for calculating the dynamic characteristics of the gas turbine engine and determining the effect of various factors on the dynamic characteristics of such engines. The engine in question has a rated power of 10,000 kilowatts and rotot rpm's of 5,350 for the high pressure turbine axial compressor and 4,800 for the low pressure turbine blower. The experimental tests were run with the engine operating on a closed blower loop which permitted determination of the dynamic characteristics of the turbine engine in a broad load range. The characteristics of the unit are both tabulated and plotted on graphs.

The experimental determinations of the dynamic characteristics of the gas

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USSR

KOCHUROV, V. I., et al, Energomashinostroyeniye, No 2, February 1970, pp 1-3

turbine engine showed that it is not possible to determine the frequency characteristics of the object of regulation jointly with the regulation system included in connection with the fact that when the unit operates with an rpm regulator there are aperiodic oscillations of the fuel regulation valve. The magnitude of the amplitude of these oscillations is commensurate with the amplitude of the forced oscillations of the valve. Therefore it is expedient to investigate the dynamic characteristics of the regulating system and the gas turbine engine separately. It is pointed out that the data gathered during these investigations can be used when designing automatic regulating and control systems for new gas turbine engines. It is also pointed out that investigation of the phase-amplitude characteristics determined for various values of the input perturbation amplitude under the same operating conditions shows that the frequency characteristics of GTK-10 depend insignificantly on the amplitude of the perturbation in the range of variation of the amplitude  $A_n = 0.158-0.944$  mm on the given frequency.

2/2

- END -

Materials

(2)

UIC 666.293.52

USSR

VYKHOVANETS, A. F., SAZONETS, N. V., NIKITENKO, L. N. GURSKIY, B. A., KOCHUYEV, YE. S., and GLADUSH, V. M.

"An Enamel for Steel"

USSR Author's Certificate No 366160, Filed 27 Oct 70, Published 16 Jan 73 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar(a) 73 Claim No 1488623/29-33)

Translation: An enamel for steel, including  $\text{SiO}_2$ ,  $\text{B}_2\text{O}_3$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{TiO}_2$ ,  $\text{CaO}$ , and  $\text{Na}_2\text{O}$ , distinguished by the fact that in order to increase its acid resistance and heat resistance it additionally contains  $\text{SrO}$ ,  $\text{Li}_2\text{O}$ ,  $\text{Na}_2\text{SiF}_6$ ,  $\text{K}_2\text{O}$ ,  $\text{CaF}_2$ ,  $\text{Co}_2\text{O}_3$ ,  $\text{Ni}_2\text{O}_3$  and  $\text{Cr}_2\text{O}_3$  in the following ratio of components, weight %:  $\text{SiO}_2$  64-67,  $\text{B}_2\text{O}_3$  1.8-2.7,  $\text{Al}_2\text{O}_3$  1.0-1.6,  $\text{TiO}_2$  3.1-3.6,  $\text{CaO}$  3.2-3.7,  $\text{SrO}$  0.6-0.9,  $\text{Na}_2\text{O}$  9.4-10.7,  $\text{K}_2\text{O}$  3.9-4.5,  $\text{Li}_2\text{O}$  4.3-4.5,  $\text{Na}_2\text{SiF}_6$  1.3-2.0,  $\text{CaF}_2$  1.7-2.5,  $\text{Co}_2\text{O}_3$  0.5-0.56,  $\text{Ni}_2\text{O}_3$  0.4-0.53,  $\text{Cr}_2\text{O}_3$  0.16-0.25.

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USSR

UDC 621.438-531

KOCHYROV, V. I., and TARAKANOV, N. I.

"Investigation of Dynamic Properties of Twin-Shaft Gas Turbine Units of Open Cycle With Heat Regeneration"

V Sb. "Dinamika Teplov. Protsessov v Energetike i Tekhnol." [In the Collection "Dynamics of Thermal Processes in Power Engineering and Technology"], Kiev, "Nauk. Dumka", 1971, pp 45-61 (from Referativnyy Zhurnal, No 6, Jun 72. 49. Turbostroyeniye. Abstract No 6.49.132)

Translation: The dynamic properties of two gas turbine units (GT-750-6 and GTK-10 NZL) were investigated by the experimental-analytical method in the Central Scientific Research Planning and Design Boiler and Turbine Institute imeni I. I. Polzunov (TsKTI). The method combined the experimental investigation of the dynamics of the unit with the analysis of equations of its individual parts. The experimental work carried out in common by the TsKTI and the NZL (Neva Machinery Plant imeni V. I. Lenin) was accomplished by the frequency method and the method of intermittent perturbations by the fuel adjusting valve under conditions close to operation. The investigation results of aerodynamic characteristics of the turbine-compressor block GTU-GTK-10 are presented. Eight illustr., two biblio. refs.  
1/1

1/2 033

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--EFFECT OF THE STRUCTURE OF STEEL ON THE HYDROGEN DIFFUSION  
COEFFICIENT -U-

AUTHOR--(04)-VOLKOV, V.YE., RYABOV, R.A., KODES, YE.S., GELD, P.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL METALLOVED. 1970, 29(2), 431-2

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--HYDROGEN, GAS DIFFUSION, METALLURGIC RESEARCH FACILITY, STEEL  
MICROSTRUCTURE, ALLOY DESIGNATION, DIFFUSION COEFFICIENT/(U)34KHM LOW  
ALLOY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/0338

STEP NO--UR/0126/70/029/002/0431/0432

CIRC ACCESSION NO--AP0126094

UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0126094

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF THE STRUCTURE OF STEEL ON THE H DIFFUSION COEFF, UNDER GAS ELEC. DISCHARGE CONDITIONS. THE EXPTL. SETUP AND THE PROCEDURE USED HAVE BEEN DESCRIBED PREVIOUSLY. SAMPLES OF STEEL 34KHM IN THE FORM OF DISKS 37 MM IN DIAM. AND 1.0-1.6 MM THICK WERE USED. THE CHEM. COMPN. OF THE STEEL WAS: C 0.35; CR 1.10, MO 0.25, SI 0.33, AND MN 0.56 WT. PERCENT. THE STEEL HAD A PLATELETLIKE PEARLITE STRUCTURE. ON GROUP OF SAMPLES WAS VACUUM ANNEALED AT 850DEGREES FOR 1 HR, WHEREUPON IT WAS COOLED WITH THE FURNACE. THE ANNEALED SAMPLES HAD A GRANULAR PEARLITE STRUCTURE. THE 2ND GROUP OF THE SAMPLES WAS HELD IN A PB BATH AT 850DEGREES FOR 30 MIN, WHEREUPON IT WAS QUENCHED IN OIL. THE QUENCHED SAMPLES HAD THE MARTENSITIC STRUCTURE. THE LOWEST DIFFUSION COEFF. IS IN THE STRESSED MARTENSITIC STRUCTURE AND AMTS. TO 2.8 TIMES 10 PRIME NEGATIVE7 CM RPIME2-SEC; THE HIGHEST DIFFUSION COEFF. IS IN THE ANNEALED STRUCTURE OF GRANULAR PEARLITE AND AMTS. TO 6.3 TIMES 10 PRIME NEGATIVE7 CM PRIME2-SEC. THE DIFFUSION COEFF. IN THE PLATELETLIKE PEARLITE WAS 4.5 TIMES 10 PRIME NEGATIVE7 CM PRIME2-SEC. FACILITY: URAL. POLITEKH. INST. IM. KIROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--DETERMINATION OF THE AMOUNTS OF ELEMENTS IN ORES AND PRODUCTS OF  
THEIR REPROCESSING BY EXCITATION OF METASTABLE STATES ACCORDING TO A  
AUTHOR--(02)-KODIRI, S., STARCHIK, L.P.

COUNTRY OF INFO--USSR

K

SOURCE--ZAVOD. LAB. 1970, 36(2), 191-5

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, EARTH SCIENCES AND  
OCEANOGRAPHY

TOPIC TAGS--ELECTRON ACCELERATOR, BREMSSTRAHLUNG, METASTABLE STATE, GAMMA  
IRRADIATION, RADIOACTIVITY MEASUREMENT, GAMMA SPECTROMETER, MINERAL  
FORMATION ANALYSIS, EXCITED NUCLEUS, ORE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1994/1229

STEP NO--UR/0032/70/036/002/0191/0195

CIRC ACCESSION NO--AP0115246

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115246

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITH THE AID OF THE BREMSSTRAHLUNG OBTAINED FROM A 4.2 MEV ELECTRON LINEAR ACCELERATOR (AV. OUTPUT CURRENT OF 50MA) METASTABLE STATES OF THE FOLLOWING NUCLIDES WERE EXCITED: PRIME77 SE, PRIME87 SR, PRIME89 Y, PRIME103 RH, PRIME107 AG, PRIME109 AG, PRIME111 CD, PRIME 113 IN, PRIME115 IN, PRIME117 SN, PRIME135 BA, PRIME137 BA, PRIME176 LU, PRIME179 HF, PRIME195 PT, PRIME197 AU, AND PRIME199 HG. EITHER A 0.95 MM PT TARGET OR A 2MM PB TARGET WAS USED. TIME OF THE IRRADN. WAS OF 3-4 HALF LIVES FOR EACH ELEMENT. THE ACTIVITY INDUCED WAS MEASURED BY A GAMMA RAY SPECTROMETER WITH 40 TIMES 50 MM NAI(TI) CRYSTAL. BASED ON PHOTOPEAK AREA DETNS. THE FOLLOWING SENSITIVITY LIMITS (IN HG) WERE FOUND: PRIME77 SE PRIMEM 0.16, PRIME87 SR PRIMEM 0.3, PRIME89 Y PRIMEM 3.4, PRIME103 RH PRIMEM 2.01, PRIME107 AG PRIMEM 0.24, PRIME111 CD PRIMEM 0.08, PRIME115 IN PRIMEM 0.024, PRIME117 SN PRIMEM 80.0, PRIME135 BA PRIMEM 7.1, PRIME137 BA PRIMEM 1.9, PRIME176 LU PRIMEM 0.96, PRIME179 HF PRIMEM 0.1, PRIME195 PT PRIMEM 0.2, PRIME197 AU PRIMEM 0.1, PRIME199 HG PRIMEM 0.9.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--02 OCT 70  
 TITLE--POSSIBLE USE OF COATINGS BASED ON CYCLO RUBBER RESIN IN THE FOOD  
 INDUSTRY -U-  
 AUTHOR--(04)-SHAPOSHNIK, S.SH., CHAPURIN, V.I., SHCHELKUNOVA, M.S., KDUNER,  
 M.S.  
 COUNTRY OF INFO--USSR *K*  
 SOURCE--LAKOKRASOCH. MATER. IKH PRIMEN. 1970, (1) 31-4  
 DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, MECH., IND., CIVIL AND  
 MARINE ENGR  
 TOPIC TAGS--FOOD CONTAINER, COATING PACKAGING, RUBBER, PLASTICIZER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--1988/1627

STEP NO--UR/0303/70/000/001/0031/0034

CIRC ACCESSION NO--AP0106373

UNCLASSIFIED



Z/2 019

UNCLASSIFIED

PROCESSING DATE--02DCT70

CIRC ACCESSION NO--AP0106373

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORMULATIONS WERE DEVELOPED SUITABLE FOR COATING FOOD CONTAINERS. THE UNDERCOATING CONTAINED CYCLO RUBBER (I) 27.0, DIOCTYL PHTHALATE (II) 10, FE OXIDE 13.5, TALC 13.5, AND SOLVENT R-4 46.0 PARTS. THE TOPCOAT CONTAINED I 27.0, II 10, TID SUB2 27.0, AND R-4 46.0 PARTS. THE COATINGS WERE DRIED AT 80DEGREES FOR SIMILIAR TO 24 HR. THE CONTAINERS COATED WITH 2 LAYERS OF THE UNDERCOATING AND 4 LAYERS OF THE TOPCOAT WITHSTOOD THE CORROSIVE ACTION OF H SUB2 O, 1PERCENT TARTARIC ACID (III), OR 40PERCENT ALC. AND 1PERCENT III SOLNS. FOR SMALLER THAN OR EQUAL TO 10 MONTHS. THE UV SPECTRA OF THESE SOLNS. AFTER CONTACT WITH THE COATINGS SHOWED ONLY TRACES OF THE EXTD. ORG. COMPS. PLASTICIZING THE COATINGS WITH NATURAL RUBBER, NATURAL OILS, OR LINSEED OIL GAVE LESS DURABLE COATINGS.

UNCLASSIFIED

USSR

UDC 620.17

POTEMKINA, A. M.; KODNER, M. Ya., KUSHNEROV, Ye. A., and  
ANDREYEVA, N. P., Moscow

"On the Problem of Strength of Irregularly Heated Rotating  
Discs"

Kiev, Problemy Prochnosti, No 5, May 73, pp 18-23

Abstract: Cases of failure of not uniformly heated rotating discs were studied at rotations which are 1.5 times lower than the rotations at failure of discs with radially uniform temperature and 2 times lower than the rotations at failure calculated from average circular stresses. For the investigation of the dependence  $n_f = f(\Delta t)$ , where  $n_f$  = rotations at failure, and for the analysis of experimental data,  $n_f$  values of investigated discs and of experimental discs of other authors (Menson, I.A.Kozlov) were calculated. At failure of discs by radial stresses, a sudden action of the radial temperature drop on the decrease of  $n_f$  at different plasticity  $\delta$  of the material was established. For  $\delta = 0.5-6\%$ , the temperature drop  $\Delta t = 755^\circ\text{C}$  decreased  $n_f$  from 55000 to 37000 rpm. The little effect of  $\Delta t$  on  $n_f$ , found by some authors, holds true in cases where the strength

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USSR

POTEMKINA, A. M., et al., Problemy Prochnosti, No 5, May 73,  
pp 18-23

of discs is determined by circular stresses. Cases of considerable influence of temperature stresses on the supporting power of rotating discs were defined. Suggestions are given for projecting discs of modern high-temperature turbodynamos. Two figures, five tables, three formulas, six bibliographic references.

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USSR

UDC 546.718

SPITSYN, V. I., KUZINA, A. F., TSARENKO, A. F., OZLOVA, A. A., BALAKHOVSKIY, O. A., KODCHIGGI, P. N., GLAZUNOV, H. P., and KATZEN, I. V.

"Synthesis of Metallic Technetium and its Physical Investigations"

Leningrad, Radiokhimiya, Vol 12, No 4, 1970, pp 617-621

Abstract: Highly pure metallic technetium in the form of a silver-gray powder or compact metal (regulus) was produced from tetraphenylarsonium pertechnetate  $(C_6H_5)_4AsTcO_4$  by hydrogen reduction in an electric furnace. The resultant material showed superconductivity with a critical point of 8.2°K. A study of the technology for producing the metal from the initial pertechnetate showed that technetium dioxide is produced after one hour in a hydrogen atmosphere at 260°C, and the metal is produced at a temperature of 1000°C. X-ray structural analysis revealed that metallic technetium has a hexagonal lattice with dense atomic packing of the magnesium type, the lattice parameters being  $a = 2.74 \pm 0.005$  and  $c = 4.41 \pm 0.005$ ;  $c/a = 1.609$ . The radiometric and neutron activation methods of analysis showed extremely minute quantities of trace impurities: Ru-- $10^{-8}$ , Rh-- $10^{-14}$ , Al-- $10^{-5}$ , Na-- $10^{-3}$  and As-- $10^{-3}$  gm per gm of technetium. Within the limits of sensitivity of the neutron activation method, no other impurities were detected.

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USSR

UDC 547.241'183:542.951.9

NIFANT'YEV, E. YE., ~~KODOLOV, V. I.~~ and NONISHNEV, YE. P., Institute of Chemistry, Ural Branch of the Acad. Sc. USSR

"Reaction of Tetraethyldiamides of Alkylphosphorous Acids With Hydroquinone"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71, p 482

Abstract: Depending on the ratios of the starting materials and on the reaction temperature, the distillate collected after completion of the reaction between tetraethylamide of ethylphosphorous acid and hydroquinone may contain diethylamine, triethylamine, ethanol, and amidophosphite.

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## Nuclear Science and Technology

USSR

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

"Development of Isotopic Power Technology in the USSR"

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

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

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SR

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

solution of di-2-ethylhexylorthophosphoric acid in kerosene from a nitric acid medium, and a solution of salicylaldehyde in tributyl phosphate from an alkaline (sodium hydroxide or ammonia) solution. Currently construction has been completed for blocks with activities in the tens and hundreds of kilocuries based on  $Ce^{144}$  (20,000 curies),  $Sr^{90}$  (9000-100,000 curies), and  $Cs^{137}$  (50,000-150,000 curies), and also blocks based on  $Pu^{238}$ ,  $Po^{210}$ ,  $Cm^{242}$ , and  $Co^{60}$ . The thermal capacity of these blocks lies within the range 1-1000 watts. An empirical formula was derived and tested for the power yield in an isotopic (thermal) block. Also discussed is biological protection during development and construction of isotope power sources containing kilocurie amounts of radioactive heat. In dealing with the conversion of radioactive decay energy, the thermoelectric method was found to be most fully mastered at present: low-temperature semiconductor materials (up to 300°C) have been obtained with quite high efficiencies (5-8%), as well as medium-temperature (300-700°C) and high-temperature (higher than 700°C) semiconductor materials. Combining different materials in the form of cascade elements already permits attainment of 12-15% conversion efficiency in prototypes. Demands of minimum weight and size and also low background of attendant neutron and gamma-radiation led to construction of portable generators of the MIG-67 type based on  $Pu^{238}$ . The unique properties of  $Cm^{242}$  and  $Po^{210}$  (high specific power yield and fairly low-gamma-radiation intensity) made feasible construction of isotopic thermoelectric generators using cascaded converters with efficiencies of 8-10% in the 300-550°K range.

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KODYUKOV, V. M.

**TECHNICAL TRANSLATION**

FTIC-NF-13- 340-72

**ENGLISH TITLE:** Operational Characteristics of Type Beta-1 and Beta-2 Isotopic Thermoelectric Generators

**FOREIGN TITLE:** Ekspluatatsionnyye Kharakteristiki Izotopnykh Termoelektricheskikh Generatorsov Tipa "Beta-1" i "Beta-2"

**AUTHOR:** G. M. Fradkin, V. M. Kodyukov, A. I. Ragsimuliyev, M. F. Kirovskov, Ye. A. Kazakov

**SOURCE:** Radiatsionnaya Tekhnika, Study, Issue 4, All-Union Scientific Research Institute for Radiation Technology, Atomizdat, Moscow, 1970.

Translated for FTIC by Eric Peabody, Leo Kanner

**NOTICE**

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K

USSR

UDC 621.362.2

FRADKIN, G. M., KODYUKOV, V. M., RAGOZINSKIY, A. I., KOROTKOV, N. P., KAZAKOV, Ye. A.

"Operational Characteristics of Type 'Beta-1' and (Beta-2' Isotopic Thermoelectric Generators"

Tr. Vses. n.-i. in-ta radiats. tekhn. (Works of the All-Union Scientific Research Institute of Radiation Technology), 1970, vyp. 4, pp 351-359 (from FZh-Elektrotehnika i energetika, No 9, Sep 70, Abstract No 9A150)

Translation: The "Beta-1" and "Beta-2" experimental isotopic thermoelectric generators are designed for supplying electric power to ARMS-N automatic radiometeorological stations. The basic parameters of the "Beta-2" are given in the accompanying table. The generator is operationally reliable. The service life is set at five years or more. Eight illustrations, bibliography of two titles.

Abstract includes table on p A-20: Наполнитель = filler; Аргон = argon;

$T_{\text{окр}}$  = ambient temperature; b = volts;  $\text{Вт}$  = watts;  $Z_{\text{вн}}$ ,  $\text{ОМ}$  = internal impedance, ohms;  $R_{\text{н}}$ ,  $\text{ОМ}$  = load resistance, ohms. Ксенон = Xenon

1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--PREPARATION OF PHOSPHORYLATED ACTIVATED CARBON -U-  
AUTHOR--(02)-KUZIN, I.A., KOEMETS, L.A. *K*  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 695-8  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ACTIVATED CARBON, HYDROGEN FLUORIDE, ION EXCHANGE  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1538 STEP NO--UR/0080/70/043/003/0695/0698  
CIRC ACCESSION NO--AP0120319  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120319

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACTIVATED CARBON WAS DEMINERALIZED WITH HCL AND HF, DRIED AT 105DEGREES, AND THEN TREATED WITH PCL SUB3 VAPOR DURING 7 HR AT VARIOUS TEMPS., COOLED IN THE ABSENCE OF AIR, WASHED WITH N HCL AND THEN WITH DISTD. WATER UNTIL NO CL PRIME NEGATIVE COULD BE DETECTED IN THE WASHINGS, THEN DRIED AGAIN AT 105DEGREES. THE HIGHEST AMT. OF PCL SUB3 WAS RETAINED BY THIS CARBON WHEN THE TREATMENT WAS AT 800DEGREES. THE ION EXCHANGE CAPACITY OF PHOSPHORYLATED CARBON TOWARDS NAOH IS ALSO MAXIMAL AFTER TREATMENT AT 800DEGREES. PROLONGED CONTACT OF PHOSPHORYLATED CARBON WITH WATER AND ALK. OR ACIDIC SOLNS. RESULTS IN CLEAVAGE OF SOME PHOSPHORIC ACID. THUS, TREATMENT OF PHOSPHORYLATED CARBON WITH N NAOH DURING 1 HR RESULTS IN A DECREASE OF P CONTENT FROM 2.7 TO 2.5PERCENT. THERMAL STABILITY OF PHOSPHORYLATED CARBON WAS DETD. LOSS OF P WAS OBSD. LARGER THAN 600DEGREES. A LINEAR DEPENDENCE BETWEEN ION EXCHANGE CAPACITY OF THIS CARBON AND P CONTENT WAS OBSD.; THE DATA SUGGEST THAT ONE ACTIVE H (EXCHANGEABLE TO NA PRIME POSITIVE) IS AVAILABLE FOR EACH P ATOM RETAINED BY CARBON.  
FACILITY: Leningrad. TEKHNOL. INST. 'IM. LENSIVETA, Leningrad, USSR.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--POSSIBILITIES AND LIMITATIONS OF A METHOD FOR ASSAY OF NATURAL  
AUXINS AND GROWTH INHIBITORS -U-  
AUTHOR-(03)-KEFELI, V.I., TURETSKAYA, KH.R., KOF, E.M. K  
COUNTRY OF INFO--USSR  
SOURCE--FIZIOLOGIYA RASTENIY, 1970, VOL 17, NR 3, PP 627-634  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--PROCESSED PLANT PRODUCT, SOLVENT EXTRACTION, PLANT GROWTH  
REGULATOR, CHROMATOGRAPHIC SEPARATION, PLANT PHYSIOLOGY  
CONTROL MARKING--NO RESTRICTIONS.  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/0388 STEP NO--UR/0326/70/017/003/0627/0634  
CIRC ACCESSION NO--AP0121074  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121074

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME FEATURES OF EXTRACTION OF GROWTH SUBSTANCES AND RELATED PIGMENTS FROM PLANT MATERIAL BY ETHER AND OTHER SOLVENTS ARE DISCUSSED. IT IS NOTED THAT THE EXTRACTABILITY OF IAA FROM GROUND TISSUES DEPENDS ON THE MOISTURE CONTENT OF THE SAMPLE AND ON ITS ABILITY TO COMBINE WITH POLYMER COMPOUNDS. RESTRICTIONS ARE ESTABLISHED FOR APPLICATION OF TOLUENE FOR PURIFICATION OF GROWTH SUBSTANCE EXTRACTS FROM PIGMENTS AND LIPIDS. THE VARIOUS STAGES OF ANALYSIS OF GROWTH SUBSTANCES ARE CONSIDERED. THE FIRST IS CHOICE OF THE SAMPLE AND OPTIMAL SOLVENT MIXTURE FOR ONE DIMENSIONAL CHROMATOGRAPHY; THIS PERMITS ONE WITH AID OF BIOTESTS TO DETECT THE STIMULATION AND INHIBITION ZONES AND WITH HELP OF COLOR REACTIONS TO ASSESS THEIR CHEMICAL NATURE. THE SECOND STAGE CONSISTS IN PREPARATIVE EXTRACTION OF THE MAJOR AUXINS AND INHIBITORS, THE ACCUMULATION AND RECHROMATOGRAPHY OF SEPARATE PHYSIOLOGICALLY ACTIVE COMPOUNDS. THE PREPARATIVELY EXTRACTED AND CHEMICALLY IDENTIFIED GROWTH SUBSTANCES, AUXINS AND INHIBITORS, CAN SUBSEQUENTLY BE EMPLOYED FOR FURTHER ASSESSMENT OF THEIR PHYSIOLOGICAL PROPERTIES. IN PARTICULAR TWO INDICES CAN BE CHOSEN FOR CHARACTERIZING THE SUPPRESSING ACTION OF THE GROWTH INHIBITORS. THESE ARE 1) C SUB50, THE INHIBITOR CONCENTRATION WHICH SUPPRESSES GROWTH BY 50PERCENT AND 2) CRITERIA FOR INTERACTION BETWEEN INHIBITORS AND SUB OPTIMAL PHYTOHORMONE CONCENTRATIONS: COMPLETE ANTAGONISM, PARTIAL ANTAGONISM, ABSENCE OF ANTAGONISM AND STIMULATION OF PHYTOHORMONE ACTION BY THE INHIBITOR. FACILITY: K. A. TIMIRIAZEV INSTITUTE OF PLANT PHYSIOLOGY, USSR ACADEMY OF SCIENCES, MOSCOW.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--ACTION OF METABOLIC INHIBITORS ON THE FORMATION OF CHLOROPHYLL AND  
FLAVONIC GROWTH INHIBITORS DURING THE VIRIDESCENCE OF PLANTS -U-  
AUTHOR--KCF, E.M.

*K*

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONTENT OF GROWTH INHIBITORS, ISOSALIPURPOSIDE AND PHLORIZIN, IN ETIOLATED WILLOW AND APPLE SPROUTS AND OF QUERCETINGLYCOGOSYL COUMARATE IN ETIOLATED PEA SPROUTS WAS LOWER BY A FACTOR OF 4-6 THAN IN GREEN SPROUTS, INDICATING THAT THE SYNTHESIS OF FLAVENOID INHIBITORS IS STRONGLY ACTIVATED IN THE LIGHT. CHLORAMPHENICOL (1.4 TIMES 10<sup>-5</sup> M) AND DIURON (3.2 TIMES 10<sup>-5</sup> M) INHIBITED FORMATION OF ISOSALIPURPOSIDE AND PHLORIZIN, PROBABLY IN CONNECTION WITH INHIBITION OF CHLOROPLAST PHOTOSYNTHESIS. FACILITY: INST. FIZIOL. RAST. IM. TIMIRYAZEVA, MOSCOW, USSR.

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USSR

UDC 581.192.7

*K*  
KOF, E. M., Institute of Plant Physiology imeni K. A. Timiryazev, Academy of Sciences, USSR, Moscow (Presented by Academician M. Kh. Chailakhyan)

"The Effect of Metabolic Inhibitors on Processes of Chlorophyll Formation and Formation of Flavonoid Growth Inhibitors During Growth of Plants"

Moscow, Doklady Akademii Nauk SSSR, Vol 192, No 3, 1970, pp 676-679

Abstract: Experiments were conducted to determine whether flavonoid inhibitors affect the functional activity of chloroplasts. Shoots of *Salix rubra* L. and the apple tree *Malus domestica* Borkh were kept in vessels filled with water or earth in a warm room. Etiolated shoots obtained when the blossoms opened were cut and treated in the dark and in the light with aqueous solutions of metabolic inhibitors: chloramphenicol, an inhibitor of protein synthesis, at a concentration of  $1.4 \times 10^{-5}$ M and diuron, an inhibitor of photosynthetic phosphorylation, at concentrations of  $1.6-3.2 \times 10^{-7}$ M. These concentrations were derived from preliminary tests on the effect of these compounds. At the designated concentrations, the inhibitors cut down root formation by 50-70 percent. Ethanol extracts from peas, willows, and apples were analyzed by paper chromatography in a carrier current of 15 percent acetic acid. Chlorophyll in the

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USSR

KOF, E. M., Doklady Akademii Nauk SSSR, Vol 192, No 3, 1970, pp 676-679

extracts was determined by its absorption maxima at 649 and 665 millimicrons. The results obtained showed that the content of growth inhibitors isosalipurposide and floridsine, in etiolated shoots of the willow and apple, and the content of flavin-glycosyl-coumarate in etiolated pea shoots are 4-6 times lower than in green parts. Thus, the synthesis of flavonoid inhibitors is activated by light. The inhibitors chloramphenicol and diuron reduce formation of the chalcone isosalipurposide and dihydrochalcone floridsine, which are related to the inhibition of photosynthetic activity of chloroplasts.

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USSR

UDC 621.3.019.3

KOFANOV, YU. N.

"Table of Relative Sensitivity Functions"

V sb. Tochnost' radioelektron. apparatury. Sb. 1 (Accuracy of Radio Electronic Equipment. Collection 1 -- collection of works), Moscow, 1971, pp 38-43 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1A189)

Translation: When determining the accuracy of radio electronic equipment, it is necessary to calculate the relative sensitivity functions of the output characteristic  $y$  with respect to the parameters  $q_i$ . The relation of  $y$  and  $q_i$  is given in explicit form. The relative sensitivity  $S_{\delta q}^{\delta y}$  is calculated in terms of the calculated values of the output characteristic and the parameter  $y$  and  $q$  by the following formula:

$$S_{\delta q}^{\delta y} = \frac{q}{y} \left( \frac{\partial y}{\partial q} \right) q.$$

The rules for obtaining the relative sensitivity functions by the presented formula for 25 functional relations of the parameters  $q$  and the characteristics

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KOFANOV, YU. N., Tochnost' radioelektron. apparatury. Sb. 1, Moscow, 1971, pp 38-43

y are presented in tabular form. The output characteristic was investigated as the complex function of the intermediate characteristics which are related to the investigated parameter  $q$ . Examples are presented which illustrate how the tables are used. There is 1 table.

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USSR

UDC: 621.372

TARAN, V. A., KOFANOV, Yu. N., SHRAMKOV, I. G.

"Methods of Quantitatively Estimating the Parametric Sensitivity of Electronic Systems"

Sb. nauchn. tr. Vladimir. politekhn. in-t (Collected Scientific Works of Vladimir Polytechnical Institute), 1970, vyp. 9, pp 24-30 (from RZh-Radio-tekhnika, No 5, May 71, Abstract No 5A69)

Translation: An analysis is given of methods for quantitatively evaluating the parametric sensitivity of electronic systems. Consideration is given to problems of finding the influence factor in designing electronic systems. Five illustrations, bibliography of eight titles. Resumé.

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USSR

UDC 621.396.6.019.3

~~KOFANOV~~, Yu. N., GIREL, P.M., ZHIV, M. I.

"Mathematical Expectation and Investigation of the Parametric Sensitivity of Converter Circuits with Modulation"

Metody razrab. radiotelektron. apparatury. Materialy Seminara. Sb. 2 (Methods of Developing Radioelectronic Equipment. Materials of the Seminar. Collection 2), Moscow, 1970, pp 60-65 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A183)

Translation: This article contains a study of a multiphase converter using a mathematical model described by a system of linear differential equations with aperiodic coefficients. As an example, a single phase autonomous parallel inverter is considered. There are two illustrations and a three-entry bibliography.

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USSR

UDC 621.396.6.019.3

TARAN, V. A., KOFANOV, Yu. N., SHRAMKOV, I. G.

"Parametric Sensitivity of Radio Equipment with Variable Parameters"

Metody razrab. radioelektron. apparatury. Materialy Seminara. Sb. 2 (Methods of Developing Radioelectronic Equipment. Materials of the Seminar. Collection 2), Moscow, 1970, pp 52-59 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 18A181)

Translation: This article contains a discussion of the method of determining functions of parametric sensitivity of linear nonstationary systems with continuous variation of the parameters during the operating process constituting the development of an influence operator method proposed earlier by the authors for stationary systems. The equations of sensitivity obtained can be solved in general form. They are solved approximately by means of a computer. There are three illustrations and a seven-entry bibliography.

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USSR

UDC 621.372.061

K  
KOFANOV, Yu. N., GIREL, P. M.

"Construction of Band Filters from DC Amplifiers"

Metody razrab. radioelektron. apparatury, No 1 (Methods of Developing Radio-electronic Equipment. No 1), Moscow, 1970, pp 36-41 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A125)

Translation: This article contains a discussion of a method of calculating narrow band filters from DC amplifiers with a double T-type RC-bridge in a feedback circuit. The conditions of obtaining the maximum amplification coefficient and optimal selectivity are derived. It is demonstrated that for rapid tuning of the filter it is necessary to maintain bridge parameters with an accuracy up to 0.01% or have fine and rough regulation of the resistance. There are three illustrations and a two-entry bibliography.

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USGR

UDC 539.37:669.813

SHORSHOROV, M. Kh., TIKHONOV, A. S., and KOFANOVA, G. N., Moscow

"Strengthening of Titanium Alloys by Treatment in Superductility Modes"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 6, Nov-Dec 72, pp 89-94

Abstract: Results are presented from experiments conducted on VT-6 and VT-14 titanium alloys to determine the possibility of strengthening them by high-temperature deformation in superductility modes (small grain size and high density of lattice defects in the boundary sections of grains). The alloys used had the following chemical composition:

	Al	V	Mo	Fe	H <sub>2</sub>
VT-6	6.75	5.25	----	0.17	0.003
VT-14	5.10	1.17	3.00	0.20	0.003

These alloys were selected because of their low ductility at room temperature after standard heat treatment.

VT-14 alloy was subjected to six different forms of thermomechanical treatment: 1 -- extruded and water cooled; 2 -- extruded and air cooled; 1/2



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SHORSHOROV, M. Kh., et al., Fizika i Khimiya Obrabotki Materialov, No 6, Nov-Dec 72, pp 89-94

3 -- extruded, water cooled, and aged; 4 -- extruded, air cooled, and aged; 5 -- extruded, water cooled, cold rolled, and aged; 6 -- extruded, air cooled, cold rolled, and aged. The alloy was aged at 480°C for 10 hours after extrusion and at 300-310°C for 10 hours after cold rolling. VT-6 alloy was subjected to only three forms of thermomechanical treatment -- the same as processes 1, 3, and 5 above, except that it was aged at 500°C for two hours after extrusion and at 350°C for two hours after cold rolling.

Results of mechanical tests showed that for both alloys the treatment by extrusion, cold rolling, and aging provided the best combination of strength and ductility properties and, of the two alloys, VT-14 exhibited the greatest effect of strengthening because it contained less aluminum which increases atom diffusion mobility in the lattice when it is in the solid solution. Five figures, 10 bibliographic references.

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USSR

UDC 661.183.123.2

LYUBLINER, I. P., YERMOLENKO, I. N., KORMAN, A. YE., and DIN', K. K.,  
Institute of General and Inorganic Chemistry, Academy of Sciences BSSR

"Investigation of the Phosphorylation Process of Carbon Fibers"

Minsk, Vesti Akademii Navuk BSSR, Seriya Khimicheskikh Navuk, No 3, 1973,  
pp 80-85

Abstract: The phosphorylation process of carbon fiber materials obtained by pyrolysis of oxidized cellulose with  $PCl_3$  vapors has been investigated by means of physico-chemical methods. It has been shown that the amount of chemically bound phosphorus increases with increasing temperature of phosphorylation up to the maximum of 10 weight-%. At the same time it depends on the pyrolysis temperature of the carbon fiber used in phosphorylation. By means of chemical analyses and potentiometric titration it has been established that the phosphorylated fibers obtained are monobasic ion exchange resins with exchange capacity of up to 3 mg-ec/g. The IR spectra and chemical studies showed that along with the phosphorylation process there occurs an addition of chlorine to the carbon fiber. The roentgenograms show that during the phosphorylation process no structural changes in the fibers take  
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USSR

LYUBLINER, I. P., et al., Vestsi Akademii Navuk BSSR, Seriya Khimicheskikh Navuk, No 3, 1973, pp 80-85

place, except for some degree of disorganization. The thermal stability of phosphorylated carbon fibers is higher by about 100° than that of the starting carbon. The phosphorylated ion exchange resins are stable in strongly acetic media during repeated sorption-desorption cycles.

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CSO: 1841-W

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USSR

UDC 669.71.41

LIVANOV, V. A., GOROKHOV, V. P., KOLACHEV, B. A., KOFMAN, I. M., and SKUCHILOV, A. I.

"Filtration of Aluminum Melts Through Aluminum Oxide With Simultaneous Degasification by Neutral Gases"

Tr. Mosk. aviats. tekhnol. in-ta (Works of Moscow Aviation Technological Institute), 1970, vyp. 71, pp 88-93 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G230 by authors)

Translation: The article presents a theoretical estimate of the quantity of neutral gas which must be passed through a melt in order to decrease the gas content a given number of times. The theoretical calculations agree well with the experimental data obtained during the degasification of aluminum with neutral gases and nitrogen. The gas content of aluminum is decreased especially effectively when aluminum is filtered through  $Al_2O_3$  with simultaneous degasification by neutral gases. Two illustrations. One table. Bibliography of four titles.

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