

USSR

UDC: 518.9

LIVSHITS, I. M., ROKHLIN, V. I., SPRYGINA-SLIK, S. D.

"On a Minimax Solution of One Problem of Distributing Resources"

V sb. Issled. Operatsiy. Vyp. 2 (Operations Research--collection of works. No 2), Moscow, 1971, pp 42-57 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V773)

Translation: The authors find the value of the minimax and the strategy which realizes it for the problem of distribution of offensive and defensive facilities among several sections for the case where the gain of the attacker on an individual section is proportional to the probability of a breach in the defense on this section by at least one of the attack facilities, and is equal to the value of the section if such a breach becomes certain. I. Fomin.

1/1

Acc. Nr:

AP0051970

Ref. Code: UR0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i Meditsiny, 1970, Vol 69, Nr 3, pp 95-97

EFFECT OF TOTAL AND SUBTOTAL THYROIDECTOMY ON THE GROWTH OF TRANSPLANTABLE MULTIFORM GLYOBLASTOMA OF THE RAT CEREBELLUM

N. A. Sprushkova

Institute of Human Morphology, Academy of Medical Sciences of the USSR, Moscow

Investigation was made of the effect of athyroid and hypothyroid state of the rats-recipients of transplantable multiform glioblastoma of the cerebellum — on the duration of the incubation period of disease and on the death of the rats. The operation was performed 30 days before the transplatation of the tumour cells. It was established that total and subtotal thyroidectomy induces prolongation of the incubation period and delays the death of the animals.

REEL/FRA
ME 19820457

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1/2 009
UNCLASSIFIED
TITLE--SULFONATION REACTIONS. 72. HYDROLYSIS OF BROMOBENZENESULFONIC ACIDS
-U- PROCESSING DATE--30OCT70
AUTHOR--(03)--POTAPOVA, T.I., SPRYSKOV, A.A., KUKUSHKIN, YE.P.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1), 75-8
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SULFONATION, HYDROLYSIS, BROMINATED ORGANIC COMPOUND, BENZENE,
SULFONIC ACID, ISOMER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0783
STEP NO--UR/0153/70/013/001/0075/0078
CIRC ACCESSION NO--AP0124452
UNCLASSIFIED

272 009

CIRC ACCESSION NO--AP0124452
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. FROM STUDIES ON THE DEGREE OF
 SULFONATION OF PHBR BY 50-94PERCENT H SUB2 SO SUB4 IN 10 HR AT
 50-200DEGREES, THE MAX. ACID CONCNS. FOR 1PERCENT OR LESS SULFONATION
 ARE: 89.5PERCENT AT 50DEGREES, 80PERCENT AT 100DEGREES, 73PERCENT AT
 150DEGREES, AND 61.5PERCENT AT 200DEGREES. STUDIES OF THE PERCENT
 HYDROLYSIS IN 10 HR OF O-BROMOBENZENESULFONIC ACID AT 109-47DEGREES IN
 76.3-70.4PERCENT H SUB2 SO SUB4, OF P-BROMOBENZENESULFONIC ACID AT
 121-65DEGREES IN 74.9-66.6PERCENT H SUB2 SO SUB4, AND OF
 M-BROMOBENZENESULFONIC ACID AT 160-200DEGREES IN 67.6-57.9PERCENT H SUB2
 SO SUB4, INDICATE THAT HYDROLYSIS OF THE ORTHO ISOMER IS INITIATED IN
 73.3PERCENT H SUB2 SO SUB4 AT 128.5DEGREES, OF THE PARAISOMER
 144.5DEGREES IN 70.8PERCENT H SUB2 SO SUB4, AND OF THE META ISOMER AT
 182DEGREES IN 62PERCENT H SUB2 SO SUB4.
 KHIM.-TEKHNOL. INST., IVANOVD, USSR. FACILITY: IVANDV.

UNCLASSIFIED

USSR

UDC 616.936.2-036.3"405"-036.2(47)

DUKHANINA, N. N., and SPUDIS, V. K., Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martynovskiy, Ministry of Health USSR, and Institute of Medical Parasitology, Ministry of Health RSFSR, Rostov-on-Don

"Is Tertian Malaria with a Long Incubation Period Now Present in the USSR"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol. 39, No 4, Jul/Aug 70, pp 468-472

Abstract: An epidemiological investigation revealed that 69 new cases of tertian malaria with a long incubation period were reported between 1961 and 1969 in various parts of the USSR (27 in the RSFSR and 42 in the Kazakh, Azerbaydzhan, Tadzhik, Uzbek, and Georgian Republics). All of the cases were detected between January and July, the usual time for manifestation of malaria with a prolonged incubation period. The disease was found in regions where a prolonged incubation period is predominant (north), in regions where a short incubation period is usual (south), and in regions where both types are evenly distributed (central area). In most of the localities where fresh cases were reported in the spring, either outbreaks of malaria had occurred the year before or the disease was transmitted at a low level with isolated cases involving a short incubation period. The cases arising after a long incubation period are ascribed to infection with *Plasmodium vivax* from residual foci in the southern regions where strains occur that produce malaria after both long and short incubation periods.

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022

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--A STUDY OF ANTIGENS OF THE SURFACES OF CELLS OF LARYNGEAL PAPILLOMA

-U-

AUTHOR--(03)-ILIN, K.V., SPURE, ZH.ZH., CHIRESHKIN, D.G.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 5, PP 85-88

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIGEN ANTIBODY REACTION, RESPIRATORY SYSTEM, FLUORESCENT ANTIBODY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0092

STEP NO--UR/0219/70/069/005/0085/0088

CIRC ACCESSION NO--AP0120792

UNCLASSIFIED

022
CIRC ACCESSION NO--AP0120792
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

OF CHILDREN CONTAIN A SPECIFIC SURFACE ANTIGEN (OR ANTIGENS) REVEALED BY
THE INDIRECT METHOD OF FLUORESCING ANTIBODIES. HUMORAL ANTIBODIES TO
THIS ANTIGEN EXERT A CYTOTOXIC EFFECT ON THE CELLS OF PAPILLOMA.
FACILITY: GAMALEIA INSTITUTE OF PEIDEMIOLOGY AND MICROBIOLOGY OF THE
ACADEMY OF MEDICAL SCIENCES, OF THE USSR AND NO. 2 CITY PEDIATRIC
CLINICAL HOSPITAL, MOSCOW.

UNCLASSIFIED

1/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--RADIOLUMINESCENCE OF ORGANIC MATTER. VI. FLUORESCENCE AND
PHOSPHORESCENCE IN FROZEN SOLUTIONS DURING X RAY AND PHOTOEXCITATION -U-

AUTHOR-(04)-ANDREYESHCHEV, YE.A., KILIN, S.F., ROZMAN, I.M., SPURNY, F.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 662-6

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--RADIOLUMINESCENCE, X RAY, BENZENE, NAPHTHALENE,
PHOSPHORESCENCE, FLUORESCENCE, LIGHT EXCITATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1626

STEP NO--UR/0048/70/034/003/0662/0666

CIRC ACCESSION NO--AP0125248

UNCLASSIFIED

2/2 021

CIRC ACCESSION NO--AP0125248
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. THE PHOTO AND RADIOLUMINESCENCE OF BENZENE AND NAPHTHALENE (I) IN CYCLOHEXANE, DECALIN, PHME, AND ETOH AT 77DEGREEK WERE MEASURED; THE PHOSPHORESCENCE SPECTRA WERE SEP. RECORDED, AND THE PHOSPHORESCENCE FLUORESCENCE RATIO DURING X RAY AND PHOTOEXCITATION WAS ESTD.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--PROPAGATION OF ELECTROMAGNETIC WAVES IN A TROUGH WAVEGUIDE -U-
AUTHOR--SPURNIKOVA, G.K.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO 3, MAR 70, PP 598-600
DATE PUBLISHED---MAR 70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--ELECTROMAGNETIC WAVE PROPAGATION, RECTANGULAR WAVEGUIDE,
WAVEGUIDE PROPAGATION, WAVEGUIDE LOSS, CALCULATION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/1421 STEP NO--UR/0109/70/000/003/0598/0600
CIRC ACCESSION NO--AP0104735
UNCLASSIFIED

2/2 022

CIRC ACCESSION NO--AP0104735

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER PRESENTS A RIGOROUS SOLUTION OF THE PROBLEM OF WAVE PROPAGATION IN A TROUGH WAVEGUIDE, I.E., A TRANSMISSION LINE CONSISTING OF TWO PARALLEL PLATES WITH RECTANGULAR TROUGHS. A FIELD EXISTS IN THE STRUCTURE UNDER THE CIRCUMSTANCE THAT ITS PRECISE BOUNDARY CONDITIONS ARE SUBORDINATE AT THE WAVEGUIDE SURFACE. IT IS CONCLUDED THAT A TROUGH WAVEGUIDE IS AN OPEN TRANSMISSION LINE WITH SMALL LOSSES. WAVES WHICH ARE PROPAGATED IN SUCH A WAVEGUIDE BELONG TO A CLASS OF WAVES WITH LEAKAGE, ANOLOGOUS TO THOSE EXISTING IN OPEN WAVE GUIDING SYSTEMS. THE ENERGY LEAKAGE IN THE CASE UNDER CONSIDERATION ORIGINATES FROM THE PENETRATION OF THE FIELD FROM THE TROUGH AREA INTO THE PLANE PARALLEL NEIGHBORING REGIONS ADJOINING IT, AND CAN BE SMALL. FOR PROPAGATING H WAVES IN A TROUGH WAVEGUIDE, FORMULAS ARE PRESENTED WHICH MAKE IT POSSIBLE TO CALCULATE THE WAVEGUIDE PARAMETERS WITHOUT USE OF AN ELECTRONIC COMPUTER. THE AUTHOR THANKS O.A. TRET'YAKOV FOR ATTENTION TO THE WORK. 2 FIGS. 8 FORMULA. 5 REF.

RECEIVED BY EDITOR: 24 FEB 69.

UNCLASSIFIED

USSR

UDC 621.735.043.016.3:669.14.018.252.3

CHERNYY, YU. F., ALISTRATOV, L. I., BEREZIN, A. A., GALKIN, A. A., KOVIKO, V. S., KULIKOV, N. I., SPUSKANYUK, V. Z., and SHTOKMAN, A. D.

"Industrial Introduction of Technique of Hydropressing of Tool Billets From Steels R18, R12, R9"

Moscow, Kuznechno-Shtampovochnoye Proizvodstvo, No 8, Aug 71, pp 11-12

Abstract: Experimental investigations at Dnepropetrovsk Physicotechnical Scientific Research Institute, Academy of Sciences Ukrainian SSR, showed that the cold plastic deformation of billets of high-speed steels R18, R12, and R9 by the hydropressing method results in significant refinement and more uniform distribution of the carbide phase. Investigations of R18 steel billets following hydropressing, annealing, and heat finishing showed an increase in the mechanical properties and thermostability of the steel, while production tests of 10-mm-diameter reamers showed a 60-70 percent increase in tool durability. Hydropressing of cylindrical round-section billets from R18, R12, and R9 bars up to 30 mm in diameter has been introduced at one of the

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CHERNYY, YU. F., et al., Kuznechno-Shtampovochnoye Proizvodstvo, No 8, Aug 71, pp 11-12

Donetskaya Oblast plants. A model p479 hydraulic press is used for billet deformation. The hydropressing setup consists of a high-pressure multilayer container, rod and die with gasketing, an upper and lower plate, and a center and fastener. The tool billet hydropressing process provides for the preparation of initial billets, straining of the billets, and their subsequent treatment. Kh12M steel (HRC 57-59) is used for the die. The economic advisability of using the technique of high-speed steel hydropressing for the fabrication of tool billets is based mainly on the increased tool durability as a result of the improved structure and physicomachanical properties of the steel after deformation. There is a saving in high-speed steels because the billet comes as close as possible to the tool size.

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Forming

UDC: 621.777.01:669.14.253

CHERNYY, Yu. F., SPUSKANYUK, V. Z., and LYADSKAYA, A. A.

"Cold Plastic Deformation of R18 Steel by the Hydroextrusion Method"

Moscow, Kuznechno-shtampovochnoye proizvodstvo, No. 5, 1971, pp 12-13

Abstract: This article gives the results of investigations into the conditions of hydroextrusion of R18 steel rods, the structure and characteristics of the steel after the deformation, and the strength of an instrument made of the extruded rods. The extruded specimens were made in machines mounted on hydraulic presses, model P474A, providing a stress of 100 tons, and model DO437, with a stress of 500 tons. The machine consists of a high-pressure container, a piston, and matrices with gaskets for centering and fixing the produced material. During the experimentation, the pressure in the operating cylinder of the press is recorded through a manometer and a recording device. From these data and the results of load calibration, the specific stress of the extrusion process, i.e., the pressure on the transverse cross section of the container opening, is computed. Initially, the steel used was R18, hot-rolled and annealed; it was then tempered by heating to 730-770° C

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CHERNYY, Yu. F., et al, Kuznechno-shtampovochnoye proizvodstvo,
No. 5, 1971, pp 12-13

for one hour and cooling in oil. The mechanical qualities of the rods, measuring 20-35 mm in diameter, were measured after deformation and determination of the hydroextrusion stresses. It is stated that the techniques of hydroextrusion of high-speed steel rods with a diameter of up to 30 mm have been introduced into the production processes of one of the Donetsk Oblast enterprises.

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1/2 CC9 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--PHYSICO-CHEMICAL STUDY OF AMMONIUM CARBONATE AMMONIUM HALIDE WATER
SYSTEMS -L-
AUTHOR--(03)-BELYAYEV, I.N., GRIGORYEVA, YE.A., SPUSKANYUK, ZH.F.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 796-800
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--AMMONIUM HALIDE, AMMONIUM COMPOUND, CARBONATE, AMMONIUM
CHLORIDE, WATER, SOLUBILITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0451 STEP NO--UR/0070/70/015/003/0796/0800
CIRC ACCESSION NO--AP0126203
UNCLASSIFIED

2/2 009

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PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126203

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

ABSTRACT. SOLY., ELEC. COND., D., VISCOSITY,

AND N OF (NH SUB4) SUB2 CO SUB3-NH SUB4 X-H SUB2 9 SYSTEM (WHERE X
EQUALS CL, BR, OR I) WERE DETD. AT 15DEGREES. THE NH SUB4 CL AND NH

SUB4 BR SYSTEMS ARE SIMPLE EUTONIC SYSTEMS AND THE NH SUB4 I SYSTEM
FORMS THE UNSTABLE (MH SUB4) SUB2 CO SUB3-NH SUB4 1.21 SUB2 0 COMPO.

UNCLASSIFIED

USSR

UDC 621.791:51.001.57

PATON, B. YE., and SPYNU, G. A., Institute of Electric Welding imeni Ye. O. Paton

"Industrial Robots for Welding"

Kiev, Avtomaticheskaya Svarka, No 9, Sep 72, pp 1-8

Abstract: Application of numerical program control methods for the development of second-generation industrial robots is discussed as applied to arc and spot welding. According to the authors, this generation of industrial robots must have a complex system of control, be self-adjusting, be adaptable to external conditions, and be able to select the appropriate behavior algorithm for a given situation. The second generation of robots should be able to simulate the movement of a man's hands in order to place and orient an object. This requirement has led to the creation of two basic designs: wrist movement in conjunction with the coordinates of the spherical system (rotations in horizontal and vertical planes and radial forward movement); wrist movement in cylindrical coordinates (rotation around the vertical axis, vertical and radial forward movement). The remaining two degrees of freedom are wrist rotation (wrist with clamp attachment) around mutually perpendicular axes.

The control system of industrial robots consists of a memory, logic elements, and executive components. Memory can be magnetic tape, drum, or
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PATON, B. YE., and SPYNU, G. A., *Avtomaticheskaya Svarka*, No 9, Sep 72, pp 1-8
ferrite cores; control system executive components can be digital, analog, or mixed.

Programming of an industrial robot is fairly simple. The robot is connected to a control panel where a worker performs a welding operation using control panel buttons. As the robot is performing the welding operation under control of the control panel, it stores the movements it makes in its memory, allowing this process to be repeated as many times as required. Also an operational program can be dumped from the memory of one robot and loaded into the memories of other robots.

At the present time robots are being used solely for auxiliary operations whereas in the future, once automation problems have been solved, the robot should be able to perform the entire welding process. Parallel with the creation of specialized welding robots for ordinary conditions there is the task of designing a robot which can perform welding operations under water, in corrosive media, space, etc.

The Institute of Electric Welding imeni Ye. O. Paton is researching the possibilities of using robots in welding production. Much has been done toward determining the conditions of using robots for spot welding at automobile plants. 4 figures, 2 tables, 15 bibliographic references.

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SPYNU, G. A.

Electro Welding

JPRS 54875
7 January 1972

ISSN 621-791-75-002-5

DESIGN PRINCIPLES OF NUMERICAL PROGRAMMED CONTROL OF
ARC AND ELECTRON BEAM WELDING

63127041 Article* by G. A. Spynu, V. I. Zaytsev, V. I. Parshchikov, and G. K. [unclear]
of the Institute of Welding, Institute of the Academy of Sciences of the USSR, Moscow, No. 8, 1971, submitted 18 March 1971, pp
33-37

The complexity of the solution to the problem of automating the movements of the operating organ is often caused by the random, uncontrolled nature of the information concerning the required trajectory of the movements when the parts to be joined are prepared with large tolerances in their position relative to the guiding motions of the working organ and by established with sufficient precision. All this calls for the need of determining the required trajectory of motion of the working organ for each part individually.

In many cases, the peculiarity of the welding process is the need for moving the operating organ several times along the required trajectory (multipath welding). The main line of the welded part is then difficult to determine after the first seam is imposed. It is best to remember the primary trajectory and to perform the consequent operations in conformity with this information.

To solve this and other problems, the use of a programmed control system (PCS) with preliminary recording of the program is proposed. The generalized scheme of the system realizing the motion of the welding operation organ along its trajectory in the xy plane is shown in Fig. 1.

The program is recorded for the motion of the working organ along its trajectory, which is kinematically connected to sensors for the coordinates x and y, \dot{x} and \dot{y} , which convert the motion into electrical signals recorded in the memory device MD.

* Submitted to the All-Union Conference on Automatic Control of Welding Processes, Kiev, 13-14 October 1970.

USSR

UDC 614.7:615.28:547.1'118

SPYNU, YE. I., Doctor of Medical Sciences, VROCHINSKIY K. K., ZOR'YEVA, T. D., and MAN'KO, N. N., All Union Scientific Research Institute of Hygiene and Toxicology of Insecticides, Polymers, and Plastics, Kiev

"Comprehensive Approach to the Setting of Standards for New Organophosphorus Pesticides in Environmental Objects"

Moscow, Gigiyena i Sanitariya, No 11, 1972, pp 96-99

Abstract: Such organophosphorus compounds as thiophos, methylmercaptophos, carbophos, etc. may enter the human body with food, water, and air. Hence a comprehensive approach to the setting of standards for the pesticides is recommended. It involves establishing the maximum permissible dose for man and the relative share of each medium in the dose, i.e., $D_M = \sum_{i=1}^3 \cdot D_i$,

where D_M is the safe permissible dose for man; D_1 is the amount of pesticide in food; D_2 is the amount of pesticide in water; D_3 is the amount of pesticide in inhaled air; i is the amount in the i th medium. The following steps are taken to set the standard for a given pesticide: (i) toxicological studies and generalization of the results to determine D_M for animals; (ii) determination
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SPYNU, YE. I., et al., Gigiyena i Sanitariya, No 11, 1972, pp 96-99

of D_M for man based on the comparative sensitivity of man and animals to the compound; (iii) determination of the actual content of the pesticide in various media ($K_1, K_2 \dots K_n$) and relative share of each medium in D_M for man, calculation of the standard in a medium based on D_M for man and on K_1 ; (iv) comparison of D_M for man with the total amount of the pesticide that may penetrate the human body after coming into contact with various media. Earlier studies showed that man and animals are equally sensitive to most organophosphorus pesticides after a single exposure. However, man is considerably more sensitive after chronic or prolonged exposure.

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ISSK

UDC 632.95.028:519.2

IVAKHNENKO, A. G., SPYNU, YE. I., PATRATYI, I. Z., IVANOVA, L. N., All-Union Scientific Research Institute of Hygiene and Toxicology of Pesticides, Polymers and Plastics and the Cybernetics Institute of the Ukrainian SSR Academy of Sciences, Kiev

"Mathematical Forecasting of the Degradation Time of Pesticides in Plants by the Probability Algorithms of the Grouped Argument Method"

Moscow, Gigiyena Sanitariya, No 10, 1972, pp 43-48

Abstract: A study was made of one of the elements of a generalized mathematical model reflecting the multifactor dependence of the process of propagation and disappearance of pesticides in various parts of the environment with indication of forecasting the degradation time of the pesticides in plants. A set of pesticides was divided into classes with respect to duration of their degradation the function of 22 attributes including the physical-chemical properties, parameters characterizing the crop and the conditions of applying the pesticide to it, and also of the meteorological conditions. Three digitalization levels were introduced, and simple recognition formulas were obtained which can be used for manual calculations and to discover the pesticide dynamics in the case of multiple combination of the indicated factor with an accuracy up to 80%. The recognition formula in the logarithmized form appears as follows:

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IVAKHNENKO, A. G., et al., Gigiyena Sanitariya, No 10, 1972, pp 43-48

$$\begin{aligned} \ln(P_{ai}) = & \ln[P(X_1 X_{10}/R_i)] = \ln[P(X_2 X_3/R_i)] + \ln[P(X_2 X_4/R_i)] + \\ & + \ln[P(X_3 X_4/R_i)] + \ln[P(X_3 X_{13}/R_i)] + \ln[P(X_4 X_{10}/R_i)] + \\ & + \ln[P(X_4 X_{19}/R_i)] + \ln[P(X_5 X_6/R_i)] + \ln[P(X_6 X_{21}/R_i)] + \\ & + \ln[P(X_9 X_{17}/R_i)] + \ln[P(X_{13} X_{18}/R_i)]. \end{aligned}$$

where $P(X_k X_l/R_i)$ is the probability of the appearance of combinations of attributes in the i -th class. The data indicate that the mathematical models can satisfactorily replace the complex and limited production studies lasting two years and more.

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UDC 614.72:615.285.7

SPYNU, Ye. I., IVANOVA, L. N., and BOLOTNYY, A. V., All-Union Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastics, Kiev

"Pollution of the Environment with Organophosphorus Pesticides"

Moscow, Gigiyena i Sanitariya, No 10, 1973, pp 75-79

Abstract: It is evident from this review of the literature, Soviet and Western, that the extent and duration of pollution of the atmosphere with organophosphorus pesticides depend on the method by which they are applied to the crops, physicochemical properties of the compounds, and climatic conditions and other factors. The degree of persistence of organophosphorus pesticides in plants varies with such physical factors as volatility and solubility in water and organic solvents. The chemical and biological stability of the compounds determine the extent to which they are destroyed by ultraviolet radiation, oxygen and air temperature, and plant enzymes. The method of applying the pesticides, number of applications, rate of expenditure, species of plant treated, etc. are other important factors. The levels of pesticides in soils and their migration vary with the physicochemical properties of the compounds, characteristics of the soil (type, moisture content, pH, microflora, etc.), species of plants growing, and conditions of use.

SPYNU, Ye. I.

Mathematics

POLYNOMIAL ALGORITHMS OF THE THEORY OF STATISTICAL SOLUTIONS AS APPLIED TO CLASS RECOGNITION PROBLEMS

PART II

Article by A. G. Ivashenko, Ye. I. Spynu, V. G. Melnik, S. A. ...
I. A. ...
Moscow, 1971. Inform. Bulletin, Russian, Part II, 1971, pp. 11-111.

The theory of statistical solutions is the stringent apparatus for pattern or class recognition implementing the idea of information accumulation in classical form, also theory in polynomial in the sense that it is based on a single calculation of the risk function with respect to error. ...

In accordance with the basic idea of the "Method of Group Consideration of Arguments" (see the Ukrainian Journal Applied Mathematics, 1969-1970), it is proposed that the polynomial "complete" algorithm be replaced by a system of several series of "partial" algorithms for all possible ways of arguments. ...

The complete description (algorithm) has the known form:

$$p(g) = \sum_{i=1}^n p_i(x_i) f_i(x_i, \dots, x_n) \quad (2)$$

where $p(g)$ is the decision-making risk; $f_i(x_i)$ is the m priori probability of the class; g is the solution; n is the number of classes;

x_1, \dots, x_n are discrete arguments ($x_i = 1, 2, \dots, q$ where q is the number of digitization levels);

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UDC 62-50

IVAKHNENKO, O. G., SPYNU, YE. I., DIMITROV, V. D., PATERBU, S. G.,
and PATRATIY, I. Z. (Kiev, Sofia, Kishinev)

"Recognizing the Lethal Duration and Content of Pesticides in Plant
According to a Probability Algorithm for a Method of Data Handling by
Groups"

Kiev, Avtomatyka, No 5, Sep-Oct 70, pp 42-52

Abstract: The article describes the development of a probability al-
gorithm for a method of data handling by groups which uses the numerator
of the Bayes formula or its modification as a support function. The
probability algorithm is used to solve the following problem:

1) Approximately determining the time constant in the exponent
in the expression for a pesticide's toxicity on the basis of data con-
cerning the physicochemical properties of the preparation, the conditions
of its use, and plant peculiarities;

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IVAKHNENKO, O. G., et al., Avtomatyka, No 5, Sep-Oct 70, pp 42-52

2) Determining the current concentration of a pesticide at a given time from calculated data on the initial concentration of the substance in plants and the destruction rate constant.

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UDC: 577.4

SRAGOVICH, V. G., SHAPIRO, L. Z.

"On the Collective Behavior of Type *G* Automata"

V sb. Issled. po teorii samonastroyayushchikhsya sistem (Studies in the Theory of Adaptive Systems--collection of works), Moscow, Vychisl. tsentr AN SSSR, 1971, pp 81-95 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V371)

Translation: The authors consider class *G* automata (abstract 4V370) which participate in a positional game and in a Gur game. A. Maslov.

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USSR

UDC: 577.4

SRAGOVICH, V. G.

"Automata With a Multiple-Valued Input and Their Behavior in Random Media"

V sb. Issled. po teorii samonastroyayushchikhsya sistem (Studies in the Theory of Adaptive Systems--collection of works), Moscow, Vychisl. tsentr AN SSSR, 1971, pp 19-65 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V370)

Translation: A random medium is defined by finite sets of actions $\{y_i\}$ and rational numbers (reactions) $\{x_i\}$ and by a probabilistic measure which determines the reaction to a given action.

The author considers automata (with a denumerable set of states) with a set of inputs $\{x_i\}$, set of outputs $\{x_i\}$, deterministic function of transitions, and probabilistic function of outputs. The mathematical expectation of the value of the reaction of the medium at time t of interaction with the automaton is called the gain.

The automaton is called asymptotically optimum if in any stationary medium its gain approaches the maximum possible with an increase in t .

The states of an automaton of class G are triplets of vectors whose coordinates are the number of actions y_i , the sum of the gains for action

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USSR

SRAGOVICH, V. G.

"The Concept of a Self-Tuning (adaptive) System"

Issled. po Teorii Samonastroivayushchikhsya Sistem [Studies on the Theory of Self-Tuning Systems -- Collection of Works], Moscow Computer Center of Acad. Sci. USSR, 1971, pp 5-18, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V461).

NO ABSTRACT.

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1/2 039 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THEORETICAL AND EXPERIMENTAL PROBLEMS IN THE STUDY OF THE
MECHANISMS OF THE VESTIBULAR NYSTAGMUS -U-
AUTHOR--(04)-RAZUMEYEV, A.N., SRAGOVICH, V.G., SUSHKOV, B.G., SHIPOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL. 4, JAN.-FEB. 1970, P.
22-30
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SPACE MEDICINE, VESTIBULAR DISTURBANCE, EYE, VISUAL
PERCEPTION, SENSORY PHYSIOLOGY, MATHEMATIC MODEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/1969

STEP NO--UR/0453/70/004/000/0022/0030

CIRC ACCESSION NO--AP0120612

UNCLASSIFIED

EVE 039

UNCLASSIFIED

PROCESSING DATE--280CT70

CARD ACCESSION NO--A0120612

ABSTRACT--1969 Q10- ABSTRACT. REVIEW OF PUBLISHED STUDIES CONCERNING THE MECHANISMS OF THE VESTIBULAR NYSTAGMUS. A MATHEMATICAL MODEL OF THE INTERACTION BETWEEN THE VESTIBULAR AND OCULOMOTOR APPARATUS IS PROPOSED AS THE BASIS OF A POSSIBLE MECHANISM OF THE DEVELOPMENT OF A VESTIBULAR NYSTAGMUS. THE ANATOMICAL AND PHYSIOLOGICAL CORRELATIONS BETWEEN THE COMPONENTS OF THIS MODEL DURING THE PROCESSING OF AFFERENT INFORMATION ARE DISCUSSED. EXPERIMENTS DESIGNED TO BRING THIS MODEL CLOSER TO THE CEREBRAL STRUCTURES RESPONSIBLE FOR THE NYSTAGMUS ARE DESCRIBED.

UNCLASSIFIED

USSR

UDC 51

SRAGOVICH, V. G., SUSHKOV, B. G., FLEROV, YU. A.

"Two-Level Adaptive System of Decentralized Control of Technological Processes"

V sb. Detsentralizovan. metody upr. (Decentralized Control Methods--collection of works), Moscow, 1972, pp 39-42 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V401)

No abstract

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1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--TWO STAGE PREPARATION OF ALKYL ETHERS OF O AND P,BUTYLPHENOLS -U-

AUTHOR--(102)-SREBRODOLSKAYA, I.I., ZAVGOROONIIY, S.V.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,584

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLOROPRENE, PHOSPHORIC ACID, CHEMICAL SYNTHESIS, PHENOL,
AROMATIC ETHER, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1588

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0135229

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0135229
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPOUNDS ARE PREPARED BY
TREATING ALKYL ETHERS OF PHENOL WITH CHLOROPRENE AT SMALLER THAN OR
EQUAL TO 70 DEGREES IN THE PRESENCE OF AN ACID CATALYST (E.G.
ORTHOPHOSPHORIC ACID), WITH SUBSEQUENT REDN. OF THE OBTAINED PRODUCT
WITH, E. G., METALLIC NA IN AN ORG. SOLVENT IN THE PRESENCE OF A RANEY
NI CATALYST. FACILITY: KIYEVSKIY ORDENA LENINA
POLITEKHNICHESKIY INSTITUT IM. 50-LETIYA VELIKOY OKTYABR'SKOY
SOTSIALISTICHESKOY REVOLYUTS II.

UNCLASSIFIED

1/2 039 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CORROSION RESISTANCE OF METALLIC MATERIALS IN TRIACETATE FIBER
PRODUCTION -U-
AUTHOR--(02)-SRETENSKAYA, G.V., TALAYEVA, G.V.
COUNTRY OF INFO--USSR
SOURCE--(USSR). KHIM. VOLOKNA 1970, (3), 55-8
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--CORROSION RESISTANCE, METAL CORROSION, ACETATE, SYNTHETIC
FIBER, LOW CARBON STEEL, TITANIUM ALLOY, COPPER ALLOY, STAINLESS STEEL,
NICKEL BASE ALLOY/(U)KH173M37 STAINLESS STEEL, (U)OKH21N5T STAINLESS
STEEL, (U)HASTELLOY NICKEL BASE ALLOY, (U)OKH23N28M3DT STAINLESS STEEL,
(U)KH17N13M2T STAINLESS STEEL, (U)OKH23N28M3D3T STAINLESS STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/E03 STEP NO--UR/0183/70/000/003/0055/0058
CIRC ACCESSION NO--AP0140305

UNCLASSIFIED

2/2 039

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140305

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT THE CORROSION RESISTANCE WAS STUDIED OF STAINLESS STEELS, CU AND ITS ALLOYS, NI-MO STEELS, LOW C STEELS, TI AND ITS ALLOYS IN THE MIXTS. OF CH SUB2 CL SUB2 WITH ETOH, IN THE SOLN. OF CELLULOSE TRIACETATE (I) IN 9"1 CH SUB2 CL SUB2-ETOH MIXT., IN THE RECYCLE SOLVNET (MIXT. OF CH SUB2 CL SUB2, ETOH, AND WATER), IN AN ACTIVATED CHARACOL ADSORBER WORKING AT 40-120DEGREES IN A VAPOR OF SOLVENT, AND IN DRYING OVENS. THE LOW C STEELS ARE NOT RECOMMENDED AS THE REPLACEMENT FOR CU DESPITE THEIR SATISFACTORY CORROSION RESISTANCE; THEIR CORROSION PRODUCTS COLOR I FIBERS. THE FOLLOWING METALS ARE RECOMMENDED: STEELS 1KH18N9T, KH17N13M3T, OKH21N5T, OKH21N6M2T, TI (IN ADSORBER), TI ALLOYS, HASTELLOY C, STEEL OKH23N28M3D3T, AND STEEL KH17N13M2T OR OKH23N28M3D3T (IN DRIERS ONLY).

UNCLASSIFIED

USSR

UDC 621.387

DUBITSKIY, L.G., KOZLOV, R.I., MOROZOV, I.I., SCKOLOV, N.A., SRETENSKIY, V.N.
"System Approach To Analysis Of Causes And Nature Of Failures Of Products Of
Electronic Technology"

Elektron. tekhnika. Nauchno-tekhn. sb. Upr. kachestvom i standartiz.
(Electronic Technology. Scientific-Technical Collection. Quality Management
And Standardization), 1970, Issue 3, pp 3-12 (from RZh--Elektronika i yeye
primeneniye, No 4, April 1971, Abstract No 4A2)

Translation: The principles are considered of a system approach which makes it possible to determine operationally the causes of failures and to increase the effectiveness of operation of a system of supervision and control of the quality of the products of electronics technology. Examples are presented of the realisation of a system approach for gas-discharge devices (with gas filling) which assumes use of a computer for processing of the results obtained. M.V.

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USSR

UDC 621.317.023(02)

VALITOV, R. A., SRETENSKIY, V. N.

Radiotekhnicheskiye izmereniya. Metody i tekhnika izmereniy v diapazone ot dlinnykh do opticheskikh voln (Radio Technical Measurements. Measurement Techniques and Equipment in the Long Wave to Optical Wave Band), Moscow, Soviet Radio Press, 1970, 712 pp, ill. 2 r. 23 k. (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A257K)

Translation: A study was made of the basic principles of theory and practice of radio technical measurements. An analysis of the methods of measuring the radio technical variables in different wave bands is presented. A description of the operating principle, the technical data, and the reasoning behind selection of the basic circuit and structural elements are presented for the individual most widespread and prospective measuring instruments. By comparison with the last editions of books by the authors on the principles of radio measurements, the structure and content of many sections have been changed significantly in the present book. Two new parts have been introduced. They are devoted to the general problems of radio technical measurements, the elements of estimating the correctness of application and operation of measuring instruments, and the role and significance of metrology. Divisions devoted to error analysis of the measurements, measurements of the random

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USSR

VALITOV, R. A., et al., Radiotekhnicheskije izmereniya. Metody i tekhnika izmereniy v diapazone ot dlinnykh do opticheskikh voln, Moscow, Soviet Radio Press, 1970, 712 pp, ill., 2 r. 23 k.

Process characteristics, measurement techniques and measuring devices in the millimeter, submillimeter and optical wavelength bands are presented anew. Significant attention is being given to the problems of automation of measurements, miniaturization of measuring devices, the construction of measuring devices on the basis of broad utilization of semiconductor engineering. The book is intended for engineering and technical personnel, and it can be used as a training aid for university students. There are 618 illustrations, 19 tables and a 166-entry bibliography.

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1/2 005 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--UNIFICATION AND STANDARDIZATION OF ELECTRIC DRIVE UNITS IN WHEELED
VEHICLES -U-
AUTHOR--(03)-DOMBROVSKIY, N.G., SIGODIN, V.V., SRIBNER, M.H.
COUNTRY OF INFO--USSR
SOURCE--STANDARTY I KACHESTVO, 1970, NR 5, PP 49-50
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, BEHAVIORAL AND SOCIAL
SCIENCES
TOPIC TAGS--WHEELED VEHICLE TRANSMISSION, TECHNICAL STANDARD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1555

STEP NO--UR/0422/70/000/005/0049/0050

CIRC ACCESSION NO--AP0120334

UNCLASSIFIED

2/2 005

UNCLASSIFIED

PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120334

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DISCUSSES THE PROBLEM OF UNIFICATION AND UNITIZATION OF WHEELED VEHICLES DRIVEN THROUGH AN ELECTRICAL TRANSMISSION. STANDARDS ARE CITED WHICH SPECIFY THE PROSPECTIVE PROPERTIES OF, AND REQUIREMENTS TO, THE ELECTRIC DRIVES OF WHEELED VEHICLES. THESE STANDARDS ARE UNDER DEVELOPMENT AT THE ALL UNION RESEARCH INSTITUTE OF STANDARDIZATION IN ENGINEERING (VNIIMASH), ALL UNION RESEARCH INSTITUTE FOR CONTRACTOR'S MACHINERY (VNIISTROYDORMASH), AND THE MINISTRY OF ELECTROTECHNICAL INDUSTRY OF THE USSR. FACILITY: ALL UNION RESEARCH INSTITUTE OF STANDARDIZATION IN ENGINEERING (VNIIMASH), ALL UNION RESEARCH INSTITUTE FOR CONTRACTOR'S MACHINERY (VNIISTROYDORMASH), AND THE MINISTRY OF ELECTROTECHNICAL INDUSTRY OF THE USSR.

UNCLASSIFIED

USSR

ZHUKOV, M. YU., SRUBSHCHIK, L. S., Rostov-na-Donu

"Behavior of a Closed Spherical Shell after Loss of Stability"

Moscow, Prikladnaya matematika i mekhanika, No. 5, Sep/Oct 71, pp 840-847

Abstract: New forms of equilibrium of a uniformly compressed closed elastic spherical shell for values of the load close to critical under which the moment-less stress state loses stability are discussed. The problem is reduced to the construction of solutions for the equations that branch from the trivial solution in the neighborhood of the bifurcation point. The Lyapunov-Schmidt method for a wide class of operator equations in Banach spaces is applied. It is noted that this method was previously applied to construct new equilibrium shapes in the case of plates and hollow shells. The Reissner equations in dimensionless form for an axisymmetric elastic deformation of a closed spherical shell under a uniformly distributed pressure are used as the basis of the discussion. Some results of computer calculations for values of c in the range $1 \cdot 10^{-4} \leq c \leq 4.3 \cdot 10^{-2}$ are given.

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USSR

UDC 539.3:534.1

SRUBSHCHIK, L. S., Rostov-na-Donu

"Loss of Stability of Asymmetrical, Strictly Convex Thin Smooth Shells"

Moscow, Prikladnaya Matematika i Mekhanika, Vol 37, No 1, Jan-Feb. 1973, pp 131-144.

Abstract: The values of the upper critical loads for loss of stability of asymmetrical, strictly convex, smooth elastic shells are determined, when the parameter of relative wall thickness is sufficiently low. Simple relationships are concluded, from which these values can be found if the nature of the loading, geometry of the envelope and method of fastening of the edges are known. In passing, asymptotic expansions of the solution are constructed for the corresponding boundary problems, allowing calculation of the stress-strain state of the envelope in the subcritical stage. As an example, asymptotic values are found for the upper critical pressures of ellipsoidal envelopes under the influence of even external pressure and with various basic methods of attachment of the edges.

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1/2 005 UNCLASSIFIED PROCESSING DATE--11DEC70
 TITLE--IMMUNOGENETIC STUDY OF HETEROSIS DURING USE OF BOARS WITH VARIOUS
 INBREEDING COEFFICIENTS -U-
 AUTHOR-(03)-TIRKONOV, V.M.; BURLAK, Z.K.; SRUCGA, A.A.
 COUNTRY OF INFO--USSR
 SOURCE--SEL'SKOKHOZ BIZL 5(1): 64-73. 1970
 DATE PUBLISHED-----70
 SUBJECT AREAS--AGRICULTURE
 TOPIC TAGS--ANIMAL HUSBANDRY, ANIMAL GENETICS, HOG, ANIMAL REPRODUCTION
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3007/0297 STEP NO--UR/9062/70/005/001/0064/0073
 CIRC ACCESSION NO--AP013579Z
 UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135792

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY OF THE DEVELOPMENT AND USE OF INBRED SIRES TO OBTAIN THE HETEROSIS EFFECT UNDER THE IMMUNOGENETIC CONTROL WAS STUDIED BY THE METHOD OF THE REPEATED FERTILIZATION OF INBRED AND OUTBRED SOWS WITH THE MIXTURE OF SEMEN FROM BOARS WITH DIFFERENT HOMOZYGOCITY COEFFICIENTS. THE DECIPHERING OF THE ORIGIN BASED ON BLOOD GROUPS SHOWED THAT THE USE OF INBRED BOARS WHICH WERE OR WERE NOT RELATIVES FOR SOWS TO INSEMINATE BOTH OUTBRED AND INBRED FEMALES RESULTED IN THE HIGHER PERCENTAGE OF DEAD PIGS FROM RELATIVE BOARS. THE DEGREE OF INBREEDING GREATLY AFFECTS THE EMBRYONAL MORTALITY AND LOSS OF PIGS AT THE EARLY POSTNATAL PERIOD. THE INCREASE OF THE COEFFICIENT OF THE HOMOZYGOCITY OF SWINES IN THE PROCESS OF THE DEVELOPMENT OF INBRED LINES SHOULD NOT EXCEED 50PERCENT (AFTER RIGHT). IN CONTRAST TO CORSES OF INBRED LINES TOPCROSSING CAN BE USED IN SWINE BREEDING TO OBTAIN THE HETEROSIS EFFECT. FACILITY: INST. CYTOL. GENET., SIB. BR. ACAD. SCI. USSR, NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

CHERNYAUSKAS, V.-A. Yu., TEL'KSNIS, A.-L. A., SRUOGIS, Yu.-V. K.

"Device for Determination of Changes in the Properties of a Random Signal"

Otkrytiya Izobreneniya Promyshlennye Obraztsy Tovarnyye Znaki, No 5, 1972,
Patent No 355617.

Translation: A device for determination of changes in the properties of a random signal at the output of systems such as oscillating circuits, containing an analog-digital convertor, a shift register, a squaring circuit, adders, multipliers, circuits for calculation of the logarithm of the product of determinants, a control unit, memory register and unit for calculation of the maximum, differing in that in order to increase the accuracy and resolving capacity of the moment of time of change of correlation properties of a random signal, the output of the analog-digital convertor is connected to the input of the shift register; the output of the next to last location in the shift register is connected to the input of the first location and through a squaring circuit, the first adder and the first multiplier, to the first input of the second adder, the second input of which is connected through the second multiplier, the third adder, the second squaring circuit and the fourth adder to the outputs of the next to last and third from last locations of the shift registers; the third input of the second adder is connected through the

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USSR

CHERNYAUSKAS, V.-A. Yu., TEL'KSNIS, A.-L. A., SRUOGIS, Yu.-V. K., Otkrytiya Izobreteniya Promyshlennye Obraztsy Tovarnyye Znaki, No 5, 1972, Patent No 355617.

third multiplier, the fifth adder, the third squaring circuit and the sixth adder to the outputs of the three last locations of the shift register; the fourth input of the second adder is connected to the output of the circuit for calculation of the logarithm of the products of the determinants, the input of which is connected to the output of the control unit, the other outputs of which are connected to the shift register, memory register and inputs of the first, third and fifth adders respectively, while the output of the second adder is connected to the input of the memory register, the outputs of which are connected to the corresponding inputs of the circuit for calculation of the maximum.

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USSR

UDC: 51:155.001.57:681.3.06

GALUSHKIN, A. I., SSORIN, V. G.

"On Constructing Signal Recognition Systems on the Basis of Septrons With Split Photoelements"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1971, vyp. 14, pp 173-178 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V630)

Translation: The authors consider a model of a septron with split photoelements. A method is presented for determining the "spacing" between signals by means of a septron with a split photocell utilizing a static mask. It is proposed that this septron model be used for forming a space of signal characteristics. V. Mikheyev.

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USSR

UDC 539.196:621.385.6

KANAVETS, V. I. and STABINIS, A. Yu.

"Spontaneous Radiation and Self-Excitation of a Small Volume of a Classical, Nonlinear Active Medium"

Moscow, Vestnik Moskovskogo Universiteta--Fizika, Astronomiya
No 2, 1973, pp 186-195

Abstract: The purpose of this paper is to study coherence effects in various modes including self-excitation of an active medium. This can be done in the classical approximation by considering spontaneous radiation of a system of nonlinear oscillators in a small volume. The choice of initial phase distribution of the oscillators depends on the method of exciting the medium, although the initial phases are usually distributed according to a random law. Initial amplitudes of the oscillators are assumed to be equal. The authors begin their analysis by writing the equation for oscillations in a small volume of a classical active medium, where the length of the medium is much smaller than the oscillation wavelength, in the dipole approximation. It is assumed that the oscillators interact through the characteristic radiation field.

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USSR

UDC 621.373.826

IGNATAVICHUS, M. V., PISKARSKAS, A. S., and STABINIS, A. YU.

"Use of Some A^{II}B^{VI} Compounds for Controlling the Pulses of Optical Lasers"

V sb. Probl. fiz. sovedineniy A^{II}B^{VI}. T.I (Problems of the Physics of Compounds A^{II}B^{VI}. Vol.I — collection of works), Vil'nyus, 1972, pp 121-125 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 D138)

Translation: A detailed theoretical study is conducted on the effect of 2-photon absorption within a laser resonator on the characteristics of light pulses during variation of the laser parameters within broad limits. Instantaneous modulation of resonator quality is proposed (since it takes place during use of directed, phototropic filters). Calculations show that variation in the thickness of the semiconductor absorber makes it possible to change the duration of the light pulses within very broad limits. It is shown that it is necessary to use semiconductors with a large value of the 2-photon absorption coefficient and a small linear absorption value in order to obtain light pulses with large peak power densities with possibly longer duration. A.K.

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USSR

UDC 547.341

PUDOVIK, A. N., GAREYEV, R. D., STABROVSKAYA, L. A., YEVSTAF'YEV, G. I., and
REMIZOV, A. B., Kazan' State University Imeni V. I. Ul'yanov-Lenin

"Reactivity of Unsaturated Organophosphorus Compounds in the Reaction of
1,3-Dipolar Cycloaddition of Diaryldiazomethanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, pp 1674-1682

Abstract: The kinetics of the 1,3-dipolar cycloaddition reaction of diaryl-
diazomethanes with organophosphorus dipolarophiles at 60° in m-xylene was
investigated. The reaction mechanism is based on a single stage polycentric
process with a cyclic electron transfer. The established order of dipolaro-
philic activity of the unsaturated organophosphorus compounds agrees well
with current concepts of the effect of substituents at the phosphorus atom:
additive manifestation of the inductive effect and the ability of the sub-
stituents to conjugate with the main system.

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USSR

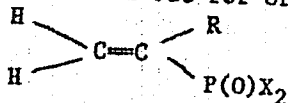
UDC 547.341

PUDOVIK, A. M., STABROVSKAYA, L. A., YEVSTAF'YEV, G. I., REMIZOV, A. B.,
and GAREYEV, R. D., Kazan State University imeni V. I. Ul'yanova-Lenina

"Kinetics of the 1,3-Bipolar Cycloaddition of Diphenyldiazomethane to
Unsaturated Organophosphorus Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 8, 1972, pp 1862-1863

Abstract: The title study was carried out for organophosphorus compounds
having the general form



for 12 combinations of R, usually H, and X -- usually alkyl, alkoxy, aryl,
or phenol groups. Values of the velocity constant, ranging from 0.61 to 20.35
are compared with the P=O vibration, from 1190 to 1283 cm^{-1} in a 0.2M benzene
solution, and chemical shift of the P^{31} nucleus, from -10 to -33 m.d. in a
50% acetone solution. The reactivity of the studied compounds were closely
correlated with the indicators of the influence of substitutions on the
electronic behavior of the P atom. For this reaction the energy of activa-
tion $E_A = 12.5 \pm 0.4$ kcal/mole and the entropy $\Delta s = -35.2$, in good agreement
with the 1,3-bipolar cycloaddition mechanism.

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USSR

UDC 547.341

PUDOVIK, A. N., GAREYEV, R. P., STABROVSKAYA, L. A., and AGANOV, A. V.,
Kazan' State University Imeni V. I. Ul'yanov-Lenin

"1,3-Dipolar Cycloaddition of 9-Diazofluorene to Unsaturated Organic Phos-
phorus Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, (105), No 6, Jun 73, pp 1236-1240

Abstract: The reactions of 9-diazofluorene with unsaturated organic phosphorus compounds at room temperature pass through the formation of intermediate products -- Δ^1 -pyrazolenes, which, depending on experimental conditions, break down to nitrogen and cyclopropene derivatives, or isomerize to Δ^2 -pyrazolenes. In comparison to diphenyldiazomethane, 9-diazofluorene is less reactive in regard to its enophilic activity in the reactions of 1,3-dipolar cycloaddition to organic phosphorus dipolarophiles. When 9-diazofluorene was reacted with dimethoxyvinylphosphonate at about 80°C, the product was 1-dimethoxyvinyl-2-biphenylenecyclopropane.

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USSR

UDC 547.512+547.341+547.722.2

PUDOVIK, A. N., GAREYEV, R. D., STABROVSKAYA, L. A., YEVSTAF'YEV, G. I.,
REMIZOV, A. B.

"Cyclic Addition of Diazoalkanes to Isopropenylphosphonates"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 80-87

Abstract: A study was made of the reactions of diazomethane with esters of isopropenylphosphonic acid. By the addition of diazomethane to isopropenylphosphonates, the corresponding phosphorylated Δ^1 -pyrazolines were obtained which quickly isomerized into Δ^2 -pyrazolines in the presence of bases. By ultraviolet spectroscopy it was established that the tetrahedral phosphorus atom interacts by its d-orbitals with the π -orbital of the C=N radical. With respect to capacity to enter into conjugation it is inferior to the ester carbonyl radical. The concentration and temperature infrared spectroscopy showed that the 3 and 5-phosphorylated Δ^2 -pyrazolines are associated at the expense of the intermolecular hydrogen bonds.

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USSR

UDC 547.341

PUDOVIK, A. N., GAREYEV, R. D., AGANOV, A. V., and STABROVSKAYA, L. A.,
Kazan State University imeni V. I. Ul'yanov-Lenin

"The Reaction of Dimethoxyisopropenyl Phosphonate with 2-Diazopropane"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, p 1173

Abstract: 3-Methyl-3-dimethoxyphosphinyl-5,5-dimethyl- Δ' -pyrazoline (I) is formed at room temperature by the reaction of the dimethyl ester of isopropenylphosphonic acid with 2-diazopropane, with a yield of 73.4%. No isomerization of Δ' -pyrazoline takes place. Compound I is easily converted to 3-diphenoxyphosphinyl-3-methyl-5,5-diphenyl- Δ' -pyrazoline, although, the geminal phenyl radicals are unstable at temperatures higher than 90°.

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1/2 013
UNCLASSIFIED
TITLE--ALPHA,OXOPHOSPHGNATES IN REACTIONS WITH DIPHENYLDIAZOMETHANE -U-
PROCESSING DATE--30OCT70
AUTHOR--(03)--PUDOVIK, A.N., GAREYEV, R.D., STABROVSKAYA, L.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 698
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HETEROCYCLIC OXYGEN COMPOUND, BENZENE DERIVATIVE, POLYNUCLEAR
HYDROCARBON, ORGANIC PHOSPHORUS COMPOUND, AZO COMPOUND, ORGANIC
SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0895
STEP NO--UR/0079/70/040/003/0698/0698
CIRC ACCESSION NO--AP0124558
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124558

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF (MED) SUB2 P(O)AC AND PH SUB2 CH SUB2 OCCURRED RAPIDLY AT 80DEGREES TO GIVE 63PERCENT I AND N SUB2; I, M. 87-8DEGREES. SIMILAR REACTION WITH (MED) SUB2 P(O)BZ GAVE 83PERCENT II, M. 129-30DEGREES.

UNCLASSIFIED

USSR

UDC: 538.27+541.67+547.341+547.772

SAMITOV, Yu. Yu., GAREYEV, R. D., STABROVSKAYA, I. A., PUDOVIK, A. N.,
Kazan' State University imeni V. I. Ul'yanov-Lenin

"Stereochemistry of Organophosphorus Compounds. II. NMR Spectra, Conformations
of 3- and 5-Phosphorylated Δ^1 - and Δ^2 -Pyrazolines and Angular Correlation
 $^3J_{PCCH}$ "

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104) No 6, Jun 72, pp 1227-1235

Abstract: 3-Methyl-3-dialkoxyposphinyl-5,5-dimethyl- Δ^1 - and 3-phenyl-5-methyl-5-dimethoxyphosphinyl- Δ^2 -pyrazolines were synthesized. The paramagnetic resonance spectra of 3- and 5-phosphorylated Δ^1 - and Δ^2 -pyrazolines were studied, and their preferred conformations were determined. The angular correlation was empirically established for the vicinal constant of spin-spin interaction type $^3J_{PCCH} = f(\beta)$ for the case where the carbon atoms in the P-C-C-H fragment have sp^3 hybridization, and where there is no steric hindrance to rotation of the dimethoxyphosphinyl group about the P-C bond. It was established by ultraviolet and infrared spectroscopy that the tetrahedral phosphorus atom falls behind the phenyl group with respect to ability to enter into conjugation.

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- 30 -

Inorganic Compounds

USSR

UDC 546.791.6:541.138.3

STARBOVSKIY, A. I., and SLEPCHENKO, I. G.

"Electrochemical Reduction of Uranium (VI) to Uranium (IV) in Sulfate Solutions"
Leningrad, Zhurnal Prikladnoy Khimii, Vol 45, No 1, Jan 72, pp 110-115

Abstract: Processes were investigated which occur during electrolysis on the electrodes and in the solution as well as the conditions at which practically complete reduction of uranium (VI) to uranium (IV) occurred. During the electrochemical reduction of uranyl ion on a lead electrode in sulfate solutions containing sufficient amount of free sulfuric acid the reactions occurring at the cathode and in the solution are very rapid. The slowest stage of the ions being reduced towards the surface of the electrode, is the diffusion of the cathode process, which is therefore rate determining. The potential of lead depends considerably on the concentration polarization. The potential of lead anode depends on the overcharge of oxygen during its liberation. Polarization curves were plotted for the process showing that depending on the magnitude of cathode potential the formation of U(IV) in solution may occur via the reduction of U(VI) to U(IV) on the cathode, or as a result of the disproportionation of U(V), or by the reaction of U(IV) with U(III) in the solution itself.

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Nuclear Science and Technology

USSR

UDC 547.138

STABROVSKIY, A. I.

"Oxidation-Reduction Potential on Platinum Electrode in Solutions of a Mixture of Salts of Uranium (VI) and Uranium (IV) and Equilibrium Concentration of Uranium (V) Ions in the System U (VI)-U (V)-U (IV)"

Moscow, Elektrokimiya, Vol 6, No 10, Oct 70, pp 1471-1477

Abstract: A study was made of the influence of the acidity of sulphuric acid, nitric acid, and hydrochloric acid solutions of mixtures of salts of uranium (VI) and uranium (IV) on the equilibrium oxidation-reduction potential on a platinum electrode. It was demonstrated that the value of this potential depends on the acidity of the solutions studied. Polarographic analysis has established that when solutions of salts of uranium (VI) and uranium (IV) are mixed, ions of uranium (V) are formed in the solutions of mixtures of these salts. The concentration of these ions depends primarily on the acidity of the solutions.

The assumption that there are always ions of uranium (V) present in solutions of mixtures of salts of uranium (VI) and uranium (IV) was experimentally confirmed. The ions of uranium (VI) and uranium (V) determine the poten-

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USSR

STABROVSKIY, A. I., *Elektrokhimiya*, Vol 6, No 10, Oct 70, pp 1471-1477

tial in the system U(VI)-U (V)-U (IV). The influence of ions of uranium (IV) on the oxidation-reduction potential on a platinum electrode is manifested only in that an increase or decrease in the concentration of these ions causes a corresponding change in the concentration of ions of uranium (V) in the solution.

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USSR

UDC 620.193.41

KARASEV, A. F., and STABROVSKIY, A. I.

"Behavior of Titanium and Its Alloys with Tantalum in the Case of Cathode Polarization in Nitric Acid Solutions"

Moscow, Zashchita Metallov, Vol 6, No 3, May-Jun 1970, pp 324-326

Abstract: The stationary potentials of titanium and certain other transition metals (tantalum, niobium, etc) in nitric acid solutions are shifted to the passive region as a result of the oxidizability of their surfaces. However, the passive state of these metals can be destroyed in the presence of cathode polarization. An investigation was therefore made of the electrochemical behavior of titanium, niobium, and tantalum and of the corrosion resistance of titanium and its alloys with tantalum in nitric acid solutions with cathode polarization under galvanically static conditions in the temperature range from 20 to 80°. The potentials were measured by the compensation method using the P-4 potentiometer. The comparison electrode was a saturated calomel electrode. The electrolysis was carried out in the open air, and the temperature was maintained within the limits of $\pm 0.1^\circ$. Data on the corrosion rate of titanium with cathode polarization in nitric acid solutions and the corrosion rate of titanium alloys with tantalum during cathode polarization in nitric acid solutions were tabulated for current densities from 20 to 60 amps/inch², at various temperatures and for various potentials, as well as 1/2

USSR

KARASEV, A. F., and STABROVSKIY, A. I., Zashchita Metallov, Vol 6, No 3, May-June 70, pp 324-326

tantalum contents of 8 weight %, 10 weight %, and 15 weight %. From the data obtained it follows that titanium is quite stable during cathode polarization in a nitric acid solution containing 6-8 moles/liter of nitrate ion, at 80° and with a current density of 20-60 amps/inch² and also at 20-60° with a current density of no more than 20 amps/inch². Titanium alloys with 8-15 weight % tantalum are more stable than titanium in the majority of cases. The alloy with 15 weight % tantalum is corrosion resistant under all the electrolysis conditions studied. This alloy is recommended for use as a cathode material during electrolysis of nitric acid solutions under the corresponding conditions.

2/2

Psychiatry

USSR

UDC 616.891-072.8+616.891-07:616.154.452/.453 2

KARVASARSKIY, B. D., IOVLEV, B. V., KALININ, O. M., STABROVSKIY, Ye. M.,
SUSLOV, V. I., and TARABRINA, N. V., Department of Neuroses and Psycho-
therapy, Leningrad Scientific Research Psychoneurological Institute imeni
V. M. Bekhterev

"Connection Between Experimental Psychological Characteristics of the
Personality and Biochemical Indexes in Relation to Problems of the Study
of Psychic Stress in Neurotics"

Moscow, Zhurnal Nevropatologii i Psikhiiatrii, 1971, Vol 71, No 8, pp 1199-
1203

Abstract: Correlations between psychological data obtained from various tests
(MMPI, frustration method of Rozenzweig, Eysenck questionnaire, and others)
and biochemical data (blood tests for 11-hydroxycorticosteroids, serotonin,
protein-bound iodine; urine tests for dopamine, noradrenalin, adrenalin,
vanillylmandelic acid and others) were established. These relationships were
determined for 48 neurotics before applied stress, and for a control group of
healthy persons. The relationships were arrived at by the method of regres-
sion analysis using a computer.

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USSR

KARVASARSKIY, B. D., et al., Zhurnal Nevropatologii i Psikhiiatrii, 1971, Vol 71, No 8, pp 1199-1203

It is clear from the results that regression analysis is valuable in forecasting the effects of stress on neurotics, which in turn makes it potentially valuable in studying the pathogenesis and therapy of neuroses.

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- 75 -

Acc. No. **AP0049503**

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code:
UR 0079

106843g Unsaturated organogermanium compounds. VI.
 Reaction of alkyllithium compounds with 1,3-diyne organogermanes. Kapyug. O. I.; Stadnichuk, M. D.; Petrov, A. A. (Leningrad. Tekhnol. Inst. im. Lensovetu, Leningrad, USSR). *Zh. Obshch. Khim.* 1970, 40(1), 118-24 (Russ). RL add to double bonds that are remote from Ge in organogermanium compds. of the 1,3-diyne class considerably less readily than they do for similar Si compds. The main reaction is substitutive metalation at Me or CH₂ groups connected to the triple bond. The relative reactivity of 1,3-diyne of this nature can be disposed in descending order: Si, Ge, C. A mixt. of EtMgBr and 1,3-pentadiyne treated with ice-salt cooling with Me₂GeBr and refluxed 8 hr gave 36% 1-trimethylgermyl-1,3-pentadiyne (I), b_p: 42-2.5°, d₄²⁰ 1.0869, n_D²⁰ 1.5072; similarly were prepd. 86% 1-trimethylgermyl-1,3-hexadiyne (II), b_p: 48.5-9.5°, 1.0590, 1.5058; 36% 1-trimethylgermyl-1,3-heptadiyne (III), b_p: 58.5°, 1.0355, 1.5042; and the previously reported Et₂Ge

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analogs of these. Adding 4.4 g 1,4-hexadiyne to EtMgBr from 2 g Mg, keeping the mixt. 8 hr, then refluxing 2 hr gave only 3 g Ge-contg. product, b_p 71-3°, d_{20}^{25} 1.1307, n_D^{25} 1.4810, $C_{12}H_{14}Ge$. BuLi from 3.5 g Li and 30.5 g BuBr (in Et₂O) under N at -30° treated with I (5.8 g) and held 40 min gave 55% product, $b_{p,1}$ 30-50°, $C_{12}H_{14}Ge$. Similarly, II and BuLi gave 1-trimethylgermyl-4-ethyl-3-octen-1-yne, b_p 79-81°, 0.9886, 1.4840, which heated with MeOH-KOH, then hydrogenated, gave 4-ethyloctane. II and iso-BuLi gave a mixt. of at least 4 products, $b_{p,1}$ 41-8°; a similar mixt. formed with Me₃CLi, b_p 56-64°. III and BuLi gave 69% isomerizates, $b_{p,1}$ 80-92°, and 27% adducts, $b_{p,1}$ 73-4°, $C_{12}H_{14}Ge$. 1-Triethylgermyl-1,3-hexadiyne and BuLi gave 69% isomerizates, b_p 91-9°, and some 1-triethylgermyl-4-ethyl-3-octen-1-yne, b_p 107-8°, 0.9763, 1.4885.

G. M. Kosolapoff

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19801346

17x

1/2 030

TITLE--OUT PATIENT PROPHYLACTIC TREATMENT OF
OF HYPERTENSIVE DISEASE -U-
AUTHOR--(02)--TRAKHTENBERG, S.B., STADNIK, A.I.

UNCLASSIFIED
PROCESSING DATE--30OCT70
INDUSTRIAL WORKERS SUFFERING

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 5, PP 9-12

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROPHYLAXIS, INDUSTRIAL HYGIENE, HYPERTENSION, RESERPINE,
ELECTROCARDIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3002/1723

STEP NO--UR/0475/70/000/005/0009/0012

CIRC ACCESSION NO--AP0129091

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129091

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

ABSTRACT. RESULTS ARE PRESENTED OF 145 PATIENTS WITH HYPERTENSIVE DISEASE RECEIVING IN SPRING AND AUTUMN PROPHYLACTIC COURSES OF TREATMENT IN OUT PATIENT CONDITIONS. RESERPINE TEST UNDER ELECTROCARDIOGRAPHIC CONTROL WAS USED FOR INDIVIDUALIZATION OF DRUGS. RAUWOLFIA PREPARATIONS WERE GIVEN ONLY TO THOSE PATIENTS WHO ADEQUATELY RESPONDED TO RESERPINE. PROPHYLACTIC OUT PATIENT TREATMENT RESULTED IN A LOWER INCIDENCE OF CRISES AND REDUCTION OF TEMPORARY LOSS OF THE WORKING CAPACITY.

UNCLASSIFIED

USSR

UDC: 539.216.22:546.28 2

LITOVCHENKO, V. G., LYSENKO, V. S., PRIKHODENKO, V. I., SHUL'MAN, A. Ye.,
KAZAROV, R. Ye., STADNIK, A. V., Institute of Semiconductors, Academy of
Sciences of the UkrSSR

"Effect of Structural Factors of Single-Crystal Silicon Films on Their Sur-
face Properties"

Kiev, Poluprovodnikovaya Tekhnika i Mikroelektronika, Resp. Mezhved. Sb.,
No 7, 1972, pp 38-40

Abstract: A comparative study is made of a number of volumetric charac-
teristics which depend on the volumetric imperfection of silicon films
grown on sapphire substrates (mobility of the charge carriers, etc.), as
well as surface-sensitive characteristics (zone flexure, density of fast
traps, etc.). It is shown that the electrical properties of the surface
of strongly imperfect films depend on the volumetric structure.

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- 67 -

USSR

UDC 621.315.592:546.28 2

LITOVCHENKO, V.G., LYSENKO, V.S., PRIKHODENKO, V.I., SHUL'MAN, A.YE.,
KAZAROV, R.YE., STADNIK, A.V.

"Effect Of Structural Factors Of Monocrystalline Silicon Films On Their Surface Properties"

Poluprovodn. tekhn. i mikroelektronika. Resp. mezhved. sb. (Semiconductor Technology And Microelectronics. Republic Interdepartmental Collection), 1972, Issue 7, pp 38-40 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B82)

Translation: A comparative study is made of a number of volumetric characteristics which depend on the defectiveness of the volume of Si films grown on sapphire substrates (mobility of charge carriers and others), and of the surface-sensitive characteristics (bending of zones, density of fast traps, and others). It is shown that the electrical properties of the surface of strongly defective films depend on the volume structure. 4 ref. Summary.

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- 121 -

STADNIK, A.V.

SPRS 59208

6-73

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XIV-11. STUDY OF THE STRUCTURAL PERFECTION OF THE HETEROEPITAXIAL Si-Ge SYSTEM
Article by V. I. Yanil'skaya, L. I. Iatsenko, Ye. N. Kirilovskiy, I. V. Prok-
openko, A. V. Stadnik, M. V. Novikova, V. M. Stetsko, V. M. Kozlovskiy, S. S. Sestak, S.
S. Petukhov, M. V. Kabanov, I. P. Zhurav, N. S. Kuznetsov, 12-17 June 1972, p. 2021

The structural perfection of the heteroepitaxial Si-Ge system obtained
by the method of simultaneous diffusion of Si and Ge into the substrate in the temperature
range of 600-800°C at a growth rate of 0.1 micron/min was investigated
using the x-ray tomographic diffraction and metallographic methods. It
was demonstrated that the degree of structural perfection of the heteroepitaxial
layer films on the Ge film on Si substrate increases in the halfwidth of the rock-
ing curves of the double-crystal spectrometer obtained from the film and the
substrate was detected by comparison with the values characteristic of ideal
crystals. The x-ray tomography, however, did not reveal clear fragments of ideal
structure characteristic of Ge film grown on Si substrates. The cause of this
phenomenon is discussed.

STADNIK, A.V.

5PKS 69905
6-73

XVI-13. ROLE OF VACUUM CONDITIONS DURING THE DEPOSITION OF SILICON FILMS ON SAPPHIRE

Article by A. V. Stadnik, V. Ye. Josephov, N. N. Ieremeyev, G. A. Gerasimov, Kiev: Novosti Fiz. i Stizozium na Prostranstva Rosta i Sirovina Poluprovodnikov, Kirovsk. Kizlovsk. i Fizn. Inst. Kiev, 12-17 June 1977, p. 227

Of the three basic parameters (temperature, growth rate and vacuum) defining the properties of semiconductor films, the least is the least investigated. The purpose of this paper is to study the structural and electrophysical properties of monocrystalline silicon films deposited under different vacuum conditions during deposition.

The silicon films on sapphire were deposited in the vacuum range of 1.10⁻³ to 5.10⁻⁸ torr in oil and silicon pumping systems. The deposition was carried out by two methods: with high temperature nucleation and with fixed substrate temperature. The structural (electron diffraction patterns, rocking curves of the double crystal spectrometer) and electrophysical (specific resistivity, type of conductivity, mobility of the current carriers) characteristics of the films were measured. Analogous experiments were performed with the silicon-silicon homoepitaxial system.

By comparing the results of these experiments the conclusions were drawn regarding minimum effect of the vacuum when applying films according to the conditions with high-temperature nucleation and causing leading to worsening of the film characteristics.

USSR

1

UDC 539.234+539.26+621.416

GRIGOR'YEV, O. N., KLOCHKOV, V. P., KOSENKO, V. Ye., STADNIK, A. V.,
and SHCHETKIN, V. N.

"Preparing and Investigating Monocrystalline Silicon Films on Sap-
phire and MOS Transistors of That Type"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 6, 1971,
pp 16-23

Abstract: As opposed to silicon films deposited on silicon, these films on sapphire permit substantial reductions in the parasitic capacitance of integrated circuits and have other benefits. This paper discusses some problems arising in connection with these devices, such as the effect of the state of the sapphire substrate on the silicon film, the mechanism for the formation of film defects, and the effect of such structural defects on the basic parameters of transistors made by this process. The specimens used in the experiments of the present paper were of the silicon on sili- con and the silicon on sapphire type, with the deposition made in vacuum heating chambers of stainless steel. In one type of speci- men the films were sputtered on the substrate in a vacuum of 1-3.
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USSR

GRIGOR'YEV, O. N., et al., Poluprovodnikovaya tekhnika i mikroelektronika,
No 6, 1971, pp 16-23

10^{-6} mm Hg without preliminary heating, and in a vacuum of $1-2 \cdot 10^{-7}$ mm Hg with preliminary heating. The authors assert that the specimens made by their method are in no way inferior to the best of those obtained by thermal decomposition of silance or the reduction of silicon galloids. They find also that silicon on sapphire transistors are at least as good as those of silicon on silicon. They are associated with the Semiconductor Institute of the Ukrainian Academy of Sciences.

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USSR

UDC 539.234+539.26+621.416

GRIGOR'YEV, O. N., KLOCHKOV, V. P., KOSENKO, V. YE., STADNIK, A. V., SHCHETKIN, V. N.
"Obtaining and Studying Monocrystalline Films of Silicon on Sapphire and Metal-Oxide-Semiconductor Transistors Based on Them"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 16-23

Abstract: A study was made of the effect of the degree of perfection of sapphire substrates on the perfection of the silicon films, the mechanism of formation of a large number of defects in films and the effect of structural defects of the films on the primary parameters of instruments manufactured on the basis of them. Sublimation in a vacuum was used to obtain monocrystalline films of silicon on sapphire and silicon on silicon. The substrates and films were investigated by the methods of x-ray diffraction microscopy. Metal-oxide-semiconductor transistors with characteristics not inferior to the characteristics of analogous instruments made of massive silicon were manufactured from silicon films on sapphire. Topograms of the $\alpha\text{-Al}_2\text{O}_3$ substrate of 1012 orientation taken by various methods are presented. A procedure for obtaining the films is described by which it is possible to obtain silicon films on sapphire which with respect to structure and properties are not inferior to the best films obtained by the method of thermal decomposition of siline or reduction of silicon halides. There are a large number of defects in the silicon films

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USSR

GRIGOR'YEV, O. N., et al., Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 16-23

on sapphire the mechanism of occurrence of which is not fully explained and obviously is of a theoretical nature. The volt-ampere characteristics of the metal-oxide-semiconductor transistors manufactured by the proposed procedure are presented and discussed. The maximum transconductance of transistors with a channel width of 100 microns was 300 micromhos and varied within the limits of 200-300 micromhos. For transistors with a channel width of 400 microns, the transconductance is within the limits of 800-1,000 micromhos.

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- 100 -

1/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--INTENSITIES OF PRIMARY AND SECONDARY X RAY SPECTRA -U-

AUTHOR--(02)--STADNIKOV, A.G., NIKOLSKIY, A.P.

S

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 315-18

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--X RAY SPECTRUM, PHOTON, PARTICLE PRODUCTION, TITANIUM, SODIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--2000/1791

STEP NO--UR/0020/70/191/002/0315/0318

CIRC ACCESSION NO--AT0125403

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0125403

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THEORETICAL LIMITS OF THE INTENSITIES OF PRIMARY AND SECONDARY X RAY SPECTRA, DETD. BY THE MAGNITUDE OF THE PRODUCTION OF X RAY PHOTONS INTO A SOLID ANGLE OF 1 SR BY I BOMBARDING ELECTRON OR PHOTON, ARE DERIVED. OPTIMAL REGIME OF THE PRIMARY SPECTRA EXCITATION CORRESPONDS TO THE PLATEAU OF THE CHARACTERISTIC OF A SPECTROMETER "ACCELERATING VOLTAGE, THE SPEED OF SUMMATION OF THE REGISTERED IMPLUSES". BY THE MAX. OF PRODUCTION OF PHOTONS, THE INFLUENCE OF INSTABILITY OF ACCELERATING VOLTAGE ON THE INTENSITY OF SPECTRA IS MIN. AT THESE CONDITIONS. INTENSITY OF SECONDARY SPECTRA OF LIGHT ELEMENTS DECREASES SHARPLY WITH THE DECREASE OF AT. NO. Z (IF THE SOFT COMPONENT OF X RAY IONIZING RADIATION IS FILTERED BEFORE IT IMPINGES ON A SAMPLE). PRODUCTION OF PHOTONS OF THE PRIMARY K SPECTRA OF ELEMENTS FROM TI TO NA (DILD. BY FILLER WITH Z EQUALS 13 8) DECREASES WITH Z DECREASE PROPORTIONAL TO SIMILAR TO $Z^{-3.5}$, INTENSITY OF THE SECONDARY SPECTRA DECREASES WITH Z PROPORTIONAL TO Z^{-12} (THAT IS 4.0 TIMES 10 TIMES BY THE DECREASE OF Z FROM TI TO NA IF THE BEAM OF X RAY RADIATION FORMS THE PHOTONS WITH E SUBO LARGER THAN 5 KEV MAINLY). FOR THE OPTIMAL ENERGY OF BOMBARDING ELECTRONS AND PHOTONS AND UNDER THE SAME GEOMETRICAL CONDITIONS, THE MAX. OF PHOTON PRODUCTION OF THE SECONDARY K SPECTRA IS HIGHER THAN MAX. OF PRIMARY SPECTRA FOR ELEMENTS HEAVIER THAN C.

FACILITY: VSES. NAUGH.-ISSLED. INST. AVTOMAT. CHERNOI MET., MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11DEC70

172 036
TITLE--ANTIFRICTION PROPERTIES OF FILLED PTFORPLAST, 4
POLY, TETRAFLUOROETHYLENE -U-
AUTHOR--(03)-SEVERIN, P.A., KLYUYEV, E.A., STADNIKOV, M.T.

S

COUNTRY OF INFO--USSR
SOURCE--FIZ. KHIM. MEKH. MATER. 1970, 6(2), 120-1
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
TOPIC TAGS--ANTIFRICTION MATERIAL, POLYTETRAFLUOROETHYLENE, GRAPHITE,
PLASTIC DEFORMATION/(U)PTFORPLAST 4 TEFLON

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0930
CIRC ACCESSION NO--AP0134659
STEP NO--UR/0369/70/006/002/0120/0121

UNCLASSIFIED

272 030
 CIRC ACCESSION NO--AP0134659 UNCLASSIFIED
 ABSTRACT. THE TITLE POLYMER WAS FILLED WITH
 ABSTRACT/EXTRACT--(U) GP-0- 15-40PERCENT COLLOIDAL GRAPHITE BY THE PREVIOUSLY DESCRIBED METHOD (P.
 A. SEVERIN ET AL., 1966). THE PRESENCE OF GRAPHITE INCREASED THE
 ABRASION RESISTANCE OF THE COMPN. SMALLER THAN OR EQUAL TO 1000 TIMES.
 THE FRICTION COEFFS. OF THE COMPNS. WERE 0.05-0.28. THE DEFORMATION OF
 THE COMPNS. UNDER STRESS PROCEEDED FAST FOR 24 HR, THEN IT SLOWED DOWN,
 AND WAS ARRESTED BY THE REORIENTATION OF THE POLYMER STRUCTURE.
 FACILITY: INST.KHIM. VYSOKOMOL. SOEDIN., KIEV, USSR.

PROCESSING DATE--11DEC70

UNCLASSIFIED

AP0049849

Abstracting Service:
CHEMICAL ABST. 5-7a

Ref. Code:

ZR0032

101290m Apparatus for studying the wear of polymer materials during reciprocation. Severin, P. A.; Stagnitskiy, M. T.; Lysvi, P. A.; Fedorenko, V. V. (Inst. Khim. Vysokomol. Soedin. Kiev, USSR). *Zavod. Lab.* 1976, 36(1), 101-3 (Russ). The title app. for studying the wear resistance of plastics during reciprocating friction along metals at low and high temps. in various media, is described. The app. is suitable for use at operating loads and speeds of many reciprocating engines. The driving motion and application of load on the samples are accomplished on one side (vertically), while the samples acquire reciprocating motion along the arc of a ring-shaped countershaft. This permits one to achieve quite simply the necessary insulation of the friction block from the surrounding medium. The app. was used to test samples of filled Ftoroplast-4 at various temps. and sliding velocities over a broad range of loads.

DBJR

REEL/FRAME
19801774

7

BIOLOGY
Agriculture

UDC 595.7:681.142.33

USSR

STADNITSKIY, G. V., Scientific Research Institute of Forestry, Leningrad

"A Mathematical Model of the Survival of Phytophagous Insects During One Generation"

Moscow, Zoologicheskij Zhurnal, Vol 50, No 7, 1971, pp 1,011-1,020

Abstract: Making forecasts of the amount of damage that may be done by insects on farms and in forests will be considerably facilitated by mathematical models of the survival of specimens over one and over several generations. In this study, the survival of *Laspeyresia strobilella*, Lepidoptera, and Tortricidae was investigated over one generation. These insects live in fir cones: they leave the cones once a year for mating, return just before the cone scales close, and remain inside the cones for the rest of the year, practically isolated from the outside world. To collect the data, fir cones were gathered in two forests (Leningradskaya and Novgorodskaya oblasts) at definite time intervals for 5 years (1965-1969), and were analyzed for the number of insects present (3-200 per cone, depending on the number of cones per tree). A final equation representing the mathematical model of the survival of specimens over one generation is derived. It is a trinomial whose main variables are initial population density and growth cycle duration. It is believed that the model is also applicable to some other phytophagous insects.

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USSR

UDC 615.472:616.33-085.832.9-031.84-72

YABMARKOV, L. G., ~~STADNITSKIY, YIL. P.~~, and GALLINGEP, YU. I., Moscow Instrument Factory, II Moscow Medical Institute imeni N. I. Pirogov

"New Apparatus for Local Hypothermy of the Stomach"

Moscow, Meditsinskaya Tekhnika, No 3, 1971, pp 20-23

Abstract: Groups of engineers from the Moscow Instrument Factory and researchers from the Second Moscow Medical Institute imeni N. I. Pirogov collaborated in the development of a new device, the AGZh-1, for producing local cooling of the stomach and other organs. A 50% alcohol/water solution (4 liters) is introduced through an overflow opening in a two-section chamber; a connecting cock is kept open until the upper mark of a level gauge is reached. The air contained in the chamber is driven out through the connecting cock to the outside. A diaphragm pump evacuates a latex ballon which envelopes a double sonde protruding from the measuring section of the device. After the air has been evacuated, the latex ballon is sealed off around the sonde, lubricated with glycerin and inserted into the stomach of the patient. The alcohol/water solution is chilled in the heat-exchange section of the vessel into which are built the vaporizers from Freon coolers which are equipped with special condensers. The temperature of the solution is lowered automatically to a present level by 1/2

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USSR

YABMARKOV, L. G., et al., Meditsinskaya Tekhnika, No 3, 1971, pp 20-23

an automatic unit consisting of a rectifier with a quenching resistor, a transistorized amplifier and intermediate relays of the MKU-4B type. The temperature in the heat exchange chamber is usually maintained at 2° to -8°C , within $\pm 1^{\circ}$. The latex ballon is filled with the cooled alcohol/water mixture, by means of the diaphragm pump. Approximately 600-900 ml are filled into the ballon, under control by the level guage. Electrothermometers are used to measure the temperature of the alcohol/water mixture, the body temperature of the patient, and the stomach temperature. The electrothermometers are calibrated by a microammeter, and they can measure temperatures in the range from 16 to 42° with an accuracy of $\pm 0.2^{\circ}$. An autotransformer is used to control the productivity of the pump. The device is capable of keeping a constant volume of cooling mixture in the latex ballon for the entire procedure (without exceeding atmospheric pressure in the ballon) at a required temperature and with controlled pumping. The device was succesfully tested on 34 patients with acute pancreatitis and gastro-duodenal bleeding. It was possible to reduce by stomach cooling the number of operations and the death rate in destructive forms of acute pancreatitis. The device is claimed to be simple, convenient, and free of danger to operate. It can be used for local cooling of the intestine, urinary bladder, and other caval organs.

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USSR

UDC: 534-8

STADNIK, B. N., KAZANSKIY, M. F., BELYI, L. N.

"Effect of Porous Structure on the Propagation of Ultrasound in Capillary Pore Models"

Vliyanie poristoy struktury na rasprostraneniye ul'trazvuka v model'nykh kapillyarno-poristykh telakh. Redkollegiya "Inzh.-fiz. zh." AN BSSR (cf. English above. Editorial Staff of "Engineering Physics Journal" Academy of Sciences of the BSSR), Minsk, 1971, 7 pp, ill., bibl. of 7 titles (No 3855-71 Dep.) (from RZh-Fizika, No 6, Jun 72, Abstract No 6Zh500 DEP)

Translation: The physical and mechanical properties of capillary porous bodies are very precisely described with the aid of a model system of mutually touching, elastic spherical particles. The speed of propagation of elastic waves along a one-dimensional chain of elastic particles in the absence of attenuation is independent of the sizes of the particles and is determined by the elasticity of the contact between adjacent particles as calculated by the theory of H. Hertz. A one-dimensional chain of particles in a capillary porous body is a mechanical low-frequency filter whose cutoff frequency is directly proportional to the speed of ultrasound and inversely proportional to the sizes of the particles. Measurements of the

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USSR

STADNIK, B. N. et al., Vliyaniye poristoy struktury na rasprostraneniye
ul'trazvuka v model'nykh kapillyarno-poristykh telakh, Minsk, 1971.

speed of propagation of ultrasound on a frequency of 70 kHz in fractionated quartz sand showed a slight increase (by 24%) in velocity with an appreciable increase (by a factor of 7.6) in the effective dimensions of the particles. Authors' abstract.

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Immunology

USSR

UDC 616.921.5+616.91/.93:612.017]:616.15-07

STADNIK, L. M., Chair of Infectious Diseases, Kiev Medical Institute, Kiev

"Immunological Shifts in the Serum of Influenza Patients in Relation to the Intensity of the Fever"

Kiev, Vrachebnoye Delo, No 8, Aug 72, pp 138-141

Abstract: A study carried out on 755 influenza patients indicated that in the blood serum of patients with a higher initial intensity of the fever reaction (temperature $38 - > 40^{\circ}\text{C}$) the influenza antigen appeared earlier, but persisted for a shorter time, than in the serum of patients with a less pronounced fever reaction (temperature $< 38^{\circ}\text{C}$). The immunofluorescence method of diagnosing influenza was found to be more reliable than the serological method for both groups of patients. A special investigation conducted on 63 influenza patients showed that the interferon titers were higher in cases with intensive fever than those with moderate fever.

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USSR

UDC: 536.532

PORTAZH, R. A., LAKH, V. I., STADNYK, B. I., The "Termopribor" Scientific Industrial Union

"A Device for Noncontact Measurement of the Surface Temperature of Moving Objects"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 31, Nov 71, Author's Certificate No 317922, Division G, filed 28 Apr 70, published 19 Oct 71, p 153

Translation: This Author's Certificate introduces a device for non-contact measurement of the surface temperature of moving objects. The device contains a stationary thin-walled hermetically sealed heat pickup with a temperature gauge such as a thermocouple, and a heat-protective jacket with shield. As a distinguishing feature of the patent, the design is simplified and measurement accuracy and reliability are improved by making the heat pickup in the form of a closed hollow body which forms a cavity in conjunction with the jacket, the ratio of the areas of input and output apertures being 3:1.

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USSR

UDC 537.32

KITS, I. I., STADNYK, B. I., SOLYANYK, L. M., STOLYARCHUK, P. G.

"The Possibility of Using VR-10/20 Thermocouples in Corrosive Substances"

Moscow, Teplofizika Vysokikh Temperatur, Vol 11, No 1, Jan-Feb 73, pp 150-153.

Abstract: The influence of various quantities of inert gas on the thermoelectric properties of the VR-10/20 thermocouple is experimentally studied. Data are presented on the instability of VR-5, VR-10 and VR-20 tungsten-rhenium thermocouples in neutral media; the influence of the inert gas flow rate on the indications of the thermocouple is studied and the optimal value, not influencing the indications of the thermocouple, is established as a function of temperature.

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Semiconductors and Transistors

USSR

UDC 621.382

STAFEYEV, V. I.

"Semi-Insulator S-Diode Electronics"

Moscow, Radiotekhnika, Vol 26, No 10, 1971, pp 5-12

Abstract: A study was made of the physical principles of construction of integrated units from diode structures with volumetric negative resistance. Active media as a prospective basis for creating large functional units, S-diodes, the physical principles of S-diodes including the τ -mechanism, the μ -mechanism, growth of ambipolar mobility, distribution of the volumetric charge and leakage of the injecting contact, other types of diodes with S-type characteristics including multilayer structures, thin films and amorphous structures, the functional possibilities of S-diodes including controllable S-structures with volumetric coupling and the basic characteristics of a controllable S-diode structure and the simplest functional S-devices including neuristors, pulse signal delay lines and S-diode logical circuits are discussed.

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USSR

UDC 621.382.323

POPOVA, M. V., STAFEYEV, V. I.

"The Injection FET. Static Characteristics in a Common-Emitter Circuit"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1894-1903

Abstract: The authors present the fundamentals of a quantitative theory and calculate the static current-voltage curves in the common-emitter circuit of a new semiconductor device which consists essentially of four layers with a leak connected between the emitter layers having a resistance which depends on the voltage applied to the collector layer. This leak is what provides the proper current-gain dependence required for operation of the four-layer structure. While the device combines the action of the conventional bipolar injection transistor and the FET, it also has a number of new properties, in particular, it has negative differential resistance of N-type in the collector current-voltage curve, and S-type in the emitter current-voltage curve. The paper contains the results of computer analysis of these curves for a number of combinations of basic parameters of injection FET's. It is shown that the N-triode is similar to the injection FET. Seven figures, bibliography of five titles.

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USSR

UDC 621.382.323

POPOVA, M. V., STAFEYEV, V. I.

"The Injection FET. Static Characteristics in a Common-Base Circuit"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1904-1911

Abstract: The paper is a continuation of research by these authors on the injector FET (cf. *Radiotekhnika i Elektronika*, 1971, Vol 16, No 10, 1894). On the basis of expressions developed in the first part of the work, the authors analyze the current-voltage curves of the collector-base and emitter-base loops. Analytic expressions in parametric form are found for these curves. The results of computer analysis are presented for the effect of basic parameters on the behavior of these curves. The ruling principles found in the experimental work on N-triodes are compared with the theoretically determined behavior. The results show qualitative agreement. Six figures, bibliography of five titles.

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USSR

UDC: 621.397:621.396.61(088.8)

ZOLOTAREV, V. F., STAFEEV, V. I.

"Non-Vacuum Analog of a Television Transmitting Tube"

USSR Author's Certificate No 258374, filed 2 Feb 66, published 24 Apr 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G100 P)

Translation: The given Author's Certificate introduces a device which is a non-vacuum analog of a TV transmitting tube which does not require light beam deflection for image scanning. The device contains a photoconductive layer applied on a multilayer semiconductor structure with thyatron characteristics. This structure is supported by a metal substrate and is divided into lines which are neuristor lines. A modification is possible with two sensitized surfaces for comparing specimens or for tracking moving objects.
N. S.

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1/2 012 UNCLASSIFIED PROCESSING DATE--11SEP70
 TITLE--A FIELD EFFECT TRANSISTOR -U-
 AUTHOR--AYRAPETYANTS, S.V., KOMAROVSKIKH, K.F., MURYGIN, V.I., POSPELOV,
 V.V., STAFEYEV, V.I.
 COUNTRY OF INFO--USSR S
 SOURCE--PATENT NO 263750
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 DATE PUBLISHED--10FEB70

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 TOPIC TAGS--PATENT, FIELD EFFECT TRANSISTOR, TRANSISTORIZED CIRCUIT

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AA0112220

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES A FIELD EFFECT TRANSISTOR WHICH CONTAINS A PN JUNCTION AND AN ISOLATED GATE ELECTRODE. THE TRANSISTOR DIFFERS BECAUSE TO PRODUCE AN S SHAPED CURRENT VOLTAGE CHARACTERISTIC, THE PN JUNCTION IS ARRANGED PERPENDICULARLY TO THE GATE ELECTRODE, AND THE BASE IS LONGER THAN TWO DIFFUSION LENGTHS FOR THE MINORITY CHARGE CARRIERS.