USSR

VETROV, YU. F., et al., Mikologiya i Fitopatologiya, Vol 5, No 2, 1971, pp 148-155

Siberia, as well as in the central steppes of the Ukraine, on many wild and cultivated grains, and Ophiobolus graminis, which attacks many grain cereals and is found also on corn root. O. graminis can survive in the soil for more than 10 years.

2/2

USSR

UDC 621.314.28:681.325.3.088

SUSHKO, A. F., SOROKIN, A. A., and KHOKHRYAKOV, M. V.

"Determination of the Static Reference Error of the Code-Voltage Matrix Transformer With an Only Source of the Reference Electromotive Force"

Probory i Sistemy Avtomatiki. Resp. Mezhved. Temat. Nauch.-Tekhn. Sb. [Apparatus and Systems of Automation. Republic Interdepartmental Thematic Scientific-Technical Collection], 1972, pp 115-119, No 24, 115-119 (from Referativnyy Zhurnal, No 10, Oct 72. 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 10.32.125)

Translation: An investigation is made of the effect of the differential resistance of the reference emf source and of the reference emf deviation from its nominal value on the working accuracy of the code-voltage matrix transformer, making use of a star-like matrix and a single emf reference source. An analytical expression is presented for the calculation of the static reference error at any point of the discrete voltage scale of the transformer. A method is given for determining extreme values of the reference error and scale points of the transformer in which the error reaches an extreme. Two illustrations, three bibliographical references.
1/1

USSR

UDC 632.95

GAR, K. A., KOGAN, L. M., POKROVSKIY, YE. A., KHOKHRYAKOVA, V. S., and BURMAKIN, N. M.

"Hexachlorobutadiene as an Antiphylloxera Vineyard Soil Fumigation Agent"

V sb. Khim. sredstva zashchita rast. (Chemical Plant Protectants -- collection of works, Vyp 1, Moscow, 1970, pp 42-56 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N452 by T. A. Belyayeva)

Translation: In a zone of total and partial phylloxera infection the use of hexachlorobutadiene (I) should retain its importance for many years to come. The article recommends consumption rates for I and a technique for using it, and shows the effect of I on the grape plant, soil microflora and microfauna and the effectiveness of a granulated preparation of I against phylloxera. An estimate is given of the toxicity of I for warm-blooded animals.

1/1

USSR

UDC 632.95.024.1

DRUY, E. G., KHOKHRYAKOVA, V. S., SHUSTOVA, V. P., and AKISHINA, L. F., All-Union Scientific Research Institute of Chemical Means for Plant Protection

"Effect of Organochlorine Insecticides on Azotobacter"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 9, No 7, 1971, pp 42-44

Abstract: DDT or hexachlorane applied for the treatment of the soil of wheat and cotton fields had no effect on the azotobacter in the soil. Application of hexachlorobutadiene (I) in amounts of 75-700 g/m^2 to the loamy chernozem soil of vineyards in Moldavia for the control of phylloxera inhibited the development of azotobacter in the soil, as shown by tests carried out 18 mos. after the spraying of I. Laboratory experiments with soil that had been inoculated with a culture of Azotobacter chroococcum showed that I applied to the soil in amounts of 15-60 g/m^2 did not have a harmful effect on the development of the microorganism. Soil of the chernozem and sod-podzol types treated with I in amounts of 5-500 mg/kg was not toxic to azotobacter (the amount of I present in the soil under practical conditions does not exceed 150-500 mg/kg). It had been established by Khokhryakova, et al (Khimiya v Sel'skom Khozyaystve, No 5, 1966) that I in amounts>50 g/m^2 has a toxic effect on grapevines. One

USSR

DRUY, E. G., et al., Khimiya v Sel'skom Khozyaystve, Vol 9, No 7, 1971, pp 42-44

must assume that substances evolved by the roots of grapevines subjected to the action of I had an inhibiting effect on the azotobacter, because I acting on azotobacter directly or on the soil in the concentrations that were present could have had no effect on the microorganism, on the basis of the results obtained in the study. G. N. Deniskina participated in the work reported.

2/2

1/2 032 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--PROPERTIES OF ALKALI METALS -U-

AUTHOR-(03)-BROYMAN, YE.G., KAGAN, YU.M., KHOLAS, A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1001-13

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ALKALI METAL, EQUATION OF STATE, SODIUM, POTASSIUM, ELASTIC MODULUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0949 STEP NO--UR/0181/70/012/004/1001/1013

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UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121551

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BOND ENERGY, ELASTIC MODULI, EQUATION OF STATE, AND PHONON SPECTRUM OF NA AND K WERE INVESTIGATED BY USING A 2 PARAMETER PSEUDO POTENTIAL. GOOD AGREEMENT WITH EXPTL. DATA WAS OBSD.

UNCLASSIFIED

USSR

KAGAN, Yu.; BROVMAN, Ye. G.; KHOLAS, A.

"Properties of Alkali Metals"

Leningrad, Solid State Physics; April, 1970; pp 1001-13

ABSTRACT: By means of a two-parametric, pseudo potential a number of properties of the alkali metals sodium and potassium were studied: binding energy, moduli of elasticity, their derivatives, equation of state, phonon spectrum, etc. Good agreement with experimental data was observed in all cases.

The article includes 21 equations, 7 figures, and 5 tables. There are 31 bibliographic references.

1/1

USSR

UDC 632.954

BLAGONRAVOVA, L. N., and KHOLCHENKOV, V. A., Nikita Botanical Garden

"Effect of Insecticides on the Damage of Apple Leaves by the Borer Moth, on Their Chlorophyl Content, and on the Quality of the Fruits Ripened for Harvesting"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 11, No 10 (120), 1973, pp 37-39

Abstract: Metaphos and metathione appeared to be the most effective agents against the moth, among those investigated; their usage had a positive effect on the apple leaves and fruits. During the entire experiment the treated leaves had more chlorophyl than the controls, so that their photosynthesis and sugar forming processes were intensified. When diphterex was used, the results were poorer, and DDT appeared completely ineffective. The chlorophyl content in the leaves of Champagne Renet was the same as in the controls.

1/1

USSR

UDC 632.951:634.11

KHOLCHENKOV, V. A., Nikita State Botanical Garden

"Effectiveness of the Treatment of Apple Trees With Phosphorusorganic Insecticides Against Agromyzidae (Lithocolletis purifoliella)"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 7 (105), 1972, pp 34-36

Abstract: The most effective agents against Stigmella malella Stt are metathion and phosphite in concentrations of 0.05-0.1%, followed by metafos, nogas, and DDVF at 0.1% concentration. Nexion, phozalon, cidial, sistemin (rogor), trichlorometaphos-3, and trolen were ineffective. Against Lithocolletis purifoliella Jrsm the effective agents were metaphos, phosphite, and nogas at 0.025-0.1% doses, metathion and DDVF at 0.05-0.1%, and cidial at 0.1% concentration. Nexion, phozalon, systemin, and diphterex did not affect the reproduction of pests. On the basis of experimental data, a triple treatment with 0.04% metaphos, or 0.1% metathion has been recommended. The spraying should be scheduled as follows: first -- in the phenophase, second -- after the apple trees stopped blooming, and the third -- 12-14 days later.

1/1

USSR UDC 576.8.097.2.095.18:615.365:018.53

KRASKINA, N. A., KHOLCHEV, N. V., and LOPATINA, T. K., Moscow Institute of Epidemiology and Microbiology, Moscow

"Characteristics of the Depressive Effect of Antilymphocyte Serum and Antilymphocyte Globulin on the Formation of Antibodies in Mice"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 48, No 2, Feb 71, pp 83-89

Abstract: Antilymphocyte serum was obtained by injecting mouse lymphocytes into rabbits. The serum had an immunodepressive effect on mice given injections of sheep erythrocytes: the formation of antibodies to the erythrocytes was sharply reduced. No immunodepressive effect of antilymphocyte serum was observed with respect to formation in mice of antibodies to the soluble polysaccharide Vi antigen of S. typhi, however. By saturating antilymphocyte serum 33-40% with $(NH_4)_2SO_4$, fractions were isolated from it whose immunodepressive effect considerably exceeded that of the initial serum. These fractions consisted

1/2

USSR

KRASKINA, N. A., et al, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 48, No 2, Feb 71, pp 83-89

of gamma-globulin (64-78%) and beta-globulin (22-36%). The effect of antilymphocyte serum in depressing the formation of antibodies to sheep erythrocytes could be assessed conveniently by determining the ED_{50} of the serum, i.e., its mean dose in mg protein that reduced by 50% the number of antibody-producing cells in the spleen vs. the number of these cells in controls. The specific activity of antilymphocyte preparations with respect to their immunodepressive effect can be determined on the basis of the immunological response of mice to sheep erythrocytes by using these procedures.

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USSR UDC 547.821.824.07:542.953

PROSTAKOV, N. S., KHOLDAROVA, T., PLESHAKOV, V. G., GOVOR, S. Ys., and SHALIMOV, V. P., University of People's Friendship Imeni Patrice Lumumba, Moscow

"Condensation of 1,2,5-trimethylpiperidone-4 With Ethyl- and Naphtyl-acetylenes and Synthesis of Substituted Pyridines"

Riga, Khimiya Geterotsiklicheskikh Soyedinenii, No 3, Mar 73, pp 349-352

Abstract: 1,2,5-Trimethylpiperidone-4 condensed under conditions of Favorskii reaction with 1-butyne, α- and β-naphtylacetylene yields 4-(1-butynyl)- and 4-naphtylethynyl-1,2,5-trimethylpiperidols-4, which after hydrogenation over Raney nickel gave 4-n-butyl-, 4-(2α-naphtylethyl)- and 4-(2β-naphtylethyl)-piperidols-4. These piperidols can be converted to pyridine bases by dehydration, catalytic dehydrogenation and N-demethylation. In this fashion 2,5-dimethyl-4-phenylpyridine was obtained from 1,2,5-trimethyl-4-phenylpiperidience. Condensation of 2,5-dimethyl-4-phenylpyridine with formaldehyde yields 5-methyl-2-(β-hydroxyethyl)-4-phenylpyridine and 2-(5-methyl-4-phenylpyridyl-2)-propanediol-1,3. The first product was converted to the urethane N-phenyl-β-(5-methyl-4-phenylpyridyl-2)ethylcarbamate and dehydrated to 5-methyl-2-vinyl-4-phenylpyridine. 2,5-Dimethyl-4-n-butylpyridine

USSR

PROSTAKOV, N. S., et al., Khimiya Geterotsiklicheskikh Soyedinenii, No 3, Mar 73, pp 349-352

condensed with formaldehyde gave 5-methyl-2-(β-hydroxyethyl)-4-n-butyl-pyridine which was dehydrated to 5-methyl-2-vinyl-4-n-butylpyridine. Two derivatives of this β-hydroxyethyl compound were prepared: N-phenyl-β-(5-methyl-4-n-butylpyridyl-2)ethylcarbamate and 5-methyl-2-(β-benzoyloxy-ethyl)-4-n-butylpyridine.

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USSR

UDC 621.332.2

GUTKIN, A. A., KAGAN, M. B., LEBEDEV, A. A., KHOLEV, B. A., SHAPOSHNIKOVA, T. A.

"Nonadditive Photoeffect During Combined Excitation in GaAs p-i-n-Structures"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 237-241

Abstract: Results are presented from studying the photoeffect during combined excitation in p-i-n-structures of GaAs alloyed with Cr. Light from the admixture and the characteristic absorption bands was used at room temperature. The study revealed mutual signal amplification. With constant illumination, the relative increase in the photocurrent $I_k/I_{ad} + I_{char}$ reaches 10, and with modulation of one of the light fluxes, the variable signal component can increase by 100 times and more. The effect is observed for $\hbar\omega \geq 0.7$ electron volts. In the admixture region the photocurrent depends linearly on the illumination, and in the characteristic region it depends superlinearly. During combined excitation, the lux-ampere characteristic is sublinear. A qualitative model was investigated which explains the observed amplification of the photoresponse by an increase in the effective lifetime in the quasineutral region with illumination of the diode by admixture light. The experimental results agree well with the proposed model. The amplification of the photoresponse is not specific to the given diodes, but it is possible if the width of the

1/2

USSR

GUTKIN, A. A., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 237-241

quasineutral regions between the illuminated surface and the volumetric charge surface is greater than L_D (the length of the diffusion shift of the minority current carriers).

2/2

USSR

KHOLEVO, A. S.

"One Generalization of a Rao-Kramer Inequality"

Teoriya Veroyatnostey i yeye Primeneniya [The Theory of Probabilities and Its Applications], 1973, Vol 18, No 2, pp 371-375 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V139)

Translation: A new inequality is produced for dispersions from which, under weak conditions of regularity, the Rao-Kramer inequality follows. This result is extended to "noncommutative" statistics arising in connection with problems of quantum physics. Author's view

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USSR

KHOLEVO, A. S.

"An Analog of the Theory of Statistical Decisions and Noncommutative Theory of Probabilities"

Tr. Mosk. mat. o-va. [Works of Moscow Mathematics Society], 1972, Vol 26, pp 133-149 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V234, from the Introduction).

Translation: Known problems of detection of a signal against a background of noise are strictly stated and solved within the framework of the existing theory of statistical decisions. In recent years, interest has arisen in quantum-mechanical varieties of these problems, when the physical carrier of the signal and noise is, for example, a quantum electromagnetic field. The significant parallelism in the statements of simple quantum-statistical problems and similar problems from classical statistics indicate the possibility of a formulation of the theory of statistical decisions which would be suitable both for the classical and for the quantum case. This work suggests a generalization; based on the "logical" approach of Von Neuman and Mackey to quantum axiomatics.

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1/2 050 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--EFFECT OF THE VELOCITY OF MOTION OF AN OXIDIZING MEDIUM ON THE IGNITION OF HEATPROOF AND HEAT RESISTANT STEELS AND ALLOYS -U-

AUTHOR-(03)-NESGOVOROV, L.YA., PROZOROV, YU.A., KHOLIN, V.G.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIIA, SERIIA FIZICHESKIKH I TEKHNICHESKIKH NAUK, NO. 1, 1970, P. 95-101

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--HEAT RESISTANT STEEL, ALLOY DESIGNATION, OXYGEN, IGNITION, GAS FLOW/(U)EIALT HEAT RESISTANT STEEL, (U)EI445P NICKEL BASE ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0024 STEP NO--UR/0371/70/000/001/0095/0101

CIRC ACCESSION NO--AP0119020

UNCLASSIFIED

2/2 050 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0119020
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL STUDY OF THE EFFECT OF THE VELOCITY OF MOTION OF OXYGEN AT VARIOUS PRESSURES ON THE IGNITION OF HEATPROOF AND HEAT RESISTANT STEELS AND ALLOYS. AN ESTIMATE IS MADE OF THE RESISTANCE TO IGNITION OF EIAlT STEEL AND EI445P ALLOY DURING HIGH TEMPERATURE TESTS IN THE PRESENCE OF AN OXYGEN FLOW AND IN A STATIONARY OXYGEN MEDIUM. THE MINIMUM IGNITION TEMPERATURE OF SAMPLES EXPOSED TO AN OXYGEN FLOW IS FOUND TO BE CONSIDERABLE LESS THAN THAT OF SAMPLES IN A STATIONARY OXYGEN MEDIUM. FACILITY: AKADEMIIA NAUK LATVIISKOI SSR.

UNCLASSIFIED

USSR

UDC 53.081.001

GORBATSEVICH, S. V., and KHOLIN, V. M.

"The Main Areas of Research in the Field of Fundamental Physical Constants, and Prospects for Improving the Accuracy With Which Units of Measurement Are Reproduced"

Khar'kov, Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby USSR, 1972 -- sb. (Ukrainian Republic Scientific and Technological Conference Honoring the 50th Anniversary of the Ukrainian SSR's Metrological Service, 1972 -- Collection of Works), 1972, pp 238-239 (from Referativnyy Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 2, 1973, Abstract No 2.32.54)

Translation: Contemporary work in determining physical constants and defining them more precisely is closely related to the extremely important metrological problems involved in reproducing units based on physical phenomena and -- in particular -- phenomena in atomic physics. The intensive development of research in spectra (particularly their hyperfine structure) led to the creation of atomic standards for time and frequency units. The development of a technique for stabilizing lasers and methods of measuring their frequency and length could result, in the near future, in an improvement in the accuracy with which

USSR

GORBATSEVICH, S. V. and KHOLIN, V. M., Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby USSR, 1972, pp 238-239

the speed of light is measured; the only limitation is the ability to reproduce a meter with an error of only $2 \cdot 10^{-8}$. This barrier can be overcome by changing over to a new definition of a meter and reproducing it by using the wave lengths of the radiation of a stabilized laser. A simple improvement in the accuracy with which optical band frequencies and the speed of light are measured (to a degree of error no greater than 10^{-10} and $1 \cdot 10^{-8}$, respectively) will make it possible to create a single device for reproducing a second and a meter, providing that the speed of light in a vacuum be assigned a value with the required degree of accuracy. The development of absolute methods of measuring gravitational acceleration and the creation abroad of portable absolute gravimeters made it possible to refine the existing Potsdam system, and the question of changing over to a new gravimetric system is now being discussed. The Internal Bureau of Weights and Measures (France) should be considered as the most logical center for a gravimetric system. At the present time, gravitational acceleration is being measured with an error no greater than $3 \cdot 10^{-8}$ in a number of places (IBWM, NBS, NPL.) This degree of accuracy eliminated the error that is related to the gravitational acceleration error involved in reproducing a newton, pascal, or ampere. The present method of reproducing an

2/3

USSR

GORBATSEVICH, S. V. and KHOLIN, V. M., Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby USSR, 1972 -- sb. pp 238-239

ohm -- according to the capacity of a rated condenser and according to frequency -- insures a degree of accuracy for which the error does not exceed $2 \cdot 10^{-7}$. However, there is an error in the very value given for the capacity, related to the error in the speed of light, that is estimated to be $(0.6\text{-}0.7) \cdot 10^{-6}$. There are a number of relationships between physical constants that make it possible to reproduce an ampere or a volt. The main problem in this case is to overcome the "geometric barrier," which is the basic source of error when reproducing an ampere or a volt. The problem of maintaining an ampere or a volt by using physical constants can now be considered solved, with a degree of accuracy for which the error does not exceed $1 \cdot 10^{-7}$ or even $5 \cdot 10^{-8}$.

3/3

USSR

UDC: 8.74

KHOLINA, Ye. A.

"On a Method of Eliminating Competitions in Combined Digital Devices"

Avtomatika i vychisl. tekhn., 1972, No 6, pp 10-13 (from RZh-Kibernetika, No 5, May 73, abstract No 5V742 by the author)

Translation: An investigation is made of the origin of competitions in combined digital devices under condition that any number of the input variables may change on the inputs of the circuit. The study is done for circuits constructed on two-input elements of the NOR type. It is shown in the paper that if identical signals are present on the inputs of each element, then a transition from this intermediate state of the circuit to any other state, as well as a transition from any state to this intermediate one takes place without competitions. An algorithm is proposed which enables determining P^0 and P^1 sets of input variables whose arrival at the inputs of the circuit puts it into the sought inter-

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USSR

KHOLINA, Ye. A., Avtomatika i vychisl. tekhn., 1972, No 6, pp 10-13

mediate states. The introduction of intermediate P^0 and P^1 sets on the circuit inputs after transient processes are completed and the circuit has achieved a stable state makes it possible to eliminate both static and dynamic competitions in combined digital devices.

2/2

USSR

NIKOLAYEV, A. V., GRIBANOVA, I. N., KHOL'KINA, I. D., NORTSEVA, A. A., MAMATYUK, T. V.

"Phosphorus and Sulfur-Containing Sorbents. V. Organothiophosphorus Sorbents"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSR -- Seriya Khimicheskikh Nauk, No 1, 1973, pp 79-83

Abstract: Data are presented on the synthesis, physical-chemical evaluation and sorptive power of organothiophosphorus sorbents -- cation-exchange resins and "mixed" complexites.

Two types of phosphorus and sulfur-containing sorbents were synthesized. The first type were cations with the functional group $-P(S)(OH)_2$. The sorbents of the second type were "mixed" complexites containing the cation-exchange functional groups and $-P(S)(OR)_2$ where R are alkyls. The physical-chemical characteristics and sorptive powers of the synthesized sorbents are given with special attention to the selectivity of the sorbents and their sorptive power with respect to extracting gold from acid solutions.

The "mixed" complexites were distinguished by a somewhat reduced sorption rate apparently as a result of an increase in steric factors. For the cation-exchange resins a small reduction in the degree of sorption of gold was

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USSR

NIKOLAYEV, A. V., et al., Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSR -- Seriya Khimicheskikh Nauk, No 1, 1973, pp 79-83

observed with an increase in the hydrochloric acid concentration in the aqueous phase; for the "mixed" complexites there was some increase in the degree of sorption in the 0.5-3.0 normal HCl range.

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USSR

UDC 541.183.24

GRIBANOVA, I. N., KHOL'KINA, I. D., POLOVINKIN, YU. N., and NIKOLAYEV, A. V., Institute of Inorganic Chemistry, Siberian Branch, Academy of Sciences USSR

"The Radiation-Chemical, Chemical, and Mechanical Stability of Porous Organophosphorus Cation Exchangers"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 7, Jul 70, pp 1752-1755

Abstract: The stability of organophosphorus cation-exchange resins derived from styrene-divinylbenzene copolymers ("phosphone" resins) under the action of gamma-rays during irradiation in H_2O, 2N HNO_3, and air was studied. Changes in the adsorption capacity for Na^+ and UO_2^{++} upon irradiation and in other properties were determined. The radiation stability of the porous resins was higher than that of the non-porus. It increased with increasing degrees of cross-linking. The higher stability of porous resins, which had a higher content of divinylbenzene, was due to greater possibilities of structurization counteracting decomposition during irradiation. The porous resins also had a higher resistance to the action of acids (5N HNO_3 and 5N H_2SO_4) in tests continued for 1.5-3 mos.
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USSR

GRIBANOVA, I. N., et al., Zhurnal Fizicheskoy Khimii, Vol 44, No 7, Jul 70, pp 1752-1755

The detachment of active groups took place mainly by cleavage of C-C, not C-P bonds. The mechanical strength of the resins, which was determined by grinding tests, depended on the density of cross-linking and the thickness of walls between pores. The data obtained on the resins are tabulated in relation to the content of divinyl-benzene in the resins and the amount of iso-octane used in their synthesis. The authors thank N. YR. BUYANOVA for her assistance in the experiments.

2/2

KHOLLER, K.

Communications Systems

Sel'skaya Telefonnaya Svyaz' (Rural Telephone Communications), 1972, 176 pages. Price 37 kopeks.

Modern agriculture based on large highly mechanized agricultural enterprises requires intensive development of telephone communications. Great tasks were set before rural communications by decisions of the Congress pertaining to the plan for the national economic development of the country in 1971-1975. The principal task concerning the development of telephone communications in the current five-year period consists of a further expansion of telephone facilities for a better satisfaction of the needs of the rural population and agricultural production enterprises. By the end of the five-year plan all soviboses and 80 percent of the kolkhozes must have intraproduction communications.

This book encompasses technical questions concerning the design of exchange structures for rural communication in rural telephone networks. Basic principles pertaining to the construction of rural telephone networks are presented and a determination is made of their place in the statewide telephone network. Information is given on the most promising types of coordinate automatic telephone exchanges for rural networks, on multiplexing apparatus for rural communications lines, electric power supply equipment, and input-switching board devices.

An examination is made of the norms and distribution of attenuation in communications sectors as well as methods of organizing transit connections at network exchanges. An analysis is made of various numbering systems for subscribers' lines in rural areas within the limits of the network and zone.

Fundamental principles concerning the designing of rural networks are cited. Methods of calculating equipment are given for examples of the ATS K-100/2,000 type. Some information is given pertaining to typical designs of rural coordinate ATS K-100/2,000 exchanges.

The supplement contains an example of calculations of equipment for a central exchange of the K-100/2,000 type with a 1,000 number capacity and tables and graphs for the calculations are included.

The aid is designed for communications students at technicums. It may also be useful for engineering and technical personnel engaged in the designing and installation of rural telephone exchanges.

*** *** ***

Rubin, K. Kholler, K., Kommutatsionnye Sistemy (Switching Systems), Translated from Russian, Edited by Yu. M. Martynov, 1972, 196 pages. Price 2 rubles 52 kopeks.

The need for an effective resolution of tasks pertaining to control led to the necessity of transmitting data via communications channels

between various objectives of the control systems, while compilation of the structure of control systems and the need to raise their economic effectiveness necessitated automation of the switching of the circuits of reports circulating in automated systems.

This book examines technical and mathematical problems occurring during the creation of means ensuring switching in systems used for transmission of telegraph information and data. Presentation of the material starts with an examination of the simplest electromechanical systems and is conducted right up to switching centers using computers.

Chapters of the book which examine problems concerning the designing of switching devices present great interest for specialists engaged in the sphere of the automation of data transmission systems. In examining the given problem the authors analyze the entire communications system as a whole (its structure, characteristics of the flows), and also study the peculiarities of other elements of the system, for example, the means for transmitting data via the communications channel. Problems interest is also presented by a description of a number of operating switching systems.

The effective revolution of the problem concerning switching under present-day automated communications systems is impossible without the use of computers. That is why this book will be useful both for specialists engaged in the field of computer technology (utilization of computers in communications systems) and for communications working in the field of the automation of communications systems. Familiarization with problems of switching in communications systems and with the trends and methods in their resolution will undoubtedly be useful for specialists working in the field of automatic control. In addition this book, while filling an existing gap in domestic literature, will also be most useful for students engaged in corresponding specialization.

*** *** ***

Gitin, A. F. Linii Svyazi, Osnovy Teorii Teletrafika (Fundamentals of the Teletraffic Theory), Translated from English, edited by A. D. Kharkevich, 1972, 200 pages. Price 86 kopeks.

The book is devoted to a description of the telephone load, methods of calculating the number of connecting devices in communications networks and in automatic switching systems, as well as to questions concerning determination of the volume of equipment in communications systems during their design.

Questions raised in the book in a compressed form are of interest to scientific and engineering and technical personnel in communications. The book may be used as a teaching aid in the course "Theory of Telephone and Telegraph Communications" by students in communications institutes training in the specialty "Automatic Electrical Communications," as well as in course and diploma planning.

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1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DIFFERENTIAL MICROCALORIMETER FOR CONDUCTING QUANTITATIVE THERMOGRAPHY -U-
AUTHOR-(03)-REZNITSKIY, L.A., KHOLLER, V.A., FILIPPOVA, S.YE.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 534-5

DATE PUBLISHED--------70

SUBJECT AREAS--METHODS AND EQUIPMENT

TOPIC TAGS--CALORIMETER, THERMOGRAPHIC ANALYSIS, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0216 STEP NO--UR/0076/70/044/002/0534/0535

CIRC ACCESSION NO--AP0127827
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0127827

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MICROCALORIMETER IS OPERATED IN THE 25-700DEGREES RANGE WITH CONST. RECORDING OF EFFECTS. THE THRESHOLD SENSITIVITY OF THE DEVICE IS 4 MU V-MM, AND THE MAGNITUDE OF HEAT EFFECTS IS 25-40 CAL. THE MEAN DEVIATION OF EXPTL. DATA FROM THE LITERATURE VALUES IS SIMILAR TO 9PERCENT; THE AREA OF THE PEAK IS 850-1350 MM PRIME2. SAMPLES IN QUARTZ AMPULS WEIGH 0.6-6.0 G.

FACILITY: KHIM. FAK., MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 539.1.073/.074

SAN'KO, L. A., TAKIBAYEV, ZH. S., BOOS, E. G., VOLKOVA, O. I., MOSIYENKO A. M., ZAYTSEV, K. G., TEMIRALIYEV, T. T., and KHOLMETSKAYA, A. V.,
Institute of Nuclear Physics, Kazakh SSR Academy of Sciences, Alma-Ata

"Identification of Secondary Particles From the Ionization Losses in a Hydrogen Bubble Chamber"

Pribory i Tekh Eksper, No 4, 1971, pp 67-69

Abstract: The authors give the results of identifying secondary charged particles forming in the interactions of protons at an empulse of 10 GeV/sec in an 81-cm hydrogen bubble chamber. They show that by using the method of average length of discontinuities they can determine the nature of 30% of all positive particles in a certain range. Graphs are used to illustrate the authors' results. Figure 1 shows the relative error in density as a function of track length. Figure 2 shows the ionization curves computed for various types of particles. Figure 3 shows the distribution of experimental points relative to the ionization curves for positive and negative particles. Analysis of the authors' results shows that the method described herein will allow identification of 90% of all the particles measured. The article contains 3 figures and 4 bibliographic entries.

1/1

5

USSR

TAKIBAYEV, ZH. S., BOOS, E. G., SAN'KO, L. A., TEMIRALIYEV, T., ANTONOVA, M. G., YERMILOVA, D. I., MUKHORDOVA, T. I., KHOLMET-SKAYA, A. V., and FEDOSEYENKO, V. V., Institute of Nuclear Physics, Academy of Sciences Kazakh SSR

"Study of Dynamics of Resonance Production in Four-Track Proton-Proton Interactions at Momentum of 10 Gev/c"

Moscow, Yadernaya Fizika, Vol 13, No 1, 1971, pp 113-123

Abstract: The article gives an analysis of 1800 four-track proton-proton interactions recorded in an 81-cm Saclay hydrogen bubble chamber irradiated with protons with a momentum of 10.01± 0.01 Gev/c on the CERN synchrotron. The following reactions are considered:

$$pp \to pp\pi^+\pi^-, \quad (1)$$

$$pp \to pp\pi^+\pi^-\pi^0, \quad (2)$$

$$pp \to pn\pi^+\pi^+\pi^-. \quad (3)$$

1/2

USSR

TAKIBAYEV, ZH. S., et al., Yadernaya Fizika, Vol 13, No 1, 1971, pp 113-123

Nucleon and meson resonance production cross-sections are determined and the contribution of two-particle reactions studied. It is shown that pion production in all the channels considered is accompanied in most cases by nucleon resonance production. The contribution of boson resonances, which is greatest in the channel with π^0 meson production, does not exceed 10 percent of the reaction channel cross-section. The use of the maximum momentum method permits estimates of the cross-sections for different quasi-two-particle reactions. The cross-sections of the dynamic states being observed differ considerably in channels (2) and (3), where the number of pions and nucleons coincides. This may be due to changes in the nucleon charge in inelastic pp interactions.

1/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--SPECTRAL STUDY OF PHENOTHIAZINE PHOTODEHYDRATION IN SOLUTIONS -U-

AUTHOR--KHOLMOGOROV, V.YE.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(1), 28-34

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DEHYDRATION, SPECTROSCOPIC ANALYSIS, CHEMICAL REACTION MECHANISM, ELECTRON PARAMAGNETIC RESONANCE, THIOL, ORGANIC AZINE COMPOUND, BENZENE DERIVATIVE, FREE RADICAL, OXIDATION, PHOTOLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1052 STEP NO--UR/0456/70/004/001/0021/0034

CIRC ACCESSION NO--AP0104450

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104450

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. THE PHOTODEHYDRATION AT 365 MMU OF PHENOTHIAZINE (I) IN C SUB6 H SUB6, PHME, ET SUB2 O, ETOH, OR TETRAHYDROFURAN AT 20DEGREES IS STUDIED USING EPR AND SPECTRAL METHODS WITH SOLN. CONCN. 5.10 PRIME NEGATIVE4 MINUS 10 PRIME NEGATIVE2M. THE EPR SPECTRUM SHOWS IN ADDN. TO THE I MOL., THE CATION RADICAL II, THE DEHYDRATED FREE RADICAL III, AND THE FREE RADICAL FORMED BY OXIDN., IV. DEPHDRATED I HAD AN ABSORPTION BAND AT 620 MMU, AND A MECHANISM IS SUGGESTED FOR THE REACTION.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--MECHANISM OF THE TWO PHOTON SENSITIZATION OF BOND BREAKING IN ORGANIC MOLECULES AT 77DEGREESK. II. ASSOCIATED INTERMOLECULAR

AUTHOR-(02)-RVLKOV, V.V., KHOLMOGOROV, V.YE.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 119-25

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--LUMINESCENCE SPECTRUM, EPR, SPECTROPHOTOMETRIC ANALYSIS, PHOTOEFFECT, HALIDE, NAPHTHALENE, INTRAMOLECULAR MECHANICS, PHOTON, PHOTOSENSITIVITY, PHOTOLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0742 STEP NO--UR/0456/70/004/002/0119/0125

CIRC ACCESSION NO--AP0119649

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119649

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LUMINESCENCE SPECTROSCOPY, EPR, AND LOW TEMP. SPECTROPHOTOMETRY WERE USED IN THE STUDY OF THE PHOTODECOMPN. OF THE MOLS. OF ETX, X BEING CL, BR, OF I. THE LUMINESCENCE SPECTRA DID NOT INDICATE ANY STRONG DONOR ACCEPTOR INTERACTION BETWEEN ETX AND NAPHTHALENE. THE EPR MEASUREMENTS SHOWED THAT THE RELATIVE STATIONARY CONCNS. OF TRIPLET NAPHTHALENE MOLS. IN THE SOLNS. IN ETOH WITHOUT ETX, WITH ETCL, WITH ETBR, AND WITH ETI (ALWAYS 2M CONCN.) ARE 1, 0.69, 0.48, AND 0.12, RESP. CATIONIC RADICALS OF PH SUB2 NH AND PH SUB3 N WERE FOUND WHEN USING THESE COMPDS. AS PHOTOSENSITIZERS. THE EFFECT OF THE X ON INTRAMOL. PROCESSES IN THE SENSITIZER MOLS. AND THE FORMATION OF WEAK CHARGE TRANSFER COMPLEXES DO NOT AFFECT DIRECTLY AND SIGNIFICANTLY THE DECOMPN. OF ETX TO FREE RADICALS. THE 2 CONCURRING PROCESSES ARE IMPORTANT FOR THE ETX DECOMPN.: (1) AN EXCHANGE RESONANCE INTERACTION, IN WHICH ENERGY IS TRANSFERRED FROM A HIGHLY EXCITED TRIPLET LEVEL OF THE SENSITIZER MOL. TO THE TRIPLET LEVER OF THE ETX MOL.; (2) 2,PHOTON IONIZATION OF THE SENSITIZER WITH THE SUBSEQUENT ADDN. OF 1 ELECTRON TO THE ETX MOL. REACTION (2) BECOMES PREDOMINANT IN REACHING THE IONIZATION LEVEL OF THE SENSITIZER MOL. IN THE PRESENCE OF ETX.

UNCLASSIFIED

USSR UDC 632.954:633.2

KHOLMOV, V. G., and NILASHCHENKO, N. Z., Siberian Scientific Research Institute of Agriculture

"Effect of Herbicides on the Chemical Composition and Nutritional Value of Meadow Grasses"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 7, Jul 70, pp 37-39

Abstract: Studies were conducted of the effect of herbicides on the chemical composition and nutritional value of meadow grasses. The grasses were represented by Poa pratensis L., Agropirum repens L., Vicia cracca L., Trifolium pratense L., Heliocharis eupalustris Lindb., Taraxacum officinale Wigg., Tilipendula ulmaria L., and the poisonous and harmful Ranunculus, Ptarmica vulgaris Blakw. ex. DC., Equisetum arvense L. Samples for analysis were taken in the following experimental variants: 1 -- control (natural meadow without treatment); 2 -- $N_{60}P_{60}$; 3 -- 2M-4KhM, 2 kgm/ha; 4 -- 2M-4KhB, 2 kgm/ha; 5 -- 2,4-DA, 1.2 kgm/ha; and in variants with use of the herbicides with preceding $N_{60}P_{60}$ application, both in one-time administration and in treatment over 2-3 seasons.
1/8

USSR

KHOLMOV, V. G., et al., Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 7, Jul 70, pp 37-39

From results of the investigations, it was established that treatment of meadows with herbicides is positively reflected not only in feed quality but also in its nutritive value which is associated with the regrouping of botanical types of grasses. In one-time application of the herbicides, the content of feed units and digestible protein in one kgm of fodder materially increased in comparison with the control. In addition, the ratio of calcium and phosphorus in hay improved. Better results were obtained in application of 2M-4KhM in a dose of 2 kgm/ha with preceding fertilization. Lowering of calcium content in the fodder after use of 2,4-DA and 2M-4KhP is explained by decrease in the herbage of some varieties from the mixed grass group which were characterized by high content of the given element. Phosphorus content in these variants was at the level of the control. It was concluded that herbicides from the phenoxy acid group change the nutritional substance content in meadow grasses of individual varieties and of agricultural-botanical groups. However, in connection with the regrouping of varieties caused by the herbicides, the quality and nutritive value of hay on

2/3

USSR

KHOLMOV, V. G., et al., Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 7, Jul 70, pp 37-39

the whole do not worsen and in a number of cases even improve as a result of increase in the amount of digestible protein in the fodder and change of calcium and phosphorus ratio in it (the latter approaching the norm).

3/3

USSR

UDC 621.316.(001.1+004.15)

KHOLMSKIY, V. G., ZORIN, V. V., MALIY, N. O.

"Optimization of the Maintenance Schemes and Voltage Conditions in Municipal Networks with the Aid of a Computer"

V sb. Tekhn. progress v elektrosnabzh. gorodov (Technical Progress in Electric Power Supply of the Cities -- collection of works), Leningrad, Energiya Press, 1970, pp 97-101 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye 275)

Translation: The characteristics of the EPOS-1 and EPOS-2 programs for the Ural-2 digital computer for choosing optimal breakdown points are presented. The minimal power loss during the greatest loads of the network is taken as the purpose function in the EPOS-1 program. For optimization, restrictions on the allowable current and fixing of certain sections by reliability conditions are considered. In the EPOS-2 program, the load charts of the consumers are considered for optimization, and the minimum power loss for the defined period is taken as the purpose function. Optimization of the network is realized considering the voltage conditions; the optimal voltage regulation law in the power supply systems is selected, and an efficient arrangement of the distribution transformer branches is found. [Kiev Polytechnical Institute]

1/1

USSR

UDC: 7.84

KHOLMYANSKIY, M.

"Numerical Determination of the Spectral Density of a Random Process With a Broad Spectrum"

V sb. Elektronno-vychisl. tekhn. i programmir. (Electronic Computer Technology and Computer Programming--collection of works), vyp. 4, Moscow, "Statistika", 1971, pp 26-39 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1057)

Translation: The paper deals with application of the "Rapid Fourier Transformation" method for processing large data blocks. The text and a description of the program are given. Author's abstract.

1/1

USSR

UDC 546.3:539.238

KHOIMYANSKIY, V.A. (State Scientific Research and Planning Institute of Alloy and Nonferrous Metal Processing)

"Irreversible Changes in the Structure and Electric Conductivity of Non-Continuous Metallic Films After Condensation"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 7, No 2, 1971, p 354

Abstract: A study was made of the kinetics of morphological changes in granular film on the basis of concepts of two processes of particle shape variation, i.e., migration coagulation and diffusion autocoalescence. Variations in granule number, their average size, and average distance between them in the process of aging or annealing after condensation were investigated. Ultrathin iridium films with an initial resistance from 1 10^9 to 500 ohms were tested in the temperature range of condensation and heating from room temperature to 650°C. As a result of migration coagulation development, the granule shape changes, resulting in the reduction of the average effective distance between them and in a reduction in electric resistance. The rate of a relative variation in electric resistance both in migration and in coalescence as a function of film thickness passes by maximum. The effect of the coalescence process depends substantially on film temperature in condensation and in heating. The electric resistance of the film in aging decreases exponentially with time, if the variation in electric parameters is governed by morphological film changes only.

USSR

(2)

UDC: 533.9...16

ANDRYUKHINA, E. D., IVANOVSKIY, M. A., POPOV, S. N., POPRYADUKHIN, A. P., FEDYANIN, O. I., KHOL'NOV, Yu. V.

"Investigation of the Magnetic Field Structure of the Tor-1 and Tor-2 Stellarators"

Tr. Fiz. in-ta AN SSSR (Works of the Physics Institute, Academy of Sciences of the USSR), 1973, 65, pp 73-81 (from RZh-Fizika, No 6, Jun 73, abstract No 6G358)

Translation: The electron beam method is used to study the structure of magnetic surfaces in toroidal plasma traps with a double-helix field -- the Tor-1 and Tor-2 stellarators. Beam monitoring was done by the conventional probe method and by a high-speed dielectric grid method. It is shown that the structure of the surfaces is regular up to angles of rotational conversion i of the order of 5.5π throughout the entire range of variation in i with the exception of the resonance values $i = \pi, 2\pi, 4\pi$, for which expansion of the surfaces with the formation of a rosette structure is recorded. The amplitude of resonance perturbations measured with respect to the width of the rosettes is of the order of 10^{-4} of the amplitude of the main stellarator field. Bibl. 11 titles.

1/1

AT0032094 NUCLEAR SCI. ABST. 2-70 UK 0000

6555 (NP-tr-1860) MAGNETIC FIELD STRUCTURE IN THE TOR-1 STELLARATOR WITH l = 2. Andryukhina, E. D.; Fedyanin, O. I.; Kholnov, Yu. V. Translated for Culham Lab., Abingdon, Eng., from Preprint No. 118, 16p. (CTO-662) Dep. CFSTI (U. S. Sales Only).

The results of magnetic measurements in TOR-1 are reported. The existence of closed surfaces is experimentally confirmed. The resonance region is investigated. The maximum rotational transform is $l \simeq 4$ to 4.5, with a maximum shear $\theta \simeq 3 \times 10^{-1}$. (auth)

19700280

USSR

UDC 548.4

BUBLIK, V. T., KARATAYEV, V. V., KULAGIN, R. S., MIL'VIDSKIY, M. G., OSVENSKIY, V. B., STOLYAROV, O. G., KHOLODNYY, L. P., State Scientific-Research and Design Institute of the Rare Metals Industry

"Nature of Point Defects in GaAs Single Crystals as a Function of Composition of Melt Used in Growing Them"

Moscow, Kristallografiya, Vol 18, No 2, Mar-Apr 73, pp 353-356.

Abstract: The dependence is studied between the nature and concentration of point defects in GaAs monocrystals and the composition of the growth melt. During the studies, the density of specimens was determined with high precision, lattice periods and internal friction were measured. The results produced indicate that single-phase GaAs crystals can be grown from melts containing between 46.7 and 53.5 at. % As, crystals of stoichiometric composition being produced from a melt rich in As, with its concentration in the melt 50.5 at. %.

1/1

Pharmacology and Toxicology

USSR

UDC 615.214.3

KHOLODOV, L. Ye., TASHUNSKIY, AL'TSHULER, R. A., MASHKOVSKIY, M. D., ROSHCHINA, L. F., SHERSHNEVA, S. I., LEYBEL'MAN, F. Ya., VOLZHINA, O. N., GORODETSKIY, L. Sh., and PETROVA, N. A., All-Union Chemical and Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Sydnocarb, a New Central Nervous System Stimulant"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, No 1, 1973, pp 50-52

Abstract: The recently developed heterocyclic compound sydnocarb -- N-phenylcarbamoyl-3-(β -phenylisopropyl) sydnonomine, $C_{19}H_{18}N_4O_2$ -- produced marked motor excitation in mice, rats, dogs, and cats, increased the frequency and decreased the amplitude of electrical potentials, shortened the latent period of conditioned avoidance reflexes, and reduced the duration of the somnifacient action of hexobarbital. It did not depress monamine oxidase activity, affect arterial pressure, or cause morphological changes in the viscera or peripheral blood. Administered to persons with various neurological and mental diseases (average dose 10 to 25 mg) characterized by asthenic, adynamic, and apathic disorders, sydnocarb had a pronounced stimulatory effect (exceeding that of amphetamine) without inducing euphoria or motor excitement, tachycardia, elevated blood pressure, or other peripheral changes. No signs of physical or

1/2

USSR

KHOLODOV, L. Ye., Khimiko-Farmatsevticheskiy Zhurnal, No 1, 1973, pp 50-52

mental dependence were observed even in patients that received the drug more than 2 years. Sydnocarb has been authorized by the USSR Ministry of Health for use as a psychotropic agent.

2/2

USSR

UDC 669.14

STREKALOVSKIY, M. M., SHIRNOV, Yu. D., CHERNOV, G. I., KATSNELSON, Ya. Ye., KHOLODOV, Yu. A., STARIKOVA, A. P., MUKHINA, P. P., and MALYGIN, Yu. D.

"Improvement of Technology and Quality of the 18Kh2N4VA Structural Steel as the Result of Vacuum Tapping"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 241-242

Translation of Abstract: An installation is described which ensures metal tapping under vacuum. The results of an investigation of some technological alternatives for melting and treatment of the 18Kh2N4VA steel are given.

1/1

USSR

UDC 535.215.1

KHOLODAR', G.A., VINETSKIY, V.L.

"Evolution Of Spectra Of Photoconductivity Of p-Silicon After Irradiation By Gamma Quanta And Electrons"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, "Nauka i tekhn.," 1970, pp 67-70 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B247)

Translation: The spectra were investigated of the photoconductivity of specimens of p-Silicon after irradiation by gamma quanta Co^{60} and electrons with an energy close to threshold. The form of the spectra and its stability in time (after irradiation) and during heating depend very strongly on the energy of the defect generating particles. This dependence agrees qualitatively with the assumption of the presence in the crystal after irradiation of a set of Frenkel genetic pairs with a different distance between its components. 2 ill. 2 ref. Summary.

1/1

USSR

UDC 577.1.:615.7/9

IZMOZHEROVA, Ye. L., GRAYFER, A. L., and KHOLODENKO, D. R.

"Effect of Some Diphenylcarbinol Derivatives on Hematopoiesis in Irradiated and Intact Animals"

Izv. Yestestvennonauchn. in-ta pri Permsk. un-te (News of the Institute of Natural Sciences, Perm University), 1970, 14, No 10, pp 127-142 (from RZh-Biologicheskaya Khimiya, No 9, May 71, Abstract No 9 F1906 by M. Sh.)

Translation: Experiments involving intraperitoneal injection of irradiated rats with diphenylcarbinol (I) derivatives containing one to three radicals showed that the radioprotective effect (bone marrow hematopoiesis) was highest when three radicals of $N(CH_3)$ were present in the I molecule.

1/1

USSR

UDC [537.226+537.311.33]:[537+535]

KHOLODENKO, L. P.

"Thermodynamic Theory of Ferroelectrics of the Barium Titanate Type"

Termodinamicheskaya teoriya segnetoelektrikov tipa titanata bariya (cf. English above), Riga, "Zinatne", 1971, 227 pp, ill., 1 r., 13 k. (from RZh Fizika, No 12, Dec 71, Abstract No 12Yel163K)

Translation: This monograph is one of the first books in the world literature on ferroelectricity in which the thermodynamic theory of ferroelectric crystals with a structure of the perovskite type is discussed (the thermodynamic theory of a single-domain crystal, the theory of the domain structure and domain walls, hysteresis phenomena, the theory of polarization close to the Curie point and the critical point, and certain problems in the theory of ferroelectric polycrystals). 230 ref.

1/1

Kholodenko, M.

1/2

MEDICINE

29 Jan 71 94 FTD:SOVIET SCIENCE

16. USSR

"Kuban Medical Institute"

Moscow, Meditsinskaya gazeta, 1 Dec 70, p 3

Prof M. Kholodenko -- head of the Chair of Nervous Diseases

1/1

17. USSR

"Leningrad Scientific Research Institute of Traumatology and Orthopedics"

Moscow, Meditsinskaya Gazeta, 4 Dec 70, p 3

G. Dantlova -- Candidate of Medical Sciences, senior scientific associate, leader of the Virus Laboratory

USSR

KHOLODENKO, M. I.

Zametki Nevropatologa (Notes of a Neuropathologist), Moscow, 'Meditsina', 1972, 76 pp

Translation: Table of Contents

USSR

KHOLODENKO, M. I., Zametki Nevropatologa, Moscow, 'Meditsina', 1972, 76 pp

2/2

KHOLODILOV YU. M.

IMAGE RECOGNITION

EXPERIMENTAL INVESTIGATION OF VISUAL IMAGE RECOGNITION CHARACTERISTICS

V. A. Avtonomova and Yu. M. Kholodilov

An experiment to form recognition of noisy images is described. The results indicate that conditional recognition probabilities differ from the potential probabilities predicted by statistical decision theory.

Many practical problems require visual recognition of images by human beings. In such cases the quality of recognition estimates from the probability of correct decisions, depends both on the statistical properties of the image and on human psychophysiological characteristics. Thus, to predict recognition efficiency one has to make mathematical models of the minimum process. Considering the probabilistic nature of perception, we can accept the hypothesis that the behavior of an observer can be described in terms of the statistical decision theory [1, 2]. Specifically, we may assume that in making perceptual judgments a human observer behaves as an optimal statistical receiver.

To test this proposition we have carried out a statistical experiment on the recognition of certain elementary graphical images. Each image consisted of a set of noisy images on a plane, formed by additive superposition of random noise on reference images. All reference images were binary matrices of five points drawn on a frame of 32 × 32 = 1,024 image elements (Fig. 1).

Blocks of noisy images were prepared in the form of tables with the aid of a special analog-digital device. This device allows the optical standardized images to be fed directly to a computer, to act on the encoding input with noise, and to obtain the noisy image in a usual form, i.e., recorded on photographic film or paper. This device has been described in detail in [3].

To check the accuracy of the process of conversion of analog signals into a code, the reference images were punched cards were fed to the computer through a digital reader. To ensure equivalent statistical conditions for experimental conditions we have maintained a one-to-one correspondence between the "machine" image stored on punch cards in memory and the optical image shown on the screen. Under such conditions, the distribution laws of machine- and optical image models were equivalent.

The recorded optical images consisted of a combination of spots of different areas and transparencies. The distance between the spots determined the angular size of the image and the visual separation of its elements at the point where the impression of image continuity was not lost. Figure 2 shows reference images formed by the output device on a slightly increased scale. The actual size of the images was 12 × 12 mm.

The reference image $S_i = \{s(i, j), i, k = 1, \ldots, 32\}$, $i = 1, \ldots, 9$, stored in the computer memory was superimposed by mutually uncorrelated Gaussian noise components $N(i, j)$, $i, k = 1, \ldots, 32$, with zero mathematical expectation and equal dispersions $\sigma^2(i, j) = \sigma^2$; this was followed by uniform level quantization of the signal $u = \{u(i, k) = s(i, k) + N(i, k), i, k = 1, \ldots, 32\}$. Here and in the following random quantities are denoted by capital letters and their models by lower case letters. The quantization step Δ was such that in case of maximum noise with the dispersion σ^2 the number of gradations in the noisy image did not exceed eight. Hence

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USSR

YUSHKOV, V. I., POTANIN, V. N., KHOLODKOV, V. K., GRUZINOV, V. K., SECHU-KIN, Yu. P.

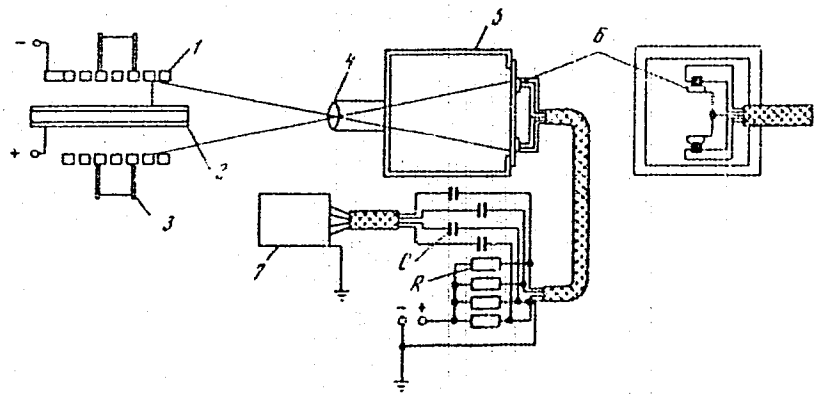
"A Plasmatron With Magnetic Arc Stabilization"

Moscow, Khimiya i Fizika Nizkotemperaturnoy Plazmy, Moscow University Press, 1971, pp 62-64

Abstract: The authors investigate the behavior of an arc on a pilot model of a plasmatron with magnetic stabilization (diagrammed in the figure). The central uncooled graphite electrode 2 with outside diameter of 30 mm and the outer water-cooled copper electrode 1 of helical type with inside diameter of 50 mm are connected to a DC source. The outer conductor is surrounded by stabilizing coil 3 connected to an AC source. The arc was struck by a short, high-voltage rf pulse. The arc is rotated by the magnetic field produced by the outer electrode and the stabilizing coil. The shape of the outer electrode converts the arc to a helical line. Current alternation through the stabilizing coil reverses motion of the arc. Lens 4 projects a full-size image of the arc on the ground glass at the rear of camera 5. Four type FSK-1 resistors are fastened by pairs on the

USSR

YUSHKOV, V. I. et al., Khimiya i Fizika Nizkotemperaturnoy Plazmy, Moscow University Press, 1971, pp 62-64



ground glass as shown by 6. Each of these resistors is connected in series to a load resistor R and a DC voltage source. The rotating arc is periodically projected on the photoresistors, with a resultant increase in the drop in voltage across load resistors R. The variable component of the

2/3

USSR

YUSHKOV, V. I. et al., Khimiya i Fizika Nizkotemperaturnoy Plazmy, Moscow University Press, 1971, pp 62-64

voltage from the load resistors is sent through capacitors C to the loops of oscilloscope 7. Preliminary analysis of materials obtained by this method shows that the proposed plasmatron design should be suitable for heating various gaseous and powdered materials. Two figures, bibliography of four titles.

USSR UDC 612.111.31.014.426

KHOLODNYY, A. Ya., STAVINSKAYA, L. I., and CHESHOKOV, F. T., Blood and Tissue Center, Military Medical Academy imeni S. M. Kirov, Leningrad

"Change in Viability of Erythrocytes Irradiated With Microwaves"

Moscow, Problemy Gematologii i Perelivaniya Krovi, Vol 15, No 7, Jul 70, pp 39-41

Abstract: A study was made of the effect of microwaves on peripheral blood erythrocytes under conditions of extracorporeal circulation. The acid stability of erythrocytes in the blood of irradiated dogs, was determined prior to and after irradiation. The time of stay of Cr^{51} labeled erythrocytes in the vessels was also studied. It was found that irradiation (λ = 12.5 cm) of the dogs decreased the lifetime of erythrocytes, as evidenced by a reduction in acid stability and a decrease in time of stay in the vessels.

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USSR

UDC 621.315.592

MIL'VIDSKIY, M. G., OSVENSKIY, V. B., PROSHKO, G. P., KHOLODNYY, L. P.

"Nature of Defects in Gallium Arsenide Strongly Alloyed with Tellurium"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 224-228

Abstract: A complex study was made of defects in single crystals of GaAs strongly alloyed with Te by joint measurement of the internal friction and the photoluminescence spectra in certain samples. The crystals were investigated both in the initial state after growth and after various types of heat treatment. In the grown GaAs crystals with carrier concentration $n \leq 5 \cdot 10^{18}$ cm^{-3}, one of the basic electrically inactive forms of occurrence of the Te atoms is the pairs $Te V_{Ga}$. With an increase in the Te concentration to $n \approx 8 \cdot 10^{18}$ cm^{-3}, more complex complexes of Te atoms with lattice defects are formed. Preliminary high-temperature quenching has a significant effect on the nature of the transformations taking place during subsequent annealing. The nature of the centers formed during heat treatment depends on the concentration of the alloying admixture in the crystal. The radiation band with a peak at ~1.2 electron volts in the photoluminescence spectrum of GaAs alloyed with Te is not connected with $Te V_{Ga}$ pairs. The role of the centers of radiationless recombination can be

USSR

MIL'VIDSKIY, M. G., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 224-228

played by gallium vacancies and complex complexes of Te atoms with lattice defects. Graphs are included showing the temperature dependence of the internal friction in single crystals of GaAs alloyed with Te and their photoluminescence spectra.

2/2

USSR UDC: 628.33:338.122

KHOLODNYY, V. A., and OZHIGANOV, I. N., Engineers, Donetsk

"Intensification of Metallurgical Plant Wastewater Clarification by Magnetic Field Treatment"

Moscow, Vodosnabzheniye i Sanitarnaya Takhnika, No 3, 1970, pp 1-4

Abstract: The Industrial Wastewater Purification Division of the Donetsk Branch of VNIPIchermetenergoochistka /All-Union Research and Planning Institute for Ferrous Metallurgy Power Purification/ during 1967-1968 developed and studied a method for magnetic wastewater coagulation. The method consists essentially in pretreating the wastewater in a magnetic field before it goes to the sedimentation tank. A series of studies involving the wastewater of blast-furnace and converter-shop scrubbing, the wash water of waste-heat boilers of open hearth furnaces, and the wastewater of rolling mills confirms the effectiveness and advisability of using the magnetic coagulation method for intensifying the clarification of wastewater containing ferromagnetic impurities at little capital or operating cost.

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USSR

UDC 547.836.3:542.944

KHOLODOV, L. Ye., MERZLYAKOVA, N. M., KOSTYUSHENKO, N. P., and SHCHUKINA, M. N., All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Quinindines. V. Chlorination of 2,3-Polymethylenequinolines With Phosphorus Pentachloride"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 1, Jan 71, pp 91-95

Abstract: When reacted with excess PCl_5 in phosphorus oxychloride β-quinindane yield 1,1,2,3,3-pentachloro-β-quinindane; 1,2,3,4-tetrahydroacridine yields 3,4-4-trichloro-1,2,3,4-tetrahydroacridine; β-quinindanone-9 gives 3,3,9-trichloro-β-quinindane, and 1,2,3,4-tetrahydroacridone-9 gives 4,4,9-trichloro-1,2,3,4-tetrahydroacridine. When 1,2,3,4-tetrahydroacridine-9-carboxylic acid is chlorinated under analogous conditions, first an acyl chloride is formed which then converts to 4,4-dichloro-1,2,3,4-tetrahydroacridine-9-carboxylic acid. IR, UV spectroscopical data are reported, and PMR spectra are analyzed in detail.

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USSR

UDC 547.836.3.07

TISHCHENKOV, I. F., KHODOV, L. Ya., and YASHUNSKIY, V. G., All Union Scientific Chemical Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Quinindines. IV. Synthesis and Properties of 3-Acyl Derivatives of 4-Methyl-1,2-dihydro-4H-β-quinindines"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 1, Jan 71, pp 87-90

Abstract: β-Quinindane methyl iodide when treated with excess aqueous base gave 1,2-dihydro-4H-β-quinindine (I) which without isolation was extracted with ether and treated with respective acyl chlorides in presence of aqueous base to give solid 3-aroyl derivatives of (I). The ketones formed are brightly colored compounds, very stable, easily purifiable. Acylation can also be carried out in acetone-triethylamine mixture. When treated with acids these ketones convert to quarternary salts loosing their bright colors. IR absorption maxima are reported for the synthesized materials. In the UV all absorption maxima are shifted towards longer wavelength.

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USSR

UDC 547.832:542.944.938

KHOLODOV, L. Ye., SYROVA, G. P., and YASHUNSKIY, V. G., All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Quinindine. VI. Investigation of Bromination in the β-Quinindane Series. Synthesis of 3H-β-Quinindane System"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 1, Jan 71, pp 96-101

Abstract: Bromination of β-quinindane and β-quinindane-9-carboxylic acid in glacial acetic acid at 50-60° yields tribromo- and tetrabromo-substituted 1H- and 3H-β-quinindenes. When β-quinindene tribromide is hydrolyzed with silver nitrate solution it yields 1-bromo-3H-β-quininden-3-one; when H_2SO_4 is used in hydrolysis -- a rearrangement occurs with formation of 1,2-dibromo-3H-β-quininden-3-one. Possible mechanism of formation of the reaction products is discussed. IR, UV, and PMR spectral data are reported. This appears to be the first synthesis of a novel heterocyclic system of 3H-β-quinindene.

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USSR

UDC 547.836.3.07:541.67:543.422.4.6

TISHCHENKOVA, I. F., KHOLODOV, L. Ye., and YASHUNSKIY, V. G., All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Quinindines. VII. Study of the Synthetic Routes of β-Quinindene"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 1, Jan 71, pp 102-107

Abstract: Various approaches to the synthesis of β-quinindene (I) are discussed. Rearrangement of acetic anhydride of β-quinindane-N-oxide followed by hydrolysis and dehydration gives a dimer of (I). (I) can be obtained by dehydrobromination of 3-bromo-β-quinindane (II) which could be synthesized by converting β-quinindane to a 3-lithium derivative and reacting it with cyanogen bromide at -15°. Dehydrobromination of (II) was achieved by heating it in dimethylformamide for 30 min on a steam bath in presence of triethylamine. (I) is very unstable; it dimerizes in acid medium and on heating. PMR data indicated that the product, in spite of giving only a single spot on the TLC plates, actually represented a mixture of 1H- and 3H-β-quinindene.

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1/3 019 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--QUININDENES. I. SYNTHESIS OF 2,3,DIHYDRO,BETA,QUININDENES (BETA QUININDANES) BY THE PFITZINGER REACTION -U-
AUTHOR-(04)-KHOLODOV, L.YE., SYROVA, G.P., YASHUNSKIY, V.G., SHEYNKER, YU.N.
COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (1), 78-82

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--UV SPECTRUM, IR SPECTRUM, NMR SPECTRUM, CHEMICAL SYNTHESIS, QUINOLINE, POLYNUCLEAR HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/1171 STEP NO--UR/0409/70/000/001/0078/0082

CIRC ACCESSION NO--AP0054071
UNCLASSIFIED

2/3 019 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0054071

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFLUX OF 50 G OF ISATIN WITH 85 G CYCLOPENTANONE IN A MIXT. OF 400 ML ETOH AND 200 ML 33PERCENT AQ. KOH 8.5 HR FOLLOWED BY VACUUM DISTN. OF THE ETOH AND PART OF THE H SUB2 O, DILN. WITH 800 ML H SUB2 O AND EXTN. WITH 300 ML CH SUB2 CLCH SUB2 CL, AFFORDED AN ORG. LAYER WHICH WAS CHARCOAL PURIFIED, DRIED AND VACUUM EVAPD. THE RESULTING OIL WITH PETROLEUM ETHER YIELDED 8.5 G ALPHA, ALPHA PRIME DICYCLOPENTYLIDENECYCLOPENTHANONE, M. 78-80DEGREES (PERTROLEUM ETHER). THE AQ. LAYER, AFTER THE CH SUB2 CLCH SUB2 CL STEP, WAS TREATED WITH ACTIVATED C, ADJUSTED TO PH 6 WITH GLACIAL HOAC AND COOLED. THE PPT. AFTER H SUB2 O WASHING WAS EXTD. WITH ME SUB2 CO (5 TIMES 100 ML), EVAP. TO DRYNESS TO YIELD 16 G OF THE 3,CYCLOPENTYLIDENE,BETA,QUININDANE,0,CARBOXYLIC ACID, MONOHYDRATE (I), M. 113-15DEGREES (DECOMPN.) (60PERCENT OF ETOH). DRYING I (3 HR OVER P SUB2 O SUB5 (75DEGREES, 15 MM) YIELDED THE ANHYD. ACID (II) M. 198-200DEGREES (DECOMPN.); HYDROCHLORIDE M. 190-20EGREES (DECOMPN.). TREATMENT OF AN AQ. MEOH SOLN. OF I WITH AN ET SUB2 O SOLN. OF CH SUB2 N SUB2 YIELDED THE ME ESTER, M. 135-6DEGREES (MEOH). THE RESIDUE AFTER THE ME SUB2 CO EXTN. IS 45 G (EQUATION SHOWN ON MICROFICH) BETA,QUININDANE,9,CARBOXYLIC ACID (III), M. 280-2DEGREES (DECOMPN.); HYDROCHLORIDE M. 240DEGREES (DECOMPN.) (ETOH). A SOLN. OF 1.50 G I IN 30 ML GLACIAL HOAC WAS HYDROGENATED OVER 0.15 G OF PD-C AT ATM. PRESSURE 5 HR AT 45-50DEGREES. AFTER CATALYST REMOVAL AND DILN. WITH H SUB2 O, THE RESULTING PPT. WAS EXTD. WITH ET SUB2 O, THE ET SUB2 O, SOLN. H SUB2 O WASHED, AND THE SOLVENT VACUUM EVAPD.

UNCLASSIFIED

3/3 019 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0054071

ABSTRACT/EXTRACT--THE RESIDUE WAS MIXED WITH WATER FILTERED TO YIELD 0.8 G 3,CYCLOPENTYL,BETA,QUININDANE,9CARBOXYLIC ACID (IV), M. 240DEGREES (DECOMPN.) (ETOH). A MIXT. OF 5 G II, 1.7 G ANHYD. NAOAC AND 30 ML GLACIAL HOAC WAS TREATED OVER 1 HR AT 10DEGREES WITH 1.4 G BR IN 5 ML GLACIAL HOAC AND STIRRED 1 HR AT ROOM TEMP., AND THE PPT. FILTERED AND WASHED WITH H SUB2 O AND ME SUB2 CO TO GIVE 5.1 G 3,BROMO,3,(1,BROMOCYCLOPENTYL),BETA,QUININDANE,9,CARBOXYLIC ACID (V), M. 115-18DEGREES (DECOMPN.), AFTER PPTN. FROM ME SUB2 NCHO SOLN. BY ADDN. OF H SUB2 O. IR, UV AND NMR DATA ARE GIVEN. FACILITY: VSES, NAUCH.-ISSLED. KHIM.-FARM. INST. IM. ORDZHONIKIDZE, MOSCOW USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320002-9"

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT7(

TITLE--SYNTHESIS AND THE INVESTIGATION OF SOME 4H-BETA-QUININDINES, THE HETEROCYCLIC ANALOGS OF AZULENE -U-

AUTHOR-(03)-KHOLODOV, L.E., TISHCHENKOVA, I.F., YASHUNSKIY, V.G.

COUNTRY OF INFO--USSR

SOURCE--TETRAHEDRON LETT. 1970, (18), 1535-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HETEROCYCLIC NITROGEN COMPOUND, CHEMICAL SYNTHESIS, MOLECULAR STRUCTURE, IODINATED ORGANIC COMPOUND, CHLORINATED ORGANIC COMPOUND, AROMATIC KETONE, AMINE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1182 STEP NO--UR/0000/70/000/018/1535/1538

CIRC ACCESSION NO--AP0126784

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--30OCT7(

CIRC ACCESSION NO--AP0126784

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

4,METHYL,1,2,DIHYDRO,4H,BETA,QUININDINE (I) IS TREATED WITH BZCL OR PHNCO TO GIVE II AND III, WHICH ARE TREATED WITH CHLORANIL TO GIVE IV AND V, RESP. II IS TREATED WITH HI TO GIVE VI; SIMILARLY PREPD. IS VII. FACILITY: S. ORDZHONIKIDZE ALL UNION CHEM PHARM. SCI. RES. INST., MOWCOW, USSR.

UNCLASSIFIED

(3)

UDC 539.181.1

USSR

GOL'DANSKIY, V. I., Corresponding Member of the USSR Academy of Sciences, DZHURAYEV, A. A., YEVSEYEV, V. S., OBUKHOV, Yu. V., ROGANOV, V. S., FRONTAS'YEVA, M. V., KHOLODOV, N. I., Institute of Chemical Physics, USSR Academy of Sciences

"Atomic Capture of Negative Mesons in Compounds Containing Hydrogen"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 2, 11 Jul 73, pp 316-316

Abstract: An attempt is made to find possible underlying regularities in the distribution of negative muons between the individual groups Z_mH_n and atoms Z' in substituted hydrogen-containing organic compounds and in hydrogen-containing compounds in general of the type $Z_mH_nZ'_k$ or $Z_mH_vZ'_kH_v$. A table is given summarizing the relative probabilities of capture of μ^--mesons by hydrocarbon and hydrogen-containing groups and by aromatic rings in compounds with ionic bonds, in alkyl chlorides, and in phenyl halides.

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USSR UDC 577.3

KHOLODOV, Yu. A. (Editor), Doctor of Biological Sciences

Vliyaniye Magnitnykh Poley na Biologicheskiye Ob"yekty (The Effect of Magnetic Fields on Biological Objects), Moscow, "Nauka," 1971, 216 pp

Translation: Annotation: The collection is devoted to a study of the effect of sufficiently intensive constant, variable, and pulsed magnetic fields on the most varied biological objects. It contains information on the mechanisms of this effect.

The book is intended for a broad range of readers -- biologists, medical scientists, physicists, engineers, and technicians.

Table of Contents:

USSR

KHOLODOV, Yu. A. (Editor), Vliyaniye Magnitnykh Poley na Biologicheskiye Ob"yekty (The Effect of Magnetic Fields on Biological Objects), Moscow, "Nauka," 1971, 216 pp

USSR

KHOLODOV, Yu. A. (Editor), Vliyaniye Magnitnykh Poley na Biologicheskiye Ob"yekty (The Effect of Magnetic Fields on Biological Objects), Moscow, "Nauka," 1971, 216 pp

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UDC 577.3

USSR

KHOLODOV, Yu. A.

"Introduction"

Vliyaniye Magnitnykh Poley na Biologicheskiye Ob"yekty, pp 5-14

Abstract: A short historical review of works on the effect on biological objects of artificial magnetic fields and fluctuations in the intensity of the geomagnetic field and an attenuated field is given. It is pointed out that the effect of magnetic fields has been detected at all levels of biological organization, from the molecule to the population. The hypothesis that the geomagnetic field has ecological significance is expressed.

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USSR

UDC 577.3

KHOLODOV, Yu. A.

"The Effect of a Magnetic Field on the Nervous System"

Vliyaniye Magnitnykh Poley na Biologicheskiye Ob"yekty, pp 124-146

Abstract: It is demonstrated that a constant magnetic field increases the motor activity of vertebrate animals, inhibits conditioned reflexes to other stimulants, and by itself may serve as a conditioned stimulus for carp and rabbits. Electrophysiological research discovered that a magnetic field causes a synchronization reaction in the EEG of a rabbit which comes on with a latent period of 10-20 seconds. The electrographic reaction to a magnetic field in a preparation of isolated brain and in a neuronally-isolated strip of the cerebral cortex of a rabbit occurred more frequently, more intensively, and with a shorter latent period than a similar reaction with an intact brain. The conclusion is drawn that the magnetic field acts directly on brain tissue. This proposition is confirmed by microelectrode research on connective activity of neurons and morphological research on the glioneuronal complex. The reduced resistance of mice to oxygen starvation when they are put in a magnetic field forces one to assume the effect of the field on oxidative metabolism of the 1/2

USSR

KHOLODOV, Yu. A., Vliyaniye Magnitnykh Poley na Biologicheskiye Ob"yekty, pp 124-146

brain. Emphasis is placed on the nonspecific nature of the central nervous system reaction to a magnetic field, because such a reaction is discovered during the action of radio frequency electromagnetic fields and ionizing radiation.

USSR

UDC 669.15'27-194

STROGANOV, A. I., PYL'NEV, Yu. A., CHERNYSHEV, E. Ya., KEYS, N. V., PAKULEVA, V. S., DONETS, I. D., KHOLODOV, Yu. A., and GERMELIN, F. A., Chelyabinsk Polytechnical Institute; Chelyabinsk Metallurgical Plant

"Tungsten Losses in the Production of High-Speed Steel"

Moscow, Metallurg, No 1, Jan 71, pp 21-23

Abstract: Data are presented on seven melts of R18, R12, and R6M3 high-speed steels, an analysis is made of tungsten electric steelmelting and forge conversion processes, and methods are presented for utilizing scrap of tungsten-bearing steels. From the study the following conclusions can be made: as the tungsten content in the steel is increased, its assimilation decreases. A decrease in the proportion of tungsten through the ferro-alloys as well as a decrease in the consumption of oxygen for blowing facilitate a more complete assimilation of tungsten by the metal. A substantial portion of tungsten is lost with the scrap and reguli in the slag (0.34%), the emery dust, and scale during forging. A thorough extraction of tungsten from slag and scale is suggested. Means for reducing tungsten losses in the process of heating castings and ingots in the furnaces include

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201320002-9"

USSR

STROGANOV, A. I., et al, Metallurg, No 1, Jan 71, pp 21-23

a nonoxidizing atmosphere, more rapid heating, and application of a protective coating to ingots prior to heating. To decrease decarburization and scale formation, the Chelyabinsk Metallurgical Plant has recently been using coatings comprising refractory clay (20%), M40 carborundum powder (6%), fine graphite (6%), commerical borax (3%), and liquid glass (65%).

2/2

USSR

KHOLODOV, Yu. A.

Magnetizm v Biologii (Magnetism in Biology), Moscow, "Nauka," 1970, 97 pp

Translation: Annotation: The biological effect of magnetic fields is one of the pressing problems of our day. Theoretical and practical aspects of this problem attract scientists of varied specialties -- doctors, ornithologists, and geneticists. A new field of science -- magnetobiology -- is exploring the effect of magnetic fields on biological materials. The book's author is actively at work on problems facing the young science which studies the effect of magnetic fields on the central nervous system. The book presents in popularized form the history of the discovery of the effects of magnetic fields, current research, and the prospects for further growth of this field of science.

Introduction: We encounter magnetic fields literally every day of our lives, at every step we take. The magnet is a vital part of the electric toothbrush, radios, and trolley-buses. We locate countries with its help.
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USSR

KHOLODOV, Yu. A., Magnetizm v Biologii (Magnetism in Biology), Moscow, "Nauka," 1970, 97 pp

Representatives of the most varied sciences take magnetic fields into account in their research. A physicist measures the magnetic fields of atoms and elementary particles; the astronomer studies the role of cosmic magnetic fields in the birth of new stars; and the geologist hunts beds of iron ore by relying on anomalies of the earth's magnetic field. Only biologists have until recently remained out of the picture.

It was believed that magnetic fields had no effect on biological materials. However, accumulated facts forced a new look at this conclusion.

Could we exist without the earth's magnetic field? Do magnetic bracelets cure? Can birds orient themselves over long flights by the magnetic field? Does a living organism generate its own magnetic field? How do magnetic storms influence human health and behavior? These and many other questions today stir biologists and physicians.

A large number of scientific articles on the biological effects of magnetic fields appeared in the 1960's. A new field of biophysics was born --

USSR

KHOLODOV, Yu. A., Magnetism v Biologii (Magnetism in Biology), Moscow, "Nauka," 1970, 97 pp

magnetobiology. The affinity of this term with the concept of radiobiology is not confined only to linguistics, because ionizing radiation as a factor altering biological processes helped establish the new view of the role of penetrating imperceptible electromagnetic fields.

The term "magnetism" did not take root in biology and medicine. It denotes not only the physical concept of a magnetic field, but also what now is called hypnosis, metallotherapy, massage, telepathy, fortune-telling, and so on. Even today a synonym for magnetobiology in American literature on the subject is the term biomagnetism. It is difficult to agree with this definition for three reasons: a) terms similar to magnetobiology already are current -- electrobiology, photobiology, etc.; 2) by analogy with bioluminescence and biopotential, biomagnetism must be regarded as magnetism generated by a living object; 3) biomagnetism, or vital magnetism is a morally discredited term, since it is associated with mesmerism.

In speaking about the use of magnetic fields in biology and medicine, we

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USSR

KHOLODOV, Yu. A., Magnetism v Biologii (Magnetism in Biology), Moscow, "Nauka," 1970, 97 pp

will concentrate only on its effect on biological materials. Therefore, the wide use of magnets for removal of metallic dust from the eyes, rare cases of the removal of metallic objects from the esophagus, heart, or brain, etc., will remain beyond the scope of this book.

The author realizes that any attempt to generalize very recent experimental data risks premature refutation. But the field of science about which this book is written is so fascinating that this risk can be justified. If the account of the magnet addressed to the general reader attracts specialists in other fields, my goal will be attained.

Table of Contents:

USSR

KHOLODOV, Yu. A., Magnetism v Biologii (Magnetism in Biology), Moscow, "Nauka," 1970, 97 pp

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USSR UDC 669.715'3'782'73'721'781.018.28:669.018.2(088.8)

STROGANOV, G. B., AL'TMAN, M. B., POSTNIKOV, N. S., KHOLODOV, Yu. I., OSIPOV, I. N., LOKTIONOVA, L. I., and CHERKASOV, V. V.

"High-Strength Aluminum-Base Casting Alloy"

USSR Authors' Certificate No 260893, Cl. 40 b, 21/02, (C22c), filed 10 Apr 68, published 12 May 70 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1766 P)

Translation: The alloy contains (in %) Si 6-8, Cu 2.5-5.5, Cd 0.05-0.4, Mg 0.05-0.4, B 0.002-0.1, Zr 0.005-0.25, Ti 0.1-0.3, Fe $\leq$ 0.5. The addition of up to 0.5% Ni is recommended in order to raise heat resistance. In the heat-treated state under regime T5 the alloy at room temperature (loam casting) has a breaking point of 36-40 kg/mm^2, $\sigma_{0.2}$ 30-34 kg/mm^2, and σ 3-6% given σ_{100}^{300} = 5.5 kg/mm^2. The alloy possesses elevated fluidity and impermeability, is highly machinable, is weldable by argon arc welding, and contains no toxic elements. It is recommended for the manufacture of cast parts subject to great stresses.

1/1

1/2 024 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--HIGH STRENGTH ALUMINUM BASE CASTING ALLOY -U-

AUTHOR-(05)-STROGANOV, G.B., ALTMAN, M.B., POSTNIKOV, N.S., KHOLODOV, YU.I., OSIPOV, I.N.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 260,893
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--06JAN70

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

TOPIC TAGS--ALUMINUM ALLOY, METAL CASTING, METALLURGIC PATENT, HIGH STRENGTH ALLOY, DIE CASTING, NICKEL CONTAINING ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1790 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0109751
UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AA0109751
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO INCREASE THE PHYSICOMECH. PROPERTIES OF THE TITLE ALLOY DURING DIE CASTING, IT HAS THE FOLLOWING COMPN.: SI 6-8, CU 2.5-5.5, CD 0.05-0.4, MG 0.05-0.4, B 0.002-0.1, ZR 0.005-0.25, TI 0.1-0.3, FE SMALLER THAN OR EQUAL TO 0.5PERCENT, AND AL THE REMAINDER. TO INCREASE THE HIGH TEMP. STRENGTH OF THE ALLOY, IT ALSO CONTAINED SMALLER THAN 0.5PERCENT NI.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--UTILIZATION OF THERMOLUMINESCENCE METHOD FOR THE STUDY OF MAGMATIC ROCKS CONTACTS EXEMPLIFIED BY TUCHINSK MASSIF -U-
AUTHOR-(03)-VASILENKO, V.B., LITVINOVSKIY, B.A., KHOLODOVA, L.D.

COUNTRY OF INFO--USSR

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 2, PP 57-63

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MAGMA, GRANITE, THERMOLUMINESCENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/1229 STEP NO--UR/0210/70/000/002/0057/0063

CIRC ACCESSION NO--AP0103117
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103117

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT THE STUDY OF ALKALINE AND NEPHELINE SYENITES CONTACTS WITH PALEOZOIC GRANITOIDS USING THE METHOD OF THERMOLUMINESCENCE IS ESTABLISHED THAT THERMOLUMINESCENCE PARAMETERS OF SYENITES AND THEIR FELSPARS ARE UNDERRATED COMPARATIVELY WITH THOSE "NORMAL" AND INDICATE THE TEMPERING OF THESE ROCKS. THE DEGREE OF THE TEMPERING IS DECREASED WITH REMOVAL FROM CONTACT WITH GRANITES. BASED UPON THESE DATA THE MOVEMENT OF THE HEAT FLOW FROM GRANITES UP TO SYENITES IS SUGGESTED.

UNCLASSIFIED

USSR UDC 577.3

KHOLODOVA, YU. D., Institute of Physiology imeni O. O. Bogomolets, Academy of Sciences Ukrainian SSR

"Temperature Dependence of Absorption of Potassium and Sodium Ions by Membranous Fragments of Skeletal Muscles"

Kiev, Fiziologichnyy Zhurnal, Vol 17, No 5, Sep/Oct 71, pp 609-614

Abstract: Membranous fragments obtained from the skeletal muscles of the frog Rana ridibunda were used to determine the temperature dependence of K and Na ion absorption in solutions with an ion strength of 0.13. Saturation of the fragments was accomplished by heating at temperatures of 0°, 20°, 30°, and 50° C. After two washings with isotonic surose to free the fragments of the unabsorbed ions, aliquot samples were taken for an analysis of their ion and protein content. Energy activation was calculated on a bais of kinetic investigations, and the enthalpy of the absorption processes by van't Hoff's rule. The experiments established that elevation of temperature increases the rate of absorption of K and Na ions by membranous fragments of skeletal muscles, with the total capacity of the fragments remaining unchanged at temperatures of 0°, 20° and 30° C in the period of attaining equilibrium, but definitely reduced at 50°. Calculation of the energy activation and enthalpy values of ion absorption at the different temperatures indicates that the processes are

1/2

USSR

KHOLODOVA, YU. D., Fiziologichnyy Zhurnal, Vol 17, No 5, Sep/Oct 71, pp 609-614

due to the diffusion of the ions to ionogenic groups with a subsequent exchange reaction which takes place in the nonspecific components of the membranes and probably in the active parts of the protein-enzymes. It is apparent also that the effect of temperature on the membrane's structure as manifested by the increase of energy activation in the process of ion absorption may play also an important role in the processes which accompany temperature changes in the membrane's resting potential, thereby regulating the flow of ions through the membrane.

2/2

USSR

UDC 621.791.011.019

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"Change in Ductility of Structural Steels at Rupture Under the Influence of Cyclical Loading"

Problemy Prochnosti, No 11, 1971, pp 16-22.

ABSTRACT: Experimental data are presented on the influence of preliminary cyclical loading and subsequent ageing on the resistance of low-carbon and low-alloy steels to brittle rupture. It is pointed out that it is useful to determine the ductility at rupture on the basis of the criterion of critical crack development. It is demonstrated that when structural materials are evaluated from the standpoint of rupture mechanics, the change in ductility of metal during the formation of actual cracks must be considered.

USSR

UDC 538.3:530.145

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"Quantum Theory of Motion of Relativistic Electrons in Crossed Magnetic and Electric Fields of the Focusing Type"

Tomsk, Izvestiya VUZov: Fizika, No 12(127), Dec 72, pp 32-37

Abstract: The Dirac equation is solved in the harmonic oscillation approximation for a weak electric field which focuses electrons in the axial direction in a homogeneous magnetic field. The resultant wave functions are used to investigate the influence of an electrostatic field on radiation polarization of electron spin. The results show that an electrostatic field does not change the degree of radiation polarization of electron spin, although it extends somewhat the time during which the spins of electrons are oriented contrary to the magnetic field. The stability of spin orientation due to radiation depends on the smallness of the amplitude of axial oscillations.
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1/1

USSR

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"Effect of Radiation Friction on the Motion of a Charge in a Uniform Magnetic Field and in the Field of a Plane Electromagnetic Wave"

Moscow, Vestnik Moskovskogo Universiteta -- Fizika, Astronomiya, No 5, 1972, pp 558-565

Abstract: The problem discussed in this paper, the motion of a charged particle in external fields, is an important one in connection with astrophysics, accelerators in intense laser beams, and other applications. The equations of motion of the charged particle are derived on the assumption that the intensity of the magnetic field is constant and uniform, and the radiation pumping of an electron's energy is investigated on the basis of the Dirac-Lorentz equation for a point electron in the field of a plane wave and a constant magnetic field. An expression is found for the change in the average energy of the electron with the attenuation taken into account. At the end of the attenuation time, the average electron energy increases due to the radiation friction. The