

USSR

SLUTSKOVSKIY, A. I. et al., USSR Author's Certificate No 330410

fication of this device distinguished by the fact that the stability of scanning triangular and trapezoidal images on the screen of the CRT is improved by connecting the high-frequency square-wave source with twice the frequency of the low-frequency sources through a differentiating circuit to the controlling input of a switch connected in parallel with the input of an amplifier and a capacitor. The capacitor is connected through a resistor to a DC voltage source, and the output of the amplifier is connected to the horizontal deflecting system of the cathode ray tube.

2/2

Molecular Biology

N

USSR

NIKIFOROV, V. G., Institute of Atomic Energy imeni I. V. Kurchatov, Moscow

"RNA Polymerase From a Thermophilic Strain of Bacillus megatherium" "Study of Initiation of RNA Synthesis"

Moscow, Molekularnaya Biologiya, Vol 4, No. 2, 1970, pp 159-174

Abstract: The thermostability of DNA dependent RNA polymerase isolated from the thermophilic strain of *B. megatherium* and the kinetics of RNA synthesis were studied at various temperatures. The temperature of inactivation of *B. megatherium* polymerase is 20°C higher than that of *E. coli*. The thermostability of polymerase derived from both species of bacteria increases with binding of the enzyme with native T₂ DNA. On the other hand, the rate of RNA synthesis on native T₂ DNA depends on the local denaturation of DNA in the place of attachment of RNA polymerase. The lag period in RNA synthesis becomes noticeable at 35°C and increases with drop in temperature. Since different times are required to initiate synthesis of the different RNA polymerases (from both bacteria species), it was concluded that the probability of local denaturation in the matrix changes with interaction of polymerases with DNA. At lower temperatures, RNA synthesis drops sharply: apparently only one part of the polymerase molecule is able to initiate RNA synthesis.

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M
Devices

UDC 621.387

USSR

VEL'MUSHKIN, D. A., NIKIFOROV, V. G. and SVORTSOV, B. V.

"Gas-Discharge Lamp of Cavity Type"

USSR Author's Certificate No 232378, filed 20 May 67, published
18 Apr 69 (from RZh-Elektronika i yeye primeneniye, No 1, Jan 70,
Abstract 1A142P)

Translation: An improvement is proposed for a pulse gas-discharge lamp of the cavity type, intended for optical pumping of a high-power solid-state laser. To improve the optical properties of the lamp and to increase its operational reliability beryllium oxide is proposed as a ceramic material for the exterior of the tube serving as the optical reflector. V. M.

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USSR

UDC 911.3:616.34(575.1)

SHATROV, I. I., POKROVSKAYA, M. P., KRASKINA, N. A., BRAYNINA, R. A.,
ELKIN, I. I., SKVORTSOV, V. V., KILESSO, V. A., BUNIN, K. V., NIKIFOROV,
V. N., POKROVSKIY, V. I., and STARSHINOVA, V. S.

"Current Status of Typhoid"

V sb. Materialy XV Vses. syezda epidemiologiv, mikrobiologov i infektsionistov, Tezisy Dokl. Ch. 1 (Proceedings of the 15th All Union Conference of Epidemiologists, Microbiologists, and Infectious Disease Specialists, Theses Reports, Part 1 -- collection of works), Moscow, 1970, pp 262-269 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.258)

Translation: During the last seven years, the incidence of typhoid has decreased each year by 6-7% on the average in this country. Maximum drops were observed in the Belorussian SSR, Kazakh SSR, Lithuanian SSR, Latvian SSR, Armenian SSR, and Estonian SSR; minimum drops were found in the Uzbek SSR and Kirghiz SSR. During the last two years, the incidence of typhoid was 10% higher among rural residents than among urban residents. In comparison with 1964, a drop in incidence of approximately 40% was observed; in rural locations, the drop was 23%. The leading significance of the water factor in transfer and distribution of the agent of typhoid is

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SHATROV, I. I., et al., Materialy XV Vses. syezda epidemiologiv, mikrobiologov i infektsionistov, Tezisy Dokl. Ch. 1 (Proceedings of the 15th All Union Conference of Epidemiologists, Microbiologists, and Infectious Disease Specialists, Theses Reports, Part 1 -- collection of works), Moscow, 1970, pp 262-269 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.258)

confirmed. Of decisive importance, particularly in recent years, is the nutritional (milk) factor of typhoid transfer and distribution.

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Pathology

USSR

UDC 616.153.1-092

KRUPENINA, V. I., NIKIFOROV, V. N., and ROZHKOV, K. K., Rostov-na-Donu Scientific Research Antiplague Institute, Central Clinical Hospital of the Fourth Main Administration, Ministry of Health USSR, Moscow

"Mechanism of Change in the Level of Enzymatic Activity of Blood Serum in Different Pathological Processes"

Moscow, Sovetskaya Meditsina, No 11, 1971, pp 23-29

Abstract: Experiments were conducted with animals infected with plague toxin, cholera toxin or typhoid bacteria. Serum levels of alanine- and aspartate-aminotransferase, alkaline phosphatase, acid phosphatase, and fructose diphosphate aldolase showed that the mechanism regulating enzymatic activity involves shifts in the quaternary structure of these enzymes. The actual process involves polymeric molecules found in the heavier enzyme molecules, and these polymers are capable of dissociation and reassociation under certain conditions. This enzymatic activity was studied in white rats with acute and chronic lesions of the liver caused by carbon tetrachloride as well as in animals poisoned with plague and cholera toxins, and in human subjects suffering from infectious hepatitis, myocardial infarction, and other diseases.

1/1

M. K. F. ROV, V. N.

Sinologist

THEMES OF P. A. MIR ON CHINESE REVOLUTION

Article by V. N. Nikiforuk. "From the History of Soviet Sinology"; Moscow Voennoy Izdat., Moscow, No 2, 1972, appeared to press 10 February 1972, pp 59-66

For 10 years (1977-1977), the study of China in the USSR was headed by Pavel Aleksandrovich Mir (Pavel Mir was a party alias from 1917, his real name was Mikhail Aleksandrovich Forus). A participant in the Civil War, P. A. Mir had obtained a higher education. In 1921, he completed the Communist University imeni Ya. M. Sverdlov, and remained there as a scientific associate, and at the same time began to work at the KMTV, P. A. Mir began to be seriously involved in the problems of the revolutionary movement of the peoples of national and dependent nations. In 1923-1925, he was involved in party work in the Donets Basin. When a strong upsurge in the revolutionary movement was noted in China, the University imeni Sun Yat-sen was established in Moscow (1925) to help the Chinese revolutionaries. P. A. Mir was sent to this university as the provost. Thus began the work of P. A. Mir in the area of Sinology.

The problems of the Chinese revolution in 1926-1927 became a subject of dispute and ideological struggle in the international communist movement. The influence of the Trotskyites was strong at the University imeni Sun Yat-sen. In the ardent struggle which occurred during these years at the university, P. A. Mir consistently and convincingly defended the party positions and took an active part in the ideological defeat of the Trotskyites. In 1927, he was appointed the rector of the University imeni Sun Yat-sen (1928) and returned to the Communist University for the Toilers of China (KMTV), and this he headed until 1929. Many prominent Chinese communists were studying and working at the university. In mastering the experience of the October Revolution

USSR

UDC 616.932-08-036.8:612.013.1

NIKLEOROV, V. N., POKROVSKIY, V. I., BULYCHEV, V. V., MALEYEV, V. V.,
KUPRIYCHUK, A. B., KUCHEROVA, T. P., BALASHEV, V. I., KOL'YAKOVA, T. A.,
and VEYUR, N. A., Scientific Research Institute of Epidemiology, Ministry
of Health USSR

"Restoration of Homeostasis in Cholera Patients Receiving Rehydration Therapy"

Moscow, Sovetskaya Meditsina, No 9, 1971, pp 114-120

Abstract: Normalization of disturbances of homeostasis in cholera patients is achieved by careful monitoring of the effects of rehydration therapy. Various indices of homeostasis -- physicochemical properties of the blood, acid-base equilibrium of arterial and venous blood, clotting, etc. -- were investigated in 58 patients with Asiatic cholera before and during rehydration with the standard No 1 solution (5 g NaCl, 4 g NaHCO₃, and 1 g KCl per liter of apyrogenic water). The disturbance of homeostasis before treatment was marked by increased specific gravity of plasma, viscosity, and hematocrit and decreased volume of circulating plasma. Changes in the acid-base equilibrium and blood gases were manifested by signs of compensated respiratory alkalosis, metabolic compensated acidosis, and stagnant hypoxemia. Disruption of the movement of blood electrolytes was accompanied by decreased concentration of potassium,
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NIKIFOROV, V. N., et al., Sovetskaya Meditsina, No 9, 1971, pp 114-120

sodium, and chlorine. Fibrinolysis, clotting, recalcification, and heparin time increased while the prothrombin index and fibrinogen increased.

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USSR

UDC 616.932-08:616-092

NIKIFOROV, V. N., Professor, SHCHERBAK, Yu. F., Candidate of Medical Sciences,
LEVITOV, T. A., Docent, and MARCHUK, L. M.

"Modern Fundamentals of Pathogenetic Therapy of Cholera"

Moscow, Sovetskaya Meditsina, Vol 33, No 7, Jul 70, pp 10-17

Abstract: Patients with algid cholera suffer from acute intoxication, acidosis, loss of body fluids and salts, and disruffed intermediary metabolism, and therefore require immediate treatment. A study was undertaken in which 60 cholera patients were divided into several groups and treated with bacteriophages (administered enterally or intramuscularly), with or without intramuscular tetracycline. For each group, an appropriate control subgroup was treated with a placebo. Blood tests and stool analyses were performed on each patient before and during the treatment. The bacteriophages were found to be no more effective than the placebo. Tetracycline definitely improves the condition of the patient, however. The basic treatment is still intravenous administration of salt solutions (rehydration), accompanied by enterally administered tetracycline. Immediate intravenous infusion of 5-4-1 salt solution (5 g NaCl, 4 g NaHCO_3 , and 1 g KCl per liter of double distilled water) is recommended. The total dose shall be about 10 percent of the patient's body weight or, more precisely: $4 \times 10^3 \times (\text{specific } 1/2$

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NIKIFOROV, V. N. et al, Sovetskaya Meditsina, Vol 33. No 7. Jul 70, pp 10-17

gravity of patient's plasma - 1.025) x patient's weight in kilograms = milliliters of salt solution to be administered. The solution should be infused as follows: first liter over a period of 10 min, second liter, 20 min, and the remainder, 30-60 min. The solution is subsequently infused in volumes equal to the total loss of body fluids (feces, urine, and vomitus). If EKG disturbances develop, the 5-4-1 solution should be temporarily replaced with 6-4 solution (6 g NaCl and 4 g NaHCO₃ per liter of double distilled water). No cardiovascular drugs are necessary. Initial, drastic recovery is observed 20-25 minutes after treatment is begun; 8-12 hours later, patients are able to sit up in bed and eat. Tetracycline becomes effective after 24 hours, helping the body to rapidly eliminate the Vibrio comma.

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USSR

UDC 669.71.042.63(088.8)

NIKIFOROV, V. P., KUZNETSOV, V. A., and YABLOKOV, V. G.

"Machine for Semicontinuous Casting of Ingots"

USSR Author's Certificate No 260837, filed 15/04/64, published 11/05/70, (from Referativnyy Zhurnal-Metallurgiya No 1, 1971, Abstract No 1 G114 P)

Translation: A machine is suggested for semicontinuous casting of ingots of Al and its alloys. The machine includes crystallizers and a platform with stools and counterweights, supported on flexible couplings and moving in guides. In order to eliminate the possibility of movement of the platform in any plane and to provide copying without spacing of the position of the platform guides, the platform is articulated to sprung guiding shoes. The weight of the counterweights exceeds the weight of the platform and ingots, in order to simplify the drive system.

1/1

7

1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--AUTOCLAVE FOR OPERATING WITH HIGH PURITY GASES -U-
AUTHOR--(04)-NIKIFOROV, V.P., MORGUNOV, A.V., SPITSYN, B.V., FEDOSEYEV,
D.V.
COUNTRY OF INFO--USSR - N.
SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 535-7
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--AUTOCLAVE, VACUUM TECHNOLOGY, CHEMICAL PURITY, GAS PRESSURE

CONTROL MARKING--NO RESTRICTIONS'

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0440

STEP NO--UR/0076/70/044/002/0535/0537

CIRC ACCESSION NO--AP0121114

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121114

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN AUTOCLAVE WITH A 100 ATM
PRESSURE RANGE AND VACUUM UP TO 1.10 PRIME NEGATIVE 4 TORR IS DESCRIBED.
A DIAGRAM IS GIVEN ON THE DEVICES USED FOR FEEDING GASES.
FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

Catalysis

1

USSR

UDC 541.128.12.13

BAKHMAN, N. N., LOBANOV, I. N., MARGOLIS, L. Ya., NIKIFOROV, V. S., and SAKHAROV, M. M., Institute of Chemical Physics, Acad. Sc., USSR, Moscow

"Heterogeneous-Homogeneous Catalysis in the Combustion of Mixture Systems"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 5, Feb 72, pp 1107-1110

Abstract: Combustion rate of condensed mixture systems may be increased 2-2.5 fold by addition of small amounts of compounds of iron, chromium, copper, silicon, and other elements. Many of these compounds are known catalysts for deep oxidation of hydrocarbons and ammonia. It has been proposed that the entire mixture or at least considerable portion of it reacts at the surface of catalyst particles. To check this proposition, a theoretical calculation was derived for the rate of the catalyzed reaction. From theoretical considerations the conclusion was reached that a heterogeneous-homogeneous catalytic process takes place. Active products are formed on the surface of the catalyst particles, the active products even at low concentrations increase considerably the homogeneous reaction rate. Support for the heterogeneous mechanism of catalysis during combustion is found in the relationship between the combustion rate and the catalyst
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BAKHMAN, N. N., Doklady Akademii Nauk SSSR, Vol 202, No 5, Feb 72, pp 1107-1110

concentration. The effectiveness of the catalyst increases only at low concentrations. Further support for this mechanism rests on the fact that with small additions of the catalyst either an acceleration or inhibition of the combustion may occur -- a phenomenon impossible to explain by the reaction of the mixture on the surface of catalyst particles.

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Oscillators and Modulators

USSR

UDC 621.373.52.016.35

BOGACHEV, V. M., NIKIFOROV, V. V., Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"Parasitic Oscillations in Oscillators with External Excitation Caused by Internal Feedback in the Transistor"

Moscow, Radiotekhnika, Vol 27, No 1, 1972, pp 36-44

Abstract: A study was made of the frequency dependence of the stability coefficient of a cascade with a common emitter. The boundaries of the potential instability and the boundaries of the equivalent reactive parameter fields were determined for which the occurrence of parasitic oscillations is possible. Recommendations are made with respect to selecting the circuit parameters insuring stable operation of the oscillator. An analysis of the potential instability of the transistor was performed for reactive external loads, the region of instability was described for complex transistor loads, and the equivalent circuit of a parasitic autooscillator was developed. The expressions obtained permit determination of the stability coefficient, the boundaries of the instability zone and the conditions of its degeneration considering the spurious coupling through the active and passive capacitances of the collector junction and the current cutoff. The presence of the last two factors leads
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BOGACHEV, V. M., et al., Radiotekhnika Vol 27, No 1, 1972, pp 36-44

to significant broadening of the potential instability region. In the investigated instability zone, parasitic oscillations can occur only by the equivalent circuit of the inductive Hartley oscillator circuit. Consideration of additional factors (for example, the inductance of the emitter output and the collector current delay relative to the voltage at the emitter junction) can lead not only to significant deformation of the investigated region but also to the occurrence of a second region of instability.

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Psychology

N

USSR

UDC 616.89:621.72

VOLKOV, P. P., KOROLENKO, Ts. P., NIKIFOROV, V. V., and SHUMILOVA, V. K., Novosibirsk Medical Institute

"Data on the Investigation of Mental Illness by Biological Methods and Mathematical Simulation"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, Vol 1, No 5, Apr 70, pp 112-118

Abstract: The simulation method is a new approach for the solution of problems in psychiatry. Biological and mathematical models are used. The combined use of both types of models is particularly effective in various fields of medicine. Problems on the borderline of various disciplines, such as pathophysiology, pathomorphology, pharmacology, microbiology, toxicology, etc. complicate the study of pathogenic, exogenic psychoses under clinical conditions. Furthermore, the study is made difficult by the fact that the group of cases to be examined and analyzed should be of the same type, from the etiological as well as from the clinical point of view. In addition, a complete series of clinical studies may be limited or inapplicable.

Staphylococcus infection and intoxication were used as models for the study of
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USSR

VOLKOV, P. P., et al, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, Vol 1, No 5, Apr 70, pp 112-118

general principles and of specific reactions of the central nervous system to injury.

Imizin and chlorazicin were used to produce intoxication psychoses, because they have a pronounced psychotropic effect. Clinical and experimental studies were used to explain several mechanisms of the therapeutic effect of these preparations. EEG studies indicated that therapeutic doses of these drugs produce slow bioelectrical activity. Toxic doses cause blocking of EEG responses to high-frequency stimulation. The blocking effect was similar to that evoked by central choline-blocking agents.

The data obtained indicate that the biological simulation method is extremely effective, and can be applied to the study of pathogenesis of exogenic psychoses and the mechanism of action of psychopharmacological drugs.

The simulation method was applied also to differential analysis of schizophrenia, and to mathematical analysis of epilepsy (organic, genuine, alcoholic, and traumatic), as well as to emotion syndromes (apathy and depression).

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VOLKOV, P. P., et al, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, Vol 1, No 5, Apr 70, pp 112-118

All these problems lie on the boundary of three disciplines: pathological physiology, psychiatry, and cybernetics. In this area, the approaches have not been worked out. Untried paths will have to be taken, and great difficulties and errors must be expected. One thing is certain: the application of the principles, ideas, and methods of biology and mathematics to psychiatry has a promising future.

3/3

USSR

N UDC: 621.396.622

NIKIFOROV, V. V., KORNEYEV, L. A.

"A Transistorized Parametric Frequency Multiplier"

Dokl. nauchno-tekhn. konferentsii po itogam nauchno-issled. rabot za 1968-1969 gg. Mosk. energ. in-t, 1970 g. Sekts. radiotekhnicheskaya. Podseks. Obshch. radio-tekhniki (Reports of the Scientific and Technical Conference on the Results of Scientific Research Work for 1968-1969. Moscow Power Engineering Institute, 1970. Radio Engineering Section. Subsection on General Radio Engineering), Moscow, 1970, pp 58-66 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6D237)

Translation: The authors consider a frequency doubler and a frequency tripler based on semiconductor devices. It is assumed that there is a sharp collector-base junction and that the device operates without any transition into the saturation region. The analysis is based on the theory of varactor multipliers for the case of a closed PN junction. Basic energy relationships are established which can be used for complete calculation of these multipliers. A. K.

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Biophysics

USSR

UDC 581.112

SAMUILOV, F. D., NIKIFOROV, YE. A., and NIKIFOROVA, V. I., Kazan Agricultural Institute imeni M. Gor'kiy and Kazan Pedagogical Institute

"Nuclear Spin Echo Study of the State of Water in Plant Tissues"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No. 3, Jan 71, pp 723-726

Abstract: The spin-lattice relaxation of water protons in corn plant tissues was determined and found to differ in various parts of the plant. T_1 is greater in the roots than in the leaves. This indicates greater mobility of water in the roots and can be attributed to hydration of the root tissues. The highest values of T_1 are observed in the conduction zone of the roots (3-4 mm thick) and in the stalks containing essentially free (transported) water. In the small roots two relaxation time T_1 are determined: the larger value corresponds to the free water fraction and the smaller value, to the bound water. To characterize the state of the water in the root cells of the absorbing zone, the relaxation times T_1 were determined under three different moisture conditions. By reducing the moisture content of the cells in the dry period, the relaxation time T_{1L} (corresponding to the $1/2$

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SAMUILOV, F. D., et al., Doklady Akademii Nauk SSSR, Vol 196, No 3, Jan 71, pp 723-726

fraction of free water) is shortened; this indicates decreased mobility of the water. The relaxation time T_{1S} (corresponding to the bound water) is somewhat enhanced. This is in agreement with the change in the contents of free and bound water in cells. Under the effect of the dryness, the free water content is reduced and the amount of bound water is correspondingly increased. When the plant roots are flooded with water, the fraction of bound water increases, and this may be due to intensification of hydrolytic processes in the cells under the influence of anaerobiosis. Free water content in the root cells is reduced. Nevertheless, the relaxation time corresponding to the free water is lengthened. This corresponds to an increase in the mobility of free water and may be caused by structural disturbances in the cells as a result of anaerobiosis during flooding of the roots.

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USSR

UDC: 532.596+551.46.06.8

NIKIFOROV, Ye. G., BLINOV, N. I., BARYSHEVA, G. B., KOCHETOV, S. V.

"Method of Calculating the Fields of Average Monthly and Average Seasonal Currents in Outlying Arctic Seas and the Adjacent Part of the Arctic Basin"

Tr. Arkt. i antarkt. NII (Works of the Arctic and Antarctic Scientific Research Institute), 1970, 293, pp 17-48 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4B474)

Translation: The development of the theory of wind currents is briefly surveyed. It is pointed out that development of a procedure for calculating the total current necessitates separate accounting for a number of factors and is complicated by lack of knowledge on the period of establishment of either the density or the barometric flows. Taking Eckman's equations of unsteady flow as a basis, the authors consider the problem of time of establishment of a drift current in a barotropic sea of constant depth. The problem is solved by sequential application of Laplace and Greenberg-Leichtmann transforms to the equations of motion. A Laplace

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NIKIFOROV, Ye. G., et al., Tr. Arkt. i antarkt. III, 1970, 293, pp 17-48

transform is applied to the equation of continuity, and the result is then integrated with respect to the vertical coordinate z from the surface to the bottom. As a result, an equation is found for mapping the rise in the free surface. The original for the rise ζ is found with the aid of the Cauchy theorem on residues (the computations are not given), and the problem for ζ leads to an ordinary homogeneous first-order linear differential equation. Solution of the latter is sought for the case where the field of atmospheric pressure is given in the form $P = P_0 \cos kx \cos ky$. Eckman's equations for a steady-state wind over the surface of water are used for determining the tangential stresses τ_x and τ_y , and ζ is sought in the form $\zeta = \zeta_0(t) \cos kx \cos ky$. The solution is found for ζ_0 . The results are tabulated, and it is concluded on the basis of an analysis of the tables that the time of establishment of barotropic currents is short compared with the time of reformation of density in outlying seas. On this basis, the authors propose a division of the current into density and barotropic components, taking Eckman's equations for steady-state current as a point of departure in both instances. A computational method is proposed. Projections of the complete flows on the x - and y -axes in the horizontal plane are compared for a barotropic and a nonhomogeneous sea, and formulas are found for the uncompensated part of the pressure gradient due to the slope

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NIKIFOROV, Ye. G. et al., Tr. Arkt. i antarkt. NII, 1970, 293, pp 17-48

of the free surface of the sea, which gives the authors the possibility for dividing the current into two components. A procedure for calculating drift currents in a barotropic sea is outlined in detail. Eckman's equations of motion are first solved, and the equation of continuity is used to determine the level of the sea. The non-overflow condition is set by the boundary condition on the shore, and from the liquid boundaries the conditions are extended to infinity without proper substantiation. The authors consider their method to be equally applicable to singly connected and multiply connected seas and to have an advantage over Veselbaum's method. A numerical method is proposed for computer calculation with coarser nets outside the region under consideration. A method is then considered for calculating the density component of the flow velocity, assuming that the density field is independent of the barotropic part of the current.

Abstractor's note: The work contains errors. Formula (19) is incorrectly differentiated, and therefore formula (20), derived from (19), is not valid, and consequently, so are the subsequent formulas (22), (23), (24), (25), etc. Equations of continuity (28) for a barotropic and a baroclinic sea (p 44) are incorrectly written (the term from integration of

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NIKIFOROV, Ye. G. et al., Tr. Arkt. i antarkt. NII, 1970, 293, pp 17-48

$\partial v_z / \partial z$ is left out) and contradict the properly written equation (9). Double integrals are incorrectly written in formulas (22)-(26), (26) [sic] (28) and (2). The formula

$$P = g \int_0^z \rho dz - \rho g \zeta = Q - Q = -P$$

is written on page 42, and it is incorrectly stated that this formula is obtained by integrating formula (19) from the surface to the bottom ($z=H$). Principal equations (32) and (38) found by the authors are therefore incorrect. A. K. Nikitin.

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NIKIFOROV, Yu. N.

RAW / R-760 / S-XXXX-13
D-22-72
79

Nikiforov, Yu. N., V. A. Yanushkevich,
and A. V. Sandulova. Change in electrical
properties of p-Si crystal whiskers from
the action of giant laser pulses. FIZKONM,
no. 3, 1972, 132-134.

Laser-induced change in the resistivity ρ of p-Si whiskers is described. The whiskers were grown along the [111] axis, had a hexagonal cross section, and ranged in length from 3 to 7 mm. Specimens were exposed to 50 nsec giant pulses from a ruby laser, with the laser beam normal to the crystal axis. Impact densities were varied over several tens of joules/cm², up to the damage threshold which was in the range of 35 - 45 J/cm². The data are presented as resistivity variation $\Delta\rho/R_0$ in exposed specimens as functions of whisker geometry, ambient temperature and initial ρ . Typical results at an exposure of 22 J/cm² show a sharp rise in R by about 12-15%, followed by an exponential decay back to about the initial value, at a time constant of 20 milliseconds. Of the possible mechanisms considered for the alteration effect (photoeffect, crystal heating, photoeffect, defect formation) it is shown that point defect formation is the most probable factor. Defect levels, estimated to reach $10^{17}/\text{cm}^3$, were effectively annealed out in all cases in 30 milliseconds or less.

Boyko, Yu. I., and A. K. Yemeta. Study
of laser self-focusing in alkali-halide single
crystals, according to data on shift of the
damage center. DAN, v. 206, no. 2, 1972,
319-322.

Experimental results are described of laser damage phenomena in KCl and KBr crystals, with the object of determining the

Acc. Nr.: **AP0029497** *N*

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp 31-34

EFFECT OF POLYENIC ANTIBIOTICS ON INCORPORATION OF AMINO ACIDS
TO PROTEINS OF CANDIDA ALBICANS

Nikiforova, A.A.; Matveyeva, I.M.; Tereshin, I.M.

Leningrad Institute for Antibiotics

The effect of levorin and nistatin on incorporation of amino acids to proteins of *Candida albicans* was studied. It was found that the above antibiotics suppressed incorporation of alanin and valin to the protein fraction of intact cells of *Candida albicans*. No effect of levorin and nistatin on protein synthesis was observed in acellular protein-synthesizing systems of *Candida albicans*. C^{14} -Levorin was detected mainly (up to 84 per cent) in the fraction of cell walls of *Candida albicans*.

gm

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REEL/FRAME

19681098

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USSR

UDC: 661.143:546.47'221

GURVICH, A. M., TOMBAK, M. I., MIKHALEV, A. A., NIKIFOROVA,
A. P., BIRMAN, T. A.

"Effect of Deposition Conditions on the Dispersity of Sulfides
and Tungstates, and on the Properties of Phosphors Made From
Them"

Sb. nauch. tr. VNII lyuminoforov i osobo chist. veshchestv (Col-
lected Scientific Works of the All-Union Scientific Research
Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5,
pp 133-143 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L177)

Translation: Colloidochemical phenomena play an important part in the process
of deposition of ZnS and CdS and calcium tungstate. The grain size of the
deposit is determined both by the growth of the microcrystals which form the
nuclei of the first colloidal particles, and by the process of coagulation
leading to formation of larger aggregates. On the basis of these considerations,
the authors explain a number of phenomena observed in the course of the study,
in particular the formation of large (5-12 microns) spherical granules of ZnS
with intense and uniform agitation of the ZnSO₄ solution through which H₂S is
bubbled, the formation of CdS platelets up to 500-700 microns long in the case
1/2

USSR

GURVICH, A. M., et al, Sb nauch. tr. VNIi Lyuminoforov i osobo chist. veshchestv, 1971, vyp 5, pp 133-143

of high initial acidity (3.3-3.6 n.) of the $\text{CaSO}_4 + \text{H}_2\text{SO}_4$ solution, an abrupt increase in the CaWO_4 grain size with a reduction in the concentration of CaCl_2 to 1%, the absence of a direct relation between the grain sizes of the deposits and the luminescent compositions made from them, etc. The concentration of coprecipitated oxygen-containing impurities can be appreciably reduced and the bulk density of the sulfide can be increased from 1.5-1.6 to 2.3 g/cc by using intense agitation of the solution during zinc sulfide deposition, and also by bubbling H_2S through the rinse water. Bibliography of 16 titles. Resumé.

1/2 013
 TITLE--PHYSICOCHEMICAL METHOD FOR EVALUATING THE RELATIVE ACTIVITY OF
 FILLERS IN RUBBERS -U-
 AUTHOR--BORODINA, V.N., TOLSTAYA, S.N., TAUBMAN, A.B., LEVINA, A.YU.,
 NIKIFOROVA, A.P.
 COUNTRY OF INFO--USSR

UNCLASSIFIED

PROCESSING DATE--11SEP70

SOURCE--KOZH. POBUV. PROM. 1970, 12(2), 37-41

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FILLER, SILICA, KAOLIN, RUBBER, POLYSTYRENE RESIN/(U)SKS30R
 STYRENE RUBBER, (U)SKS30 STYRENE RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1984/0206

STEP NO--UR/0498/70/012/002/0037/0041

CIRC ACCESSION NO--AP0106862

UNCLASSIFIED

PROCESSING DATE--11SEP70

UNCLASSIFIED

2/2- 013

CIRC ACCESSION NO--AP0106862
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A PHYSIOCOHEM. METHOD WAS DEVELOPED FOR THE STUDY OF CROSSLINKING OF CONCD. SUSPENSIONS OF FILLERS (E.G. AEROSIL A-175(I), FINE SILICA FILLERS (II) (BS-150 AND BS-50), KAOLIN (III), AND CACO SUB3) IN DIL. SOLN. OF SKMS-30R (IV) AND SKS-30 (V) RUBBERS IN PHME. THE EXPTS. WERE CONDUCTED IN SMALL BEAKERS EQUIPPED WITH GROUND GLASS STOPPERS. A PORTION OF A FILLER WAS DRIED TO CONST. WT. AT 120-400DEGREES, PLACED IN THE BEAKER AND COVERED WITH 10 ML IV OR V SOLN. IN PHME, THE MIXT. WAS CAREFULLY STIRRED, AND A GROOVED MICA PLATE (10 TIMES 10 MM) WAS PLACED IN THE PPT. AFTER THE CROSSLINKING HAS BEEN COMPLETED, THE MAX. STATIC SHEAR STRESS (P SUBM) WAS EVALUATED BY MEASURING THE TANGENTIAL DISPLACEMENT OF THE PLATE ON A WEILER REBINDER APP. A PLOT OF P SUBM EQUALS F(A) (WHERE A IS THE FILLER CONTENT-100 G V) SUGGESTED THAT THE ACTIVITY OF FILLERS IN ELASTOMERS DECREASED IN THE ORDER: I LARGER THAN II LARGER THAN III LARGER THAN CACO SUB3. OPTIMUM FILLER CONTENT CAN BE DETD. FROM AN APPROPRIATE GRAPH.

UNCLASSIFIED

Acc. Nr: **AP0040324**

Ref. Code: **UR 0481**

PRIMARY SOURCE: **W** Eksperimental'naya Khirurgiya i Anestaziologiya, 1970, Nr / , pp **67-71**

**ON THE INFLUENCE OF LYSTHENON
ON THE CARDIO-VASCULAR SYSTEM**

V. V. Tayevskiy, L. I. Kozlova, A. S. Nikiforova

In 89 experiments on dogs the authors studied side effects of the relaxant on the cardio-vascular system using plethysmography and sphygmography. A marked vasodilatory action of lysthenon on the peripheral blood vessels and considerable stimulating effect on the heart were recorded. Effects are constant, transient and depend on the dose and the rate of intravenous administration.

02.1c

REEL/FRAME
19741755

1/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70
 TITLE--DYNAMIC MECHANICAL PROPERTIES OF MULTICOMPONENT POLYMERIC
 COMPOSITIONS -U-
 AUTHOR--(05)-AIVAZOV, A.B., ZHIVAYEV, V.YA., NIKIEOROVA, A.V., ZELFNEV,
 YU.V., TYURINA, V.S.
 COUNTRY OF INFO--USSR
 SOURCE--MEKH. POLIM. 1970, 6(1), 138-41
 DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
 TOPIC TAGS--ELASTIC MODULUS, CARBON BLACK, POLYISOPRENE, POLYSTYRENE
 RESIN, POLYPROPYLENE, POLYVINYL CHLORIDE, LOW TEMPERATURE EFFECT, HIGH
 TEMPERATURE EFFECT/(U)SKI3 POLYISOPRENE, (U)SKMS30 METHYLSTYRENE RUBBER

CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRA--1989/0815 STEP NO--UR/0374/70/006/001/0138/0141
 CIRC ACCESSION NO--AP0107357
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--02OCT70

2/2 026

CIRC ACCESSION NO--AP0107357

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DYNAMIC ELASTICITY MODULUS (E) AND TAN(MECH. LOSS ANGLE) WERE DETD. FOR BINARY (RUBBER PLASTIC) AND TERNARY (RUBBER, PLASTIC, CARBON BLACK (I)) SYSTEMS BY THE METHOD OF FORCED NON RESONATING VIBRATIONS. THE TEMP. DEPENDENCE OF E PERMITTED TO CALC. THE ACTIVATION ENERGY (U) OF E CHANGE. IN THE LOW TEMP. REGION (SIMILAR TO MINUS 50DEGREES) U IS 13.4-13.8 KCAL-MOLE; IN THE HIGH TEMP RANGE (SIMILAR TO 160-5DEGREES) U IS 21.9-28.7 KCAL-MOLE FOR THE FOLLOWING AND SIMILAR SYSTEMS: 100:20 SKI-3-POLYPROPYLENE (II); 100:15 SKMS-30-II; 100:60 SKI-3-I; 100:10:60 SKI-3-MARBON 8000 A-I; 100:10:60 SKI-3-POLY(VINYL CHLORIDE)-I.

UNCLASSIFIED

USSR

UDC 669.822.004.2

BULYGINA, A. M., NIKIFOROVA, A. YE., SHALAYEV, I. L.

"Hygienic Evaluation of New Technological Schemes used for Hydrometallurgical Processing of Uranium Ores"

Vopr. gigiyeny truda na uranov. rudnikakh i obogatit. predpriyatiyakh -- V sb.
(Problems of Hygiene of Labor in Uranium Mines and Beneficiation Enterprises
-- collection of works), Moscow, Atomizdat Press, 1971, pp 23-27 (from RZh-
Metallurgiya, No 4, Apr 71, Abstract No 4G272)

Translation: Labor hygiene has been improved and protection from radiation insured by introducing sorption, extraction, and mechanization of basic production operations and maintenance of the required air flow rates in open passages. Automation is necessary in the future in all steps of the technological process. It is also necessary to mechanize the operations of cleaning the facility, using the most effective detergents for deactivation and to use finishing materials for the walls and floors which are easily deactivated and do not sorb uranium compounds.

1/1

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USSR

UDC 621.317.725

TUZ, YU. M., TSIDELKO, V. D., NIKIFOROVA, G. A., SERPILIN, K. L., GAPCHENKO, L.M.,
and SINITSKIY, O. P.

"A Digital Phase-Sensitive Voltmeter"

V sb. Tsifr. vychisl. mashiny (Digital Computing Machinery--collection of works),
Kiev, 1972, pp 109 - 118 (from RZh Avtomatika Telemekhanika i Vychislitel'naya
Tekhnika, No 11, Nov 73, abstract No 11 A369)

Translation: The article contains a description of a digital phase-sensitive
voltmeter in which signals are converted in a single-channel circuit. A block
diagram of the instrument and a description of its operation are given. The
advantages of a phase rotator based on a single-channel circuit are noted. A
logometric voltage-frequency converter is used in the instrument to reduce errors
due to the effect of the base voltage. The technical characteristics of a
model of the digital phase-sensitive voltmeter made at the Department of Measure-
ment Technology of Kiev Polytechnical Institute are given. One illustration,
seven bibliographic citations.

Abstract by O.M.

1/1

UDC 612.823.5

USSR

BRYTVAN, Ya. M., VIYEV'S'KIY, M. A., KROKHMAL', S. S., MAKAROVA, Z. O.,
NIKIFOROVA, I. P., POPLAV'SKA, L. I., and SLOVODYANYUK, Chair of Pathological
Physiology, Vinnitsa Medical Institute

"Functional Response of Different Sections of the Brain to Extreme Stimuli"

Kiev, Fiziologicheskii Zhurnal, No 5, 1972, pp 644-653

Abstract: Experiments on cats and rabbits showed that electrical activity of the cortex and subcortex, respiration, and arterial pressure are dependent on the original and present functional state of the nervous system. The effects of prolonged compression of soft tissues, increased intracranial pressure, alcoholic intoxication, asphyxia, blood loss, and various forms of hypertension were studied. Functional shifts were induced by preliminary injection of amphetamine sulfate or chlorpromazine, electrocoagulation of the anterior hypothalamus, and denervation of the sinocarotid and aortic vascular zones. Along with generalized and phasic reactions of electrical activity, cortical-subcortical dissociations occurred with signs of induction of the adjacent regions. A stress rhythm appeared quite often in the diencephalon and brainstem. The onset and course of the experimental pathology and accompanying electrical activity were dependent on both the original and

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USSR

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BRYTVAN, Ya. M., et al., Fiziologicheskii Zhurnal, No 5, 1972, pp 644-653

present functional state of the nervous system. The mechanisms of the observed phenomena cannot be ascribed solely to the generalized influence of the reticular formation or to corticofugal impulses. Various neurogenic components are involved and it is through their interaction that the integral reaction of the brain is achieved.

2/2

NIKIFOROVA, N. K.

TECHNICAL TRANSLATION

FSTC-HT-23-109-71

ENGLISH TITLE: ERROR EVALUATION IN DETERMINING CONCENTRATION AND SIZE OF FOG DROPS WITH THE AELITA INSTRUMENT

FOREIGN TITLE: OTSENKA OSHIBOK IZMEREENIYA KONTSENTRATSII I RAZMERA KAPEL' TUMANA PRIBOROM "AELITA"

AUTHOR: L. G. Akul'shina, V. N. Aref'yev, N. K. Nikiforova and G. I. Shechel'kov

SOURCE: Not Given

Translated for FSTC by ACSI

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USSR

UDC 778.681

MALAKHOVA, G. N. and NIKIFOROVA, R. N., Leningrad Institute of Motion Picture Engineers

"Spectral Sensitivity Curves of Domestically Produced Color Films With Internal Masking"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii, Vol 18, No 4, 1973, pp 241-247

Abstract: In order to determine the spectral sensitivity curves of new domestically produced types of color films with internal masking, an investigation was made of the spectral properties of the masked LN-5M and DS-5M films, and also of the masked LN-7 film. A comparison was made between 1955 data on the spectral-sensitivity characteristics of color film and recently obtained data, and spectral sensitivity curves were obtained for the first time for the masked DS-5M, LN-5M, and LN-7 films.

It was found that the LN-7 film differs from older DS-2 and LN-2 films by its greater sensitivity, a different relationship between the same masking and nonmasking components in the middle layer and the bottom layer, and a difference in the absorption curve of the masking component of the bottom layer. The conclusion is drawn that for the DS series the old curves can be used as well as the new curves, but that it is preferable to use the
1/2

USSR

MALAKHOVA, G. N. and NIKIFOROVA, R. N., Zhurnal Nauchnoy i Prikladnoy Fotografii, Vol 18, No 4, 1973, pp 241-247

new curves for the LN series.

7 figures. 1 table. 5 references.

2/2

- 15 -

Acc. Nr.: AT0046704

Ref. Code: LIR 014

USSR

UDC 621.382

NIKIFOROVA, S.N.

"Determination of the Physical Constants of Semiconductor Materials"

Opredeleniye fizicheskikh postoyannykh poluprovodnikovyykh materialov (of. English above), Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy, Priborostroyeniye, 1970, No 1, pp 131-135

Translation:

Calculated values of Young's modulus and Poisson's ratio are tabulated for semiconductor materials in various crystallographic directions and the numerical values of E and μ are presented for germanium, silicon, and gallium arsenide in the (100) and (111) planes.

Reel/Frame
19790007

Biophysics

UDC 581.112

USSR

SAMUILOV, F. D., NIKIFOROV, YE. A., and NIKIFOROVA, V. I., Kazan Agricultural Institute imeni M. Gor'kiy and Kazan Pedagogical Institute

"Nuclear Spin Echo Study of the State of Water in Plant Tissues"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 3, Jan 71, pp 723-726

Abstract: The spin-lattice relaxation of water protons in corn plant tissues was determined and found to differ in various parts of the plant. T_1 is greater in the roots than in the leaves. This indicates greater mobility of water in the roots and can be attributed to hydration of the root tissues. The highest values of T_1 are observed in the conduction zone of the roots (3-4 mm thick) and in the stalks containing essentially free (transported) water. In the small roots two relaxation times T_1 are determined: the larger value corresponds to the free water fraction and the smaller value, to the bound water. To characterize the state of the water in the root cells of the absorbing zone, the relaxation times T_1 were determined under three different moisture conditions. By reducing the moisture content of the cells in the dry period, the relaxation time T_{1L} (corresponding to the $1/2$

USSR

SAMUILOV, F. D., et al., Doklady Akademii Nauk SSSR, Vol 196, No 3, Jan 71,
pp 723-726

fraction of free water) is shortened; this indicates decreased mobility of the water. The relaxation time T_{1S} (corresponding to the bound water) is somewhat enhanced. This is in agreement with the change in the contents of free and bound water in cells. Under the effect of the dryness, the free water content is reduced and the amount of bound water is correspondingly increased. When the plant roots are flooded with water, the fraction of bound water increases, and this may be due to intensification of hydrolytic processes in the cells under the influence of anaerobiosis. Free water content in the root cells is reduced. Nevertheless, the relaxation time corresponding to the free water is lengthened. This corresponds to an increase in the mobility of free water and may be caused by structural disturbances in the cells as a result of anaerobiosis during flooding of the roots.

2/2

- 7 -

1/2 038 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CHANGES IN ENDOTHELIUM OF POSTERIOR VENA CAVA IN ACUTE RADIATION
DISEASE -U-
AUTHOR-(02)-NIKIFOROVA, YE.N., CHEREDEYEVA, YE.A.
COUNTRY OF INFO--USSR
SOURCE--ARKH ANAT GISTOL EMBRIOL 58(2): 59-64. ILLUS. 1970.
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--RADIATION SICKNESS, X RAY RADIATION BIOLOGIC EFFECT, RADIATION
DOSAGE, BLOOD VESSEL, RADIATION DAMAGE, MITOSIS, TISSUE REGENERATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1081 STEP NO--UR/9076/70/058/002/0059/0064
CIRC ACCESSION NO--AP0128508
UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128508

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MALE RATS WEIGHING 200-250 G WERE USED. FOUR HUNDRED AND FORTY ANIMALS WERE EXPOSED TO WHOLE BODY X RAY IRRADIATION IN SINGLE DOSES FROM 550 OR 620-650 R (LD 60-70-30), 950 R (LD 90-95-12), TO 1400 R (LD 100-3), 80 UNIRRADIATED RATS BEING USED AS CONTROLS. ANIMALS WERE SACRIFICED AT THE SAME TIME OF DAY (10-12 A.M.) 1, 3, 5, 7, 10, 15, 20, 25, 30, 60, 90 AND 180 DAYS AFTER IRRADIATION. IN ADDITION TO ROUTINE HISTOLOGIC TECHNIQUES, FLAT FILM PREPARATIONS WITH SILVER NITRATE IMPREGNATION OF CELL BORDERS WERE ALSO USED. OBVIOUS CYTOLOGIC SIGNS OF RADIATION INJURY (ENLARGEMENT OF AVERAGE SIZE OF CELL NUCLEI, INCREASED AMOUNT OF BINUCLEAR CELLS AND APPEARANCE OF POLYNUCLEARS) WERE FOUND IN ENDOTHELIUM OF THE POSTERIOR VENA CAVA. ALTHOUGH THE NUMBER OF DEGENERATING CELLS TENDED TO GROW, INTEGRITY OF THE ENDOTHELIAL COAT PERSISTED AT ALL STAGES OF ACUTE RADIATION SICKNESS. AT THE SAME TIME MITOTIC ACTIVITY OF ENDOTHELIAL CELLS INCREASED (TO UP TO 7PERCENT, 8 DAYS AFTER IRRADIATION AT 950 R DOSE) THOUGH MANY OF THE MITOSES WERE OF PATHOLOGIC NATURE. IN SURVIVING ANIMALS THE ENDOTHELIAL COAT RECOVERED NORMAL STRUCTURE 2-6 MO. AFTER IRRADIATION. THE RESULTS OF THIS STUDY LEND CONTRIBUTORY EVIDENCE TO THE NOTION OF RELATIVE RADIATION RESISTANCE OF ENDOTHELIAL CELLS, WITH PARTICULAR REFERENCE TO THOSE OF MAJOR BLOOD VESSEL. FACILITY: LAB. EXP. HISTOL., INST. EXP. MED., ACAD. MED. SCI. USSR, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 519.281

NIKIFOROVA, Ye. S., PELEDOV, G. V.

"Method of Rotatable Central Composition Planning"

Tr. Mosk. Energ. In-ta [Works of Moscow Power Institute], No 76, 1970, pp 45-54,
(Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No
6 V192 by B. Granovskiy).

Translation: A description is presented of the algorithm for a known method of
rotatable second order central composition planning for n factors. The appendix
presents a program for the method written in ALGAMS.

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USSR

UDC 519.281

NIKIFOROVA, Ye. S.

"Method of Regression Analysis"

Tr. Mosk. Energ. In-ta, [Works of Moscow Power Institute], 1970, No 76, pp 23-34, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V171 by V. Pedorenko).

Translation: A method is presented for producing coefficients α_i of the regression equation $P(x_1, \dots, x_m; \alpha_0, \dots, \alpha_k)$ on the basis of experimental data $y(x_1, \dots, x_m), = f(x_1, \dots, x_m; b_0, \dots, b_p) + \xi(x_1, \dots, x_m)$, where x_1, \dots, x_m are independent variables; b_0, \dots, b_p are unknown parameters, relative to which function y is linear; $\xi(x_1, \dots, x_m)$ is a normally distributed random quantity with parameters $N(0, \sigma^2)$. The statistical analysis of the equation produced used in this case allows estimation of the significance of coefficients α_i where $i = 0, 1, \dots, k; k \geq p$. A computer algorithm and results of test calculations are presented for $m = 2$.

1/1

1/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CONFORMATION FEATURES OF PEPTIDE FRAGMENTS CONTAINING PROLINE
RESIDUES -U-
AUTHOR--(04)-GALAKTIONOV, S.G., SHERMAN, S.A., KIRNARSKIY, L.I.,
NIKIFOROVICH, G.V.
COUNTRY OF INFO--USSR *N*
SOURCE--DOKL. AKAD. NAUK BELORUSS. SSR 1970, 14(3), 236-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PEPTIDE, FRACTIONATION, PROLINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/0883 STEP NO--UR/0250/70/014/003/0236/0239
CIRC ACCESSION NO--AT0129952
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 008
CIRC ACCESSION NO--ATO129952
ABSTRACT/EXTRACT--(U) GP-0-
EXPRESSION THAN USUALLY EMPLOYED,
OF MOLS. CONTG. PROLINE RESIDUES WERE MAPPED USING EXISTING DATA FOR THE
MATRIX APP. OF EYRING.
MINSK, USSR.

ABSTRACT. BY USING A MORE COMPACT MATH.
THE CONFORMATIONAL FEATURES OF 2 TYPES
WERE MAPPED USING EXISTING DATA FOR THE
FACILITY: INST. TEPLO-MASSOGBMENA,

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--KINETICS OF THE CHEMICAL ETCHING OF INDIUM ARSENIDE IN ACID
SOLUTIONS OF FERRIC CHLORIDE -U-
AUTHOR-(03)-ORLOVA, G.M., SVESHNIKOVA, L.L., NIKIFOROVSKAYA, L.P.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 784-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--AQUEOUS SOLUTION, CHEMICAL REACTION KINETICS, FERRIC CHLORIDE,
CHEMICAL DECOMPOSITION, INDIUM ARSENIDE
CENTRAL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0946 STEP NO--UR/0080/70/043/004/0784/0788
CIRC ACCESSION NO--AP0131531
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0131531

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. THE RATE OF DISSOLN. OF MONOCRYST.
INAS WAS INVESTIGATED IN PERCHLORIC ACID SOLNS. OF FERRIC CHLORIDE AS A
FUNCTION OF MIXING, TEMP., AND COMPN. OF THE SOLN. FACILITY:
LENINGRAD. GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 539.4:621.81

GULIDOV, A. I., DUDOLADOV, A. S., NIKIFOROVSKIY, V. S., SERYAKOV, V. M.

"Effect of a One-Dimensional Slit in the Walls of Multilayered Cylindrical Structures on the Thermal State and on the Stressed and Deformed State"

V sb. Chisl. metody mekh. splosh. sredy. T. 2. No 5 (Numerical Methods of the Mechanics of a Continuous Medium--collection of works, Vol 2, No 5), Novosibirsk, 1971, pp 78-84 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7V871)

Translation: The paper discusses possibilities of a slit developing in an infinite two-layer tube, and the influence of the slit on the thermal and stressed state. The materials of the layers are isotropic, homogeneous and elastic. At time zero the tube has a given temperature and is free from stresses. Then the temperature of the medium inside the tube rises abruptly while the outside temperature remains at the initial value, and convective exchange takes place with constant heat-transfer coefficients. If the temperature expansion of the outside layer is greater than that of the inner layer, then radial tensile stresses arise and the layers may separate in the area of the joining. In the reverse

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USSR

GULIDOV, A. I. et al., Chisl. metody mekh. splosh. sredy. T. 2. No 5,
Novosibirsk, 1971, pp 78-84

situation a slit develops due to loss of stability of the inner shell from compressive stresses. The problem is numerically solved in the approximation of unconnected quasistatic thermoelasticity. Ideal thermal and tight mechanical contact is assumed on the boundary of the layers without a crack. The thermal resistance of the air gap is introduced at the crack, and its borders are freed from stresses. Examples of three pairs are considered: 1) W-steel, 2) W-copper, 3) W-graphite, where W is the inner layer. In examples 1 and 2 the compressive stresses rapidly change to tensile stresses and a slit (0.01-0.1mm) appears due to separation of layers in the sixth second (in example 1). In example 3, a slit (up to 2 mm) is formed by the abrupt change from loss of stability in the fifth second, and the inner layer quickly heats up. In example 1, inside, middle and outside radii of 100, 103 and 106 mm are assumed with the temperature inside the tube 10^3 °C, and the coefficient of heat transfer from the tube 10^3 kcal·m⁻²·hr⁻¹·deg⁻¹ ($1.16 \cdot 10^3$ W·m⁻²·K⁻¹).
M. S. Povarnitsyn.

2/2

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Acc. Nr.: AR0103065Ref. Code: UR 0000

JPRS 49937

Deep Structure of Lowland Crimea

(Abstract: "New Information on the Deep Structure of Lowland Crimea and the Sivash' Area on the Basis of Data from Geophysical Investigations," by I. I. Garkalenko, B. S. Nikiforuk and V. P. Boronin; Kiev, Geofizicheskii Sbornik AN Ukr SSR, No 30, 1969, pp 36-44)

/From: Moscow, Referativnyy Zhurnal, Geofizika, Svodnyy Tom, No 1, 1970, 1027

Data from seismic prospecting by the refracted waves correlation method, supplemented by materials from electric prospecting, gravimetric and magnetometry surveys, were used in compiling a tectonic map of the northern part of lowland Crimea and the Sivash' area. The article is accompanied by diagrams of the block structure of the region. The Northern Black Sea fault separates the southern margin of the Russian platform from the Scythian block and the Novoselkovskiy fault separates the Dzhankovskiy block of the Odessa-Sivash' downwarp from the Yevpatoriya-Simferopol' uplifted block of the Paleozoic basement. Ancient submeridional faults break these sublatitudinal structural elements into individual blocks. The zone of the Sivash' gravity minimum corresponds to a buried projection of the Precambrian basement and it therefore is part of the Russian platform. Bibliography of 21 items.

Reel/Frame
19861153

12 di

USSR

UDC 550.8:528:556.3

NIKIMIN, M. R., TSYGANOVA, K. N.

"Prospects for the Use of Saline Underground Waters for Water Supply in the Southern Regions of the USSR and Methods of Their Mapping"

Moscow, Razvedka i Okhrana Nedr, No 8, 1972, pp 36-43.

Abstract: A study was performed in 1966-1968 to accumulate data on the distribution, deposition conditions, quality and availability of salty and brackish underground waters. A prognostic evaluation of useable resources was made for the arid and semiarid areas of the USSR, where the use of this water is expedient. A map is presented for the southern regions of the USSR, indicating that the water resources suitable for commercial and home use could be at least doubled by the installation of desalinating plants for underground water. A table of regions is presented, indicating areas which have sufficient supplies of underground waters with various salt contents to allow desalination by various methods to provide water for commercial, domestic and irrigation purposes.

1/1

- 72 -

USSR

FRADKIN, G. M., BREZHNEVA, N. YE., YERSHOVA, Z. V., BOGDANOV, N. I.
(Deceased), KUDYUKOV, V. M., VORONIN, A. N., KOZLOV, A. G., MALYKH, YU. A.,
NIKIPELOV, B. V., RAGOZINSKIY, A. I., FEDOROV, V. V. and CHUSHKIN, YU. V.,
State Committee for the Use of Atomic Energy USSR

"Advancement of Research in the Field of Nuclear Power Engineering in the
USSR (Report Presented at the Fourth United Nations International Conference
on the Peaceful Uses of Atomic Energy held 6 to 16 September 1971 in
Geneva)"

Moscow, Atomnaya energiya, Vol 31, no 4, Oct 71, pp 358-365

Abstract: This report cites data on the Soviet development of the thermo-
electric generators designed for feeding oceanographic and navigation
devices, hydrographic, automatic, radiometeorological, magnetic variation
stations, high-mountain cosmic ray stations, and other scientific research
land stations. The report covers the scientific and technical fundamentals
of such energy sources and cites the characteristics of some generators.
Discussed in some detail are various aspects of radio isotopic fuels,
selection, properties, distinctive characteristics, evaluation, requirements,
cost factors, availability, handling safety factors, and forms of applica-

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FRADKIN, G. M., et al, *Atomnaya energiya*, Vol 31, no 4, Oct 71, pp 358-365

tion. The potential use of extraction separation of alkali-earth elements for obtaining pure strontium is noted. A table lists the comparative characteristics of various isotopes having potential use in thermoelectric generators. Much consideration is given to topics dealing with energy release in an isotopic unit, biological protection, radioactive decay energy conversion, thermal flow chart selection, and generator designs. Described and illustrated are some thermoelectric generators of various designations (using Ce^{144} , Cs^{137} , Sr^{90} , Pu^{238} , Cm^{242} (Po^{210})) including Beta-1, Beta-2, Beta-C, Efir, Penguin, MIG-67 (portable-type), and generators with cascade converters. (8 illustrations).

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Nuclear Science and Technology

USSR

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

"Development of Isotopic Power Technology in the USSR"

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

Abstract: The construction in the USSR of isotopic thermoelectric generators for powering oceanographic and navigation devices, hydrographic, automatic radiometeorological, magnetic variation stations, high-elevation cosmic ray stations, and other scientific research stations and ground installations is reported on. The most suitable for fuel applications are isotopes with a half-life period within the limits 100 days to 100 years (approximately 50 isotopes), of which 12-15 can be obtained in large amounts. Most quantities of fission radioactive isotopes and also the most widely used radioactive Sr⁹⁰ are obtained by processing radioactive waste solutions. To simplify isolation of radiochemically pure elements, including Sr⁹⁰, the group concentration method is used, based on calcium oxalate precipitation. The most promising technique is extraction separation of alkaline-earth elements with the isolation of pure strontium. Here the following extractants are used: a

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

solution of di-2-ethylhexylorthophosphoric acid in kerosene from a nitric acid medium, and a solution of salicylaldehyde in tributyl phosphate from an alkaline (sodium hydroxide or ammonia) solution. Currently construction has been completed for blocks with activities in the tens and hundreds of kilocuries based on Ce^{144} (20,000 curies), Sr^{90} (9000-100,000 curies), and Cs^{137} (50,000-150,000 curies), and also blocks based on Pu^{238} , Po^{210} , Cm^{242} , and Co^{60} . The thermal capacity of these blocks lies within the range 1-1000 watts. An empirical formula was derived and tested for the power yield in an isotopic (thermal) block. Also discussed is biological protection during development and construction of isotopic power sources containing kilocurie amounts of radioactive heat. In dealing with the conversion of radioactive decay energy, the thermoelectric method was found to be most fully mastered at present: low-temperature semiconductor materials (up to 300°C) have been obtained with quite high efficiencies (5-8%), as well as medium-temperature (300-700°C) and high-temperature (higher than 700°C) semiconductor materials. Combining different materials in the form of cascade elements already permits attainment of 12-15% conversion efficiency in prototypes. Demands of minimum weight and size and also low background of attendant neutron and gamma-radiation led to construction of portable generators of the MIG-67 type based on Pu^{238} . The unique properties of Cm^{242} and Po^{210} (high specific power yield and fairly low-gamma-radiation intensity) made feasible construction of isotopic thermoelectric generators using cascaded converters with efficiencies of 8-10% in the 300-850°K range.

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USSR

UDC 632.954

SHCHEGLOV, YU. V., KOZINA, L. S., YAKOVETS, V. I., NIKISHIN, G. I., and DYUSENOV, M. I., All Union Scientific Research Institute of Phytopathology, Golitsyn-Moscow Region, Institute of Organic Chemistry, Academy of Sciences USSR, Moscow

"Herbicidal Activity of Substances Containing Trichloroallyl Group. I Communication. 1,1,2-Trichloropropene-1-ol-3 (Trichloroallyl Alcohol), Some of its Analogues and Derivatives"

Moscow, Agrokhimiya, No 5, May 73, pp 129-135

Abstract: The highest herbicidal activity among the chloro derivatives of allyl alcohol is exhibited by 1,1,2-trichloropropene-1-ol-3 (I) and its simple alkyl ethers. These compounds are systemic herbicides penetrating into the plants through the roots. Replacement of the hydroxyl group in trichloroallyl alcohol by various radicals and other groupings leads to the loss or to a drastic change of herbicidal activity. As a rule, the materials lose their ability to penetrate through the roots of the plants. In contrast to (I), trichlorovinylacetic acid exhibits properties of an active systemic herbicide capable of penetrating through the leaves. The parent compound (I) is about 5-10 times as active as allyl alcohol. In a field trial on buckwheat, (I) lowered by 45-55% the total weeds without any undesirable action against the buckwheat. 1/1

USSR

UDC 632.95

SHCHEGLOV, YU. V., NIKISHIN, G. I., DYUSENOV, M. I., VOL'KENSHTEYN, YU. B., SALAMANDRA, L. K., and KOZINA, L. S., All-Union Research Institute of Plant Pathology and Institute of Organic Chemistry, Academy of Sciences USSR

"A Herbicide"

USSR Author's Certificate No 252757, filed 11 June 68, published 25 Feb 70 (From RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N708 P by L. Shchelestenko)

Translation: It is suggested that bis-trichlorallyl esters of dicarboxylic acids be used as a herbicide. They have the general formula: $Cl_2C = CClCH_2OOC(CH_2)_nCOOCH_2CCl = CCl_2$ where N = an

integer from 0 to 2.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE—30OCT70
TITLE—HOMOLYTIC DECOMPOSITION OF PEROXYDISUCCINIC ACID -U-
AUTHOR—(03)—NIKISHIN, G.I., KORITSKIY, A.T., STAROSTIN, YE.K.
COUNTRY OF INFO—USSR
SOURCE—IZV. AKAD. NAUK SSSR, SER, KHIM. 1970, (3), 586-91
DATE PUBLISHED—70
SUBJECT AREAS—CHEMISTRY
TOPIC TAGS—CHEMICAL DECOMPOSITION, SUCCINIC ACID, ACETIC ACID, BENZENE,
PROPANOL, ESTER, EPR SPECTRUM, UV LIGHT, CHEMICAL KINETICS, CHEMICAL
REACTION MECHANISM
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—2000/0731 STEP NO—UR/0062/70/000/003/0586/0591
CIRC ACCESSION NO—AP0124401
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE—30OCT70

2/2 025

CIRC ACCESSION NO--AP0124401
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. KINETIC DATA WERE PRESENTED FOR THE DECOMP. OF THE TITLE ACID (I) RUN IN THE TEMP. RANGE 67-90DEGREES EITHER ALONE OR WITH ADDITIVES SUCH AS ACOH, C SUB6 H SUB6, ISO-PROH, OR I DI-ME ESTER. IN ACOH THE RATE CONST. FOR DECOMP. OF I HAD THE FOLLOWING VALUES (K TIMES 10 PRIMENEGATIVE5 SEC PRIMENEGATIVE1): 75DEGREES 3.98, 80DEGREES 7.23, 85DEGREES 10.87, 90DEGREES 22.5; ITS DI-ME ESTER GAVE THE VALUES OF 3.7, 7.13, -, AND 22.48 UNDER THESE CONDITIONS AND ITS RATE OF DECOMP. WAS APPRECIABLY LOWER IN C SUB6 H SUB6. EPR SPECTRA WERE SHOWN FOR THE SPECIMENS OF I SUBJECTED TO UV ILLUMINATION AT LOW TEMPS. ALONE OR IN ACOH. DECOMP. OF I BY THE THERMAL ROUTE IN ACOH OR C SUB6 H SUB6 WAS FIRST ORDER IN RESPECT TO THE PEROXIDE. IN UV LIGHT THE RADICAL NATURE OF THE REACTION WAS CONFIRMED. REACTION SCHEMES WERE PROPOSED. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--MECHANISM OF THE THERMAL DECOMPOSITION OF TERTBUTYL HYDROPEROXIDE
TO ESTERS -U-
AUTHOR-(03)-OGIBIN, YU.N., PALANUYER, I.A., NIKISHIN, G.I. N
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 592-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--REACTION DINETICS, THERMAL DECOMPOSITON, HYDROPEROXIDE,
CARBOXYLIC ACID ESTER, MALONIC ESTER, CHLOROBENZENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0732 STEP NO--UR/0062/70/000/003/0592/0596
CIRC ACCESSION NO--AP0124402
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124402

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC CURVES WERE SHOWN FOR THE TITLE REACTION IN MEDIA SELECTED FROM: PHCL, ME CAPROATE, DI ET MALONATE AND THEIR COMBINATIONS. THE REACTION RUN AT 130DEGREES PROCEEDED BY ACYLATION OF THE PEROXIDE BY THE ESTER PRESENT AND HOMOLYSIS OF THE RESULTING PERESTER ME SUB3 COOCOC SUB5 H SUB11, WHICH WAS PREPD. FROM CAPROYL CHLORIDE AND RO SUB2 H, IN 42PERCENT YIELD; B SUB0.05 29DEGREES, N PRIME20 SUBD 1.4210, D PIME20 0.9075. IN ME CAPROATE ME SUB3 COOH GAVE RATE CONSTS. OF DECOMP. THAT CHANGED FROM THE INITIAL VALUE OF 4.25 TIMES 10 PRIME NEGATIVE5 SEC PRIME NEGATIVE1 TO 1.9 TIMES 10 PRIME NEGATIVE4 SEC PRIME NEGATIVE1 AFTER SOME 30 MIN OF REACTION; IN DI ET MALONATE THE RATE CONST. WAS 6 TIME 10 PRIME NEGATIVE4 SEC PRIME NEGATIVE1 AND LACKED A PERIOD OF AUTOACCELERATION, PROBABLY OWING TO RAPID ESTABLISHMENT OF THE STATIONARY CONC. OF THE PERESTER. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

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USSR

UDC 621.375.018.756

ARAKCHEYEVA, I. A., DOMNIN, L. P., YEREMIN, S. A., ~~NIKISHIN, V. I.~~, OSTA-
PENKO, G. S., PETROV, L. N., TKACHEV, A. I., UDОВИК, A. P.

"A Differential Amplifier"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 4, Feb 72, Author's Certificate No 326704, Division H, filed 19 Jan 70,
published 19 Jan 72, p 208

Translation: This Author's Certificate introduces a differential ampli-
fier which contains two emitter-followers, two amplification stages with
dynamic load and a common source of direct current. As a distinguishing
feature of the patent, the amplification factor is increased and the
thermal compensation is improved by basing the dynamic load on a reverse
conductivity transistor, and by connecting in each branch of the amplifier
a transistor of the same conductivity as that of the amplification stage,
and a diode biased in the forward direction. The emitter of the ampli-
fication stage is connected to the DC source and to the emitter of the
transistor with the same conductivity. The base of this transistor is
connected through a diode to the centertap of the supply source, and the
collector is connected to the base of the dynamic load transistor.

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USSR

UDC: 621.396.6-181.5

ZOLOTAREV, T. V., OSTAPENKO, G. S., PETROV, L. N., UDOVIK, A. P.,
ARAKCHEYEVA, I. A., NIKISHIN, V. I., and ALEKSENKO, A. G.

"Effect of Distributed Capacitance and Geometric Dimensions of
Monolithic Circuit Resistors on Their Frequency Characteristics"

Kiev, Izvestiya VUZ--Radioelektronika, Vol. 13, No. 10, pp 1272-1275

Abstract: This brief communication deals with parasitic effects in integrated circuits manufactured by the planar-epitaxial process, with the elements separated by p-n junctions. The resistors in such a circuit are inserted by diffusion methods, and are thus especially subject to parasitic elements including a distributed transistor and distributed capacitances of p-n junctions. As proof, the cross section of an integrated circuit with its diffusion resistor is shown, and with it the equivalent circuit. From this circuit, the authors conclude that the frequency effect of the resistor is inversely proportional to the width of the resistor -- at least up to the practical limit of resistor width, which is about 10 μ . Nomograms are shown which can be used for determining the geometric dimensions and limiting frequency of the monolithic resistors from the known resistance values, or the reverse. A plot of the frequency characteristics of two monolithic resistors is also given.

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USSR

UDC:538.56:530.145

SEменов, B. I., ~~NIKISHINA, O. I.~~

"Distribution of Molecules by Velocities in the Flux at the Output of a Molecular Generator Sorting System"

Elektron. Tekhnika. Nauchno-Tekhn. Sb. Elektron. SVCh [Electronic Equipment. Scientific and Technical Collection. SHF Electronics], No. 7, 1970, p. 149 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Zh32, Unsigned)

Abstract: The distribution of velocities of molecules $F(v)$ at the output of the sorting system of a beam quantum generator is determined as a function of the radiation pattern of the beam source. The radiation patterns $f(\theta)$ were recorded over a predetermined interval of change of pattern length $\Delta\theta$ using an expression of V. S. Troitskiv for $f(\theta)$. For a broader range of change of $\Delta\theta$, the convenient express $f(\theta) = \cos^2\theta$

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USSR

UDC:538.56:530.145

SEMENOV, B. I., NIKISHINA, O. I., Elektron. Tekhnika. Nauchno-Tekhn. Sb. Elektron. SVCh [Electronic Equipment. Scientific and Technical Collection. SHF Electronics], No. 7, 1970, p. 149 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Zh32, Unsigned)

was suggested, where n defines $\Delta\theta$. The calculated curves of distribution of molecules by velocities in the flux at the output of the sorting system for one particular case, that of a molecular generator using a beam of ammonia molecules, show that for $\Delta\theta$ from 120° to 8° , distribution $F(v)$ changes from the generally used value of $F(v) = v \exp(-v^2/a^2)$ for $\Delta\theta = 120^\circ$ to $F(v) = v^2 \exp(-v^2/a^2)$, where $\Delta\theta$ is on the order of 8° . The error produced using the representation $f(\theta) = \cos^n \theta$ in comparison with the precise formula over the intervals of combined change is shown to be insignificant. The full text of the manuscript is on file at "Electronic" Institute, number DE-153.

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USSR

UDC 621.373:530.145.6

SEMENOV, B. I., NIKISHINA, O. I.

"Velocity Distribution of Molecules in the Flux at the Output of a Maser Sorting System (Abstract of Deposited Manuscript)"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, Vyp. 7, p 149 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D183 Dep)

Translation: The velocity distribution of molecules $F(v)$ at the output of the sorting system of a beam maser is found as a function of the radiation pattern of the beam source. To record the radiation pattern $f(\theta)$ over a certain range of variation in the width of the radiation pattern $\Delta\theta$, use is made of V. S. Troitskiy's expression for $f(\theta)$. For a wider range of variation in $\Delta\theta$, the convenient notation $f(\theta) \sim \cos^n \theta$ is proposed where n defines $\Delta\theta$. The given theoretical curves for molecular distribution by velocity in the flux at the output of the sorting system for the special case of an ammonia beam maser show that the velocity distribution $F(v)$ for $\Delta\theta$ from 120° to 8° ranges from the generally accepted $F(v) \sim \exp(-v^2/a^2)$ for $\Delta\theta = 120^\circ$ to $F(v) \sim v^2 \exp(-v^2/a^2)$ when $\Delta\theta$ is of the order of 8° . The insignificance of the error in using the expression $f(\theta) \sim \cos^n \theta$ as compared with V. S. Troitskiy's exact formula is demonstrated on intervals of common change in $\Delta\theta$. Resumé.

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USSR

UDJ 621.582.5.002

ANTROPCV, V.D., NIKISHIN, V.I., NOVIKOV, YU.I., BULGAKOV, S.S., SKLYAR, A.A.

"Microwave Transistor Prepared By The Method Of Ion Implantation"

V sb. Novoye v tekhn. poluprovodn. proiz-va (New Semiconductor Production Technology--Collection Of Works), Voronezh, Voronezh University, 1971, pp 152-157 (from RZh:Elektronika i yeye primeneniye, No 4, April 1972, Abstract No 4B423)

Translation: The production is described of a microwave n-p-n⁺ transistor with the use of a method of ion doping. The ion doping was conducted on IUJ-3 equipment. The transistors were prepared on epitaxial Si films with a resistivity of 2 ohm.cm. B¹¹ and P³¹ were used as the doping admixture. Doping was done at room temperature. Transistors obtained by the combined ion-diffusion method and by the ion doping method only were compared. It is shown that with the aid of the latter method transistors can be obtained with a frequency of 1-2 GHz with developed power on the order of 1 watt. 12 ref. S.I.

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Microelectronics

USSR

UDC 621.382.002

ZAVAL'SKIY, Yu. P., NIKISHIN, V. I., PETROV, L. N., SHAPOSHNIK, K. I.

"A Method of Making Integrated Circuits"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obratzysy, tovarnyye znaki, No 15, May 71, Author's Certificate No 302771, Division H, filed 10 Nov 69, published 28 Apr 71, p 188

Translation: This Author's Certificate introduces a method of making integrated circuits including the operations of producing a heavily doped N+ silicon layer with conductivity type opposite to that of the initial material followed by epitaxial deposition of a high-resistance layer of silicon of the same conductivity type as the heavily doped layer directly on the surface of the heavily doped layer. As a distinguishing feature of the patent, the packing density of the integrated circuits on the plate is increased, and the electrical and operational characteristics of the integrated circuits are improved by creating the N+ layer on the surface of depressions selectively etched in P-silicon, after which the depressions are epitaxially filled with N-silicon in the presence of silicon oxide on the P-silicon surface.

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Acc. Nr: **AP0047323**

Ref. Code: UR 0300

PRIMARY SOURCE: **Ukrayns'kiy Biokhimichniy Zhurnal, 1970,**
Vol 42, Nr 1, pp 66-70

**CHANGE IN ACTIVITY OF FLAVIN ENZYMES UNDER CONDITIONS
OF DIFFERENT PROVIDING OF THE ORGANISM WITH THIAMINE**

I. A. Nishchik

Department of Gerontology, Academy of Sciences, Byelorussian SSR, Minsk

Summary

The effect of thiamine and oxithiamine was studied on the activity of succinate NAD-H₂ and NAD Ph-H₂-dehydrogenases. An increase is observed in the activity of flavoproteins with administration of thiamine and a decrease— with administration of oxithiamine in 1 hr.

Possible mechanisms of the effect of thiamine and oxithiamine on flavoenzymes and the possibility of non-coenzymatic role of thiamine in regulating their activity are discussed.

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USSR

UDC: 669.15'26'24'28'3-194;669'14.018.821

PETROVA, V. S., FROLOV, A. V., BATRAKOV, V. P., FILIMONOVA, L. A., BELOUS, V. Ya., NIKISHOV, A. S., BONDAREV, V. V., PODOL'SKIY, M. L.

"Stainless Steel"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 12, Apr 72, Author's Certificate No 334273, Division C, filed 2 Sep 68, published 30 Mar 72, p 104

Translation: This Author's Certificate introduces: 1. A stainless steel which contains carbon, chromium, nickel, molybdenum, copper and iron. As a distinguishing feature of the patent, mechanical properties are improved by taking the components in the following proportions in percent: carbon--0.03-0.1; chromium--10.05-11.9; nickel--3.3-4.0; molybdenum--2.3-3.0; copper--1.0-2.0; manganese--less than 0.6; silicon--less than 0.8; the remainder iron; and 2. a modification of this steel distinguished by the fact that the chromium:nickel ratio is 2.8-3.8.

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USSR

UDC 669.15'24-194:621.789

BERNSHTEYN, M. L., KAPUTKINA, L. M., LAPTEV, D. V. and NIKISHOV, N. A.,
Moscow Institute of Steel and Alloys

"Effect of Austenite Deformation on the Properties of Nickel Steels

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972,
pp 25-30

Abstract: Described is a study on the effect of deformation at 950°C (high-temperature strain hardening/HTSH/) and 550°C (low-temperature strain hardening/LTSH/) on the properties and martensitic structure of three steels with 0.4-0.8% C, 18-25% Ni (40N25, 60N20, 80N18) and martensitic points <0°C. The study included mechanical tests, x-ray diffraction analyses of both martensite and the volume of the low-carbon phase, as well as electron microscopic analyses of foils. The thermal stability of the state of strain hardening following reheating in a salt bath at 950°C was also studied. The mechanical properties of the steels following HTST were found to be higher than after conventional treatment. Upon deformation at various temperatures, the austenite appears to have a well developed dislocation substructure which is then inherited by the martensite and markedly affects the tempering

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USSR

BERNSHTEYN, M. L., et al, Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972, pp 25-30

processes. Repeated rapid hardening from 950°C retains the effect of thermal strain hardening. The dislocation structures in the austenite "inherit" some of the features of the initial dislocation structures. (6 illustrations, 1 table, 5 bibliographic references).

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USSR

UDC 632.95

MANDEL'BAUM, YA. A., NIKISHOVA, G. YE., ZAKS, P. G.

"Phthalophos"

V sb. Khim. sredstva zashchity rast. (Chemical Means of Plant Protection -- collection of works), vyp. 1, Moscow, 1970, pp 5-8 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N427)

Translation: The physical and chemical properties of phthalophos (I), the toxicity, the method of analysis and means of obtaining I and chloromethyl-phthalimide are described.

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USSR

UDC 632.95

MANDEL'BAUM, YA. A., NIKISHOVA, G. YE., NAGAYUK, I. N., and ZAKS, P. G.

"Phosalone"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 25-28 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13W455 by T. A. Belyayeva)

Translation: The article shows the physical and chemical properties of phosalone, its toxicity, the method of producing it from $(EtO)_2PSSNa$ and chloromethylchlorobenzoxazolone, and the method of analysis. A method is devised for chloromethylation of chlorobenzoxazolone. Phosalone can be used in the form of a 20% emulsion concentrate and a 30% wettable powder.

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USSR

UDC 632.95

MANDEL'BAUM, Ya. A., NIKISHOVA, G. Ye., and MEL'NIKOV, N. N.

"Method of Production of Chloromethylimides"

USSR Author's Certificate No 311904, filed 28/07/69, published 11/10/71,
(Translated from Referativnyy Zhurnal, Khimiya, No 9, 1972, Abstract No
9 N529 P by T. A. Belyayeva)

Translation: Chloromethylimides are intermediate products in the synthesis of phthalophos and phozalone, produced by the reaction of the imide of the corresponding acid with formaldehyde and HCl (acid) at a concentration of at least 30%, at 55-60°C. 0.11 mol of a 37% solution of formaldehyde and a 7-fold excess of a 36% HCl (acid) solution are added to 0.1 mol phthalimide, heated to 55-60°, HCl (gas) is bubbled through for 8-10 hours, the mixture is cooled and filtered. The precipitate is washed in water and dried, producing chloromethylphthalimide, yield 95%, m.p. 130-2°. The filtrate is returned to the process. Chloromethyl-6-chlorobenzoxazolone is produced similarly, m.p. 120-3°, as well as chloromethylbromobenzoxazolone, m.p. 137°.

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USSR

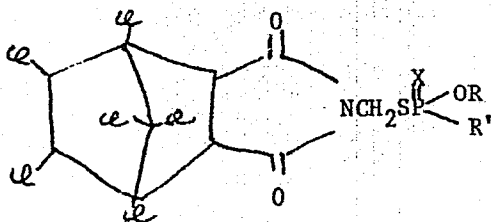
UDC 632.95

MANDEL'BAUM, N. A., and NIKISHOVA, G. Ye.

"A Method of Synthesizing Esters and Amides of S-Hexachlorotetrahydro-1,4-endomethylenephthalimidomethyl Thio- or Dithiophosphates"

USSR Author's Certificate No 265107, filed 12 Apr 69, published 7 Jul 70
(from RZh-Khimiya, No 3, 10 Feb 71, Abstract No 3N549 P)

Translation: Compounds (I) of general formula



where R is an alkyl, R' is an alkoxy or alkylamide group, X is oxygen or sulfur, which are active pesticides, are synthesized by the reaction of chloromethylimidochloroendic acid (II) with salts of alkylamides of 1/2

USSR

MANDEL'BAUM, N. A., and NIKISHOVA, G. Ye., USSR Author's Certificate No 265107, filed 12 Apr 69, published 7 Jul 70 (from RZh-Khimiya, No 3, 10 Feb 71, Abstract No 3N549 P)

O-alkylthiophosphates or with salts of thio- or dithiophosphoric acid. A solution of 2.5 g of $(EtO)_2PSSNa$ in 10 ml of water is added to 4 g of II, heated to 90°C, kept at this temperature for five hours, cooled, the residue is filtered, washed with water and dried. Compound I is obtained (R = Et, R' = EtO, X = S), yield = 85 percent, melting point 121-123°C. The following compounds (I) are similarly prepared (given are R, R', X, yield in percent, and melting point in °C): Et, BuNH, O, 75, 100-1; Pr, PrO, S, 72, 97-100; Et, EtO, O, 74, 100-3; Pr, PrO, O, 80, 73-5; Et, EtNH, O, 78, 119-21; Et, PrNH, O, 76.5, 132-4; Et, iso-PrNH, O, 82, 142-4.

2/2

- 24 -

USSR

UDC 669.71.017:539.3/5.01

SHILOVA, Ye. I., and NIKITAYEVA, O. G.

"The Effect of Grain Sizes on Properties of Sheets of the AK4-1 and D16 Alloys"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970,
pp 33-37, resume

Translation: Results are presented of an investigation of the effect of grain sizes in sheets of the D16 and AK4-1 alloys on mechanical and corrosion properties. Seven figures, one table.

1/1

- 25 -

1/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--ADENOMA OF THE LARGE DUODENAL PAPILLA -U-
AUTHOR-(02)-ZYKOV, YU.A., NIKITCHENKO, S.A.
COUNTRY OF INFO--USSR
SOURCE--KHIRURGIYA, 1970, NR 2, PP 81-84
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--TUMOR, DUODENUM, PAIN, LIVER FUNCTION, SURGERY, PANCREAS
CONTROL MARKING--NO RESTRICTIONS
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PROCESSING DATE--18SEP70

2/2 025

CIRC ACCESSION NO--AP0054213

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

ABSTRACT. THE AUTHORS REPORT ON OBSERVATIONS OVER 9 PATIENTS WITH A RARE DISEASE, ADENOMA OF THE LARGE DUODENAL PAPILLA, WHO WERE OPERATED DURING THE LAST TEN YEARS (1958-1968). PROBLEMS OF THE CLINICAL PICTURE, DIAGNOSIS AND TREATMENT ARE DISCUSSED. THE MAIN SYMPTOMS OF THIS DISEASE ARE INTERMITTENT OR UNDULATING JAUNDICE WITH A MARKED PAIN SYNDROME, A POSITIVE COURVOISIER'S SYMPTOM, A SHARP IMPAIRMENT OF FUNCTIONAL TESTS OF THE LIVER, A CORRECT DIAGNOSIS BEFORE THE OPERATION WAS ESTABLISHED IN 2 PATIENTS, IN 6 CASES, ON THE OPERATION TABLE AND IN ONE, DURING AUTOPSY. THE OPERATION OF CHOICE IS TRANSDUODENAL PAPILLECTOMY WHICH WAS PERFORMED IN 6 PATIENTS WITH ONE LETHAL OUTCOME. IN 2 PATIENTS WITH SUSPECTED DEGENERATION OF THE TUMOR AN ECONOMICAL PANCREATODUODENAL RESECTION WAS PERFORMED.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SYNTHESIS OF UNSATURATED KETONES AND DERIVATIVES OF 2 PYRAZOLINE
CONTAINING AN INDOLE RING -U-
AUTHOR-(104)-TSUKERMAN, S.V., BUGAY, A.I., NIKITCHENKO, V.M., LAVRUSHIN,
V.F.
COUNTRY OF INFO--USSR
SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (3), 399-403
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC SYNTHESIS, PYRAZOLE, INDOLE DERIVATIVE, KETONE,
ALDEHYDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FKAME--3001/0226 STEP NO--UR/0409/70/000/003/0399/0403
CIRC ACCESSION NO--AP0126010

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE—20NOV70

2/2 010
CIRC ACCESSION NO—A0126010
ABSTRACT/EXTRACT—(U) GP-0-

ABSTRACT. METHOD A. A SOLN. OF 0.01 MOLE APPROPRIATE ALDEHYDE AND ME KETONE IN 8-10 ML (CH SUB2 OH) SUB2 WAS TREATED WITH 1 ML 40PERCENT NAOH AND THE WHOLE WAS HEATED 20-30 MIN AT 120-35DEGREES TO YIELD RCOCH:CHR PRIME1 (I). METHOD B. APPROPRIATE ALDEHYDE AND KETONE (0.01 MOLE EACH) WAS REFLUXED 15-25 MIN IN 7-10 ML ETOH WITH 1 ML 20PERCENT NAOH. METHOD C. SIMILAR TO METHOD A, BUT WITH HEATING 40 MIN AT 180-90DEGREES. METHOD D. ALDEHYDE AND KETONE (0.01 MOLE EACH) WAS HEATED 20-30 MIN AT 170-85DEGREES IN 8-10 ML (CH SUB2 OH) SUB2 WITH 1 ML PIPERIDINE. THE FOLLOWING I WERE PREPD. (R, R PRIME1, M.P., M.P. 2,4 DINITROPHENYLHYDRAZONE, METHOD USED, AND PERCENT YIELD GIVEN): SHOWN ON MICROFICHE.

FACILITY: KHAR'KOV. GOS. UNIV. IM. GOR'KOGO, KHARKOV, USSR.

UNCLASSIFIED

Acc. Nr.

AP0041532

Abstracting Service:

CHEMICAL ABST.

4/70

Ref. Code

UR 0366

89964z Unsaturated dioxo derivatives of biphenyl and p-terphenyl. Tsukerman, S. V.; Polyakov, V. K.; Nikitchenko, V. M.; Lavrushin, V. F. (Khar'kov Gos. Univ. im. Gorko, Kharkov, USSR). *Zh. Org. Khim.* 1970, 6(1), 135-8 (Russ).
 The crotonic condensation of aldehydes with 4-OHCC₆H₄C₆H₄-CHO-4' (I) or 1,4-(4-OHCC₆H₄)₂C₆H₄ (II) gave, resp., 4-RCH:CHCO₂H₂C₆H₄COCH:CHR-4' (Ia) or 1,4-(4-RCH:CHCO₂H₂)₂C₆H₄ (IIa). The reactions of I proceeded in iso-PrOH contg. KOH below, or at room temp. giving 32-53% Ia (R is Ph, 4-MeC₆H₄, 4-MeOC₆H₄, 2,4,6-Me₃C₆H₂, 4-Me₂NC₆H₄, 4-ClC₆H₄, 4-BrC₆H₄, 4-O₂NC₆H₄, or 4-PhC₆H₄). The reactions of II required refluxing at ≤200° in HOCH₂CH₂OH and gave 27-90% IIa (R is Ph, 4-MeC₆H₄, 4-MeOC₆H₄, 4-Me₂NC₆H₄, 4-ClC₆H₄, 4-BrC₆H₄, or 4-O₂NC₆H₄). Ia (R is 2,4,6-Me₃C₆H₂ or 4-Me₂NC₆H₄) and IIa (R is Me₂NC₆H₄) are luminescent. Correlations were obtained between Hammett σ consts. of R and ir spectra of Ia.

CPJR

REEL/FRAME
19751400

of their analogs. Tsukerman, S. V.; Maslennikova, V. P.; Nikitchenko, V. M.; Lavrushin, V. F. (USSR). *Zh. Prikl. Spektrosk.* 1970, 12(1), 91-8 (Russ). The electron absorption and luminescence spectra of 16 β -dichalcones $RCH:CHC(O)C_6H_4C(O)CH:CHR$ (A) and the analogous β -isodichalcones $RC(O)CH:CHC_6H_4CH:CHC(O)R$ (B), where R is substituted Ph rings, β -naphthyl, 9-anthryl, and heterocycle groups, were measured in chloroform and dioxane solns. In comparison with chalcone with the absorption max. at 310 or 305 nm, the dichalcone band is shifted 11-15 nm, the isodichalcone band 45 nm to longer wavelengths; in addn., a new band appears at 270-5 nm for the compds. A as well as B. Donor groups cause a bathochromic shift in A, whereas in B the effect is considerably smaller. The shift in the former case, expressed in wavenos., can be correlated with the Hammett σ -const. of the substituents in R. Electron acceptor groups have a negligible effect on the spectra. In the series R = biphenyl, naphthyl, anthryl in A, a bathochromic shift as well as a hyperchromic effect occurs and the naphthalene or anthracene vibrational structure appears.

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REEL/FRAME
19801670

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Acc. Nr. **A0049755** - Abstracting Service:
- CHEMICAL ABST. 5/10

Ref. Code
WR 0368

105599 Electron spectra of isomeric p-dichalcoes and some
of their analogs. Tsukerman, S. V.; Maslennikova, V. P.;
Nikitchenko, V. M.; Lavrushin, V. F. (USSR). Zb. Prikl.
The electron absorption

AP0049755

A red shift is obsd. on the transition from the dioxane to the chloroform solns., on account of the H bonds between the latter solvent and the solute C:O groups. The compds. *A* and *B* show no luminiscence, in contrast to 1,4-distyrylbenzene. This is attributed to the adverse effect of the $\pi \rightarrow \pi^*$ levels. In the compds. *A* with strong electron donor groups or with long conjugated chains, the $\pi \rightarrow \pi^*$ level energy decreases more rapidly than the $\pi \rightarrow \pi^*$ energy and the compds. exhibit luminiscence.

P. Adamek

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19801671

12

USSR

UDC 591.436.2.086.3

NIKITCHENKO, V. V., and PINCHUK, V. G., Laboratory of Electron Microscopy of Tumors and Laboratory of the Biophysics of Tumors, Kiev Institute of Experimental and Clinical Oncology, Academy of Sciences Ukrainian SSR

"Early Ultrastructural Changes in Hepatocytes Caused by Low Energy Laser Radiation"

Leningrad, Tsitologiya, Vol 14, No 1, 1972, pp 20-24

Abstract: Irradiation of surgically exposed rat liver with a single neodymium laser pulse (3 j) immediately causes formation of multiple vacuoles in hepatocytes and condensation of the cytoplasm around the vacuoles. One to 10 hrs later, blood sinusoids are enlarged. In some cells, mitochondria are swollen and their membranes ruptured, the granulated endoplasmic reticulum is fragmented, and the membranes of some nuclei are ruptured, resulting in leakage of chromatin. After irradiation with 10 pulses (30 j), the disorganization of the organelles is faster and more pronounced, lipid inclusions appear in the cytoplasm, coagulation necrosis develops in 10 hrs, and collagen fibrils are formed in the injured area. It is believed that the vacuoles are droplets of interstitial fluid which enters the cells through the laser-damaged cell membrane. Compared with hepatocytes, endothelial cells in the liver are much more resistant to laser rays.

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Materials

USSR

UDC 666.293.52

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

"An Enamel for Steel"

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

Translation: An enamel for steel, including SiO_2 , B_2O_3 , Al_2O_3 , TiO_2 , CaO , and Na_2O , distinguished by the fact that in order to increase its acid resistance and heat resistance it additionally contains SrO , Li_2O , Na_2SiF_6 , K_2O , CaF_2 , Co_2O_3 , Ni_2O_3 and Cr_2O_3 in the following ratio of components, weight %: SiO_2 64-67, B_2O_3 1.8-2.7, Al_2O_3 1.0-1.6, TiO_2 3.1-3.6, CaO 3.2-3.7, SrO 0.6-0.9, Na_2O 9.4-10.7, K_2O 3.9-4.5, Li_2O 4.3-4.5, Na_2SiF_6 1.3-2.0, CaF_2 1.7-2.5, Co_2O_3 0.5-0.56, Ni_2O_3 0.4-0.53, Cr_2O_3 0.16-0.25.

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USSR

UDC 546.641*161+546.664*161+645.665*161+546.666*161+546.668*161

STRIZHKOV, B. V., RUCHKIN, YE. D., KRIKOROV, V. S., PCHELKIN, V. A., NIKITENKO, L. S., and KHROMOV, A. D.

"Production of Anhydrous Fluorides of the Yttrium Subgroup of Rare-Earth Elements"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 8, 1972, pp 1428-1433

Abstract: The anhydrous REM fluorides are a promising material for the manufacture of thin-film condensers by vacuum sputtering. One method of manufacturing anhydrous REM fluorides is by thermal decomposition of the hydrated fluorides of these elements. One shortcoming of this method is that dehydration upon heating may be accompanied by pyrohydrolysis. The method has not been fully studied. The present work studies the process of production of anhydrous fluorides of Y, Dy, Ho, Er, and Yb by thermal decomposition of their hydrates in air, in a current of a dry inert gas and in a vacuum. The methods of thermal, crystalloptical, x-ray structural, and chemical analyses plus IR spectroscopy were used to study the specimens. The dehydration of the fluorides was found to be a multistage process. Complete removal of the water of crystallization requires heating to 500-600°C (somewhat lower in a vacuum), apparently a result of the deep penetration of water molecules into the defective crystalline lattice of the fluorides. Initial

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USSR

Strizhkov, B. V., Ruchkin, Ye. D., Krikorov, V. S., Pchelkin, V. A., Nikitenko, L. S., Khromov, A. D., Moscow, Neorganicheskiye Materialy, No 8, 1972, pp 1428-1433.

dehydration removes all but approximately 0.5 mol of the water rather easily, after which dehydration is more difficult and apparently is accompanied by ordering of the crystalline structure of the substance. The temperature of complete dehydration can be reached only in a vacuum or in a current of a dry inert gas; otherwise, the process of pyrohydrolysis begins before the dehydration reaction is completed.

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USSR

UDC: 621.317.733.011

CHEBOTAREV, A. V., NIKITENKO, L. T.

"Autocompensation AC Transformer Bridges for Measuring Impedances"

V sb. Vopr. elektrosvyazi (Problems of Electrical Communications--collection of works), Kiev, "Tekhnika", 1970, pp 145-152 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A372)

Translation: The authors discuss devices for automatically measuring impedance parameters, capacitance and loss tangent, inductance, Q. Two self-compensation bridge measurement circuits are described. The conditions of equilibrium for the measurement circuits are determined, and recommendations are given on their technical realization. One illustration, bibliography of four titles. Resumé.

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USSR

UDC: 8.74

VAL'TUKH, K. K., NIKITENKO, M. N.

"Algorithm and Program for Approximate Realization of a Multisectoral Dynamic Model With Object Function of Well-Being With Consideration of Accumulation of Durable Goods"

V sb. Algoritmy i programmy realizatsii narodnokhoz. modeley (Algorithms and Programs for Realization of National Economic Models--collection of works), Novosibirsk, 1971, pp 93-115 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V528)

[No abstract]

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