

USSR

UDC 531.35+531.37

RUBANOVSKIY, V. N., (Moscow)

"On Stability of Certain Motions of a Solid Body Containing Elastic Rods and a Liquid"

Moscow, Prikladnaya Matematika i Mekhanika, Vol 36, No 1, 1972, pp 43-59

Abstract: Motion of a free solid body with three pairs of elastic rods and a cavity containing a liquid is considered in two cases: motion in a central Newtonian field of forces and in the absence of external forces. Satisfactory stability conditions of relative equilibrium on a circular orbit and of uniform revolutions of this system are obtained by using a theorem of V. V. Rumyantsev. It is shown that the presence of liquid with free surface inside the cavity and the presence of elastic rods on the body has a disturbing effect on stability of corresponding unperturbed motions of a stable system. Satisfactory stability conditions are also indicated for the cases, when less than three pairs of rods are attached to the body. The obtained stability conditions at high Yung modulus in the absence of liquid turn into known satisfactory stability conditions of a solid body. Stability conditions for the case of a body containing one pair of rods and no liquid are compared with those obtained by L. Meirovitch and the newness of its method is contested.

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1/2 031 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SPECTRAL STUDY OF THE ELECTRON DONOR CAPACITY OF TRIETHYL PHOSPHITE
AS A METHOD FOR EVALUATING THE PURITY OF PHOSPHITES --U-
AUTHOR--(05)--EPSHTEYN, L.M., NOVIKOVA, Z.S., ASHKINADZE, L.D., RUBASHEVA,
L.M., KAZITSYNA, L.A.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 689-90.

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON DONOR, ALKYL PHOSPHITE, CHEMICAL PURITY, HYDROGEN
BONDING, COMPLEX COMPOUND, ABSORPTION BAND SPECTRUM, ETHANOL,
FLUORINATED ORGANIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3001/0082

STEP NO--UR/0062/70/000/003/0689/0690

CIRC ACCESSION NO--AP0125916

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125916

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. SINCE THE FORMATION OF H BOND BETWEEN ETOH AND P(OET) SUB3 RESULTS IN A H COMPLEX WHICH GIVES AN ABSORPTION BAND AT 3560 CM PRIME NEGATIVE1 WITH A SHOULDER AT 3480 CM PRIME NEGATIVE1 (E., ET AL., 1969) THE APPEARANCE OF THE LATTER HAD BEEN SUGGESTED TO BE THE RESULT OF 2 TYPES OF SUCH COMPLEXES. HOWEVER SUCH A SHOULDER MAY BE CAUSED BY A SMALL ADMIXT. OF ET SUB3 PO SUB4 WHICH CANNOT BE DETECTED BY THE SPECTRAL METHOD DIRECTLY. CAREFULLY PURIFIED P(OET) SUB3 AND ETOH GAVE AN IR SPECTRUM IN WHICH THE HO BAND WAS SYMMETRIC, BUT A BRIEF CONTACT WITH AIR RESULTED IN SHOULDER FORMATION AT 3460 CM PRIME NEGATIVE1 AT THE FREQUENCY AT WHICH THE COMPLEX OF ETOH AND ET SUB3 PO SUB4 HAS A BAND. TO EVALUATE THE SENSITIVITY OF THIS BAND THE SUITABLE CALIBRATION RUNS WERE MADE AND ET SUB3 PO SUB4 AT 0.07 MOLES-L. RESULTS IN THE SHOULDER OF THE BAND AT 1280 CM PRIME NEGATIVE1 WHILE AT 0.01-0.02 MOLES-L. THIS CAN NO LONGER BE OBSERVED, BUT THE ASYMMETRY OF THE 3460 CM PRIME NEGATIVE1 BAND IS STILL CLEARLY VISIBLE. CF SUB3 CH SUB2 OH IN PLACE OF ETOH ALLOWED SPECTROSCOPIC DETECTION OF ET SUB3 PO SUB4 EVEN AT 0.005 MOLES-L. THE INTEGRAL INTENSITY OF THE BAND OF THE COMPLEX OF ETOH WITH P(OET) SUB3 (3 TIMES 10 PRIME4 L. M PRIME NEGATIVE1 CM PRIME NEGATIVE1) WAS SMALLER THAN THAT OF ETOH WITH HC(OET) SUB3 (3.5 TIMES 10 PRIME4); CF SUB3 CH SUB2 OH GAVE SIMILAR RESULTS. THUS P(OET) SUB3 IS LESSEFFECTIVE ELECTRON DONOR IN RESPECT TO ALCS. THAN IS HC(OET) SUB3. FACILITY: INST. ELEMENTOORG. SOEDIN, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.52:541.183:66.097.4

DOMNITSKAYA, M.A., PERSHINA, YE.I., RUBASHKIN, B.L.

"Activation Of Palladium Membranes By Titanium Hydride With The Object Of Reducing The Temperature Of The Process Of Diffusion Cleaning Of Hydrogen"

V sb. Novoye v tekhn. poluprovodn. proiz-va (New Semiconductor Production Technology--Collection Of Works), Voronezh, Voronezh University, 1971, pp 82-93 (from RZh:Elektronika i yeye primeneniye, No 4, April 1972, Abstract No 4A48)

Translation: It is established that at a temperature of 50° C permeability of an activated membrane to hydrogen is five times lower than that of a nonactivated membrane at a temperature of 300° C. At a temperature of 17--70° C, a dual coating of a membrane of commercial palladium by titanium hydride, obtained by free deposition of a hydride layer with subsequent brazing and repeated hydrogenation, assures permeability to hydrogen commensurate with the permeability of commercial palladium at a temperature of 250--300° C. A decrease of the permeability to hydrogen during operation of the membrane for approximately three months does not exceed 22--25 percent from the initial value. 5 ref.A.F.

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UDC 621:382.002

RUBASHKIN, B.L., PERSHINA, YE.I., DOMNITSKAYA, M.A., ZAVALISHIN, A.A.

"Activation Of Palladium Filters For Cleaning Of Hydrogen"

Elektron. tekhnika. Nauch.-tekhn.ssb. Tekhnol. i organiz. proiz-va (Electronics Technology. Scientific-Technical Collection. Technology And Organization Of Production), 1971, No 5(45), pp 81-85 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A123)

Translation: A procedure is developed for deposition of titanium hydride on palladium plates, with the object of assuring their hydrogen permeability at reduced temperatures. It is established that a positive effect gives the only method of deposition which assures a porous covering, with the thickness of the covering not affecting the performance of the membrane. 8 ref. A.F.

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USSR

UDC 621.372.852.1

VOROB'YEVA, V. G., RUBASHKINA, R. G., STRETENSKAYA, G. G., KHABI, V. S.

"A Filter for Suppressing Spurious Emissions of High-Power Amplifier Klystrons"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1971, vyp. 3, pp 136-137 (from RZh-Radiotekhnika, No 7, Jul 71, Abstract No 7B154)

Translation: The paper describes a waveguide filter for suppressing spurious emissions from high-power amplifier klystrons with a passband of two percent. Attenuation of the power of spurious emissions is 30 dB or more throughout the entire range of operation of the waveguide. Klystron power losses in the filter on the average frequency of the working band come to one percent. Four illustrations, bibliography of one title. Resumé.

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USSR

UDC 541.136

BARANOV, V. I., VDOVICHENKO, N. V., VLASOV, V. M., IVANOV, A. M., MUCHNIK, G. F., RUBASHOV, I. B., and TABAKMAN, L. S., Moscow

"Fuel Cells With ion Exchange Membranes. Development and Investigation"

Moscow, Elektrokimiya, Vol 8, No 5, May 72, pp 694-698

Abstract: Fuel cells are described based on cation exchange resin membranes washed free of unbound acid. The use of solid electrolyte imparts certain specific properties to all physical processes occurring in the fuel cells, such as localization of elementary physical acts responsible for current generation. Current generation on the surface of the membrane could not possibly produce the total generated power, so that the electrode inside the membrane must have been contributing substantially to current generation. Several assumptions are made concerning this problem, and a conclusion is reached that current is generated by a thin layer of a catalyst inside the membrane partially filled with water. Two methods are used for water removal from the membrane: one is based on the use of a catalyst to ensure proper permeability of the membrane to water vapor, the other is based on the use of a catalyst to ensure proper permeability of the membrane to water vapor.

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ARANOV, V. I., et al, Elektrokhimiya, Vol. 8, No 5, May 72, pp 694-698

complex equipment. The principal problem in this system concerns uniformity of the removal of water. Both types of current generators are described, pointing out the areas where development is still needed, mainly in synthesis of new materials for membranes.

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UDC 541.138

MUCHNIK, G. F., RUBASHOV, I. B., VLASOV, V. M., GANIN, YE. A., KARICHEV, Z. R.,
and POSTANOGOV, V. P., Moscow

"Study of the Leakage of Fuel Gases Into Electrolyte Chambers of Fuel Cells"

Moscow, Elektrokimiya, Vol 8, No 5, May 72, pp 690-694

Abstract: It was shown that the average rate of leakage of a gas into an electrolyte is affected to a great degree by such factors as current charge, temperature of the elements, battery, pressure drop between the gaseous and electrolytic sides of the electrolytes, and the concentration of the electrolyte. The type of the functional curves obtained experimentally agree sufficiently well with those obtained from theoretical calculations of diffusion leakage, however, under experimental conditions this effect is much stronger, especially in case of temperature. The leaking gas consists almost exclusively of hydrogen. It was shown that gas mobility does not affect the rate of leakage if water vapor tension is kept constant. An increased rate of the leakage observed with a higher rate of moisture removal from the surface of the electrolyte is evidently due to a shift in the equilibrium in the pores in presence of secondary menisci.

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BORTNIKOV, Yu. S., NESTEROV, V. A., RUBASHOV, I. B., Moscow

"Study of Characteristics of the Electric Gas Dynamic Engine"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, 1971, pp 167-170.

ABSTRACT: Results are presented from theoretical and experimental studies of the electric gas dynamic engine, designed to create the thrust for a flight vehicle. Calculation relationships are produced, which agree well with the experimental data. It is demonstrated that the effectiveness of this engine can be rather high for practical purposes. A number of works have been written concerning ion-convection pumps operating on this principle, in which dielectric fluids are pumped using a Corona discharge. The use of the "Corona wind" in gases allows the creation of an engine capable of operating in any non-conducting atmosphere. In contrast to the ion engine, the ECD engine creates thrust due to acceleration of a neutral working fluid (for example, atmospheric gases) by means of ions, allowing the creation of a significant thrust, sufficient to support a vehicle in the atmosphere.

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1/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--SOME PROBLEMS OF THE FUEL CELL THERMODYNAMICS -U-
AUTHOR-(04)-LIDORENKO, N.S., MUCHNIC, G.F., NOVIKOV, I.I., RUBASHOV, I.B.
COUNTRY OF INFO--USSR, UNITED STATES
SOURCE--4TH ANNUAL INTERSOCIETY ENERGY CONVERSION ENGINEERING CONFERENCE
WASHINGTON, U.S.A.
DATE PUBLISHED-----70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, ENERGY CONVERSION
(NON-PROPULSIVE), PHYSICS
TOPIC TAGS--ELECTRIC ENGINEERING CONFERENCE, FUEL CELL, ELECTROMOTIVE
FORCE, ION EXCHANGE MEMBRANE, DIFFERENTIAL EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3006/1701

STEP NO--US/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AT0135297

UNCLASSIFIED

2/2 030

CIRC ACCESSION NO--AT0135297

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE FUEL CELL OPERATION IS GIVEN IN THE LIGHT OF THE THERMODYNAMICS OF EQUILIBRIUM AND NONEQUILIBRIUM PROCESSES. AS A RESULT OF USING THE PRINCIPLE OF EQUILIBRIUM PROCESS THERMODYNAMICS, THE ATLAS (OF E.M.F AND EFFICIENCY DEPENDENCE ON TEMPERATURE) FOR THE MAIN WORK REAGENTS CAPABLE OF APPLICATION IN THE FUEL CELL CIRCUITS HAS BEEN MADE. THE CONCEPT OF THE OPTIMAL WORKING PARAMETERS IS INTRODUCED AND THE POSSIBILITY OF THEIR REALIZATION IS DISCUSSED. IN THE SECOND PART, THE MAIN SYSTEM OF THE TRANSFER PROCESS DIFFERENTIAL EQUATIONS IS FORMULATED WITH THE METHODS OF NONEQUILIBRIUM PROCESS THERMODYNAMICS (ON THE EXAMPLE OF A FUEL CELL WITH ION EXCHANGE MEMBRANE, IEN).

UNCLASSIFIED

USSR

UDC 541.1 + 541.18 + 543.544.6

KOMAROVA, I. V., GALKINA, N. K., RUBINSHTEYN, R. N., and SENYAVIN, M. M.,
Academy of Sciences USSR, Institute of Geochemistry and Analytical Chemistry
Imeni V. I. Vernadskiy, Moscow

"Design of a Ion-Exchange Water Demineralization Process"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 47, No 1, Jan 73, pp 124-129

Abstract: A method is proposed for the design of a process of ion-exchange demineralization of water over incompletely regenerated columns with separate ion exchange resin layers. The initial cycle of water purification over a freshly prepared, fully regenerated ion exchange resin is designed as a dynamics exchange of a substance in the intradiffusional area. The column regeneration and purification of water on the repeatedly studied, incompletely regenerated ion exchange resin was calculated by the layer-by-layer method. The stages are unified by coefficients representing relative decrease in the performance time of incompletely regenerated column in comparison to a fully regenerated one, as a function of the consumption and concentration of the regenerating solution.

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Acc. Nr: AP0052456

Ref. Code: UR0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 4, pp 65-67

CHANGES OF HISTAMINE METABOLISM IN PATIENTS
WITH BRONCHIAL ASTHMA UNDER THE EFFECT OF TREATMENT
WITH MICROBIAL ANTIGENS AND CORTICOSTEROIDS

G. F. Glukhovskaya and I. V. Ruban (Kiev)

Histaminic metabolism was studied in 103 patients with bronchial asthma and its changes under the effect of treatment.

It is suggested that treatment with microbial antigens resulted both in an improvement of the histaminopexic properties of the blood serum and normalization of the free heparin content. Treatment with corticosteroids resulted in normalization of free heparin content, the histaminopexic property of the blood serum increased to a lesser degree. The latter fact is connected with a negative (catabolic) effect of corticosteroids on the protein metabolism.

REEL/FRA
19821090

USSR

UDC 577.150.13:541.67

MISHCHENKO, V. V., SHAPIRO, T. A., RUBCHINSKAYA, YU. M., KHRISTIANOVICH,
KHOMUTOVA, Ye. D. and BEREZOVSKIY, V. M., All-Union Scientific Research
Institute of Vitamins

"Nucleotides, Coenzymes, and Phosphoric Acid Esters. XXVIII. Spectroscopic
Investigation of Intramolecular Interaction in FAD and Its Analogs"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2547-2551

Abstract: By studying circular dichroism, fluorescence, and paramagnetic
resonance, it was established that in aqueous solutions flavin-adenine dinucleo-
tide (FAD) and its analogs differing with respect to the number of phosphoric
acid groups, which ranged from one to four in the compounds investigated,
exhibited interaction between the flavin and adenine parts of the molecule.
With an increasing length of the phosphoric acid chain connecting the two
parts of the molecule, the magnitude of the intramolecular interaction
decreased.

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1/2 019 UNCLASSIFIED PROCESSING DATE--1600170
FILE--OBSERVATION SYSTEM OF THE 70-GEV PROTON SYNCHROTRON -U-
AUTHOR--(05)-BOLSHAKOV, YU.D., GERTSEV, K.F., IVANOV, YU.S., KUZMIN, A.A.,
RUBCHINSKIY, S.M.
COUNTRY OF INFO--USSR
SOURCE--(CERN-TRANS-69-23) NTO-6827
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--PROTON ACCELERATOR, SYNCHROTRON, PARTICLE MOTION, TRAJECTORY
MEASUREMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1985/0787 STEP NO--UR/0000/70/G00/G00/0001/0012
CIRC ACCESSION NO--AM0101160
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AM0101160

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BEAM ORBIT OF THE IHEP SYNCHROTRON IS DETERMINED BY MEASURING THE DISPLACEMENT OF THE CENTER OF GRAVITY OF ACCELERATED PARTICLE BUNCHES WITHIN 85 AZIMUTH POINTS. A SPECIAL SYSTEM IS DESCRIBED WHICH ALLOWS A DETERMINATION OF THE POSITION OF THE CLOSED ORBIT, AS WELL AS THE FREQUENCY, AMPLITUDE, AND PHASE OF THE COHERENT BETATRON OSCILLATIONS. THE EQUIPMENT ASSURES A PRECISION MEASUREMENT OF THE ORBIT DEPALCEMENT OF PLUS (5 TO 7)PERCENT PLUS 1 MM FOR AN INTENSITY OF 10^{11} TO 10^{14} PROTONS AND 10 TO 15PERCENT FOR AN INTENSITY OF 10^{10} PROTONS. FACILITY: AKADEMIYA NAUK SSSR, MOSCOW. RADIOTEKHNIKESKII INSTITUT.

UNCLASSIFIED

USSR

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ADO, YU. M., ZHURAVLEV, A. A., LOGUNOV, A. A., MYAE, B. A., NAUMOV, A. A., PISAREVSKIY, V. YE., ROGOZINSKIY, V. G., TUSHABRAMISHVILI, K. Z., SHUKEYLO, I. A., BOYKO, S. N., KOMAR, YE. G., MALYSHEV, I. F., MOZIN, I. V., MONOSZON, N. A., MCZALEVSKIY, I. A., SPEVAKOVA, F. M., STOLOV, A. M., TITOV, V. A., VODOP'YANOV, F. A., KUZ'MIN, A. A., KUZ'MIN, V. F., MINTS, A. L., RUBCHINSKIY, S. M., UVAROV, V. A., GUTNER, B. M., ZALMANZON, V. B., PROKOP'YEV, A. I., and TEMKIN, A. S.

"Some Results of the Overall Adjustment and Start-up of the 70-GeV Proton Synchrotron of the Institute of High-energy Physics"

Moscow, Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

Abstract: The physical part of the plan for the 70-GeV proton synchrotron was executed by the Institute of Theoretical and Experimental Physics. The electromagnet with feed system, the vacuum chamber, and the injection devices were developed at the Scientific Research Institute of Electrophysical Apparatus imeni D. V. Yefremov. The radio-electronic systems for acceleration process control and generation of

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ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

the accelerating field, as well as the radiotechnical measurement and beam observation systems, were developed by the Radiotechnical Institute of the Academy of Sciences USSR. "Tyazhpromelektroproyekt" [State Planning Institute for the Planning of Electrical Equipment for Heavy Industry] designed the general-purpose electrotechnical devices and cable connections. The plan for the construction complex of the accelerator was developed by the State All-Union Planning Institute. The construction of the accelerator was under the general supervision of the State Committee for the Use of Atomic Energy USSR. The adjustment of individual systems and the overall adjustment and start-up of the accelerator were carried out by the Institute of High-energy Physics and the developers of the accelerator systems. The basic beam work was done by the Institute of High-energy Physics with the participation of the Radiotechnical Institute. The construction of the accelerator was begun in 1960, and all the basic construction and assembly work was completed at the beginning of

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1967. At the initial stage of construction, before the formation of the Institute of High-energy Physics in 1963, the work was coordinated by the Institute of Theoretical and Experimental Physics. The linear accelerator injector was started on 28 July 1967, the operation of the individual systems was adjusted by September 1967, and the physical start-up of the accelerator was accomplished on 14 October.

A description is given of the work done to adjust the annular electromagnet (including the electromagnet cooling and feed systems), the injection system (consisting of matching channel and injection device), the vacuum system, the radioelectronic system (including the accelerating field generation system, the acceleration process control system, and the radiotechnical measurement system), and the beam observation system (which provides for beam observation in the first revolution and during acceleration). In the physical start-up of the accelerator the main efforts were directed towards obtaining accelerated protons of the planned energy, and the problem of obtaining high

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ADO, YU. M., et al., Atomnaya Energiya, Vol 28, No 2, Feb 70, pp 132-138

intensity of the accelerated proton was not raised.

The article gives a listing of the principal parameters of the proton synchrotron, as well as a schedule of the individual stages of the start-up of the accelerator. Photographs include a view of the part of the ring hall in the beam injection area and a general view of the hall of ignitron rectifiers.

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UNCLASSIFIED
TITLE--EXPERIMENTAL DETERMINATION OF THE HEAT OF FORMATION OF IRIIDIUM, IV,
HYDROXIDE -U-
AUTHOR--(U4)-LESHCH, I.YU., SHNEYERSON, YA.M., RUBEL, I.G., FRUMINA, L.M.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(6), 1695-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HEAT OF FORMATION, CALORIMETRY, IRIIDIUM COMPOUND, HYDROXIDE,
CHLORIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1405
CIRC ACCESSION NO--AP0135079
STEP NO--UK/0078/70/015/006/1695/1696
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135079

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

ABSTRACT.

AT 17-21DEGREES, THE HEAT OF

FORMATION OF IR(OH) SUB4 FROM (IRCL SUB6) PRIME2NEGATIVE SUB(AQ) AND 4OH

PRIMENEGATIVE SUB(AQ) IS MINUS 177.3 KCAL-MOLE.

UNCLASSIFIED

Physiology

USSR

UDC 591.105+612.8.015+612.822.1

IVANOVA, T. N., and RUBEL', I. N., Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad

"Pyridine Nucleotides of the Cerebral Hemispheres in Rats Under the Influence of Hyperoxia"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 240-242

Abstract: The effect of hyperoxia on the content of four forms of pyridine nucleotides NAD, NADH, NADP, and NADPH, was studied in the brain tissue of rats under conditions of hyperoxia. Also the role played by hyperoxia in the development of epileptiform spasms as pressure begins to exceed 4-5 abs. atm. was studied. Westar rats were sacrificed by immersion in liquid oxygen. The cerebral hemispheres were rapidly excised and reduced by trituration in liquid oxygen to a fine powder. A preparation containing 400-500 mg of the tissue extract with 10% trichloroacetic acid in 0.005 M solution of ethylenediamine tetraacetate was used to determine the content of oxidized NAD and NADP in brain tissue, while an alkaline preparation also containing 400-500 mg of brain tissue extract was used to determine the tissue content of NADH and NADPH. The oxidized and reduced forms of the pyridine nucleotides were determined by utilizing the highly sensitive enzymatic method of Slater and

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IVANOVA, T. N., et al, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 240-242

associates, with modifications related to the method of tissue extract derivation. Studies showed that during hyperoxia, at a pressure of 7 abs. atm., the NAD content in brain tissues increases by about 20%, with a corresponding decrease in NADH content. No shifts occur in tissue content of NADP, although a slight decrease in the content of NADPH is noted. No explanation for the development of spasmodic conditions in hyperoxia can as yet be provided.

RUBEN, Yu. YA.

LASSR
COUNCIL OF
Ministers

LATVIAN PUBLISHER ADDRESSES JOINT SESSION OF ACADEMIES IN RIGA

Speech by Yu. Ya. Ruben, Chairman of Latvian SSR Council of Ministers,
Moscow, Central Press, Meditsinskii Nauch SSR, Russian, No 4, 1972, pp 2-4

Joint Session of General Meetings of the USSR Academy of Medical Sciences and
the Academy of Pedagogical Sciences with the Latvian SSR Academy of Health and
Education

Dear comrades:

Today the representatives of two All-Union academies, of medical and
pedagogic sciences, have gathered in this auditorium.

On behalf of the Central Committee of the Latvian Communist Party and
government, on behalf of our entire community, we are happy to welcome such
a representative scientific forum.

The fact that representatives of two sciences, pedagogy and medicine,
have gathered in one hall, around the scientific "round table" is indicative of
the urgency of the theoretical and practical problems united under the General
heading of "Health and the Schools."

Implementation of nationwide secondary education, as outlined by the
24th Congress of the CPSU, endorses the Soviet people with special tasks.
In the not too distant future the boys and girls who are starting school now
will have to further develop the nation's economy and culture. This in the
literature, viable, and well developed. And, of course, it must be healthy.
that the organism is formed. Precisely during school years man acquires the
basic sense of morality that will have to serve him for his entire life.

One of the complex and important tasks of the current five-year period
is to rear a comprehensively developed, mentally and physically healthy genera-
tion. This task cannot be divided, filed on two shelves, with health on one

* Proceedings of the session are to be published in Nos 4 and 5 of this
Journal.

1/2 019
UNCLASSIFIED
TITLE--SWELLING AND ATPASE ACTIVITY OF LIVER MITOCHONDRIA OF RATS FED
DIFFERENT HEPATIC CARCINOGENS -U-
AUTHOR--(C2)--RUBENCHIK, B.L., GORDAN, G.P.
PROCESSING DATE--20NOV70
COUNTRY OF INFO--USSR
SOURCE--TSITGLCGIYA 1970, 12(5), 678-81
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CARCINOGEN, LIVER, MITOCHONDRIUM, RAT, ENZYME ACTIVITY
CENTRAL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0275
CIRC ACCESSION NO--AP0134080
STEP NO--UR/9053/70/012/005/0678/0681
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NG--AP0134080

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

ABSTRACT. RATS GIVEN DIETS CONTG.
P-DIMETHYLAMINOAZOBENZENE, THIOACETAMIDE, OR MONURON FOR 24 WEEKS
DEVELOPED LIVER MITOCHONDRIA WHICH SWELLED LESS THAN DID NORMAL
MITOCHONDRIA WHEN SUSPENDED IN BUFFER. MITOCHONDRIA WHICH SHOWED A
SMALL DECREASE IN SWELLING HAD GREATER THAN NORMAL ATPASE ACTIVITY,
WHILE THOSE WITH A LARGE DECREASE IN SWELLING HAD DECREASED ATPASE
ACTIVITY. THE ATPASE OF GREATER THAN NORMAL ACTIVITY WAS RELATIVELY
INSENSITIVE TO IS ACTIVATION BY MG PRIME POSITIVE AND CA PRIME
POSITIVE POSITIVE. FACILITY: LAB. CARCINOGENIC SUBST., INST.
NUTR. HYG., KIEV, USSR.

UNCLASSIFIED

AA0038357 R

Rubenchik, I.
UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

239707 ANABAENA VARIABILIS K-1 is a new more effective strain of blue-green algae *Anabaena variabilis* which fix atmospheric nitrogen. When cultured in a nutrient medium not containing nitrogen, the strain K-1 can fix up to 11 mg of nitrogen per litre in a dry, (compared with 4.4 mg/l day of other strains of this species) the strain K-1 was found in the river Uzh in Zhitomir district. Barrel-like grainy cells have a width of 4.2 - 5 μ and a length of 2.8-6.3 μ . Oval spores are associated with heterocysts. Blue-green colours accumulate on the surface of the medium. The strain can be cultivated under stationary

aerobic conditions or with forced supply of air enriched in CO₂. In the first case the pH changes from 6.5 to 9, in the second from 6.5 to 7.0. The optimum temp. is 33-35°C. A suitable liquid

19731485

AA0038357

medium contains (in mg./ml): KH_2PO_4 20, MgSO_4 50, FeSO_4 10, triton B 16, CaCO_3 750 and minor amounts of micronutrients including $\text{Ca}(\text{NO}_3)_2$, CuSO_4 , ZnSO_4 , MnSO_4 , H_2SO_4 and ammonium molybdate. A wide range of amino acids are produced, including cysteine, lysine, glutidine, arginine, etc. The cultivation can be carried out in enclosed systems or as "green fertiliser" in rice fields. 23.2.67. as 1139173/30-15, RUBENCHIK, L.I. et al. (11.8.69) Bul. 11/18.3.69. Class 45f, Int. Cl. A 01g. |

LD

AUTHORS: Rubenchik, L. I.; Kordyum, V. A.; Smirnova, R. N.;
Zharova, L. G.; Kosenko, L. V.; Ratushnaya, M. Ya.;
Kirillova, V. S.

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19731486

USSR

RUBENCHIK, YU.I., KROSHKIN, V.A., MEDINSKAYA, I.P., PROLOV, O.F., ZHERDEV, A.V.,
and VAYNTRAUB, S.S., VNIIPKhimnefteapparatury and Kommunarsk Metallurgical
Plant

"High-Strength Sheet Steel 10G2FR"

Moscow, Metallurg, No 8, Aug 71, pp 25-26

Abstract: On the basis of investigating 09G2S and 16GS low-alloy steels, melted in 100-kg induction and 3-ton electric furnaces, the optimum composition of 10G2FR steel was established. At the Kommunarsk Metallurgical Plant two heats were melted in 300-ton open-hearth furnaces by conventional technology and deoxidized with ferrosilicon, silicomanganese, and aluminum. The resulting slabs were rolled into sheet and the mechanical properties of the sheet were determined. Then the sheet was heat treated by heating to 930-950°C water quenching, and tempering at 660°C. In all cases the heat-treated sheet exhibited much greater mechanical properties for all thicknesses tested than were shown by the steel in the hot-rolled state. It was found that 10G2FR steel also possesses good weldability without pre-heating. At the Volgograd Petroleum Equipment Plant imeni Petrov the first batch of fabricated vessels were made of 10G2FR steel and are designated to be used under pressures of 8-55 kg/cm² at temperature down to -40°C.

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1/2 025 UNCLASSIFIED
TITLE--VACUUM CASTING OF MOLTEN METAL -U- PROCESSING DATE--27NOV70
AUTHOR--(02)-LEBEDEV, V.N., RUBENCHIK, YU.I. *R*
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 262, 922
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE, ZNAKI 1970,
DATE PUBLISHED--04FEB70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--VACUUM CASTING, LIQUID METAL, METALLURGIC PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1046 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0130081
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0130081

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO DECREASE THE H CONTENT IN THE
METAL DURING VACUUM CASTING, FERROCERIUM (MISCH METAL) WAS ADDED.
FACILITY: BARRIKADY DRILLING EQUIPMENT PLANT.

UNCLASSIFIED

USSR

UDC 620.164.1:669.13.74.250-100

R
RUBENCHIK, Yu. I., KROSHKIN, V. A., MEDINSKAYA, I. P., ZHERENIN, A. V., VYKHODTSEV, S. S., and SUKHOMLINNA, A. G., VNIIPKhimnefteapparatury [Expansion unknown], Kommunarsk Metallurgical Plant

"Work Hardening of 10G2FR Plate Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, Nov 79, pp 55-57

Abstract: A study was made of the effect of thermal hardening and hot rolling of 10G2FR plate steel on its mechanical properties. In the thermally work hardened state at elevated temperatures the tensile strength of 10G2FR steel does not change up to 400° C, but thereafter decreases drastically, so that at 450° C the thermally work hardened metal does not differ from the hot rolled one. The mechanical properties of 10G2FR steel of different thickness in the hot rolled and thermally work hardened states are presented. Use of rare earth metals make it possible to produce a sulfurless metal with a uniform distribution of segregated units along the plate section, ensuring sufficient ductility and strength of the metal when it is made into plates of different thickness.

1/1

USSR

UDC 621.791.927.019:621.984

LAMZIN, A. G., and RUBENCHUK, YU. I.,

"Wear Mechanism of Deposited Metal With Different Structure Under Thermal Shocks"

Kiev, Avtomaticheskaya Svarka, No 3, Mar 71, pp 40-42

Abstract: The wear mechanism of the surface of deposited metal operating under conditions of the simultaneous effect of significant specific pressures, friction, and alternating heat and cold was studied. Deposited metal types 3Kh2V8, 4Kh4V3F, U10Kh15M, 1Kh18N10T, and U25Kh7RT were selected for the study. Comparative tests were made for thermal fatigue strength, hot hardness, and frictional wear at increased temperature. A schematic is presented for the wear mechanism of an operating surface of deposited metal type 3Kh2V8 and U10Kh15M under thermal shocks and friction. Of the two investigated steels of the martensitic-carbide class with close values of hot hardness, the U10Kh15M type metal had higher frictional wear resistance during alternating hot and cold. This metal has a clearly expressed heterogeneous structure.

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- 79 -

USSR

UDC 621.357.7:669.265'74

AGLADZE, R. I., GVELESIANI, DZH. F., RUBESH, L. L.

"Joint Electrodeposition of Chromium and Manganese"

O sovmetnom elektroosazhdenii khroma i margantsa (Joint Electrodeposition of Chromium and Manganese), Institute of Inorganic Chemistry and Electrochemistry of the Georgian SSR Academy of Sciences, Tbilisi, 1971, 8 pp, a bibliography with 7 entries, No 3613-71 Dep. (from RZh-Khimiya, No 6 (II), Jun 72, Abstract No 6L312 Dep.)

Translation: A study was made of electrodeposition of thick deposits of Cr-Mn alloy from sulfate and chromate electrolytes. It is demonstrated that on introduction of $MnSO_4$ into the sulfate or chromate electrolyte, the codeposition of Mn is directly proportional to the concentration of the Mn ions in the electrolyte. Its maximum content in the alloy reaching 5% is limited by the solubility of $MnSO_4$ in the electrolyte. With an increase in D_c to 30 a/dm^2 , the Mn content in the alloy increases to 10%. The alcohol solubility of the VT alloy is 35%. It is demonstrated that the chromate electrolytes with the addition of potassium permanganate also insure a chromium-manganese alloy; however, they are not suitable for the deposition of thick deposits as a result of intense destruction of potassium permanganate in the electrolysis.

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USSR

AGLADZE, R. I., et al., O sovmeštnom elektroosazhdenii khroma i margantsa, Institute of Inorganic Chemistry and Electrochemistry of the Georgian SSR Academy of Sciences, Tbilisi, 1971, 8 pp, a bibliography with 7 entries, No 3613-71 Dep.

The sulfate electrolytes are less convenient for obtaining high-quality galvanic coatings of Cr-Mn alloy. It is more convenient to use chromate electrolytes with KMnO_4 added.

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1/2 011
UNCLASSIFIED
PROCESSING DATE--04DEC70
TITLE--ONE PRINCIPLE OF FORMATION OF CHEMICAL COMPOSITION OF NATURAL
WATERS IN THE UPPER PART OF THE SUPERGENE ZONE IN MOUNTAIN FOLDED
AUTHOR--(02)--KOLOTOV, B.A., RUBENKIN, V.Z.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKADE. NAUK SSSR 1970, 191(5), 1149-50
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--GEOCHEMISTRY, METAL ORE, GROUND WATER, NORMAL WATER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0163
CIRC ACCESSION NO--AT0132443
STEP NO--UR/0020/70/191/005/1149/1150
UNCLASSIFIED

2/2 011

CIRC ACCESSION NO--AT0132443

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PERUSAL OF 10,000 ANALYSES OF WATER SAMPLES, TAKEN DURING EXPLORATION FROM SPRINGS, BROOKS, DRILL HOLES, AND MINE WORKS IN THE MARITIME TERRITORY, DETECTED THE FOLLOWING CHARACTER OF CHEM. COMPN. OF THESE WATERS: THE CONCNS. OF A LARGE GROUP OF ELEMENTS, PRESENT IN WATERS FROM UPPER PARTS OF THE SUPERGENE ZONE, HAVE A CONST., DIRECTLY PROPORTIONAL, MUTUAL DEPENDENCE. THIS IS ESP. CLEAR FOR THE AL AND TI AND THE AL, TI, V, ZR, CR, AND GA GROUPS AND SOMEWHAT RARER FOR THE BE, MN, RARE EARTHS, AND B GROUP. A DEFINITE CONCNS. OF ONE OF THESE ELEMENTS IN THE AREAS SITUATED UNDER RELATIVELY SIMILAR NATURAL CONDITIONS CORRESPONDS, AS A RULE, TO DEFINITE CONCNS. OF OTHER ELEMENTS OF THE SAME GROUP. A SIMILAR DEPENDENCE WAS OBSD. FOR THE SAME ELEMENTS IN SOME AREAS OF PAMIR AND TIEN-SHAN. THEREFORE, THIS REGULARITY HAS A GENERAL CHARACTER APPLICABLE TO ALL MOUNTAIN TERRITORIES WITH HUMID CLIMATE. THIS SUGGESTS USING THE HYDROCHEM. DATA TO SOLVE SOME MAPPING PROBLEMS (MAPPING OF AREAS WITH INTRUSIVE BODIES OF DIFFERENT COMPN. AND GENESIS AND ZONES OF LARGE REGIONAL FRACTURES (TECTONIC FUNCTIONS)) AND TO DET. THE SPECIALIZATION OF INTRUSIVE COMPLEXES. IT SHOULD BE USED WIDELY FOR INTERPRETATING THE RESULTS OF HYDROCHEM. SURVEYS SUCH AS SEPN. OF ORE ANOMALIES FROM ORE FREE DEPOSITS AND COMPILING PROGNOSTICATION HYDROGEOCHEM. MAPS.

UNCLASSIFIED

172 016
UNCLASSIFIED
TITLE--FORMATION OF THE CHEMICAL CONSTITUTION OF ATMOSPHERIC PRECIPITATION
-U-
AUTHOR--RUBEYKIN, V.Z.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKADE. NAUK SSSR 1970, 191(4), 931-4
DATE PUBLISHED--70
SUBJECT AREAS--ATMOSPHERIC SCIENCES
TOPIC TAGS--ATMOSPHERIC PRECIPITATION, ATMOSPHERIC WIND, DUST, CHEMICAL
COMPOSITION, SALT, MINERAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/0299
CIRC ACCESSION NO--AT0127882
STEP NO--UR/0020/70/191/004/0931/0934
UNCLASSIFIED

2/2 016

CIRC ACCESSION NO--AT0127882

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DELIVERY INTO THE ATM. BY WIND OF DUST FROM CONTINENTS AND SALTS FROM THE SURFACES OF SEAS AND OCEANS, VOLCANIC ACTIVITY, AND CONTAMINATION OF THE ATM. BY INDUSTRIAL WASTES ARE THE MAIN PROCESSES CONTROLLING THE CHEM. COMPN. OF ATM. PPTN. DEPENDING ON THE GEOGRAPHICAL CONDITIONS OF THE TERRITORY, THE EFFECT OF ONE OF 2 PRIMARY PROCESSES OCCURS WITH DIFFERENT INTENSITY. A LARGE PART OF THE USSR TERRITORY HAS CLIMATIC AND LANDSCAPE GEOGRAPHICAL CONDITIONS WHICH LIMIT THE EFFECT OF THESE 2 PROCESSES. BUT EVEN IN THIS CASE, THE EFFECT OF DUST CONTAMINATION OF THE ATM. AND THE DELIVERY OF SALTS FROM THE SURFACE WATER BASIN CANNOT BE ENTIRELY NEGLECTED. ACCORDING TO H. YUNGE (1965), THE TOTAL MINERAL CONTENT OF ATM. PPTNS. IS A RESULT OF INTRACLOUD WASHING OUT OF SUBSTANCES (CONCN. K SUB1) AND LEACHING OF SUBSTANCES FROM ATM. AIR DURING MOVEMENT OF PPTNS. FROM CLOUDS TO THE SURFACE OF THE EARTH (CONCN. K SUB2). THE CONCN. K SUB3, WHICH FORMED BY WASHING OUT OF THE SUBSTANCE WITHIN THE NEAR SURFACE GAS VAPOR SHELL SHOULD BE ADDED TO THE YUNGE SCHEME. THEREFORE, THE TOTAL MINERAL CONTENT OF ATM. PPTNS. (M) IS THE SUM OF 3 COMPONENTS: M EQUALS K SUB1 PLUS K SUB2 PLUS K SUB3. DEPENDING ON THE GEOGRAPHICAL POSITION, THE VALUE OF EACH COMPONENT CHANGES. E.G., IN DESERT AND SEMIDESERT AREAS OF CENTRAL ASIA THE TOTAL MINERAL CONTENT OF ATM. PPTNS. IS CONTROLLED MOSTLY BY THE K SUB2, IN CENTRAL TAIGA AREAS OF EASTERN SIBERIA BY K SUB3, AND IN PAMIR AND TIEN-SHAN AREAS AT ALTITUDES GREATER THAN 3000 M BY K SUB1. THE RELATIVE AMTS. OF THESE COMPONENTS CONTROL PROBABLY BOTH THE TOTAL MINERAL CONTENT AND THE CHEM. COMPN. OF ATM. WATERS.

UNCLASSIFIED

USSR

UDC: 617-001.17-022.08

RUBEZHANSKIY, Yu. A., and ASLAMOV, A. S., General Surgical Clinic,
Tselinograd Medical Institute

"Complications of a Thermal Burn by Anaerobic Infection"

Leningrad, Vestnik Khirurgii imeni I. I. Grekova, Vol 106, No 4, Apr 71,
pp 111-112

Abstract: A patient was brought in with third and fourth-degree burns over the left arm and the left half of the abdomen, a total of 26% of the body surface. He was brought out of shock after two days and taken to the clinic by airplane in serious condition. Anaerobic infection was suspected but no bacteriological tests were made, which is regrettable. The patient was treated by removal of the necrotic tissue and by transfusion of antigangrene serum, blood and protein blood substitutes. In the course of three months, five skin grafts were done as the wound cleansed itself of necrotic tissue. In all, 1,350 square centimeters were grafted. At the beginning of the treatment the arm was amputated at the shoulder and toward the end the ribs were trepanned. At the time of discharge the scar was entirely covered by epithelium.

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USSR

UDC 519.24

ANTOSHIN, V. A., RUBICHEV, N. A.

"Estimating the Error in Measurement of a Univariate Distribution Due to Instability of the Random Process Being Studied"

Metody Predstavleniya i Apparatury Analiz Sluchayn. Protsessov i Poley. 3-y vses Simpozium. Sekts. 3, [Methods of Representation and Hardware Analysis of Random Processes and Fields. Third All-Union Symposium, Section 3--Collection of Works], Leningrad, 1970, pp 44-47, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V191 by G. Semenov).

Translation: A method is studied of experimental determination of the stationary model $p(x)$ of an unstable univariate distribution $p(x, t)$ with respect to one realization $v(t)$ of ergodic process $N(t)$. The function $p(x)$ is selected from the condition of achievement of the maximum time-averaged measurement of distance d between distribution rules $p(x, t)$ and $p(x)$:

$$\beta = \min_{\tilde{p}(x)} \frac{1}{T} \int_0^T d(p(x, t), \tilde{p}(x)) dt.$$

The value of β determines the quantitative measure of instability of process $N(t)$. Considering the systematic error of the statistical analyzer of the distribution ϵ_n , the total uncertainty of the result of measurement of ϵ are characterized by $\epsilon \leq (\epsilon_n + \beta)$. In order to illustrate the results produced,

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USSR

ANTOSHIN, V. A., RUBICHEV, N. A., Metody Predstavleniya i Apparatur' Analiz Sluchayn. Protssessov i Poley. 3-y vses Simpozium. Sekts. 3, Leningrad, 1970, pp 44-47.

UDC 519.24

examples are studied of determining stationary estimates for the unstationary even distribution rule and unstationary normal rule in various metrics.

2/2

- 21 -

Acc. Nr.: AP0046493

Ref. Code: UR0115

USSR

RUBICHEV, N. A.

UDC 621.391.83

"A Single Method for Analysis of Real Signal Distortions"

Moscow, Izmeritel'naya Tekhnika (Measurement Technology), No 1, 1970, pp 17-19

Translation: A study was made of a method for analysis of real signal distortions based on the comparison of output signals of real and ideal systems enabling the consideration of transmitted signal properties. (11 bibliog. ref.)

Reel/Frame
19781746

USSR

UDC 576.858.9

GAL'VYDIS, Y. Yu., RUBIKAS, L. P., and GIRDZIYAUSKAS, V. I., Institute of Biochemistry, Academy of Sciences Lithuanian SSR

"Action of Alkylating Compounds on Bacteriophages in Vitro"

Vil'nyus, Trudy Akademii Nauk Litovskoy SSR, Seriya Biologicheskaya, No 1, 1970, pp 15-23

Abstract: In vitro bacteriophages (T4, T40₃, C_d, lambda) were subjected to the mutagenic and inactivating action of 16 bifunctional alkylating compounds of the di(2-chloroethyl)amine type with various substituents. In all of the experiments, 0.005M concentrations of the compounds were used. Survival of the bacteriophages was reduced to 1% by all compounds. Bacteriophage lambda was most unstable with respect to the compounds studied. The effects of the various substituents in the compounds were compared. The hydrolysis rate of the Cl atom in some of the compounds could not be related to the toxicity of these compounds.

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USSR

UDC 577.158

GRIGOROV, L. N., ZHIVOTCHENKO, V. D., REMENNIKOV, S. M., RUBIN, L. B., and
~~RUBIN, A. B.~~ Biology Soil Faculty, Moscow State University and Physico-
technical Institute, Moscow

"Oxidation of *Ectothiorhodospira shaposhnikovii* Cytochromes Induced by Ruby
Laser Flashes"

Moscow, *Molekulyarnaya Biologiya*, No 5, 1971, pp 744-752

Abstract: Description of a differential spectrophotometer in which pulsed
light from a ruby laser can excite photochemical or photobiological objects.
The sensitivity of the device is about 10^{-4} units of optical density with a
time resolution of about 10^{-7} sec. This device was used to study the oxida-
tion of *Ectothiorhodospira shaposhnikovii* cytochrome C induced by a ruby laser
25 nanosecond flashes. Under aerobic conditions the kinetics of the oxida-
tion process was exponential, whereas under anaerobic conditions it was the
sum of two exponential components. Under both conditions complete oxidation
of the cytochromes required at least two successive laser flashes at intervals
of $3 \cdot 10^{-4}$ sec.

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USSR

UDC 576.8.093

KAUROV, B. S., PLATONENKOVA, L. S., ZHARIKOVA, G. G., and RUBIN, A. B.,
Moscow State University

"Study of Low-Intensity Luminescence of Some Microorganisms"

Moscow, Biologicheskiye Nauki, No 7, 1971, pp 102-105

Abstract: Luminescence was studied in a wide variety of bacteria: those capable of growing through fermentation or respiration, obligate and facultative aerobes and anaerobes, containing and not containing cytochromes, e.g., *Clostridium butyricum*, *Pseudomonas aeruginosa*, *Ps. fluorescens*, *Bacillus subtilis*, and others. Spontaneous luminescence was observed only in *B. brevis* var. G. B. R, S, P⁺, and P⁻ forms, *B. subtilis*, *B. cereus*, *B. mycoides*, *B. mesentericus*, *B. megatherium*, and *E. coli*, i.e., aerobes that contain cytochromes and are ammonifiers. The intensity of luminescence is 110 imp/sec. The luminescence lies in the region of 420 to 520 nit with a peak at 480 nit. The culture fluid (centrifugate) is responsible for the phenomenon rather than the cells.

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USSR

TIMOFEYEV, K. N. and RUBIN, A. B., Soil Biology Faculty, Moscow State University

"Kinetics of the Photoinduced ESR Signal of the Photosynthesizing Bacterium Rhodospirillum Rubrum"

Moscow, Biofizika, No 1, 1971, pp 348-350

Abstract: The kinetics of intensification of the photoinduced ESR signal of Rhodospirillum rubrum was found to be two-phase: a rapid reaction immediately after the light was switched on, followed by slow intensification of the signal until a stationary value was achieved. A marked induction peak was observed in some cultures after the light was switched on. Sometimes the rapid component of signal intensification was absent or insignificant if the culture was kept for some time in the dark. If the dark interval between successive illuminations was decreased, the time required for the photo-induced signal to reach a stationary value also decreased. No induction effects were observed if oxygen was bubbled through the culture before measurement of the signal or if the culture was exposed to air for some time. It was concluded that the oxidized products of bacterial chlorophyll in response to light may react with the reducing agents that accumulate in the cells in the dark.

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Biochemistry

USSR

RUBIN, A. B. and SAMUILOV, V. D.

"The First All-Union Symposium on Problems in Biophotochemistry"
Moscow, Uspekhi Sovremennoy Biologii, Vol 71, No 1, 1971,
pp 151-158

Abstract: The First All-Union Symposium on Problems in Biophotochemistry took place in Moscow in June 1970. It was organized by the USSR Ministry of Higher and Secondary Special Education, the Moscow State University Interdepartmental Coordination Council on Problems in Biophotonics, and the Moscow Society of Naturalists. The basic topic of the symposium was excitation states and electron transfer in photosynthesis and in photochemical processes. Papers of a descriptive and synopsis nature were presented on the following basic problems: energy migration mechanisms; migration of the energy of electron excitation states over pigment compounds during photosynthesis; photochemical reaction centers; energy transformation mechanisms; electron transfer and associated processes during photosynthesis and in

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USSR

RUBIN, A. B. and SAMUILOV, V. D., Uspekhi Sovremennoy Biologii,
Vol 71, No 1, 1971, pp 151-158

photochemical systems; and photochemical processes during laser excitation. The discussion that followed the presentations enabled the scientists to outline the basic trends and growth prospects in biophotochemical research. It was also a good opportunity to revive old and establish new contacts among the various institutions.

2/2

UNCLASSIFIED
TITLE--MATHEMATICAL MODELING OF ELECTRON TRANSPORT DURING PHOTOSYNTHESIS
ACCOMPANIED BY CHEMILUMINESCENCE -U-
AUTHOR--(02)-PYTYEVA, N.F., RUBIN, A.B.
PROCESSING DATE--23OCT70
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, BIOFIZIKA, NO 1, 1970, PP 47-52
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PLANT PHYSIOLOGY, LUMINESCENCE, ELECTRON ACCEPTOR,
PHOTOSYNTHESIS, MATHEMATIC MODEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0839
CIRC ACCESSION NO--AP0121471
STEP NO--UR/0217/70/000/001/0047/0052
UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--AP0121471

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REGIONS OF POSSIBLE VALUES OF RATE CONSTANTS AND INITIAL CONCENTRATIONS ARE DETERMINED FROM EXPERIMENTAL CURVES REFLECTING THE EXTINCTION OF THE PERSISTENT AFTERGLOW OF GREEN LEAVES. IT IS AT THESE VALUES THAT THE TIME DEPENDENCE OF THE SOLUTION RESPONSIBLE FOR THE LUMINESCENCE AGREES WITH THE EXPERIMENTAL DATA. THE RELATIONSHIP BETWEEN THE NATURE OF THIS SOLUTION AND THE INITIAL CONCENTRATIONS IS INVESTIGATED. THE EXISTENCE OF ELECTRON POOLS IN THE PHOTOSYNTHESIS CHAIN IS SHOWN TO BE ESSENTIAL AS A MEANS OF INCREASING THE STABILITY AND RELIABILITY OF THE ELECTRON TRANSPORT SYSTEM.

FACILITY: MOSCOW STATE UNIVERSITY IMENI M. V. LOMONOSOV.

UNCLASSIFIED

USSR

R
PYT'YEVA, N. F. and RUBIN, A. B., Soil-Biology Faculty, Moscow State University
imeni M. V. Lomonosov

"Mathematical Modeling of Electron Transport During Photosynthesis Accompanied
by Chemiluminescence"

Moscow, Biofizika, No 1, 1970, pp 47-52

Abstract: The regions of possible values of rate constants and initial concentrations are determined from experimental curves reflecting the extinction of the persistent afterglow of green leaves. It is at these values that the time dependence of the solution responsible for the luminescence agrees with the experimental data. The relationship between the nature of this solution and the initial concentrations is investigated. The existence of electron pools in the photosynthesis chain is shown to be essential as a means of increasing the stability and reliability of the electron transport system.

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UDC 581.192.08

USSR

LADYGINA, M. YE., and RUBIN, A. B.

"A Bioluminescent Method for Quantitative Determinations of the Various Components of the Adenyl System"

Moscow, Biofizicheskiye Metody v Fiziologii Rasteniy, Nauka, 1971, pp 72-84

Translation of Russian Abstract: A bioluminescent method of determining ATP in biological objects is described in detail, including the possibility of using the method for determining other components of the adenyl system (ADP and AMP) and some enzymes: apirase, creatine adenyl transphosphorylase, and so on.

The equipment setup of the bioluminescent method ("ATP-meter") is described in detail, a block outline is presented, and the advantages of the setup used in this study are pointed out.

The strong and weak points of the method and its advantages over other methods of determining the component of the adenyl system are described.

The method operates on the principle that the isolated luciferin-luciferase system (usually obtained from the luminary *Luciola mingrelica*) is mixed with a certain amount of the medium to be tested, and the ATP concentration in the mixture is determined according to the intensity of the ensuing luminescence absorbed by a photoelectron multiplier (PEM). The signal from

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USSR

LADYGINA, M. YE., and RUBIN, A. B., *Biofizicheskiye Metody v Fiziologii*
Rasteniy, Nauka, 1971, pp 72-84

the PEM, which is amplified by means of a special USh-2 amplifier and conducted to a measuring instrument, is recorded by an automatic electronic potentiometer (type EPP-09). The instrument is calibrated with a pure ATP solution of known concentration.

The bioluminescent method is highly sensitive, accurate, and fast, and it constitutes a reliable method for a differential determination of the various components of the adenyl system jointly present in a sample.

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- 127 -

USSR

UDC: None

CHKALOVA, V. P., RUBIN, A. L., PAKHOMOV, V. G., and POPOVICH, B. D.

"Electromagnetic Phase Method of Controlling the Thickness of
Nonmagnetic Conducting Coatings on a Ferromagnetic Base"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye
znaki, No 12, 1973, p 113, No 371413

Abstract: In this device, eddy currents are excited in the specimen
and the thickness of the latter's coating is obtained from the
phase of the voltage induced. A special choice of the exciting
transmitter's frequency and of the current frequency improves the
accuracy of the device and enables the operator to dispense with
a standard.

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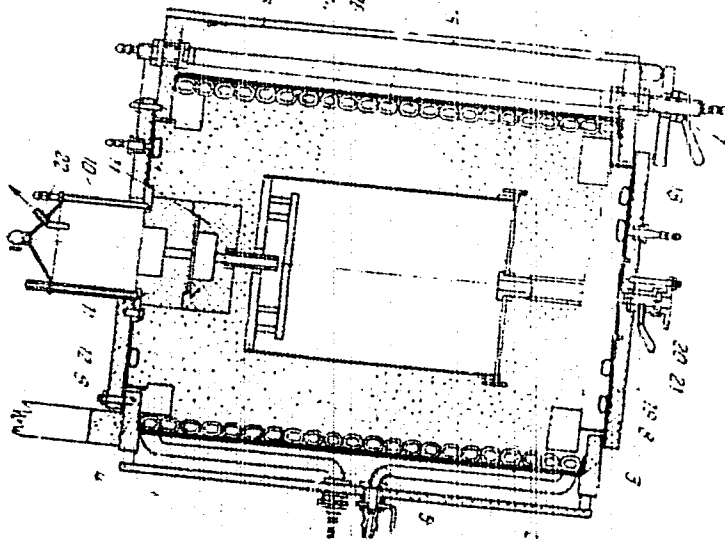
Soviet Inventions Illustrated, Section I Chemical, Derwent, -
3/70

238049. WELDING TRACTOR corrects the position of the electrode 19 relative to weld 20 at the same time as steering wheels 4 are directed into a new position because the electrode holder is directly attached to a toothed rack 9 which actuates through a quadrant 14 and a linkage, the front steering wheels. 31.5.67. as 1161173/25-27. S.M. GOLOSHCHAPOV et al. (4.7.69.) Bul.9/20.2.69. Class 21h. Int.Cl. B23k.

AUTHORS: Goloshchapov, S. M.; Ionchenkov, V. A.; and Rubin. A. Ya.

19741189

AA0039828



19741190

USSR

UDC 621.372.832.43(088.8)

MERKIN, E. I., MILEVSKIY, N. P., and RUBIN, A. YE.

"A Resonant Ferrite Isolator"

USSR Author's Certificate No 281579, filed 28 Feb 69, published 30 Nov 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B186 P)

Translation: The proposed resonant ferrite isolator contains a strip line with polarizing loops. To reduce direct losses, the central conductor of the line at the point of connection of the loops is made with open holes.

USSR

UDC 632.4.01/.09

RUBIN, B. A., MARKAROVA, Ye. N., and VESELOVSKIY, V. A., Moscow State University

"Effect of Different Strains of the Fungus *Fusarium oxysporum vasinfectum* on the Ultraweak Luminescence of Cotton Roots"

Moscow, Sel'skokhozyaystvennaya Biologiya, No 5, 1971, pp 719-723

Abstract: The avirulent strain (No 61) of a monosporous culture of *Fusarium oxysporum vasinfectum* possesses more noticeable ultraweak luminescence than do virulent strains (Nos 15 and 54) of the same fungus. The intensity of luminescence of an aqueous extract from the mycelium of No 61 is five times greater than that of mycelium from either of the pathogenic strains. However, the normal ultraweak luminescence of cotton roots is stimulated only by treating them with aqueous extracts from the pathogenic strains. The degree of stimulation of luminescence generally varies with the concentration of the extract. This effect of the virulent strains is regarded as a manifestation of the influence of the pathogens on the host plant's metabolism.

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Plant Pathology

USSR

UDC 632.4:633.11+633.16

RUBIN, B. A., and YURINA, YE. V., Moscow State University

"Changes in the Enzyme System of Puccinia graminis Under the Influence of the Plant Host"

Moscow, Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokhozyaystvennykh Nauk imeni V. I. Lenin, No 4, 1971, pp 2-5

Abstract: The purpose of the work was to study changes in the catalytic properties of peroxidase in the uredospores of Puccinia graminis grown on five wheat varieties and one barley, all susceptible to stem rust. The plants were inoculated with uredospores of the 15th race. The uredospores were collected 9 to 10 days after inoculation and then analyzed by electrophoresis in polyacrylamide gel. Electrophoregrams of total protein in the cytoplasm of all plant varieties were the same, with each containing 15 components and distributed in a similar fashion. The largest set of isoenzymes of peroxidase was found in the uredospores grown on the PPG-186 wheat variety, which displayed four broad bands of isoenzymes. When the fungus was transferred from PPG-186 to the other wheat and barley varieties, there was a substantial reconstruction of the isoenzyme composition of peroxidase.

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1/2 007 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CATALYTIC PROPERTIES OF CHLOROPLAST PEROXIDASE -U-
AUTHOR--(03)-RUBIN, B.A., VORONKOV, L.A., ZHIVOPISTSEVA, I.V.
COUNTRY OF INFO--USSR *R*
SOURCE--DOKL. AKAD, NAUK SSSR 1970, 190(6), 1483-5
DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE
TOPIC TAGS--CHLOROPLAST, CATALYSIS, PHOTOSYNTHESIS, PHOSPHORYLATION,
OXIDASE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1099 STEP NO--UR/0020/70/190/006/1483/1485
CIRC ACCESSION NO--AT0119958
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0119958

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. CHLOROPLAST PEROXIDASE FROM CORN LEAVES WAS 4-13PERCENT AS EFFECTIVE AS CYTOPLASMIC PEROXIDASE FROM THE SAME LEAVES IN CATALYZING OXID. WITH H SUB2 O SUB2, BUT WAS 55PERCENT AS EFFECTIVE IN CATALYZING OXID. WITH MOL O. THIS UNUSUAL PROPERTY OF CHOLORPLAST PEROXIDASE SUGGESTS THAT IT MAY PERFORM A SPECIFIC FUNCTION IN PHOTOSYNTHESIS, PERHAPS IN PHOTOPHOSPHORYLATION.

UNCLASSIFIED

USSR

UDC 632.937.14+612.015.3

R
RUBIN, B. A., Corresponding Member, All Union Order of Lenin Academy of Agricultural Sciences imeni V. I. Lenin, GUZHOVA, N. V., Candidate of Biological Sciences and ANDREYCHUK, T. V., Moscow State University imeni M. V. Lomonosov

"Study of Some Aspects of Porphyrine Metabolism in Fusarium Fungi as a Function of the Iron Supply"

Moscow, Vestnik Sel'skokhozyaystvennoy Nauki, No 3, 1970, pp 30-34

Abstract: A study of two strains of monospore fungal cultures: Fusarium oxysporum vasinfectum No 619123 (avirulent), and 155904 -- pathogenic to cotton variety No 5476-I, was made to determine the content of protohematin, coproporphyrine, total and hematin iron, and the activity of catalase and cytochrome oxidase. Differences were found in iron metabolism in experimental fungi: micelles of the pathogenic strain showed intensive porphyrine metabolism which effectively utilizes small doses of iron in the synthesis of heme molecules. Ten times more iron is needed for normal synthesis of heme by the avirulent strain than by the pathogenic one. Also, while a high level of activity of catalase and cytochrome oxidase is typical for the pathogenic strain under all experimental variations, the avirulent strain may reach 1/2

USSR

RUBIN, B. A., et al, Vestnik Sel'skokhozyaystvennoy Nauki, No 3, 1970, pp 30-34

such levels only after the iron content is increased tenfold. The authors assume that micelles of the pathogenic strain have highly active systems, which even with low Fe concentrations in the medium, can keep the absorbed iron in an active state and utilize it for the synthesis of heme and other physiologically active systems.

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1/2 008 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--CATALYTIC FUNCTIONS OF CHLOROPLAST PEROXIDASES -U-

AUTHOR--(03)-IVANOVA, T.M., RUBIN, B.A., DAVYDOVA, M.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(1), 214-17

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VEGETABLE CROP, CHLOROPLAST, ENZYME ACTIVITY, MITOCHONDRION,
PLANT CHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1990/1264

STEP NO--UR/0020/70/190/001/0214/0217

CIRC ACCESSION NO--AT0109348

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AT0109348

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHLOROPLASTS ISOLATED FROM THE LEAVES OF 60-70 DAY OLD CUCUMBER, RADISH, AND CABBAGE SPROUTS OXIDIZED PHLOROGLUCINOL AND EXHIBITED PEROXIDASE ACTIVITY. IN THE PRESENCE OF LIGHT BOTH PEROXIDASE AND PHLOROGLUCINOL OXIDASE ACTIVITY WERE STIMULATED IN THE CHLOROPLASTS BUT NOT IN THE LEUKOPLASTS AND MITOCHONDRIA. CHLOROPLAST PEROXIDASE SEEMS TO PARTICIPATE IN ASSIMILATION OF LIGHT ENERGY BY THESE ORGANOIDS, BUT THE EXACT MECHANISM IS NOT YET CLEAR. FACILITY: INST. BIOKHM. IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 581.2

R
RUBIN, B.A., GUZHOVA, N.V., KARTASHOVA, YE. R., ANDREYCHUK, T.V., and MATVEYEVA, YE.S., Moscow State University imeni M.V. Lomonosov.

"Oxidative Apparatus of the Agent of Cotton Wilt (*Fusarium Oxysporum Vasinfectum*) of Different Pathogenicity"

Moscow, Doklady Akademii Nauk SSSR, Vol 191, No 2, Mar/70, pp 483-486

Abstract: Concurrent experiments and analytical observations on two strains of *Fusarium oxysporum vasinfectum*, the virulent FV-15 strain, and the avirulent FA-61 strain, show that the catalytic and cytochrome oxidase processes in mycelia of these fungi are localized in the structural elements in a manner similar to that in higher plants. But the intensity of any particular function or enzymatic activity in the two strains is not alike. Both catalysis and cytochrome oxidase activity in FV-15 are much higher than in FA-61. The content of protohematin correlates with the activity of porphyrin enzymes: these are higher in FV-15, indicating a much higher intensity in the porphyrin-mycelium exchange. Generally, the differences, concerning all phases of oxidative and metabolic processes, have a definite influence on the pathogenicity of the fungus. The degree of pathogenicity is correlated positively with the intensity of metabolic activity.

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1/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EFFECT OF PATHOGENIC AGENTS ON ENERGY STORING PROCESSES AND THE
ELECTRON PARAMAGNETIC RESONANCE SPECTRA OF PLANTS -U-
AUTHOR--(03)--LADYGINA, M.YA., RUBIN, B.A., TIMOFEYEV, K.N. *R*
COUNTRY OF INFO--USSR
SOURCE--FIZIOLOGIYA RASTENIY, 1970, VOL 17, NR 2, PP 416-424
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PHOTOEFFECT, PHOSPHORYLATION, ADENOSINE TRIPHOSPHATE, EPR
SPECTRUM, FUNGUS, ACTINOMYCES, PLANT PHYSIOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1982/1600 STEP NO--UR/0326/70/017/002/0416/0424
CIRC ACCESSION NO--AP0052796
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0052796

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHOTOPHOSPHORYLATION, ATP CONTENT AND ELECTRON PARAMAGNETIC RESONANCE SPECTRA WERE STUDIED AFTER INFECTION WITH TOBACCO MOSAIC VIRUS ERYZIPHE CICHORACEARUM OF LEAVES OF AN IMMUNE TOBACCO PLANT (NICOTIANA GLUTINOSA) AND A NONIMMUNE SPECIES (N. TABACUM); THE EFFECT OF AN ENDOGENOUS PRODUCT OF THE SAPROPHYTIC FUNGUS ACTINOMYCES STREPTOMYCINI (STREPTOMYCIN) ON LEAVES OF BARLEY SEEDLINGS WAS ALSO STUDIED. IRRESPECTIVE OF THEIR NATURE THE PHYTOPATHOGENIC AGENTS INDUCED SIMILAR SHIFTS IN ENERGY TRANSFORMATIONS AND EPR SPECTRA OF THE PLANTS. THE CHARACTER OF THE ALTERATIONS DEPENDED ON THE DEGREE OF STABILITY OF THE PLANTS. FACILITY: BIOLOGICAL DEPARTMENT, MOSCOW STATE UNIVERSITY.

UNCLASSIFIED

USSR

UDC 577.158

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GRIGOROV, L. N., ZHIVOTCHENKO, V. D., REMENNIKOV, S. M., RUBIN, L. B., and RUBIN, A. B., Biology Soil Faculty, Moscow State University and Physico-technical Institute, Moscow

"Oxidation of Ectothiorhodospira shaposhnikovii Cytochromes Induced by Ruby Laser Flashes"

Moscow, Molekulyarnaya Biologiya, No 5, 1971, pp 744-752

Abstract: Description of a differential spectrophotometer in which pulsed light from a ruby laser can excite photochemical or photobiological objects. The sensitivity of the device is about 10^{-4} units of optical density with a time resolution of about 10^{-7} sec. This device was used to study the oxidation of Ectothiorhodospira shaposhnikovii cytochrome C induced by a ruby laser 25 nanosecond flashes. Under aerobic conditions the kinetics of the oxidation process was exponential, whereas under anaerobic conditions it was the sum of two exponential components. Under both conditions complete oxidation of the cytochromes required at least two successive laser flashes at intervals of $3 \cdot 10^{-4}$ sec.

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1/2 034 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--ON THE KINETICS OF PHOTOINDUCED CYTOCHROME CHANGES IN
ECTOTHIORHODOSPIRA SHAPOSHNIKOVII CELLS -U-
AUTHOR--(104)-RUBIN, L.B., DUBROVIN, V.N., ADAMOVA, N.P., SHVINAK, YU.I.
COUNTRY OF INFO--USSR
SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 2, PP 264-268
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PHOTOSYNTHESIS, BACTERIA, CULTURE METHOD, LIGHT BIOLOGIC
EFFECT, RESPIRATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1983/1411 STEP NO--UR/0220/70/039/002/0264/0268
CIRC ACCESSION NO--AP0054274
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--APO054274

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MAXIMAL PHOTOINDUCED ABSORBANCE CHANGES OF CYTOCHROMES AT 420 NM ARE OBSERVED IN ECTOTHIORHODOSPIRA SHAPOSHNIKOVII CELLS CULTIVATED UNDER ILLUMINATION OF LOW LIGHT INTENSITIES (10 PRIME3 ERG-CM PRIME2 SEC) AND AT THE LOGARITHMIC GROWTH PHASE. IN THE AGED CELLS THE AMPLITUDE OF A SIGNAL IS LOWER AND THIS EFFECT IS ACCOMPANIED BY CHANGES IN THE KINETICS OF CYTOCHROME REACTIONS: UNDER AEROBIC CONDITIONS NO ABSORBANCE CHANGES ARE OBSERVED WHILE IN DEAIRETED SUSPENSION THE FAST PHASE OF CYTOCHROME REDUCTION IS ABSENT. THE ADMINISTRATION OF ACETATE OR SULPHIDE RESULTS IN COMPLETE RESTORATION OF BOTH ANAEROBIC AND AEROBIC PHOTOINDUCED CHANGES OF CYTOCHROMES. IT SHOWS DEEP CONNECTIONS BETWEEN PRIMARY PHOTOSYNTHETIC REACTIONS AND PHYSIOLOGICAL STATE OF THE PURPLE BACTERIA CELLS.

UNCLASSIFIED

USSR

UDC 577.4

RUBIN, R. V.

"Economic Index of the Operation of a System Under Complete Preventive Maintenance"

V sb. Vopr. sinteza konechn. avtomatov (Problems in the Synthesis of Finite Automata -- Collection of Works), Riga, "Zinatne", 1972, pp 171-178 (from RZh-Matematika, No 9, Sep 72, Abstract No 9V432)

Translation: A technique is presented for finding the optimal periodic maintenance system with possible breakdowns in the structure when the optimality criterion is the relative economic effect of the operation of the system as determined considering its reliability and expenditures on performing the maintenance. Authors abstract.

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USSR

UDC 577.4

RUBIN, R. V.

"Economic Operating Index of a System with Complete Preventive Maintenance"

V sb. Vopr. sinteza konechn. avtomatov (Problems of Synthesizing Finite Automata -- collection of works), Riga, Zinatne Press, 1972, pp 171-173 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V432)

Translation: A procedure has been discussed for finding the optimal periodicity of preventive maintenance of a system with possible structural damage when the optimality criterion is the relative savings from operation of the system determined considering its unreliability and expenditures on the preventive maintenance.

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1/2 031
UNCLASSIFIED
TITLE--ON THE PROBLEM OF THE ULTRA RELATIVISTIC ELECTRON BUNCH RADIATION
IN CYLINDRICAL RESONATOR -U-
AUTHOR--(02)-KUZNETSOV, A.B., RUBIN, S.B.
COUNTRY OF INFO--USSR
SOURCE--(JINR P9 4909) DEP. CFSTI
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--RESONATOR, RELATIVISTIC ELECTRON, EXCITATION ENERGY, EMISSION
SPECTRUM, ELECTRON BOMBARDMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/2166
STEP NO--UR/0000/70/000/000/0011/0011
CIRC ACCESSION NO--AT0127530
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0127530

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

ABSTRACT. THE FORMULA FOR THE ENERGY OF THE RADIATION, EXCITED INSIDE A CLOSED CYLINDRICAL RESONATOR BY A RELATIVISTIC ELECTRON BUNCH PASSING THROUGH THE RESONATOR, IS ANALYZED. IT IS SHOWN THAT, WITHIN THE ULTRARELATIVISTIC LIMIT, THE INCREASE OF THE INITIAL ENERGY OF THE BUNCH DOES NOT LEAD TO THE INCREASE OF THE RADIATION ENERGY.

FACILITY: JOINT INST. FOR NUCLEAR RESEARCH,

DUBNA (USSR).

UNCLASSIFIED

USSR

UDC 576.858.25.083.1

POPOV, G. V., RUBIN, S. G., and CHUMAKOV, M. P., Institute of Poliomyelitis and Viral Encephalitides, Academy of Medical Sciences USSR

"Gel Chromatography of Arbovirus Suspensions on Sepharose"

Moscow, Voprosy Virusologii, No 5, 1971, pp 615-620

Abstract: Investigations were conducted to determine the feasibility of gel chromatography of some arboviruses (tickborne encephalitis virus, Japanese encephalitis virus, Omsk hemorrhagic fever virus, West Nile fever virus) on sepharose 4 B; and to combine concentration of arboviruses with polyethyleneglycol with subsequent purification on sepharose. The hemagglutinating, precipitating, and infectious properties of purified arbovirus suspensions were also studied. The main columns were 11 to 13 X 300 mm; buffer -- 0.05 M boric acid and sodium hydroxide to pH 8.0 with 0.5 M sodium chloride; amount of suspension analyzed -- 0.5 to 2 ml; flow rate of liquid -- 25 ml/hour; size of fractions -- 0.5 to 2 ml. Native and concentrated viral suspensions obtained in tissue cultures and native brain suspensions were subjected to gel chromatography, which produced high yields of purified, antigenically active and infectious virus. The procedure eliminated hemagglutination inhibitors and other ballast substances. It also freed the peak fractions from

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USSR

POPOV, G. V., et al., Voprosy Virusologii, No 5, 1971, pp 615-620

residues of polyethyleneglycol, thereby increasing the stability of the preparations.

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1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--INJECTION CONDUCTIVITY IN COMPENSATED SEMICONDUCTORS WITH IMPURITY
SCATTERING -U-

AUTHOR--(05)-GRIGORYEV, V.K., KAZANTSEV, O.I., MURYGIN, V.I., RUBIN, V.S.,
STAFYEV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA I TEKHN. POLUPROV., JAN. 1970, 4, (1), 116-119

DATE PUBLISHED---JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GERMANIUM SEMICONDUCTOR, GALLIUM ARSENIDE SEMICONDUCTOR,
ELECTRIC PROPERTY, SEMICONDUCTOR IMPURITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/0992

STEP NO--UR/0449/70/004/001/0116/0119

CIRC ACCESSION NO--AP0124651

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124651

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF CARRIER INJECTION OF THE V-A CHARACTERISTICS AND GENERAL ELECTRICAL PROPERTIES OF COMPENSATED SEMICONDUCTORS SUCH AS GE AND GAAS INCORPORATING IMPURITY SCATTERING IS DISCUSSED THEORETICALLY. A MECHANISM IS PROPOSED IN ORDER TO EXPLAIN THE CREATION OF A NEGATIVE DIFFERENTIAL RESISTANCE IN THE FORWARD BRANCH OF THE V-A CHARACTERISTIC DUE TO THE CHANGE IN SCREENING RADIUS ARISING FROM THE INJECTION. EXPERIMENTAL RESULTS QUALITATIVELY SUPPORT THE THEORY.

UNCLASSIFIED

USSR

UDC 669.716:621.774.38

RUBIN, Yu. L., YERMANOK, M. Z., and SHATKOV, V. A.

"The Effect of Technological Factors on the Friction Stress In Pressing Tubes of Alloys 01915 and 01925"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 144-149, resume

Translation: The effect of the drawing factor, pressing rate, and temperature on working stresses in pressing tubes of the alloys 01915 and 01925 was investigated. Established quantitative relations make it possible to estimate the effect of temperature and the degree and rate of deformation on the stress magnitude of the metal by the friction on container walls during pressing of the alloys. Six figures, two tables, two bibliographic references.

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1/2 029 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--RESISTANCE OF ALLOYS 01915 AND 01925 TO DEFORMATION FOR, SPECIFIED,
TEMPERATURE AND EXTRUSION RATE CONDITIONS -U-
AUTHOR--(03)-RUBIN, YU.L., YERMANOK, M.Z., SHATKOV, V.A.
COUNTRY OF INFO--USSR
SOURCE--TSVET. METAL. 1970, 43(3), 54-6
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--ALUMINUM MAGNESIUM ALLOY, ZINC CONTAINING ALLOY, METAL
EXTRUSION, DEFORMATION RESISTANCE, METAL HARDENING, ALLOY DESIGNATION,
DEFORMATION RATE/(U)01925 ALUMINUM MAGNESIUM ALLOY, (U)01915 ALUMINUM
MAGNESIUM ALLOY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/1417 STEP NO--UR/0136/70/043/003/0054/0056
GIRC ACCESSION NO--AP0126955
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0126955

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AL-ZN-MG ALLOYS 01915 AND 01925 WERE EXTRUDED AT RATES OF 6, 30, 120, AND 360 MM-MIN WITH THE CORRESPONDING AV. RATES OF DEFORMATION W SUB6 EQUALS 4 TIMES 10 PRIME NEGATIVE3, W SUB30 EQUALS 2 TIMES 10 PRIME NEGATIVE2, W SUB120 EQUALS 8 TIMES 10 PRIME NEGATIVE2, W SUB360 EQUALS 24 TIMES 10 PRIME NEGATIVE2 SEC PRIME NEGATIVE1. AT CONST. DEFORMATION DEGREE, PSI (PERCENT), AN INCREASE IN TEMP. AND A DECREASE OF DEFORMATION RATES CAUSES A LOWER RESISTANCE TO DEFORMATION, S SUBT, AND A DECREASE IN THE INTENSITY OF HARDENING.

UNCLASSIFIED

USSR

UDC 614.449.542-036.8

NAUMOV, R. L., and RUBINA, M. A., Institute of Medical Parasitology and Tropical Medicine imeni E. I. Martynovskiy, USSR Ministry of Health, Moscow

"Extermination of the Vector of Tickborne Encephalitis in the Construction Zone of the Sayan-Shushenskaya Hydroelectric Power Station and the Resulting Parasitological Effect"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 3, May/Jun 71, pp 286-291

Abstract: Similar measures as those taken during the 1957-1963 construction of the Krasnoyarsk Hydroelectric Power Station were taken to protect the population and construction crews from tickborne encephalitis in connection with the construction of the Sayan-Shushenskaya Hydroelectric Power Station on the Yenisey River. A 10% dust and 25% DDT emulsion were sprayed from helicopters over the surrounding area after careful mapping of the terrain with respect to the abundance of encephalitis-carrying ticks. Difficulties were encountered with the dust application, and pilots had to fly at longer intervals in order not to strike the dust cloud remaining behind from a preceding flight. The parasitological effectiveness of the treatments was determined by comparison of the abundance of ticks on the treated territory and their abundance on a

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USSR

NAUMOV, R. L., and RUBINA, M. A., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 3, May/Jun 71, pp 286-291

control territory. Each area was treated from one to three times. Prior to the treatment the tick density had been 500 ticks per km² in some areas. After the five-year extermination work, complete absence of ticks in all stages of their growth was achieved (with a maximum of 0.4 ticks per km²) and from 73.4% up to 98.5% of larvae and nymphs were exterminated. It was concluded that to obtain a long-term effect in mountainous terrain, it is sufficient to treat the area twice or three times in two to three consecutive years or every other year. Also, a large treated strip of land should be maintained around the town under construction between the river and mountains.

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USSR

UDC 595.421 - 19(235.223)

NAUMOV, R. L., and RUBINA, M. A., Entomological Division, Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy, Ministry of Health USSR, Moscow

"Distribution of Ixodes persulcatus P. Sch. Ticks on the Northern Slope of Western Sayany and Factors Determining It. Communication II. Small Mammals as Hosts of I persulcatus Larvae and Nymphs"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 5, Sep/Oct 70, pp 578-583

Abstract: The role of small mammals in providing food for larvae and nymphs of Ixodes persulcatus P. Sch. ticks was studied from 1965 to 1968 in the zone of the construction of Sayany-Shushenskaya Hydroelectric Power Station on the left bank of the Yenisey. Small mammals which are hosts of tick larvae and nymphs are not numerous in the area studied as compared to other regions. Their number differs with altitude; they are most abundant in the grassy cedar-fir forests at 600-1,100 m above sea level, and least numerous in the forest steppe. The ticks in the preimaginal phase also differ as to their abundance in different vegetation zones. They feed most intensively in grassy cedar-fir forests because

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USSR

NAUMOV, R. L. and RUBINA, M. A., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 5, Sep/Oct 70, pp 578-583

of the relatively abundant rodent population. The number of parasites and the duration of parasitizing decrease moving in sparsely wooded forests and forest-steppe areas.

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USSR

UDC 911.3.616.9.576.895.42(42+57)

BABENKO, L. V., NAUMOV, R. L., USPENSKIY, I. V., MERINOV, V. A., RUBINA, M. A., VASIL'YEVA, I. S., IOFFE, I. D., OBLESOVA, L. N., and RAZUMOVA, I. V.

"A Biological Study of Ixodes Ticks -- Disease Vectors -- and a Scientific Study of Countermeasures in Natural Foci"

V sb. Materialy Nauchn. konferentsii, posvyashch. 50-letiyu In-ta med. parazit. i tropich. med., 1970 (Proceedings on the Conference Commemorating the 50th Anniversary of the Institute of Medical Parasitology and Tropical Medicine 1970 -- collection of works), Moscow, 1970, pp 52-53 (from RZh-36. Maditsinskaya Geografiya, No 1, Jan 71, Abstract No. 1.36.67)

Translation: This study has four objectives: a) study of the ecology and population biology of the prevalent Ixodes and Dermacentor tick species; b) complex study of biological laws in natural foci of tickborne encephalitis and in one focus of Asian tickborne rickettsiosis (in Krasnoyarskiy Kray); c) study and practice of countermeasures against tickborne encephalitis for residents of large, newly-constructed housing developments in the hill rayons of Krasnoyarskiy Kray; and d) study of the effect of pesticides on ticks (I. persulcatus, for example). A proposal is advanced for research on the

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BABENKO, L. V., et al, V sb. Materialy Nauchn. konferentsii, posvyashch. 50-letiyu In-ta med. parazitol. i tropich, med., 1970 (Proceedings on the Conference Commemorating the 50th Anniversary of the Institute of Medical Parasitology and Tropical Medicine 1970 -- collection of works), Moscow, 1970, pp 52-53 (from RZh-36. Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.67)

characteristics of the population biology, morphology, and physiology of ticks within various geographic conditions.

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172 015
UNCLASSIFIED
TITLE—TICKS ON THE NORTHERN SLOPE OF THE WESTERN SAYAN MOUNTAINS AND
FACTORS DETERMINING IT. I: DISTRIBUTION OF ADULT I. PERSULCATUS -U-
AUTHOR—(02)—RUBINA, M.A., NAUMOV, R.L.
PROCESSING DATE—30OCT70
COUNTRY OF INFO—USSR
SOURCE—MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI 1970, VOL
39, NR 3, PP 269-274
DATE PUBLISHED—70
SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS—TICK, ENCEPHALITIS, GEOGRAPHIC PATHOLOGY
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAE—2000/0230
CIRC ACCESSION NO—AP0123992
STEP NO—UR/0358/70/039/003/0269/0274
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123992

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

ADULT Ixodes persulcatus P. SCH. TICKS WERE CARRIED OUT FOR 5 YEARS (1964-1968) IN A FOCUS OF TICK BORNE ENCEPHALITIS IN THE ZONE OF CONSTRUCTION OF THE SAYANO SHUSHENSKAYA HYDROPOWER STATION (HPS). THE POPULATION OF TICKS INHABITING MOUNTAINS HAS CERTAIN CHARACTERISTICS FEATURES. IN PARTICULAR, THE ABUNDANCE OF TICKS IN MOUNTAINS IS QUITE HIGH IN COMPARISON WITH THAT IN FLAT TERRAIN. AREAS OF THE GREATEST ABUNDANCE OF TICKS ARE ASSOCIATED WITH GRASS ABIES FORESTS AT 700-1000 M ABOVE SEA LEVEL. THE DENSITY OF TICKS IN DIFFERENT LANDSCAPES VARIES CONSIDERABLY: FROM 22-181 IN PINE BIRCH FORESTS TO 199-754 IN DARK CONIFEROUS CEDAR ABIES FORESTS. THE PERIOD OF ACTIVITY OF TICKS IN MOUNTAINS IS MUCH LONGER THAN IN PLAIN TAIGA. FACILITY: ENTOMOLOGICHESKIY OTDEL, INSTITUTA MEDITSINSKOY PARAZITOLOGII I TROPICHESKOY MEDITSINY IM. YE. I. MARSINOVSKOGO, MOSKVA.

UNCLASSIFIED

USSR

UDC 621.319.4.002.5

RUBINA, N. N., RUMYANTSEV, N. M.

"A Device for Marking Flat Capacitors"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 33, Soviet Patent No 285113, class 21, filed 23 Jun 69, published 29 Oct 70, p 58

Translation: This Author's Certificate introduces a device for marking flat capacitors. The unit contains a disc transporter, a cam distributing shaft, a stereotype block, marking elements in the form of elastic cushions, a mechanism for pickup of the ink and transfer to the stereotype block, and a drive mechanism. As a distinguishing feature of the patent, productivity is increased and marking is improved by fitting the device with two coaxially arranged discs carrying diametrically located spring-loaded marking elements supporting forks connected to levers which rest on the cams of the distributing shaft. The stereotype block is accommodated in the gap between the discs. The axis of symmetry of the stereotype block and the axis of symmetry of the capacitors being transported are located on a circle on which the marking elements travel.

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UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--REACTION OF DIMETHYLDICHLOROSILANE WITH HYDROQUINONE -U-

AUTHOR--(04)--ANDRIANOV, K.A., VARLAMOV, A.V., KHANANASHVILI, L.M., RUBINA,

~~N.S.~~
COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 611-13

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYNUCLEAR HYDROCARBON, BENZENE DERIVATIVE, ORGANIC SILANE,
CHLORINATED ORGANIC COMPOUND, HYDROQUINONE, HETEROCYCLIC BASE COMPOUND,
OLIGOMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/0899

CIRC ACCESSION NO--AP0124560

STEP NO--UR/0079/70/040/003/0611/0613

UNCLASSIFIED

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CIRC ACCESSION NO--AP0124560
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. HEATING 44 G HYDROQUINONE WITH
80.96 G ET SUB3 N AND 52.2 G ME SUB2 SICL SUB2 IN CH SUB6 H SUB6 UNDER
INERT ATM. GAVE IN 2.5 HR 68.4PERCENT PRODUCT, B. 220-86DEGREES, AFTER
FINAL HEATING WITH 0.6 G ZND IN VACUO AT 350-450DEGREES TO DEPOLYMERIZE
THE INITIAL OLIGOMER. THE DISTD. MATERIAL YIELDED, ON CRYSTN. FROM C
SUB6 H SUB6, 49.7PERCENT I, M. 108-11DEGREES, AND 12.7PERCENT II, M.
180-2DEGREES. THE ORIGINAL OLIGOMER IS A MIXT. OF H10C SUB6 H SUB4
OSIME SUB2-P) SUBX CL UNITS. FACILITY: MOSK. INST. TONKOI KHIM.
TEKHNL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--20NGV70
TITLE--ACTION OF NATURAL LIGHT ON PLASTIC SCINTILLATORS -U-
AUTHOR--(05)-GCLUTVINA, I.G., ZHILTSOVA, L.YA., MATVEYEVA, YE.N., MEDVEDEV,
M.N., RUBINA, O.G.
COUNTRY OF INFO--USSR
SOURCE--PRIB. TEKH. EKSP. 1970, 1, 88-9
DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--POLYSTYRENE RESIN, SCINTILLATOR, LUMINESCENCE, LIGHT AGING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1150

STEP NO--UR/0120/70/001/000/0088/0089

CIRC ACCESSION NO--AP0128572

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128572

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

ABSTRACT. THE EFFECT OF A 10 YR LONG EXPOSURE TO LIGHT OF POLYSTYRENE; LEASED 2PERCENT P, TERPHENYL, FILLED SCINTILLATORS WAS INVESTIGATED THE QUANTUM YIELD OF LUMINESCENCE WAS REDUCED BY 50PERCENT IN THE SURFACE LAYERS OF THE SPECIMENS. NO EFFECT ON THE LUMINESCENCE LIFETIMES WAS FOUND. FACILITY: OB'EDIN. INST. YAD. ISSLED., DUBNA, USSR.

UNCLASSIFIED

USSR

KUTYATINA, V. N., KOSINSKIY, A. V., RUBINA, V. B.

UDC: 681.325.3

"An Angle-to-Code Converter"

USSR Author's Certificate No 332487, filed 28 May 69, published 29 Apr 72
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan
73, abstract No 1B472 P)

Translation: An angle-to-code converter is proposed which contains a phase shifter, pulse generator, coincidence gate, and two null indicators, the input of the first being connected to the input terminals of the device directly, while the input of the second null indicator is connected to the input terminals of the device through the phase shifter. The outputs of the null indicators are connected respectively to the first input of the main flip-flop and to the input of a counter. To reduce the frequency error, the converter contains an additional flip-flop, two switches, a peak detector, and a filter. The filter output is connected to one of the inputs of the second null indicator, the output of this null indicator being connected to one of the inputs of the additional flip-flop. The second input of the main flip-flop is connected to the output of

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KUFYATINA, V. N. et al., USSR Author's Certificate No 332487

the flip-flop for the last digit of the counter, and the other input of the additional flip-flop is connected to the output of the first null indicator. The outputs of the flip-flops are connected to the controlling inputs of the corresponding switches. The controlled input of one switch is connected to one of the input terminals of the device, and the output is connected to the input of the peak detector. The output of the peak detector is connected to the controlled input of the other switch, the output of this switch being connected to the filter input.

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