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USSR

UDC: 550.837

VAKUL'SKIY, A. A., KAMENETSKIY, F. M., LABZHINSKIY, S. I., LIUSYSHIN, A. S.,
MIZYUK, L. Ya., TIMOFEYEV, V. M., YAKUBOVSKIY, Yu. V., Institute of Physical
Mechanics, Academy of Sciences of the Ukrainian SSR

"A Device for Aerogeoelectric Prospecting"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 9, Mar 72, Author's Certificate No 331356, Division G, filed 12 May 69,
published 7 Mar 72, p 144

Translation: This Author's Certificate introduces a device for aerogeoelectric prospecting by the method of transient processes. The device consists of a current pulse generator which contains a source of direct current, a master multivibrator, a frequency divider, a power amplifier, a current commutator and an oscillator tank circuit; and a meter which contains a receiving tank circuit, a preamplifier, a gating module, an accumulator, a DC amplifier, a registration unit, and a circuit for control and synchronization of the gating module. As a distinguishing feature of the device, interference suppression is improved, the measurement error is reduced and the stability of compensation of transient processes caused by the conduc-

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VAKUL'SKIY, A. A. et al., USSR Author's Certificate No 331356

tive fuselage of the aircraft is increased by connecting coincidence gates in the current pulse generator between the frequency divider and power amplifier. Some inputs of the coincidence gates are connected to the output of the master multivibrator, and the other inputs are connected to the outputs of the frequency divider. A band filter is connected in the meter between the preamplifier and the gating module, and a secondary gating block is connected between the pulse amplifier and the DC amplifier. The secondary gating block is connected to the control and synchronization circuit, and is made in the form of parallel-connected compensation and measurement strobe pulse multivibrators which are connected through a broad strobe pulse shaping multivibrator to the primary gating module. Multivibrators for delay and shaping of narrow strobe pulses [are connected] to coincidence gates with some inputs connected to the outputs of the oscillator frequency divider, while the other inputs are connected to the multivibrator for shaping narrow strobe pulses, and the outputs of these coincidence gates are connected to the secondary gating block.

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UDC 550.837.73

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KAMENETSKIY, F. M., YAKUBOVSKIY, YU. V., MIZYUK, L. YA., YAKUL'SKIY, A. A.,
TIMOFEYEV, V. M., MAKAGONOV, P. P., LUTSYSHIN, A. S., BOYKO, V. P. 44

"Device for Inductive Aeroelectric Exploration by the Transient Process Method"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzy, Tovarnyye Znaki, No 16,
8 May 70, p 61, Patent No 270123, Filed 19 Apr 65

Translation: 1. This Author's Certificate introduces a device for inductive
aeroelectric exploration by the transient process method. The device comprises
a pulse generator, a generator circuit, a receiving element, a control unit,
amplifiers, commutators, storage elements, and a recording unit. It is dis-
tinguished by the fact that in order to improve the noiseproofness of transient
process measurements in flight, the generator circuit is executed in the form
of a system made up of the basic generator circuit placed between the aircraft
and the receiving element at equal distances from both and two auxiliary cir-
cuits arranged one directly on the hull of the aircraft and the other, on the
case of the receiving element.

2. A second device like item 1 is introduced, but it is distinguished
by the fact that in order to obtain the required power in the basic generator
circuit directly from the low-voltage on-board network and also to increase
the steepness of the pulse fronts, the basic generator circuit is executed in

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KAMENETSKIY, F. M., et al., Otkrytiya, Izobreniya, Promyshlennyye Obratzy, Tovarnyye Znaki, No 16, 8 May 70, Patent No 270123, Filed 19 Apr 65

the form of several sections commuted by individual switches with a common control circuit.

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UDC: 539.311

LUTSYSHIN, R. M., KUL'CHITSKIY, L. O., Drogobych

"Bending of a Strip with a Curved Crack"

Kiev, Prikladnaya Mekhanika, Vol 18, No 8, Aug 73, pp 76-82.

Abstract: The stress-strain state of a strip (beam) with an "overlapping" crack in the form of a circular arc is studied. The strip is loaded by distributed forces and bending moments at the ends, the friction between the edges of the crack is not considered. Conditions are produced for determination of critical loads. As an illustration, the distribution curves of stresses along the circle of the crack are presented.

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1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--CONTACT PROBLEM FOR A PLATE WEAKENED BY A CURVILINEAR SLIT -U-
AUTHOR--LUTSYSHIN, R.M.
COUNTRY OF INFO--USSR
SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, MAR. 1970, P. 93-98
DATE PUBLISHED---MAR70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, PHYSICS
TOPIC TAGS--STRUCTURE FORM, PLATE STRUCTURE, ISOTROPIC PROPERTY, STRAIN,
CONTACT STRESS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/0870 STEP NO--UR/0198/70/006/000/0093/0098
CIRC ACCESSION NO--AP0116380

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116380

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF AN INFINITE ISOTROPIC PLATE WEAKENED BY A CURVILINEAR SLIT, IN THE CASE WHERE THE EDGES OF THE SLIT ARE IN CONTACT AT THE SLIT TIPS DUE TO THE ACTION OF A GIVEN LOAD AT INFINITY. THE STRESS STRAIN STATE OF THE PLATE AND THE CONTACT STRESSES AT THE TIPS OF THE SLIT ARE DETERMINED. THE SOLUTION OBTAINED IS ANALYZED.

FACILITY: L'VOVSKII GOSUDARSTVENNYI

UNIVERSITET, LVOV, UKRAINIAN SSR.

UNCLASSIFIED

M.B. LUTSYUK

UNCLASSIFIED

PROCESSING DATE--03JUL70

TITLE--EFFECT OF FOLIC ACID, METHOTREXATE AND THYMINE ON SYNTHESIS OF

ANTIBODIES -L-

AUTHOR--LUTSYUK, M.B.

COUNTRY OF INFO--USSR

SOURCE--UKRAYNS'KIY BICHIMICHNIY ZHURNAL, 1970, VOL 42, NR 1, PP 12-15

DATE PUBLISHED-----70

23
5
27

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PHARMACOLOGY, ANTIBODY, FOLIC ACID, THYMINE, BIOCHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1979/0744

STEP NO--08/C300/70/042/001/0012/0015

CIRC ACCESSION NO--APCC47237

UNCLASSIFIED

Acc. Nr: *AP0047237*

Ref. Code: UR 0300

PRIMARY SOURCE: Ukrayns'kiy Biokhimichnyi Zhurnal, 1970,
Vol 42, Nr 1, pp *12-15*

EFFECT OF FOLIC ACID, METOTREXATE AND THYMINE
OF SYNTHESIS OF ANTIBODIES

M. B. Lutsyuk

Department of Biochemistry, Medical Institute, Kursk

Summary

The influence of folic acid deficit as well as the effect of its antimetabolite—metotrexate and thymine were studied on the synthesis of hemolysins, incomplete antibody and γ -M, γ -C-agglutinins in albino rats and mice immunized by means of ram erythrocytes. It is established that with deficit of folic acid caused by its exclusion from food or by administration of metotrexate the synthesis of all kinds of antibodies particularly of γ -G-agglutinins sharply lowers. Introducing metotrexate to the animals after immunization decreases distinctly the level of γ -G-immunoglobulin formation, without noticeably affecting the total serological activity of sera. The parenteral administration of thymine immediately after immunization restores to a considerable extent the immune response inhibited by metotrexate but has no effect on the synthesis of γ -G-agglutinins at all.

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REEL/FRAME
19790744

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UDC: 681.327.8

MAYANTS, V. I., LUTSO, V. P.

"A Device for Automatic Telephone and Videotelephone Communications"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332583, Division H, Filed 13 Apr 70, published 14 Mar 72, p 227

Translation: This Author's Certificate introduces a device for automatic telephone and videotelephone communications which contains automatic offices with connecting lines, a video attachment, and a video channel commutator matrix. As a distinguishing feature of the patent, the device is designed for uniting the videotelephone and telephone systems while reducing the equipment complement, which is accomplished by using a recognition device for the called party to control the video channel matrix. This recognition device is connected by a control circuit to a marker generator. The marker generator is connected through a telephone subscriber identifier to the lines of the automatic offices with video attachments in such a way that the recognition device is connected to the video channel commutation matrix by the contactors in a matrix which is

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MAYANTS, V. I., LUTISO, V. P., USSR Author's Certificate No 332583

connected to the subscriber lines by a delay circuit. The recognition device is made in the form of parallel circuits connected to the output of the marker generator. Each of these circuits is connected into the corresponding line of the video subscriber's automatic office, which is connected in turn to a NOR logic stage whose output is connected to the recognition device for the called party. The first input of the NOR circuit is connected to one conductor of the lines through an inverter whose output is connected to the matrix through the delay circuit. The second input of the NOR circuit is connected to the input of a flip-flop. One input of the flip-flop is connected to the second conductor of the line, and the output of the telephone subscriber identifier is connected to the other input of the flip-flop.

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ACC. NO.

AP0049156

ABSTRACTING SERVICE:

CHEMICAL ABST: 570

REF. CODE:

UR0080

L

104470f Liquid-liquid-vapor equilibrium in a nitrocyclohexane-cyclohexanone oxime-water system. ~~Lutatsina, M. V.~~
 Soboleva, I. N. (USSR). Zh. Prikl. Khim. (Leningrad) 1970, 43(1), 120-8 (Russ). The compn. and b.p. of the 2 binary heteroazeotropes nitrocyclohexane (I)-H₂O and cyclohexanone oxime (II)-H₂O were detd. The compn. of the 2 liq. phases and vapor phase in equil. in the ternary system I-II-H₂O was also detd. The results indicated the feasibility of sepg. mixts. of I and II by adding H₂O and distg.; this was confirmed by a trial fractionation. Harry Watts

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19800963

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1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--THE PECULIAR STAR CH CYGNI IN 1968 -U-
AUTHOR--LUUD, L. L
COUNTRY OF INFO--USSR
SOURCE--ESTI NSV TEADUSTE AKADEEMIA, TOIMETISED, FUUSIKA-MATEMAATIKA, VOL.
19, NO. 2, 1970, P. 177-183
DATE PUBLISHED-----70
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--STAR, SPECTROSCOPY, PHOTOELECTRIC METHOD, UPPER ATMOSPHERE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1482 STEP NO--UR/0458/70/019/002/0177/0183
CIRC ACCESSION NO--AP0125110
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE—30OCT70

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CIRC ACCESSION NO—AP0125110
ABSTRACT/EXTRACT—(U) GP-0-

ABSTRACT. SPECTROSCOPIC AND PHOTOELECTRIC INVESTIGATION OF CH CYGNI, CHARACTERIZED BY IRREGULAR LIGHT VARIATIONS WITH AN EXTREMELY SHORT PERIOD AND BY A PECULIAR SPECTRUM. IT IS SHOWN THAT THE BRIGHTNESS VARIATION IN ULTRAVIOLET LIGHT IS AN ABNORMAL NONSTATIONARY RANDOM FUNCTION OF TIME. VARIOUS PHYSICAL CHARACTERISTICS OF CH CYGNI ARE STUDIED. IT IS SHOWN THAT THEIR PECULIARITIES ARE PROBABLY CAUSED BY THE PERTURBATION OF THE UPPER ATMOSPHERE OF A RED GAIANT BY A VARIABLE HOT SATELLITE. FACILITY: AKADEMIIA NAUK ESTONSKOI SSR, INSTITUT FIZIKII ASTRONOMII, TARTU, ESTONIAN SSR.

UNCLASSIFIED

USSR

UDC 548.0:539.26

BOKSHTEYN, S.Z., LUYTTSAU, V.G., et al

"The Phase Composition of Thread-Like Cobalt Crystals"

Moscow, Kristallografiya, Vol. 16, No 2, pp 440-441

Abstract: The low-temperature state of thread-like crystals of cobalt produced by high-temperature polymorphic conversion at 720°C by hydrogen reduction of CoB_2 is studied. The crystals measure 10-100 μ in the transverse direction and several mm in length. In most specimens, the direction of the axis was irrational, i.e., did not correspond to the primary crystallographic directions. The investigations showed that there are three types of crystals as concerns type of phase composition. The first type includes crystals in which the polymorphic conversion has continued to completion, and they contain no traces of the residual cubic phase. The second type includes thread-like crystals in which the polymorphic conversion has not been completed. The third type includes thread-like crystals which have undergone no polymorphic conversion.

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1/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--INOCULANT FOR CAST IRON -U-
AUTHOR--(03)-LUZAN, P.P., SHUMIKHIN, V.S., KUCHEMASOV, YU.S.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 263,616
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--CHEMICAL PATENT, CAST IRON, CALCIUM COMPOUND, SILICON
COMPOUND, CHROMIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/1823 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0132088
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AA0132088
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CAST IRON INOCULANT CONTAINS A
FERROCHROMIUM (70PERCENT) BASE AND 30-40PERCENT SILICOCALCIUM
(28PERCENT) TO REMOVE CEMENTITE IN THE CAST MATERIAL. FACILITY:
INSTITUT PROBLEM LIT'YA AN UKRAINSKOY SSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--POLARIZABILITY OF BENZENE IN GROUND AND EXCITED STATES -U-
AUTHOR--(03)--LUZANOV, A.V., MALYKHANOV, YU.B., MESTECHKIN, M.M.
COUNTRY OF INFO--USSR
SOURCE--OPT. SPEKTRISK. 1970, 28(4), 836-8 L
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--BENZENE, GROUND STATE, EXCITED STATE, ELECTRODE POLARIZATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1121 STEP NO--UR/0091/70/028/004/0836/0838
CIRC ACCESSION NO--AP0124776
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124776

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PERTURBATION THEORY AND THE HARTREE FOCK MENTIONED WERE APPLIED FOR THE CALCN. OF THE POLARIZABILITY OF BENZENE IN THE GROUND AND EXCITED STATES. THE CALCD. VALUE FOR CHANGE IN POLARIZABILITY ON EXCITATION AGREED WITH THE EXPTL. VALUE, CONFIRMING THE BASIC ASSUMPTION THAT SIGMA ELECTRONS DO NOT CONTRIBUTE.

UNCLASSIFIED

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UDC 612.111.3.014.482

~~LUZANOV, V. M.~~ and MUKSINOVA, E. N., Institute of Biophysics, Ministry of Health USSR

"Erythropoietic Activity of the Blood During Fractional Irradiation"

Moscow, Meditsinskaya Radiologiya, No 2, 1971, pp 52-55

Abstract: Wistar rats were exposed to 50 r (dose rate 12.5 r/min) daily until total doses of 150, 250, 500, 1,000, 1,500, and 2,000 r were achieved. The erythropoietic activity of the blood was determined in experimental and control animals on a model of polycythemic rats. Erythropoietic activity began to increase from the very first day of exposure and at total doses of 1,000 to 2,000 r it exceeded the control values 7- to 17-fold. There was a clear-cut relationship between the shifts in erythropoiesis and myelopoiesis. The increase in plasma erythropoietic activity was accompanied by an increase in the number of normoblasts in bone marrow and an intensification of their mitotic activity. It was postulated that these phenomena are largely due to change in the nature of humoral regulation of erythropoiesis, after irradiation. The intensification of erythropoietic activity helps to maintain the erythrocyte balance for a considerable period despite the steady decrease in the total number of bone-marrow cells.

UDC 617-001.28-036.11-092.9-085.272.6:547.963.32

USSR

ROGACHEVA, S. A., LUZANOVA, O. V., KLYZHUK, K. N., RUSINOVA, G. G., SHAROVA, E. G., and LIBINZON, R. Ye., Institute of Biophysics, Ministry of Health USSR, Moscow

"The Therapeutic Effectiveness of High-Polymer Heterologous DNA in Dogs with Acute Radiation Sickness"

Moscow, Meditsinskaya Radiologiya, Vol 15, No 3, 1970, pp 44-48

Abstract: A study was made of the effect of high-polymer, heterologous, calf thymus DNA preparations on the course and outcome of acute radiation sickness in dogs. In the experiments, 52 dogs of both sexes, one to four years old, weighing 5-24 kilograms, were subjected to cesium-137 gamma-ray irradiation at a rate of 6 r per minute in doses of 700 and 750 r. The animals were divided into four groups: group one received injections of DNA 30-60 minutes after irradiation, groups two and three received injections 24 and 72 hours after irradiation, respectively, and group four served as the control. The animals were distributed evenly among the groups by sex, weight and initial peripheral blood index. The therapeutic effect was evaluated according to 60-day survival, the average life of nonsurvivors, the clinical picture of acute radiation sickness, and the results of peripheral blood studies. Results of the investigations revealed that intravenous administration of calf thymus DNA increased survival in all experimental groups. Of the 13

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ROGACHEVA, S. A., et al., Meditsinskaya Radiologiya, Vol 15, No 3, 1970, pp 44-48

dogs in the control group, only two (11%) survived, while four of the 12 dogs in group one survived, eight of 11 dogs survived in group two, and six of 11 dogs survived in group three. These results indicate that the optimum time of DNA administration is 24 hours after irradiation. It was determined that the therapeutic effect of DNA, introduced intravenously, depended on the period between irradiation and injection of the preparation.

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1/2 032 UNCLASSIFIED PROCESSING DATE--11SEP70
 TITLE--THE THERAPEUTIC EFFICACY OF HIGH POLYMER HETEROLOGOUS DNA IN DOGS
 WITH ACUTE RADIATION SICKNESS -U-
 AUTHOR--ROGACHEVA, S.A., LUZANOVA, O.V., KLYZHUK, K.N., RUSINOVA, G.G.,
 SHAROVA, E.G.
 COUNTRY OF INFO--USSR
 SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 3, PP 44-49
 DATE PUBLISHED-----70
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--DOG, RADIATION SICKNESS, DNA, CESIUM ISOTOPE, RADIATION
 SOURCE, THYMUS GLAND
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1985/1693 STEP NO--UR/0241/70/015/003/0044/0049
 CIRC ACCESSION NO--AP0101748
 UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0101748

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EXPERIMENTS ON 52 DOGS IRRADIATED FROM A¹³⁷CS PRIMEL37 SOURCE (6 R-MIN) IN DOSES OF 700 AND 750 R THE AUTHORS DEMONSTRATE THE THERAPEUTIC EFFECTIVENESS OF HIGH POLYMER HETEROLOGOUS DNA OF CALF THYMUS. DNA PREPARATIONS WERE OBTAINED BY THE METHOD OF KAY ET AL. THE THERAPEUTIC EFFECT OF DNA, INTRODUCED INTRAVENOUSLY IN A DOSE OF 15 MG-KG OF BODY WEIGHT, DEPENDED UPON THE TERM BETWEEN IRRADIATION AND INJECTION OF THE PREPARATION. THE GREATEST SURVIVAL (8 OUT OF 11 DOGS) WAS NOTED WHEN THE PREPARATION WAS INTRODUCED 24 HOURS AFTER IRRADIATION. IN DNA INJECTION 3 DAYS OR 30-60 MINUTES AFTER IRRADIATION THE SURVIVAL WAS 6 OUT OF 11 AND 4 OUT OF 12 ANIMALS RESPECTIVELY. IN THE CONTROL GROUP 2 OUT OF 16 DOGS SURVIVED. THE AUTHORS DISCUSS THE RELATIONSHIP BETWEEN THE THERAPEUTIC EFFECT AND TERM OF DNA INJECTION AFTER IRRADIATION.

UNCLASSIFIED

USSR

UDC 669.046.5

YAVOYSKIY, V. I., SVYAZHIN, A. G., GRIGOR'YEV, N. S., ~~LEZGIN, V. P.~~
KONOVALOV, I. M., TAT'YANSHCHIKOV, A. G., TRUBENSKOV, K. M., RAREVICH, S. Z.,
and NECHAYEV, E. A.

"Metal Acidity in Intense Oxygen Bath Blowing"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISI) (Collection of
Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys).
Izd-vo "Metallurgiya," No 61, 1970, pp 84-90

Translation of Abstract: Results are presented of an investigation on metal
heterogeneity in intense blowing. Comparable data on the average metal
acidity level in a two-bath furnace and in other steel-melting furnaces are
given. The effect of various technological factors on metal acidity in the
two-bath furnace is considered. 5 figures, 3 references.

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Analysis and Testing

USSR

UDC: 669.046.54:66.012.1

YAVOYSKIY, V. I., LUZGIN, V. P., and VISHKAREV, A. E.

"The State of Oxidation of Steel and Methods of Testing It"

Okislennost' Stali i Metody Yeye Kontrolya [English Version Above],
Metallurgiya Press, 1970, 288 pages

Translation of Annotation: This work studies problems of the use of the express method for determination of the activity (concentration) of oxygen, based on the use of the concentration galvanic elements. Problems from the theory of concentration galvanic elements are briefly presented.

A diagram is presented and the operating principle is described of a device created at the Moscow Institute of Steels and Alloys, an activometer, which is a device for express measurement of the activity (concentration) of oxygen directly in steel making units and during pouring. Based on a large volume of research work performed under plant conditions using the activometer, the problems of the behavior of oxygen in open hearth and electric furnaces, in oxygen converters, during pouring and evacuation are studied. A comparison of the state of oxidation of metal upon completion of the cycle in converters
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YAVOYSKIY, V. I., et al., *Okislennost' Stali i Metody Yeye Kontrolya*, Metallurgiya Press, 1970, 288 pages

of various capacities with the oxidation of open hearth metal is performed. The relationship between the state of oxidation of the metal and technological factors is described. Prospects are discussed for further expansion of the range of application of the method under laboratory and plant conditions.

The book is designed for engineering and technical workers of metallurgical and machine building plants and scientific research institutes. 98 figures; 40 tables; 177 biblio. refs.

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YAVOYSKIY, V. I., Et al., Okislennost' Stali i Metody Yeye Kontrolya, Metallurgiya Press, 1970, 288 pages

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Chapter VII. Oxidation State of Metal and Slag in Open Hearth Furnaces Operating Without Oxygen	153
Chapter VIII. Oxidation State of Metal and Slag When Oxygen is Blown Through Open Hearth Bath	175
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USSR

UDC 536.244:532.517.4

LUZHANSKIY, B. Ye., SOLNTSEV, V. P., Moscow

"An Experimental Study of Heat Exchange in Detached Zones Upstream From Cylindrical Projections"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 6, Nov/Dec 72, pp 83-89

Abstract: The paper gives the results of an experimental study of heat exchange in the zones of detachment of the turbulent boundary layer upstream from cylindrical projections in a subsonic airflow. The research was done with a variation in the ratio of the projection diameter to the height from 0.25 to 4, the ratio of the thickness of the boundary layer at the detachment point to the height of the projection of 0.09 to 0.7, the Reynolds number calculated from the parameters of the oncoming flow to the height of the projection from 10^4 to $4 \cdot 10^5$, and a Mach number reaching 0.85. The temperature factor was 0.7. It is shown that the distribution of the heat transfer coefficients in the detached zone depends on the Reynolds and Euler numbers and on the ratio of the thickness of displacement of the boundary layer to the diameter (or height) of the

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LUZHANSKIY, B. Ye., SOLNTSEV, V. P., Zhurnal Prikladnoy i Tekhnicheskoy Fiziki, No 6, Nov/Dec 72, pp 83-89

projection, as well as on the ratio of the diameter to the height. Integral relations are found which generalize data on heat exchange at characteristic points of detached zones, and also the dimensionless distributions of heat transfer coefficients for determining heat fluxes on a plate in the plane of symmetry of the detached zone upstream from projections.

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USSR

UDC 533.6.013

LUZHANSKIY, B. Ye., SOLNTSEV, V. P., Moscow

"Experimental Study of Flow in Three-Dimensional Open Zones Before Projections"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 1, 1972, pp 50-54.

Abstract: Some results are presented from an experimental study of subsonic flow in the zones of separation of a three-dimensional turbulent boundary layer, formed before cylindrical projections, rectangular parallelepipeds and plates. The ratio of the width of the projections to their height varied between 0.25 and 24, the ratio of the thickness of the boundary layer at the point of separation to the height of the projection -- from 0.2 to 2. Flow plans are produced, the influence of the geometric shape of the projection, ratio of width to height of projection, parameters of boundary layer, Euler and Reynolds on the flow picture and coordinates of characteristic points in the separation zone is demonstrated. Data are produced for determination of the dimensions of the three-dimensional separation zones before the projections.

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LUZHANSKIY, B. YE., SOLNTSEV, V.P. (Moscow)

~~Experimental Investigation of Heat Exchange in Zones of Separation of the Turbulent Boundary Layer Before a Recess"~~

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 1, 1971,
pp 126-131

Abstract: In this article are presented the results of an experimental investigation of heat exchange in zones of separation of a two-dimensional turbulent boundary layer before a rectangular recess at a subsonic gas stream velocity. 5 figures, 1 table, 3 bibliographic entries.

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1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--AGING AND CORROSIVE ACTION OF TURBINE OILS IN THE PRESENCE OF WATER
-U-
AUTHOR--(04)-IVANOV, K.I., LUZHETSKIY, A.A., ALEKSANDROV, A.N., SEREGINA,
L.SH.
COUNTRY OF INFO--USSR
SOURCE--TEPLOENERGETIKA 1970, 17(2), 62-7
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--CHEMICAL STABILITY, TURBINE OIL, CHEMICAL COMPOSITION,
CORROSION RATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3001/2073 STEP NO--UR/0096/70/017/002/0062/0067
CIRC ACCESSION NO--AP0127446

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0127446

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COM. TURBINE OILS (CONTG. 0.1 OR 0.8PERCENT S) UNDERGO SUBSTANTIAL CHANGES AS A RESULT OF CONTACT WITH H SUB2 O AT 90DEGREES, E.G., THE ACID NO. INCREASES (FROM 0.0 TO 0.2 OR 0.8 MG KOH-G, FOR THE OILS CONTG. 0.8 OR 0.1PERCENT S, RESP.), THE OILS BECOME CORROSIVE WITH RESPECT TO MANY METALS, AND METALLIC SOAPS ARE FORMED (AND DISSOLVE IN THE OIL) UPON CONTACT WITH METALS; SUCH PHENOMENA ARE RESPONSIBLE FOR THE AGING OF THE OILS IN ACTUAL SERVICE. THE CORROSION RATE OF STEEL IN SUCH AGED OILS, WITH INITIAL S CONTENTS OF 0.1 OR 0.8PERCENT, REACHES 42.87 OR 151.81 G-M PRIME2 (THE TEST DURATION WAS 70 HR IN THE LOW S AND 304 HR IN THE HIGH S OIL), RESP. THE HIGHER CORROSION RATE IN THE AGED HIGH S OIL, IN SPITE OF ITS LOWER ACID NO., IS ATTRIBUTED TO THE FORMATION OF LARGER AMTS. OF WATER SOL. CORROSIVE ACIDS; THE SLOWER OXIDN. OF THE HIGH S OIL IS ATTRIBUTED TO THE PRESENCE OF ANTIOXIDANT ADDITIVES. THE CORROSION RATES OF NONFERROUS METALS (BRONZE, BRASS, BABBITT) IN THE AGED OILS IS QUITE LOW, E.G., BETWEEN 1.3 AND 8 G-M PRIME2. FOR THESE TEST TIMES, THE ADDN. OF AN OXIDN. INHIBITOR (IONOL) TO THE LOW S OIL DID NOT REDUCE THE CORROSIVENESS OF THE OIL AFTER AGING, IN SPITE OF A SUBSTANTIAL DECREASE IN THE DEG. OF OXIDN. OF THE OIL. FACILITY: VYSES. TEPLOTEKH. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.318.57-529

LUZHETSKIY, V. G.

"A Time Relay"

USSR Author's Certificate No 287199, Filed 20/03/69, Published 16/03/71, (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, 1971, Abstract No 11 A87 P).

Translation: Time relays are known which contain pulse generators, a trigger and a coincidence circuit. The accuracy and delay times of these circuits depend on the stability of the oscillations of the master generator and the delay times of the slave generators. High accuracy with relatively long time delays cannot be achieved, since the slave generators are connected in series and the delay times must be increased by increasing the number of generators; i.e., the time constants of the time-fixing circuits must be increased, decreasing the stability of the delay times. Furthermore, known time relays do not allow multiple delays to be produced in several channels. The purpose of the invention is to produce long, single, and multiple time delays with high accuracy. This is achieved by connecting the output of the master generator to one input of the coincidence circuit, the output of which is connected to the starting inputs of the slave pulse generators, the

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USSR

UDC 621.318.57-529

LWZHETSKIY, V. G., USSR Author's Certificate No 287199, Filed 20/03/69,
Published 16/03/71.

outputs of which are connected to the inputs of the coincidence circuits. The output of one of these circuits is connected to the input of the trigger, the output of which is connected to the second input of this coincidence circuit. The circuit allows adjustment of time delays, which can be achieved using a potentiometer which changes the time constant of the time-fixing circuit of one of the slave generators. To allow convenience of adjustment, the variable factor in the denominator should not exceed the least value of the remaining factors in the denominator which should have no common multiplier. 1 figure.

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UDC 621.373.531.1 (088.8)

USSR

LOZHETSEV, V.G. (Mathematics Institute, Siberian Branch, Academy of Sciences,
USSR)

"Transistorized Multivibrator"

USSR Author's Certificate No 305566, filed 13 Feb 70, published 19 July 71
(from RZh: Radiotekhnika, No 2, Feb 72, Abstract No 26201P)

Translation: A transistorized multivibrator is proposed with a direct collector-base coupling and an emitter time-assigning [vremyazadayushchiy] circuit which contains a supplementary transistor in a circuit for control of the off-duty factor. With the object of control over a wide range of the off-duty factor of the pulses being generated, without a decrease of the duration of the oscillations period, the base and emitter of transistor 1 of the multivibrator are connected across a diode to the collector of the supplementary transistor, the emitter of which is grounded, and the base is connected across a capacitor and a variable resistor to the emitter of transistor 2 of the multivibrator, cut-in according to a circuit with a common collector.

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USSR

UDC 669.295:538.221

LUZHINSKAYA, M. G., Institute of Metal Physics, UNTs [expansion unknown]
Academy of Sciences USSR

"Observation of the Domain Structure in a Ticonal Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 1, 1973, pp 201-205

Abstract: A single crystal of ticonal containing (in %): 33 Co, 14.7 Ni, 7.2 Al, 3.8 Cu, 5.9 Ti, balance -- Fe, with a coercive force of $H_c = 1380$ oersted and residual induction $B_r = 11,000$ gauss, and a sample of ticonal containing (in %): 35 Co, 15, Ni, 8 Al, 3.5 Cu, 5.5 Ti, balance -- Fe, $H_c = 1350$ oersted, $B_r = 12,000$ gauss were investigated. Observations showed that the domain structure forms in both the single-crystal and polycrystal samples if the direction of the magnetizing field is at angles from 0 to 60-80° to the magnetic field. At angles close to 90°, the domain structure is the same as in alnico and is not formed in parallel or perpendicular planes to the magnetic field. Observations were also made for the domain structure after demagnetization of samples by a variable field of increased amplitude. In the demagnetized state the domain structure occurred on surfaces parallel and perpendicular to

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USSR

LUZHINSKAYA, M. G., Fizika Metallov i Metallovedeniye, Vol 36, No 1, 1973,
pp 201-205

the magnetic field if the angle between the direction of the demagnetizing
field and magnetic field was not close to 90° . Four figures, five
bibliographic references.

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- 45 -

UNCLASSIFIED
 1/2 G11
 TITLE--ARSENIC SESQUISELENIDE ARSENIC SESQUITELLURIDE SYSTEM -U-
 AUTHOR--(93)-KHVOROSTENKO, A.S., DEMBOVSKIY, S.A., LUZHNYA, N.P.
 COUNTRY OF INFO--USSR
 SOURCE--ZH. NEORG. KHIM. 1970, 15161, 1705-6
 DATE PUBLISHED-----70
 SUBJECT AREAS--CHEMISTRY
 TOPIC TAGS--PHASE DIAGRAM, MICROHARDNESS, ARSENIC COMPOUND, SELENIDE, TELLURIDE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRA--3006/1404
 CIRC ACCESSION NO--AP0135078
 UNCLASSIFIED
 STEP NO--UR/0078/70/015/006/1705/1706
 PROCESSING DATE--13NOV70

272 011 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0135078
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHASE DIAGRAM AND MICROHARDNESS
DIAGRAM TO THE AS SUB2 SE SUB3 -AS SUB2 TE SUB3 SYSTEM ARE CONSTRUCTED.
THE SYSTEM FORMS EUTECTIC, M. 280DEGREES AND CONTG. 53 MOLE PERCENT AS
SUB2 TE SUB3 AND 2 SOLID SOLNS. THE STUDY DOES NOT CONFIRM FORMATION OF
AS SUB2 SE SUB3 .AS SUB2 TE SUB3.

UNCLASSIFIED

AT0008833

SCI. ABST. SER. A 9-69

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37017 Growth from metal solutions. N.P. Luzhnaya (Inst. General and Inorganic Chemistry, Academy of Sciences of USSR, Moscow, USSR). ~~J. Cryst. Growth (Netherlands)~~, vol.3-4, Spe. p.97-107 (1968). (Proceedings of the second international conference on crystal growth, Birmingham, UK, 15-19 Jul 1968).

The growth of compounds from metal solutions is reviewed using the following classifications: (1) Crystallisation of compounds from excess of the metallic component. (2) Crystallisation from metals foreign to the growing substance. (3) Crystal growth of solid solutions. (4) VLS method and its application to the growth of compounds from metal solutions. (5) Preparation of diamond, graphite and boron nitride crystals. (64 refs.)

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USSR

UDC 621.165:620.193.1

SHKOL'NIK, G. T., LUZHNOV, M. I., YELOVIKOV, A. S., and ZELENSKIY, V. G.

"Ways of Preventing the Erosion of Blade Apparatus of Power Plant Turbines"

Chelyabinsk, V sb. "Osvoeniye blokov moshchnost'yu 300 MVt na Ekibastuzsk. ugle" (Collection of Works-Assimilation of 300MW Power Units Burning the Ekibastuz Region Coal), 1972, pp 105-115 (from Referativnyy Zhurnal-Teploenergetika, No 6, June 72, Abstract No 6C39)

Abstract: Scale appears to be the main source of abrasive particles which form on pipe inner surfaces made of perlitic steels, due to inadequacy of their actual temperature conditions to heat resistant characteristics of materials used. The admissible temperature of the superheater pipe wall outside surface appears to be 575°C for the 12Kh1MF steel and 585°C for the 12Kh2MFSR and EI531 steels. It is necessary to ensure an optimal fresh steam temperature control on units with direct flow boilers with the purpose of reducing not only the exit temperature but also the intermediates along the circuit. It is necessary to broaden the use of superheater packets made of scale proof steels in boilers, where the wall temperature

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USSR

SHKOL'NIK, G. T., et al., Osvoeniye blokov moshchnost'yu 300 Mvt na Ekibastuzsk.ugle", 1972, pp 105-115

is more than 575-585°C. Until elimination of scale formation, it is advisable to carry out periodically (once in 2-3 years) a chemical removal of scale from perlitic section of steam superheater. Loading of turbines of the Troitskoy Hydroelectric Power Station at the start from a cold and non-cooled state, as well as operation at partial loads should be conducted at slipping pressures with fully opened control valves. 5 figures, 5 references.

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1/2 037 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--DETERMINATION OF THE PARAMETERS REPRESENTING THE EVAPORATION OF
METAL PARTICLES IN AN ARC PLASMA -U-
AUTHOR-(02)-LUZHNOVA, M.A., RAYKHBAUM, YA.D.
COUNTRY OF INFO--USSR
SOURCE--INZH.-FIZ. ZHUR., JAN. 1970, 18 (1), 77-81
DATE PUBLISHED--JAN70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--ELECTRIC ARC, EVAPORATION, BIBLIOGRAPHY, SPECTROSCOPY, SPHERIC
METAL POWDER, BISMUTH ALLOY, LEAD ALLOY, TIN ALLOY, SILVER ALLOY, PLASMA
ARC
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/0206 STEP NO--UR/0170/70/018/001/0077/0081
CIRC ACCESSION NO--AP0115910
UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115910

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EVAPORATION OF SPHERICAL METAL PARTICLES (BI, PB, SN, AG, ETC.) IN THE PLASMA OF A D.C. ARC BURNING BETWEEN C ELECTRODES WAS STUDIED SPECTROSCOPICALLY AND BY AN X RAY ABSORPTION METHOD. THE EVAPORATION PARAMETERS OBTAINED FOR BI, PB, SN, AND AG AGREED CLOSELY WITH THOSE CALCULATED THEORETICALLY ON THE ASSUMPTION THAT HEAT TRANSFER TO THE PARTICLES WAS MAINLY GOVERNED BY THERMAL CONDUCTION PROCESSES. THE EXPERIMENTALLY MEASURED TOTAL EVAPORATION TIME, HOWEVER, WAS 35PERCENT GREATER THAN THE VALUE CALCULATED ON THE ASSUMPTION THAT THE EVAPORATION OF THE PARTICLES OBEYED THE SREZNEVSKY LAW. THIS DIFFERENCE WAS ATTRIBUTED TO THE EFFECTS OF THE TRANSITIONAL (TRANSIENT) STAGE OF EVAPORATION.

UNCLASSIFIED

USSR

UDC 632.95

LUZHNova, M. I., EYTINGON, L. M., and KUPRIYANOVA, A. S.

"Effect of Meturin on Processes of Oxygen Liberation in Photosynthesis"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of Works), vyp 1, Moscow, 1970, pp 191-194 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N447)

Translation: In experiments with chloroplasts isolated from young oat plants treated through the roots with meturin (I) (N-phenyl-N-hydroxy-N'-methylurea), the Hill reaction was inhibited. In this respect compound I was no different from monurone. In experiments with direct introduction of the herbicide into a mixture containing photolytically active chloroplasts from the leaves of peas, compound I and four other N-aryl-N-hydroxy-N'-methylureas, in contrast to phenurone and monurone, caused practically no inhibition of the Hill process. It is possible that I in plants is converted to compounds which inhibit photolytic activity of chloroplasts.

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Pharmacology and Toxicology

USSR

UDC 577.158.8

ROMASHINA, L. V., VOZNAYA, N. M., GROSSE, R., RAKHIMOV, M. M., and LUZIKOV, V. N., Laboratory of Bioorganic Chemistry, Moscow State University imeni M. V. Lomonosov, Moscow

"Mechanism of the Inactivation of the Respiratory Chain by Cobra Venom Phospholipase"

Moscow, Biokhimiya, Vol 37, No 6, Nov/Dec 72, pp 1204-1209

Abstract: The effects of phospholipase A isolated from the venom of the Central Asian cobra on the respiratory chain of the succinate dehydrogenase system of submitochondrial particles and the NADH oxidase complex (I + III + IV) reconstructed from the cytochrome of c-oxidoreductase (I + III) and the cytochrome of c-oxidase (IV) were studied. It was found that electron transfer was disturbed mainly at the level of cytochrome c in a link of the respiratory chain common to the NADH and succinate oxidase systems.

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Nitrogen Compounds

UDC 547.214.39

USSR

LAPSHIN, N. M., PARKHOMENKO, T. N., and LUZIN, A. S.

"Chemistry of Nitrogen Ylides. III. Reaction of Quaternary Ammonium Salts of tert-Butyl Hydroperoxides With Esters"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 8, No 8, Aug 72, pp 1599-1601

Abstract: Complex esters react energetically with quaternary ammonium salts of tert-butyl hydroperoxides. Using the example of ethyl acetate and methylmethacrylate, it has been shown that a complex condensation of the esters takes place upon initiation by the base. However, it was not possible to isolate the condensation products. They break down to the acetic acid and methacrylic acid; their quaternary ammonium salts having been isolated from the reaction mixture. During the reaction quaternary ammonium salts of acetic and methacrylic acids were partially converted to respective substituted amides. The double bond of the methyl methacrylate remained untouched.

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USSR

LUZIN, V. B.

"Probabilistic Characteristics of Reliability of Data and Methods of Their Determination"

Kibernet. i Vychisl. Tekhn. Resp. Mezhd. Sb. [Cybernetics and Computer Technology. Republic Interdepartmental Collection], 1971, No 12, pp 101-102 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V328, by the author).

Translation: A method is suggested for describing a class of errors arising in preparation of initial data. In order to make a decision concerning the reliability of data, the properties of the source of errors in relationship to the fixed class of errors are used. The Hamming distance is used as a reliability criterion.

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USSR

LUZIN, V. B.

"Some Methods of Provision of Reliability for Data"

Kibernet. i Vychisl. Tekhn. Resp. Mezhd. Sb. [Cybernetics and Computer
Technology. Republic Interdepartmental Collection], 1971, No 12, pp 103-109
(Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No
4V329, by the author).

Translation: A method is suggested for restoration of unreliable elements of
initial data with fixed accuracy, when certain limitations are placed on the
set of reliable data.

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LUZIN, V. K.

108(P) 324/17105-73
37762073
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Inert Component Influence on Oxygen and
Hydrogen Electrode Operations
H.V. Korovin, V.K. Luzin, A.G. Kikober, M.I. Shalobov,
V.N. Sevel'tova
The Moscow Power Engineering Institute

The dependence of porous electrodes characteristics upon an inert component concentration in a binary gas mixture was studied theoretically and experimentally.

To describe the problem theoretically the following model was taken: a gas mixture flows through a gas chamber. Gas concentrations according to the chamber volume being considered constant. Owing to this we may consider the electrode to operate uniformly over its whole surface, i.e. we may consider a one-dimensional problem.

Proceeding from mass-transfer equations in a porous electrode, taking Stefan's flow into account, with $p(x) = \text{const}$, one can obtain the following equation:

$$\frac{d^2 \ln C_2}{dx^2} = k_1 \quad (1)$$

- p - mixture pressure;
- C_2 - mixture inert component concentration;
- x - coordinate;
- K_1 - proportionality factor;
- i - current density per unit of the volume.

USSR

(78)

BALOSHIN, O. N., BLAGORODOV, A. M., BOLONKIN, B. V., VLADIMERSKIY, V. V.,
GORIN, YU. P., GRIGOR'YEV, V. K., GRISHIN, A. P., YEROFEYEV, I. A., KOROL'KOV,
I. YA., LUZIN, V. N., MILLER, V. V., NIKOLAYEVSKIY, YE. S., PETRUKHIN, V. N.,
PLIGIN, YU. S., PONOMAREV, L. A., SIROTKIN, S. H., SOKOLOVSKIY, V. V., TARASOV,
YE. K., TIKHOMIROV, G. D., TROSTINA, K. A., TURCHANOVICH, L. K., and SHKURENKO,
YU. P., Institute of Theoretical and Experimental Physics GKI AE (State
Committee for the Use of Atomic Energy)

"The $K^-p \rightarrow K^0n$ Charge Exchange Reaction at a Pulse of 39 Gev/sec"

Moscow, Yadernaya Fizika, Vol 18, No 3, Sep 73, pp 542-544

Abstract: The authors present the measurement results from studying the charge exchange reaction of K^- -mesons on protons ($K^-p \rightarrow K^0n$) at a pulse of 39 Gev/sec. The study was carried out using the ITEP 6-m magnetic track spectrometer. The working volume of the magnetic field of the spectrometer was $1.0 \times 1.5 \times 6$ m. Twelve optical spark chambers were located inside the magnet, with each chamber having eight spark gaps (10 mm each). The chamber electrodes consisted of two layers of aluminum foil 14 microns thick. The photographs were taken through a special slit in the magnet yoke. A mirror system made it possible to obtain three stereoprojections of all of the chambers

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USSR

(18)

BALOSHIN, O. N., et al., Yadernaya Fizika, Vol 18, No 3, Sep 73, pp 542-544

with one camera. The reaction was studied on the negative particle beam of the IFVE accelerator. The K^- -mesons were distinguished by a differential Cerenkov counter. The beam was focused on a liquid hydrogen target 40 cm long which was set approximately three meters from the first chamber of the spectrometer. Approximately $5 \cdot 10^7 K^-$ -mesons were passed through the equipment and 1020 photographs taken. Pairs of uniformly charged tracks were measured on the photographs. The measurement results were then processed on the Razdan-3 computer. Only 270 intersecting tracks were found. A graph is given for the differential cross section of the reaction. The results show that the cross section value of 7.4 ± 1.2 microbarns obtained by the authors in comparison to data obtained for lower energies elsewhere shows the logarithmic dependence of the charge exchange cross section on the pulse, equal to -1.58 ± 0.05 . The authors thank K. G. Boreskov, A. M. Lapidus, S. T. Sukhorukov, and K. A. Ter-Martirosyan for their presentation of the computational results as the dependence of the differential cross section on pulse transfer (do/dt). This dependence is compared with predictions of the Regge pole model.

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USSR

LUZINA, A. S., MESHALKIN, L. D.

"Processing of Large Files of Statistical Information on the BESM-3M Computer"

Preobrazovaniye i Obrabotka Inform. [Conversion and Processing of Information -- Collection of Works], Moscow University Press, 1972, p 4-9 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V651, by V. Mikheyev).

Translation: Some methods of processing of large files of statistical information on the BESM-3M computer during solution of a number of problems are described. Among the problems involved are: 1) the problem of classification of multidimensional objects with dimensionality of vectors on the order of several dozens; 2) creation of a constantly growing file of medical case histories (the number of possible coordinates may reach into the hundreds) for subsequent statistical processing; 3) processing of multidimensional random processes of great length, when the product of dimensionality times length reaches the order of hundreds of thousands. The methods developed as applicable to the BESM-3M digital computer, with its relatively small main memory and comparatively slow input, allow the input time and required memory volume to be

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USSR

Luzina, A. S., Meshalkin, L. D., *Preobrazovaniye i Obrabotka Inform.*, Moscow University Press, 1972, p 4-9.

reduced. The methods described utilize the following programs: 1) program of primary inspection of material (construction of histograms, correlation matrices, conjugation tables and covariation matrices); 2) a leading program for organization of processing of multidimensional random processes; 3) a program for transfer of information from one system to another.

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USSR

UDC 616.988.75-036.22-078"1969"

SMORODINTSEV, A. A., LUZYANINA, T. Ya., IVANOVA, N. A., and GRINBAUM, Ye. B.,
All Union Scientific Research Institute of Influenza, Ministry of Health USSR

"Characteristics of Influenza A2 Virus Strains Isolated During the 1969 Epidemic in Leningrad"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 70, pp 601-605

Abstract: The influenza epidemic in the winter of 1969 in Leningrad resulted from the spread of a new antigenic variant of the Hong Kong A2 virus. The distinctive feature of the Hong Kong A2 strains is their capacity to multiply intensively in the allantoic and amniotic cavities of chick embryos. On the basis of this characteristic, an unusually high isolation rate of epidemic strains from patients was obtained. The A2-69 viruses differ in this respect from the A2 viruses circulating previously, the isolation of which has presented increasing difficulties since 1962. Another typical feature of the newly isolated strains is their pronounced antigenic difference from the earlier A2-1 and A2-2 variants. This sharp deviation in the antigenic structure of Hong Kong A2 influenza virus was confirmed by the absence of antibodies for the new variant in the Leningrad population under 60 years of age.

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USSR

SMORODINTSEV, A. A., et al, Voprosy Virusologii, No 5, Sep/Oct 70, pp 601-605

This factor led to the rapid involvement of both children and adults in the epidemic process.

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1/2 014

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--SEPARATION OF A CONCENTRATE OF ORGANOSULFUR COMPOUNDS BY AN ADSORPTION METHOD -U-
AUTHOR--(04)-OBOLENTSEV, R.D., LVAPINA, N.K., GALEYEVA, G.V., GAZEYEVA, V.N.
COUNTRY OF INFO--USSR
SOURCE--NEFTEKHIMIYA 1970, 10(1), 110-15
DATE PUBLISHED-----70

L

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--DISTILLATION, ORGANOSULFUR COMPOUND, KERSOSENE, CHEMICAL SEPARATION, POLYETHYLENE, ORGANOSILICON COMPOUND, PETROLEUM FRACTION, SULFIDE, THIOPHENE, HYDROCARBON, CHROMATOGRAPHIC SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0564

STEP NO--UR/0204/70/010/001/0110/0115

ACCESSION NO--AP0119482

UNCLASSIFIED

PROCESSING DATE--23OCT70

UNCLASSIFIED

2/2 014

CIRC ACCESSION NO--AP0119482

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

ABSTRACT. A COMBINATION OF RECTIFICATION AND ADSORPTION CHROMATOG. WAS USED FOR SEPN. OF CONCS. CONTG. ORG. S COMPOS. THESE CONCS. WERE OBTAINED BY EXTN. OF THE KEROSENE FRACTION (150-250DEGREES) OF ARLAN NAPHTHA WITH H SUB2 SO SUB4. THE RECTIFICATION WAS CARRIED OUT UNDER REDUCED PRESSURE IN STAINLESS STEEL AND GLASS APP. A COLUMN OF 290 TIMES 8.8 CM SIZE WITH 34 THEORETICAL PLATES AND 4 TIMES 5 MM LEVIN FILLING WAS USED. A 30 L. CONTAINER WAS HEATED WITH POLY(PHENYLMETHYLSILOXANE) LIQ. NO. 4 TO 200DEGREES. THE RECTIFICATION RATE WAS 200-50 ML-HR AND THE REFLUX RATIO 20-5:1. FIFTEEN STRIPPINGS (100DEGREES FRACTIONS) WERE TAKEN AND FURTHER SEPD. CHROMATOG. ON POLYETHYLENE COLUMNS PACKED WITH SILICA GEL (30-50 MESH: HEATED 1ST FOR 6 HR TO 70-100DEGREES AND THEN FOR 30 HR TO 150-70DEGREES). TWO COLUMNS WERE USED: (A) 12 M TIMES 35 MM PACKED WITH 12 L ADSORBENT WITH 1.2-KG FRACTIONS AND 8 L. ME SUB2 CO ADDED WITH 0.5 HR.; AND (B) 12 M TIMES 18 MM PACKED WITH 3 L. ADSORBENT WITH 0.3-KG FRACTIONS AND 3 L. ME SUB2 CO WERE USED THE ME SUB2 CO BEING EXPELLED WITH H SUB2 O. FRACTIONS 8. LESS THAN 200DEGREES. NEED 1-2 CHROMATOGRAPHIC SEPN.; HIGHER FRACTIONS REQUIRE SEVERAL REPETITIONS OF THE PROCESS. THE CONDD. SAMPLES WERE SEPD. INTO SULFIDE, THIOPHENE, AND HYDROCARBON FRACTIONS OF MOL. WT. 140-205. FACILITY: INST. ORG. KHIM., UFA, USSR.

UNCLASSIFIED

USSR

UDC 669.295.046.43

REYFMAN, E. D., IL'ICHEV, V. A., ZOTIKOVA, A. N., L'VIN, I. B.

"Mathematical Model of the Process of Chlorination of Titanium-Containing Materials in a Fluidized Bed"

Tr. Vses. N-i. i Projektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 196-200. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G212 by the authors).

Translation: Problems of mathematical modeling of processes of chlorination in a fluidized bed are presented. A mathematical model of the process is suggested for two basic technological modes. The adequacy of this model for processes occurring in actual apparatus in the mode of complete assimilation of Cl is demonstrated. The model developed allows automatic control systems to be developed for the process of chlorination of materials containing Ti in a fluidized bed.
2 figs.

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UDC 539.3

USSR

BEREZHNIYSKIY, L. T., PANASYUK, V. V., TRUSH, I. I., L'vov

"Stress Intensity Factors Near Hard Acute-Angle Inclusions"

Kiev, Problemy Prochnosti, No 7, Jul 73, pp 3-7.

Abstract: A method is presented for determination of the stress intensity factors near hard inclusions with corner points. In the case when the function mapping the exterior of the inclusion on the exterior of a unit circle is fixed in the form of a series, the problem is reduced to solution of a system of $2N$ algebraic equations. The effectiveness of the algorithm for calculation of stress intensity factors suggested is illustrated with a number of examples, most of which are studied in this article for the first time.

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UDC. 539.3

USSR

PELEKH, B. L., NAMCHUR, I. L., L'VOV

"One Contact Problem for a Transversely Isotropic Cylindrical Shell of Finite Length"

Kiev, Prikladnaya Mekhanika, Vol 9, No 6, Jun 73, pp 41-46.

Abstract: The contact problem of interaction of a rigid ring of rectangular cross section seated with a certain interference on a cylindrical, transversely isotropic shell of finite length is studied. General equations are produced for the cases when the ends of the shell are free and rigidly clamped. The distribution of contact pressures is studied as a function of the relative length of the ring, relative thickness and shear compliance of the shell.

1/1

- 123 -

USSR

UDC 547.241+547.244

ZAKHARKIN, L. I., and L'VOV, A. I., Institute of Heteroorganic Compounds,
Academy of Sciences USSR

"Replacement of CO Group by $(C_6H_5)_3P$ in Complexes"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, p 1880

Abstract: The authors for the first time conducted a ligand replacement reaction in polyhedral metallocarboranes using the example of replacement of a CO group by $(C_6H_5)_3P$ in manganesetricarboranyl complexes as a result of irradiation of a benzene or THF solution with UV light in the presence of a slight excess of triphenylphosphine.

1/1

- 48 -

1/4 015 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--SYNTHESIS OF SOME NITROGEN CONTAINING CARBORANE DERIVATIVES -U-
AUTHOR-(03)-ZAKHARKIN, L.I., GREBENNIKOV, A.V., LVOY, A.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 106-12
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL SYNTHESIS, ORGANOBORON COMPOUND, CARBORANE COMPOUND,
ACETONITRILE, AMINE, UREA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0062/70/000/001/0106/0112
PROXY REEL/FRAE--1984/1593
CIRC ACCESSION NO--AP0100208
UNCLASSIFIED

PROCESSING DATE--23OCT70

UNCLASSIFIED

274 015

CIRC ACCESSION NO--AP0100208

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

ABSTRACT. HEATING CARBORANYLACETAMIDE WITH P
 SUB2 O SUB5 AT 200DEGREES 2 HR GAVE 90PERCENT CARBORANYLACETONITRILE, M.
 109-10DEGREES; SIMILARLY WAS PREPD. METHYLCARBORANYLACETONITRILE, M.
 146-7DEGREES. THIS WITH LIALH SUB4 IN ET SUB2 O GAVE 62PERCENT
 METHYLCARBORANYLETHYLAMINE; PICRATE, M. 223DEGREES; HCL SALT M.
 325DEGREES. SIMILARLY WAS PREPD. 50PERCENT CARBORANYLETHYLAMINE-HCL, M.
 296-7DEGREES. ClCN AND HCB SUB10 H SUB10 CCH SUB2 MG6R IN ET SUB2 O IN
 2 HR AT ROOM TEMP. GAVE 16PERCENT CARBORANYLACETONITRILE AND 84PERCENT
 CHLOROMETHYLCARBORANE. METHYLCARBORANYLACETYL CHLORIDE AND ME SUB2 NH
 GAVE 62PERCENT N,N-DIMETHYL(METHYLCARBORANYLETHYL)AMINE; PICRATE M.
 255-7DEGREES. SIMILARLY THE ACYL CHLORIDE AND NAN SUB3 GAVE THE CRUDE
 AZIDE WHICH HEATED IN MEPH 2 HR GAVE, AFTER FINAL 1 HR IN THE PRESENCE
 OF CONCD. HCL, 20PERCENT METHYLCARBORANYLAMINE-HCL, M. IS GREATER THAN
 320DEGREES. REACTION OF ET CARBORANYLMETHYLACETOACETATE WITH HN SUB3 IN
 C SUB6 H SUB6 GAVE N AND ET ALPHA,CARBORANYLMETHYLACETAMIDOACETATE, M.
 101-2DEGREES, WHICH HEATED WITH ACDH-HCL 5 HR GAVE HCB SUB10 H SUB10 CCH
 SUB2 CH(NH SUB2.HCL)CO SUB2 H, M. 296-7DEGREES; FREE ACID M. 210DEGREES.

UNCLASSIFIED

3/4 015

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0100208

ABSTRACT/EXTRACT--METHYLCARBORANYLLITHIUM (FROM METHYLCARBORANE AND BULI IN C SUB6 H SUB6) WAS TREATED WITH EPICHLOROHYDRIN AT MINUS 65DEGREES TO YIELD 79PERCENT 1,METHYLCARBORANYL,3,CHLORO,2,PROPANOL, M. 57-8DEGREES, WHICH WAS OXIDIZED WITH K SUB2 CR SUB2 O SUB7-H SUB2 SO SUB4 TO MECB SUB10 H SUB10 CCH SUB2 CUCH SUB2 CL, B SUB1.5 162DEGREES, M. 30DEGREES, WHICH WITH K PHTHALIMIDE IN ME SUB2 NCHO IN THE COLD 1 HR GAVE N,MEHTYLCARBORANYLACETYLPHTHALIMIDE, M. 194-5DEGREES, WHICH HEATED 2 DAYS WITH HCL-ACOH GAVE 1,METHYLCARBORANYL,3,AMINO,2,PROPANONE; HCL SALT M. 185-6DEGREES. SIMILARLY WAS PREPD. CARBORANYLACETONE, M. 75-6DEGREES; 2,4,DINITROPHENYLHYDRAZONE, M. 185-6DEGREES. THE KETONE AND BR IN ACOH AT 50DEGREES GAVE 1,CARBORANYL,3,BROMO,2,PROPANONE, M. 30DEGREES, WHICH WITH THIOACETAMIDE GAVE 4,(CARBORANYLMETHYL)THIAZOLE; HBR SALT M. 220DEGREES; FREE BASE M. 92-3DEGREES. SIMILAR REACTION WITH ACNH SUB2 AT 140DEGREES 1.5 HR GAVE 4,(CARBORANYLMETHYL)OXAZOLE, M. 49-50DEGREES. ET GAMMA,(METHYLCARBORANYL)ACETOACETATE AND PHNMNH SUB2 IN ACOH 1 HR GAVE 1,PHENYL,3,(METHYLCARBORANYL)METHYL,5,PYRAZOLONE, M. 187DEGREES. VERATRYLETHYLAMINE AND ET SUB3 N TREATED IN ET SUB2 O WITH CARBORANYLACETYL CHLORIDE GAVE THE CORRESPONDING AMIDE, M. 105-6DEGREES, WHICH HEATED WITH POCL SUB3 IN MEPH 2 HR GAVE 1,(CARBORANYLMETHYL)3,4,DIHYDRO,6,7,DIMETHOXYISOQUINOLINE (I), M. 141-2DEGREES; PICRATE DECOMP. 230DEGREES; HCL SALT DECOMP. 225DEGREES; OXALATE DECOMP. 164DEGREES. METHYLCARBORANYLACETALDEHYDE AND VERATRYLETHYLAMINE IN ETH-HCL 6 HR GAVE 1,(METHYLCARBORANYLMETHYL)1,2,3,4,TETRAHYDRO,6,7,DI-METHOXYISOQUINOLINE-HCL, DECOMP. 252DEGREES.

UNCLASSIFIED

4/4 015

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0100208

ABSTRACT/EXTRACT--I HEATED IN ETOH 2 HR GAVE INNER SALT (II) OF THE
DICARBAUNDECABORANE, DECOMP. 240DEGREES. THE NAHSO SUB3 ADDUCT
OF (METHYL CARBORANYL)ACETALDEHYDE AND A KCN-(NH SUB4) SUB2 CO SUB3
SUSPENSION IN ET SUB2 O GAVE IN 6 HR WITH 50PERCENT AQ. ETOH AT
60DEGREES AND 1 HR AT 70-80DEGREES 30PERCENT
4, (METHYL CARBORANYLMETHYL)HYDANTOIN, M. 212DEGREES. DI-ET
(CARBORANYLMETHYL)MALONATE HEATED WITH UREA IN ETONA-ETOH 15 HR GAVE
5, (CARBORANYLMETHYL)BARBITURIC ACID, M. 332-3DEGREES; MONO-NA SALT M. IS
GREATER THAN 350DEGREES. THIS AND PCL SUB5-POCL SUB3 IN 4 HR AT
150DEGREES GAVE 5, (CARBORANYLMETHYL), 2,4,6, TRICHLOROPYRIMIDINE, M.
146-7DEGREES.

UNCLASSIFIED

Waveguides

UDC: 621.372.855(088.8)

USSR

I'VOV, A. Ye., SOKOLOV, V. K.

"A Coaxial Load"

USSR Author's Certificate No 263704, filed 12 Dec 68, published 15 Jun 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B175 P)

Translation: The proposed variable-phase coaxial load contains a shorting device and an absorbing ring device. The rings are made from various grades of ferrite. To obtain a given SWR, an additional ferrite ring has a sectoral cut. Two illustrations. Resumé.

Acc. No: **AP0048039**

Abstracting Service: INTERNAT. AEROSPACE ABST. **5-70 UR 0051**

Ref. Code:

A70-24259 # Determination of the relative values of oscillator strengths from atom absorption measurements in a flame (Opredefenie otnositel'nykh znachenii sil ostilliatorov iz dannykh atomno-absorbtsionnykh izmerenii v plameni). B. V. L'vov. *Optika i Spektroskopiia*, vol. 28, Jan, 1970, p. 18-25. 22 Pgs. IN RUSSIAN.

Description of a simple method of determining the relative values of f numbers from measurements of the sensitivity of various lines in flame atom absorption analysis. The results of determinations by this method are found to be in good agreement with the most reliable existing data. The advantages of the method are the wide range of the investigated spectrum, the inclusion of most of the elements of the periodic system, and the absence of systematic errors related to the calibration of the device from the spectrum. A.B.K.

LD

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REEL/FRAME
19791721

21

USSR

UDC 576.858.25.083.35.086.3

GUSHCHIN, B. V., TSILINSKIY, Ya. Ya., SHUSHKOV, L. S., L'VOY, D. K., and KLIMENKO, S. M., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Electron Microscopic Investigations of Vero Cells Infected With Genetically Homogenous and Heterogenous Venezuelan Equine Encephalitis Virus (VEE)"

Moscow, Voprosy Virusologii, No 4, 1973, pp 436-438

Abstract: Vero cells grown in medium 199 with 10% normal bovine serum were infected with clones 6 and 8 of VEE either separately, or with both clones at the same time. Electron microscopy of thin sections showed that 17 and 23 h after infection either with clone 6 or 8 alone mononucleoid virions were formed, whereas infection with both clones simultaneously yielded mononucleoid virions as well as giant virions containing several nucleoids (polynucleoid virions). After 29 and 41 h an additional type of giant viral particle was formed which contained material equal in density to that of the nucleoids (termed giant viral particles in distinction to polynucleoid virions) in cultures infected with both clones. Cells infected with only one type of VEE clone did not form giant viral particles. The data support the contention that formation of giant virions represents infection of the cells with genetically heterogenous VEE virus.

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USSR

UDC 595.771-12:616.988.25-092.9

L'VOV, D. K., KOSTYRKO, I. N., and GROMASHEVSKIY, V. L., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Experimental Infection of *Aedes aegypti* and *Culex pipiens molestus* Mosquitoes With Tyuleniy Virus"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolazni, No 2, 1973, pp 191-193

Abstract: *Aedes aegypti* and *Culex pipiens molestus* mosquitos were infected with Tyuleniy virus, a B group arbovirus isolated in 1969 from the tick *Ixodes (Ceratiixodes) putus* collected on Tyuleniy Island in the Sea of Okhotsk basin from guillemots (the virus was subsequently isolated from *I. putus* on the Commander Islands, Murmansk littoral, and Oregon littoral). The virus titers in the infective material ranged from 5.5 to 6.5 lg LD₅₀/0.01 ml for suckling mice inoculated intracerebrally. Virus was regularly detected in the mosquitoes the first day after infection and again from the 4th to 31st days thereafter in titers of 1.5 to 3.5 lg LD₅₀/0.01 ml. The virus was transmitted to suckling mice by bites of the mosquitoes 7 to 19 days after infection.

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USSR

TSILINSKIY, Ya. Ya., et al., Voprosy Virusologii, No 5, 1971, pp 573-576

they were characterized by small virus particles. Apparently the size of the plaques in these mutants, which are incapable of replicating at 40°C and are nonpathogenic for white mice, is determined not by the rate of diffusion of the virus particles in agar but by some other factors. 5-Fluorouracil treatment caused the large-plaque and thermostable variant of VEE virus to mutate toward smaller plaque size and inability to withstand heating to 60°C.

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- 12 -

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002201830005-0"

USSR

TSILINSKIY, Ya. Ya., GUSHCHIN, B. V., KLIMENKO, S. M., and L'YOV, D. K.,
Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences
USSR

"Relationship Between the Biological Properties of Venezuelan Equine Encephalomyelitis Virus and Virus Particle Size"

Moscow, Voprosy Virusologii, No 5, 1971, pp 573-576

Abstract: Natural genotypes of Venezuelan equine encephalomyelitis virus exhibited a correlation between the size of the virus particles and the size of the plaques, the size of the viruses evidently affecting plaque size because particles of different sizes diffused through agar at different rates. Hence clones with small virus particles formed larger plaques than did clones with large virus particles. The thermostability of the virus, its pathogenicity for white mice, and capacity for replication at 40°C were independent of the size of the virus particles. Clones with relatively small or medium-sized virus particles combined the capacity for autointerference in chick fibroblast cultures with sensitivity to inhibition by agar polysaccharides. These patterns did not apply to the temperature mutants of VEE virus. They formed small or very small plaques, although

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USSR

UDC 576.858.25.095.38:576.895.42

L'VOV, D. K., GROMASHEVSKIY, V. L., SIDOROVA, G. A., TSIRKIN, Yu. M.,
CHERVONSKIY, V. I., GOSTINSHCHIKOVA, G. V., and ARISTOVA, V. A., Institute
of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

"Isolation of a New Arbovirus "Baku" of the Kemerovo Group From Argasid Ticks
Ornithodoros Coniceps in Azerbaydzhan"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, pp 434-437

Abstract: Seventeen strains of arboviruses were isolated from Ornithodoros
coniceps ticks collected (1,710 specimens) in the spring and summer of 1970 in
nests of herring gulls (Larus argentatus) on the islands of the Baku Archipelago
in the Caspian Sea. So far, four strains -- prototypes LEIV-28A, -35A, -30A,
and -46A -- were analyzed and found to be identical. They do not agglutinate
goose erythrocytes. Serological identification tests performed on the
LEIV-46A prototype revealed that this strain belongs to the antigenic complex
of Chenua virus of the Kemerovo group. According to the results of complement
fixation and neutralization reaction tests, the virus differs from Chenua,
Punta Salinos, Mono Lake, Kemerovo, Tribec, Lipovnik, and Wad Medani viruses.
The new virus has been named "Baku virus."

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- 35 -

USSR

VASHKOVA, V. V., LOGINOVA, N. V., and L'VOV, D. K., Institute of Virology
imeni D. I. Ivanovskiy, Academy of Medical Sciences, USSR

"A Comparative Study of the Effects of Two Varieties of Japanese Encephalitis
Virus on Chromosomes and Mitotic Activity of Cells"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, pp 494

Translation: The effects of two varieties of Japanese encephalitis virus
(Nakayama strain and clone No 33), differing from each other in neuropatho-
genicity with regard to white mice and in certain other genetic properties, on
the chromosome apparatus in cells and on the mitotic activity of tissue cultures
were studied. The Nakayama strain had no effect on the mitotic activity of
tissue cultures. Clone No 33 suppressed mitotic activity, beginning with the
14th hour after inoculation. Forty-three hours after inoculation, cultures
infected with the Nakayama strain had 17.2% chromosome rearrangements and those
infected with clone No 33 had 11.7% of rearrangements.

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UDC 616.988.5-022.395.42

USSR

SEMENOV, B. F., and L'VOV, D. K., Institute of Poliomyelitis and Virus Encephalitis, USSR Academy of Medical Sciences, Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences

"Distribution and Role of Tick-Borne Arboviruses in Human Infectious Pathology Except Group B"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol. 40, No 3, May/June 71, pp 259-267

Abstract: Tick-borne arboviruses which are not associated with the usual antigens representative for Group B viruses were the object of this survey. These viruses are widely distributed over most climatic and geographic zones of the earth and new species belonging to this category have been discovered recently. Also, many of these arboviruses are highly pathogenic to men and animals alike. More than 40 such tickborne viruses were isolated and identified in early 1970. Their antigenic classification and their classification with respect to ixodid ticks or Argasid mites is presented together with their distribution over various zones of the earth. Literature data indicate that tickborne arboviruses are transmitted over great distances by infected ticks, animals, and migratory birds, as well as domestic animals. As far as their physicochemical characteristics are concerned, these arboviruses do

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USSR

SEMENOV, B. F., and L'VOV, D. K., *Meditsinskaya Parazitologiya i Parazitarnyye Bolezni*, Vol 40, No 3, May/June 71, pp 259-267

not differ from the other arboviruses: they contain RNA, they are sensitive to ether and desoxycholate, they vary in size from 70-80 to 140-150 m μ . They could be divided into seven serological groups. Sixteen stimulants are as yet unclassified as far as their serological properties are concerned. The pathogenicity for man was established for nine of the listed arboviruses; six of these caused occasional diseases, whereas the remaining three caused numerous severe cases with frequently lethal outcome. Conventional laboratory methods are used for the diagnosis of infections caused by these viruses. Lately, the fluorescent antibody method has found widespread use, as have agar-agar precipitation and the neutralization reaction in a tissue culture.

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- 47 -

UDC 616.988.25:313.13(571.55)

USSR

GORIN, O. Z., L'VOV, D. K., VASENIN, A. A., BOL'SHEV, L. N., KHUOPIS, Yu. I., and KORYAKOVITSEVA, K. M.. Irkutsk Institute of epidemiology and microbiology, Ministry of Health RSFSR, Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow, Mathematics Institute imeni V. A. Steklov, Academy of Sciences USSR Moscow, and Republic Sanitary Epidemiological Station, Buryatskaya ASSR, Ulan-Ude

"Calculating the Intensity of Infection With Tickborne Encephalitis of the Population of Zabaykal'"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 3, May/June 70. pp 259-263

Abstract: The intensity of infection of the population with tickborne encephalitis in the Zabaykal' was calculated, and also the rate of infection of ticks with the virus (9-13%). The analysis was based on data of serological examination of 6,420 persons by the hemagglutination test, and on data from questioning of 26,781 subjects about their exposure to tick and attacks by ticks during the epidemic season. Specimens were collected in 1966-1968 in Chitinskaya Oblast and the Buryatskaya ASSR. According to the intensity of infection, it was possible to combine the territories situated in different physical geographical and land-

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USSR

GORIN, O. Z., et al, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 39, No 3, May/June 70, pp 259-263

scape conditions into two main landscape-epidemiological areas. One of these areas, distinguished by an extremely low intensity of infection (0.4-0.9%), includes the Central Asian and Priselenginskaya steppes and the North Zabaykal mountain taiga. The other area, with higher intensity of infection (2-2.1%), includes the territories within the Dauriskaya mountain taiga and subtaiga, as well as the Pribaykal and South Zabaykal taiga and subtaiga.

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- 13 -

USSR

UDC 576.858.25.095.38:576.895.421

L'VOV, D. K., TIMOFEYEVA, A. A., GROMASHEVSKIY, V. L., and CHERVONSKIY, V. I.,
Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR
and Sakhalinskaya Oblast Sanitary Epidemiological Station, Yuzhno-Sakhalinsk

"Isolation of Arboviruses from Ixodes (Ceratiixodes) putus Pick.-Cambr Ticks Col-
lected in a Bird Colony on Tyuleniy Island in the Sea of Okhotsk"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 70, pp 440-444

Abstract: Forty-one strains of at least two different arboviruses were isolated from Ixodes (Ceratiixodes) putus Pick.-Cambr ticks collected from the common guillemot, tern, penguin, and other aquatic birds nesting on Tyuleniy Island in the Sea of Okhotsk. The virus was isolated from females before oviposition from females that moulted in the laboratory engorged nymphs, from males (which do not feed on blood), and from nymphs. Suckling mice inoculated with a suspension of infected ticks developed paralysis of the extremities and clonic convulsions after a latent period of 5 to 14 days.

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1/2 016 UNCLASSIFIED PROCESSING DATE—30OCT70
TITLE—CALCULATION OF THE INTENSITY OF INFECTION WITH TICK BORNE
ENCEPHALITIS IN THE POPULATION OF ZABAIKALIE -U-
AUTHOR—(OS)—GORIN, G.Z., LVOV, D.K., VASENIN, A.A., BOLSHEV, L.N.,
KRUCNIC, YU.I.
COUNTRY OF INFO—USSR
SOURCE—MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI, 1970, VOL
39, NR 3, PP 259-263
DATE PUBLISHED—70
SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS—ENCEPHALITIS, TICK, SEROLOGIC TEST, HEMAGGLUTINATION
INHIBITION TEST
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—2000/0222 STEP NO—UR/0358/70/039/003/0259/0263
CIRC ACCESSION NO—AP0123986
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 016

CIRC ACCESSION NO--AP0123986

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

ABSTRACT. ON THE BASIS OF PREVIOUSLY PUBLISHED METHODS BY THE AUTHORS CALCULATION OF THE INTENSITY OF INFECTION RATE OF THE POPULATION WITH TICK BORNE ENCEPHALITIS IN THE ZABAICALIE WAS MADE, AS WELL AS CALCULATION OF THE INFECTION RATE OF TICKS WITH THE VIRUS (9-13PERCENT). THE ANALYSIS WAS BASED ON THE DATA OF SEROLOGICAL EXAMINATION OF 6420 PERSONS BY THE HI TEST, AS WELL AS ON THE DATA OF QUESTIONING OF 26,781 SUBJECTS WITH REGARD TO TICK EXPOSURE AND ATTACK DURING THE EPIDEMIC SEASON. SPECIMENS WERE COLLECTED IN 1966-1968 IN THE CHITA REGION AND THE BURYAT ASSR. ACCORDING TO INTENSITY OF INFECTION, IT WAS FOUND POSSIBLE TO COMBINE TERRITORIES SITUATED IN DIFFERENT PHYSICO GEOGRAPHICAL AND LANDSCAPE CONDITIONS INTO 2 MAIN LANDSCAPE EPIDEMIOLOGICAL AREAS. ONE OF THEM IS DISTINGUISHED BY AN EXTREMELY LOW INTENSITY OF INFECTION (0.4-0.9PERCENT) AND INCLUDES CENTRAL ASIAN AND THE PRISELENGINSKAYA STEPPE AND NORTH ZABAICAL MOUNTAIN TAIGA. THE OTHER AREA HAS HIGHER INTENSITY OF INFECTION (2-2.1PERCENT) AND INCLUDES TERRITORIES WITHIN THE DAURSKAYA MOUNTAIN TAIGA AND SUBTAIGA AS WELL AS THE PRIBAIKAL AND SOUTH ZABAICAL TAIGA AND SUBTAIGA.

FACILITY: IRKUTSKIY INSTITUT EPIDEMIOLOGII I MIKROBIOLOGII, MZ RSFSR.
 IVANOVSKOGO, AMN SSSR.
 IM. V. A. STEKLOVA, AN SSSR.

FACILITY: INSTITUT VIRUSOLOGII IM D. I. MOSKVA MATEMATICHESKIY INSTITUT
 FACILITY: MOSKVA REPUBLIKANSKAYA
 SANEPIDSTANTSIIYA, BURYATSKOY ASSR, ULAN-UDE.

UNCLASSIFIED

1/2 025 UNCLASSIFIED
TITLE—ON EVOLUTION OF ARBOVIRUSES —U—
AUTHOR—(02)—LVQV, D.K., LEBEDEV, A.D.
COUNTRY OF INFO—USSR
SOURCE—VOPROSY VIRUSOLOGII, 1970, NR 3, PP 372-376
DATE PUBLISHED—70

PROCESSING DATE--30OCT70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS—ARBOVIRUS, EVOLUTION, ECOLOGY

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME--2000/1611

STEP NO--UR/0402/70/000/003/0372/0376

CIRC ACCESSION NO--AP0125233

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125233

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

ABSTRACT. A HYPOTHESIS OF EVOLUTION OF ARBOVIRUSES IS SUGGESTED ON THE BASIS OF THE ANALYSIS OF ECOLOGICAL CHARACTERISTICS OF ARBOVIRUSES, DATA OF THEIR CURRENT GEOGRAPHICAL DISTRIBUTION AND CONSIDERATIONS OF GENERAL BIOLOGICAL REGULARITIES OF PARASITISM DEVELOPMENT. PRIMARILY THEY ORIGINATED IN AN EQUATORIAL SUBEQUATORIAL CLIMATIC ZONE AND SUBSEQUENTLY ADAPTED TO CONDITIONS OF TROPICS, SUBTROPICS AND A TEMPERATE ZONE. THE MAJORITY OF ARBOVIRUSES DERIVE FROM VIRUSES SYMBIONTS OF MOSQUITO INTESTINAL TRACT. THE MAIN SCHEMES OF CIRCULATION OF ARBOVIRUSES IN DIFFERENT CLIMATIC ZONES ARE ANALYSED. AS WELL AS SOME GENETIC MARKERS OF ARBOVIRUSES APPEARING IN THE PROCESS OF EVOLUTION. SOME MODES PRACTICAL APPLICATION OF THE SUGGESTED HYPOTHESIS ARE OUTLINED.

FACILITY: INSTITUT

VIRUSOLOGII IMENI D. I. IVANOVSKOGO AMN SSSR, VSESOUZNYIY INSTITUT NAUCHNOY I TEKHNICHESKOY INFORMATSII AN SSSR, MOSKVA.

UNCLASSIFIED

USSR
UDC 576.858:095.383:576.895.771 1
RAYKOVA, A. P., KLIMENKO, S. M., KOSTYRKO, I. N., GROMASHEVSKIY, V. L.,
and L'VOV, D. K., Institute of Virology imeni D. I. Ivanovskiy, Academy of
Medical Sciences USSR, Moscow

"An Investigation of the Ability of Sumah Virus From the Unkuniemi Group
to Proliferate in Aedes Aegypti Mosquitoes"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 731-735

Abstract: A. aegypti mosquitoes experimentally infected with Sumah virus
(added to nutrient suspension) were investigated by electron microscopy
and titrations on mice for 2 months. The results revealed a regular re-
production of the virus in the mosquitoes. The virus is present in the
cytoplasm, the intercellular spaces in the epithelial tissues, and salivary
gland ducts of the mosquitoes from the 11th day after infection, but trans-
mission by bite occurs only when the virus concentration is at least 2.5
lg ID₅₀ per 0.01 ml of mosquito tissue. Virus particles have an oval shape,
with the long axis 900-1000 Å and the short axis 700-800 Å long, and they
have a two-layer membrane which is 90-100 Å thick.

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USSR

MARINOV, B. S., L'VOV, K. M., SUKHORUKOV, B. I., KAYUSHIN, I. P.,
POSTNIKOVA, G. B., Institute of Biophysics, Academy of Sciences USSR,
Pushchino (Moscow Oblast)

"On the Possibility of Using Iminoxyl Radicals to Detect Unpaired Electrons
in Biological Systems"

Moscow, Biofizika, Vol 16, No 1, 1971, pp 337-340

Abstract: The interaction of iminoxyl radicals with amino acids and proteins in the excited state and with mitochondria (in which active transport of electrons occurs,) is studied. It is noted that stable iminoxyl radicals are widely used as spin labels to analyze conformation changes in macromolecules, and that it is also considered possible to use them to study electron transfer in biological systems. The breakdown of the radicals was observed in solutions of tryptophan, tyrosine, and cysteine. A typical kinetic curve for the photochemical reaction of the radicals with protein shows that the rate of breakdown of the radicals in water is considerably lower than the rate of breakdown in the presence of protein; the reaction does not proceed in the dark. It is hypothesized that the radicals interact with a photoinduced paramagnetic state of protein and that the breakdown of the radicals occurs $1/2$

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MARINOV, B. S., et al., *Biofizika*, Vol 16, No 1, 1971, pp 337-340

as a result of electron transfer to the radical from photoexcited paramagnetic centers of protein. It is shown that it is possible to use the radicals to detect and analyze paramagnetic states of protein having a short lifetime, as a result of which the concentration of unpaired proteins in a sample is slight (less than $1 \cdot 10^{-10}$ spin). Electron transfer was shown with the aid of the radical in an aqueous solution in a dye-protein system and the feasibility of using the radicals to study oxidation-reduction processes in mitochondria was demonstrated.

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IN AQUEOUS SOLUTIONS OF

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TITLE--STUDY OF PARAMAGNETIC CENTERS PHOTOINDUCED
PROTEINS -U-

AUTHOR-(02)-KAYUSHIN, L.P., LVOV, K.M.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EPR SPECTRA AQUEOUS SOLUTIONS OF PROTEINS SUBJECTED TO THE EFFECT OF UV AND VISIBLE LIGHT AT TEMPERATURES ABOVE 0 C WERE OBTAINED. UNPAIRED ELECTRONS ARE STABILIZED BY PROTEIN MOLECULES. THE LIFE SPAN OF SUCH STATES AT TEMPERATURES ABOVE 0 C REACHES SEVERAL DOZENS OF SECONDS. FACILITY: INST. BIOL. PHYS., ACAD. SCI. USSR, PUSHCHINO-ON-OKA, USSR.

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USSR

KAYUSEIN, L.P. and L'VCV, K.M., Institute of Biophysics, Academy of Sciences
USSR

"Study of Paramagnetic Centers Photoinduced in Aqueous Protein Solutions"

Moscow, Biofizika, Vol 15, No 2, Mar/Apr 70, pp 235-238

Abstract: The electron paramagnetic resonance (EPR) of aqueous protein solutions exposed to ultraviolet and visible light was studied. Study of the properties of photoinduced free radicals in aqueous protein solutions at temperatures greater than 0°C will be valuable in elucidating certain recently discovered properties of protein molecules in metastable excited states. Studies were conducted with a radio spectrometer specially adapted to measure the EPR absorption of samples containing a large amount of water (tissue, solutions, and suspensions). For each sample, the EPR spectrum was recorded during illumination and immediately thereafter. The magnitude of the signal persisting in the darkness represented the stability of unpaired electrons. Samples of glycerinated muscles and solutions of pepsin and ribonuclease were investigated. All of them displayed EPR spectra when illuminated with ultraviolet or visible light. Unpaired electrons were stabilized by protein molecules. This state persisted for a long time in darkness. Paramagnetic centers were formed when light was turned on much faster than they disappeared after light was turned off. They persisted in

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KAYUSHIN, L.P., et al, Biofizika, Vol 15, No 2, Mar/Apr 70, pp 235-238

the darkness for 30-40 seconds, with 30% of them remaining stable for several minutes. No EPR spectra were observed when an aqueous solution of methylene blue and eosin was illuminated with either visible or ultraviolet light.

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L'VOV, N. P.

MOLECULAR MECHANISMS OF ATMOSPHERIC NITROGEN FIXATION

UDC 576.851

Article by Member-Correspondent USSR Academy of Sciences V. L. KREKOVICH, Doctor of Biological Sciences I. G. YEREMENKO, Candidates of Biological Sciences N. P. L'VOV, S. S. MOISEVICH, Moscow, Vsesoyuznyi Nauchno-Issledovatskiy Tsentr, pp. 35-41

The atmosphere is a source of nitrogen, found in the composition of all life. The reserves of nitrogen in the atmosphere are almost unlimited; above each hectare of soil rises a column of air containing about 80,000 tons of nitrogen, i.e., approximately 10,000 times more than in one hectare of soil. Nevertheless, neither the human nor the animal organism, nor much of the world's vegetation is capable of assimilating molecular nitrogen from the atmosphere. Man and animal alike acquire nitrogen from food in the form of vegetable and animal proteins. As regards vegetables, however, they have a remarkable capacity to synthesize proteins from carbon dioxide gas, water and inorganic sources of nitrogen -- ammonia and the salts of nitric acid, representing in the final analysis a primary source of protein on our planet. But even ammonia and nitric acid salts (nitrates), in turn, are formed from molecular atmospheric nitrogen by virtue of the vital activity of a special group of nitrogen-fixing microorganisms, living in the soil and in water bodies.

Thus, life on our planet depends on these microorganisms.

Natural nitrogen-fixing microorganisms can be classified in two groups: free-living and symbiotic, which live in symbiosis (companionship) with higher plants or fungi, supplying them with various nitrogen compounds formed in the process of fixation of atmospheric molecular nitrogen.

The history of analysis of nitrogen-fixing microorganisms goes back to 1893, when S. N. Vinogradsky first extracted from soil the anaerobic nitrogen-fixing bacterium *Clostridium pasteurianum*. Later on, in 1901, N. Beychik discovered the anaerobic nitrogen-fixing bacterium *azotobacter*. For nearly a half century these two free-living bacteria were considered the only nitrogen-fixing microbes in the soil. Development of new, highly sensitive methods of determining nitrogen-fixing activity by

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Biologicheskaya, 1970, Nr 1, pp 127-129

N. P. LVOV. V. I. LYUBIMOV. N. V. KARAPET'YAN

PECULIARITIES OF THE OXIDATION METABOLISM AND NITROGEN FIXATION
IN MYCOBACTERIUM AZOT—ABSORPTUM N. SP.

A. N. Bach Institute of Biochemistry, Academy of Sciences, USSR

The experiments carried out on suspensions of non dividing cells have shown that the nitrogen-fixing Mycobacterium azot-absorptum oxidates the most important compounds of the tricarbon acids cycle and possesses a cytochromes set characteristic of aerobic microorganisms. However N₂ fixation in this microorganism proceeds more energetically under anaerobic or microaerophilic conditions.

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L'VOV, O. I., PAVINSKIY, P. P.

"Optical Spectrum of the Acceptor Center in a BiI_3 Crystal"

Leningrad, Vestnik Leningradskogo Universiteta: Fizika-Khimiya, October-December 1973, pp 13-17

Abstract: The bright-line absorption and emission spectra observed in single crystals of BiI_3 having a stoichiometric deficiency of iodine are theoretically interpreted. The form of the spectra is hydrogen-like with reverse convergence of the lines on the long-wave side of the series. A model of the acceptor center is suggested, and the relative intensity of the absorption lines as well as the asymmetry of the shape of the lines are calculated. A qualitative explanation of the mutual inverse behavior of the intensity in the absorption and emission spectra is suggested. The dependence of the photoelectric activity on the spectra is naturally included in the suggested scheme.

The article includes six equations, one figure, and two tables. There are 11 references.

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UDC 669.018.4:536.2:621.762.4

SAMSONOV, G. V., BOGOMOL, I. V., L'VOV, S. N., and LESMAYA, M. I., Institute of Problems of Material Science, Academy of Sciences UkrSSR, Institute of Physics of Metals, Academy of Sciences UkrSSR

"Thermal Conductivity of Cermets Containing Titanium Carbide"

Kiev, Poroshkovaya Metallurgiya, No 11 (119), Nov 72, pp 62-65

Abstract: A study was made of the thermal conductivity of cermets of the systems TiC-Nb, TiC-Ta, TiC-Mo, and TiC-W, containing 25, 50, and 75 at% metal, within the 20-1100°C temperature range. The thermal conductivity was measured on hot-pressed specimens according to a previously described method [Porosh Novaya Metallurgiya, No 9, 89, 1966]. Temperature and concentration dependences of thermal conductivity of the cermets are shown. A considerable drop was established for the thermal conductivity coefficient of the cermets in comparison with introduced metals. A relative increase of the thermal conductivity coefficient is shown to take place at a constant temperature in a number of the investigated compositions. Two figures, one table, seven bibliographic references.

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USSR

UDC 669.018.4:537.311.621.762.4

SAMSONOV, G. V., BOGOMOL, I. V., I'VOV, S. N., and LESNAYA, M. I., Institute of Problems of Material Science, Academy of Sciences Ukr SSR and the Kherson Pedagogical Institute

"Electrophysical Properties of TiC-Nb, TiC-Ta, TiC-Mo, and TiC-W Cermets"

Kiev, Poroshkovaya Metallurgiya, No 10, Oct 72, pp 62-67

Abstract: The temperature function of specific electrical resistance ρ and coefficient of thermal emf α of TiC-Nb, TiC-Ta, TiC-Mo, and TiC-W cermets, with a varying content of cementizing metal, was investigated at 20-1100°C. The Hall coefficient R was also measured at room temperature. Cermet samples were made by sintering, plus hot extrusion at 2000-2500°C at a pressure of 300 kg/cm² for 10-15 minutes. Extremes were observed in the concentration relationships at 50 at.% Nb(Ta) and 25 at.% Mo(W). The linear nature of the temperature function $\rho = \rho(t), \alpha = \alpha(t)$ was shown for the investigated cermets, which testifies to the metallic character of their conductivity. The specific electrical resistance of TiC-Nb and TiC-Ta exceeds the resistance of the initial metals (Nb--16 and Ta--14.7 micro-ohm-cm) by 7-14 times and is 2-4 times greater than in TiC (53 micro-ohm-cm). In the TiC-Mo and TiC-W cermets the specific electrical resistance is an order higher than in the initial materials

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SAMSONOV, G. V., et al., Poroshkovaya Metallurgiya, No 10, Oct 72, pp 62-67

and 1-3 times higher than in TiC, with the exception of compositions 25TiC-75Mo or 25TiC-75W, where the electrical resistance is somewhat less than in TiC. 3 figures, 1 table, 12 bibliographic references.

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Physical Properties

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UDC 546.27.72:541.12.03

KOSTETSKIY, I. I., and L'VOV, S. N., Kherson Pedagogical Institute imeni N. K. Krupskaya

"Some Physical Properties of Cobalt and Nickel Borides"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 4, Apr 72, pp 773-779

Abstract: The temperature dependences of the specific electric resistance ρ and of the components of thermal conductivity λ and the thermoelectromotive force α of cobalt and nickel borides were experimentally investigated by methods described by S. N. L'vov et al. (Poroshkovaya Metallurgiya, 1966, No 9, 89 & Pravila Tekhnicheskoy Eksploataatsii, 1961, No 2, 159). The results are discussed by reference to tabulated data and diagrams of the physical properties of cobalt and nickel borides at 290°K and the temperature dependences of ρ , α , and λ for CoB and ferromagnetic borides of cobalt and nickel borides. The supposed relative position of the 3d-, 4s-, and 4p-zones and of Fermi levels for nickel borides are shown. For the latter the magnetic susceptibility χ and the Hall coefficient at room temperature were determined. The concentration of charge carriers, effects of various mechanisms, their degradation, and the disposition of the Fermi level relative 1/2

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KOSTETSKIY, I. I., and L'VOV, S. N., Fizika Metallov i Metallovedeniye,
Vol 33, No 4, Apr 72, pp 773-779

to the 3d-zone are analyzed. Two tables, two formulas, three illustrations,
twenty-two bibliographic references.

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