

USSR

GERSHENZON, Ye. M., IL'IN, V. A., LITVAK-GORSKAYA, L. B.,  
RABINOVICH, R. I., and SHAPIRO, Ye. Z.

UDC: 621.315.592

"Determining Separate Concentrations of Impurities in Type A<sup>III</sup><sub>B</sub>V  
Compounds by Electron Heating"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1906-1910

Abstract: A method is developed for determining separate concentrations of impurities in compounds of the A<sup>III</sup><sub>B</sub>V type from the magnitude of the hot electron mobility and the dependence of the mobility on the electric field intensity. Earlier papers have shown that at low temperatures in such compounds, there is a range of electric field intensities in which this dependence is weak. Two possibilities that may then arise are considered: the carrier concentration is such that the electron-electron interaction may be neglected; the electron concentration is high and the electron-electron interaction must be taken into account. Nomograms for finding the total concentration of impurities from the experimental value of the mobility are given. Also given is the diagram and explanation of a device for verifying this method in the case of some n-InSb and n-GaAs specimens. The authors express their thanks to  
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UDC: 621.315.592

GERHSENZON, Ye. M., et al, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1906-1910

V. S. Ivleva, A. N. Telegin, and L. D. Sobanova for preparing the N-InSb and epitaxial n-GaAs films for the verifying tests.

a/a

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1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--CONTRIBUTION OF IMPURITY STATES TO THE ELECTRICAL CONDUCTIVITY OF N  
INDIUM ANTIMONIDE AT LOW TEMPERATURES -U-  
AUTHOR--(03)-BANNAYA, Y.F., GERSHENZON, YE.M., LITVAKGORSKAYA, L.B.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1) 200-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--IMPURITY BAND, ELECTRIC CONDUCTION, CRYSTAL LATTICE  
VIBRATION, INDIUM ANTIMONIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1983/1825 STEP NO--UR/0449/70/004/001/0200/0207  
CIRC ACCESSION NO--AP0054659  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054659

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCES OF ELEC. COND. AND HALL COEFF. OF MAX. REFINED AND SPECIALLY COMPENSATED N TYPE INSB SAMPLES WERE STUDIED IN WEAK MAGNETIC FIELDS AT 0.32-20DEGREESK. THE EXPTL. RESULTS CAN BE EXPLAINED WITH CONSIDERATION OF COND. IN THE CONDUCTION AND IMPURITY BANDS. ON THE BASIS OF THE 2 BAND CONDUCTION MODEL, THE TEMP. DEPENDENCE WAS DETD. OF THYRATIO OF ELECTRON CONCNS. IN THE 2 BANDS. THE TOTAL CONC. AND IONIZATION ENERGY OF IMPURITIES, E SUBD, WERE CALCD., AND IT WAS FOUND THAT E SUBD INCREASES WITH INCREASING COMPENSATION. THE CONTRIBUTION TO THE MOBILITY FROM CARRIER SCATTERING ON LATTICE VIBRATIONS WAS ESTD. AT 77DEGREESK.

UNCLASSIFIED

• USSR

UDC 519.281

LITYAKOV, B. M., Adaptatsiya, Samoorganizatsiya, Moscow, Nauka Press, 1970, pp 76-79

A, B are constants.

Suppose also random vectors  $x^n$  are independent;

$$\gamma_n > 0; \sum_{n=1}^{\infty} \gamma_n = \infty; \sum_{n=1}^{\infty} \gamma_n^2 < \infty.$$

Then for all  $\varepsilon, p^*$ , such that

$$0 < \varepsilon < A - \inf_{\theta} f(\theta); 0 < p^* < 1,$$

a number  $n^*$  is found such that for sequence  $y^n$ , which enters the area  $G_\varepsilon = \{y: G_\varepsilon: J(y) < A - \varepsilon\}$  where  $n \geq n^*$ , the probability of never leaving  $G$  is greater than  $p^*$ .

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1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--APPROXIMATING PROPERTIES OF CERTAIN ALGORITHMS OF METHOD OF  
POTENTIAL FUNCTIONS -U-  
AUTHOR--LITVAKOV, B.M.  
COUNTRY OF INFO--USSR  
SOURCE--AVTOMATIKA I TELEMEXHANIKA, 1970, NR 3, PP 107-116  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATHEMATICAL SCIENCES  
TOPIC TAGS--ALGORITHM, POTENTIAL FUNCTION, APPROXIMATION METHOD,  
APPROXIMATION CONVERGENCE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1988/1471 STEP NO--UR/0103/70/003/000/0107/0116  
CIRC ACCESSION NO--AP0106227  
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106227

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RECURRENT ALGORITHMS OF THE METHOD OF POTENTIAL FUNCTIONS ARE USUALLY CONSIDERED AS THE ALGORITHMS OF RESTORATION (IN THIS OR THAT MEANING) OF A CERTAIN OBJECTIVELY EXISTING FUNCTION  $Y(X)$ . IN THE ARTICLE PRESENTED, THE SEQUENCE OF THE FUNCTIONS FORMED IN THE FUNCTIONING OF THE ALGORITHM IS CONSIDERED AS APPROXIMATING WITH REGARD TO  $Y(X)$ ; THIS APPROACH COVERS THE CASE WHEN  $Y(X)$  CANNOT BE RESTORED BY MEANS OF THE ALGORITHM. THE THEOREM OF THE CONVERGENCE OF THE APPROXIMATING SEQUENCE AND THE THEOREM OF THE ALGORITHM ROUGHNESS WITH REGARD TO THE SMALL CHANGES OF THE FUNCTION  $Y(X)$  ARE PROVED.

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BRAVERMAN, E. M., LITVAKOV, B. N.

"Convergence of Algorithms for Detection and Adaptation"

Tr. IV Vses. Soveshch. po Avtomat. upr., 1968. Teoriya avtomat. upr. [Works of Fourth All-Union Conference on Automatic Control, 1968. Theory of Automatic Control], Moscow, Nauka Press, 1972, pp 434-442 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V700 by the authors).

Translation: A number of theorems are presented, allowing convergence to be established and convergence rate to be estimated and for random processes arising when the method of stochastic approximation is used. The known theorems of Dvoretzkiy, Blum and Gladyshev can be produced as a result of the theorems presented in this report. Conditions are established under which the requirement of summability of the series of squares of compressing factors can be weakened in the Robbins-Monroe procedure, or replaced by the requirement that these factors tend toward zero.

16 Biblio. Refs.

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1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--CLINICO ROENTGENOLOGICAL CONFRONTATIONS IN CHDANAL POLYPS -U-  
AUTHOR--(02)-LITVAKOVSKAYA, G.A., SAVELYEVA, K.A.  
COUNTRY OF INFO--USSR  
SOURCE--VESTNIK OTORINOLARINGOLOGII, 1970, NR 1, PP 48-52  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--TUMOR, RESPIRATORY SYSTEM, RADIOGRAPHY, DIAGNOSTIC MEDICINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1980/0797 STEP NO--UK/0607/70/000/001/0048/0052  
CIRC ACCESSION NO--AP0049021  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0049021

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPERIENCE OF CLINICO ROENTGENOLOGICAL INVESTIGATION OF 129 PATIENTS WITH A DIAGNOSIS OF NASOPHARYNGEAL TUMOR HAS SHOWN THAT IN 6.2 PER CENT OF CASES A CHOANAL POLYP IS MISTAKEN FOR A TRUE NEOPLASM. IN VIEW OF THE PRINCIPAL DIFFERENCES IN THE TREATMENT OF THESE DISEASES THE AUTHORS ON THE BASIS OF CLINICO ROENTGENOLOGICAL CONFRONTATIONS IN 23 PATIENTS ARRIVED AT THE CONCLUSION ON THE GREAT DIAGNOSTIC VALUE OF THE X RAY METHOD IN THE RECOGNITION OF CHOANAL POLYPS. A DETAILED X RAY EXAMINATION, INCLUDING CRANIOGRAPHY (IN LATERAL, GENTONASAL AND AXIAL PROJECTIONS) AND TOMOGRAPHY (IN LATERAL AND FRONTONASAL PROJECTIONS), ENABLES TO DEFINE THE TOPOGRAPHIC ANATOMICAL INTERRELATIONS OF THE PATHOLOGICAL FORMATION WITH THE NASOPHARYNGEAL WALLS AND NASAL CAVITY, AND IN A NUMBER OF CASES, IT HELPS TO REVEAL THE "PEDICLE" OF THE POLYP IN THE DIRECTION OF THE AFFECTED SINUS. CLINICO ROENTGENOLOGICAL CONFRONTATIONS TESTIFY TO THE SIGNIFICANT INCIDENCE OF THE INITIAL LOCALIZATION OF CHOANAL POLYP IN THE MAXILLARY SINUS, ROENTGENOLOGICALLY BEING REFLECTED BY AN ADDITIONAL ROUND SHADOW IN ANTERIOR REGIONS OF THE NASOPHARYNX "PEDICLE" OF THE POLYP COMMUNICATING WITH THE SHARPLY WIDENED NATURAL OPENING OF THE DARKENED SINUS.

UNCLASSIFIED

USSR

UDC: 621.396.6-181.48

LITVAKOVSKIY, B. A., SKORIK, N. N.

"Origin of the Mask Imprint When Thin Films are Deposited in Vacuum"

Elektron. prom-st'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No 1, pp 77-78 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8V288)

Translation: The causes of development of a mask imprint on a heated substrate when thin films are deposited on the substrate in vacuum are analyzed. Resumé.

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USSR

UDC: 681.327

ATOVM'YAN, A. E., KUDRYAVTSEV, O. M., LITVAN, A. B., MALOVICHKO, V. V.,  
MUSATOV, I. F., PUKOV, N. P., YAROSHEVSKIY, I. D.

"A Multiple-Reel Tape Transport Mechanism for Memory Devices"

USSR Author's Certificate No 288051, filed 5 Aug 69, published 20 Apr 71  
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct  
71, Abstract No 10B344 P)

Translation: Multiple-reel tape transport mechanisms for memory units are known which contain a reel cassette, reel drive spindles, and a drive for moving the cassette. A distinguishing feature of the described device is arrangement of the reels in the cassette by pairs in two groups coaxially with each other and with their drive spindles; and the cassette contains a bracket with guides for displacing the cassette along the axis of the spindles, which are equipped with releasable cartridges containing cams for locating the reels with internal tapers. Fastened to the reels are spring-loaded gear sectors which engage in the initial state with geared rims fastened on the cassette housing. This speeds up data sampling and improves the reliability of the device. Two illustrations.

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USSR

UDC 681.327.66.002.72

ATOVM'YAN, A. E., ANFIMOV, M. A., V'YUGIN, V. A., KOLOBASHKIN, N. I., LITVAN, A. B., MAZAN'KO, B. P., AND SOLOV'YEV, V. A.

"Device for Checking Bunched Conductors"

USSR Author's Certificate No 277858, filed 27 May 69, published 6 Nov 70  
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6 B153 P)

Translation: A testing device containing a memory, coincidence circuit, and a display circuit is well known. This device does not provide for automation of control of bunched conductors during the manufacturing process. The proposed device for similar purpose is distinguished by the fact that it contains two ferrite cores with an open magnetic conductor, into one of which wires corresponding to the code "1" are introduced, and into the other, wires corresponding to the code "0." These are the primary coils of transformers the secondary windings of which are connected to the first input of each of two coincidence circuits respectively. The second input of each coincidence circuit is connected to the memory output, and their outputs are connected to the interrogation device connected to the conductors of the tested bunched conductors and the interrogation current control circuit. The control of the bunched conductors during the production process is automated in this way. There is 1 illustration.

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1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--THE CHOICE OF A PRINCIPAL SCHEME OF HIGHLY MOBILE GAMMA THERAPEUTIC  
APPARATUS -U-  
AUTHOR-(04)-ATOVTANY, A.E., GORDON, V.I., DAVYDOVA, I.A., LITVAN, A.B.  
COUNTRY OF INFO--USSR  
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, PP 28-31  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--IRRADIATION APPARATUS, MEDICAL APPARATUS, GAMMA RADIATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/0282 STEP NO--UR/0241/70/015/005/0028/0031  
CIRC ACCESSION NO--AP0120971  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120971

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES OF A KINEMATIC PRINCIPAL SCHEME ARE A FACTOR DETERMINING THE QUALITY OF THE GAMMA THERAPEUTIC APPARATUS FOR MOBILE IRRADIATION. THE ISSUE DISCUSSES KINEMATIC DIFFERENT GAMMA APPARATUS AND ANALYZES THE INFLUENCE OF PARAMETERS OF THE RADIATION HEAD ON THE TECHNICAL CHARACTERISTICS OF APPARATUS. A NEW SCHEME OF MOUNTING OF MECHANISMS OF THE RADIATION HEAD IS PROPOSED AS A POSSIBILITY OF ESSENTIAL IMPROVEMENT OF THE DESIGN OF GAMMA THERAPEUTIC APPARATUS FOR MOBILE IRRADIATION. FACILITY: MOSKOVSKIY N-I RENTGENO RADIOLOGICHESKIY INSTITUT MINISTERSTVA ZDRAVOOKHRANENIYA RSFSR.

UNCLASSIFIED

USSR

UDC 669-172:541.12.03

SAVITSKIY, Ye. M., BUROV, I. V., LITVAN, L. N., BURKHANOV, G. S., and  
BOKAREVA, N. N.

"Work Function of Single Crystals of Molybdenum-Niobium System Alloys on  
(111) Face in a Vacuum"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory  
and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 74-77

Translation: The work function of single crystals of the molybdenum-niobium system of alloys on the (111) face is measured in a vacuum of  $10^{-9}$  torr throughout the entire range of concentrations. Using a thermo-emission projector, an emission picture is produced for the alloy Mo + 42% Nb, and anisotropy is established similar to that produced for pure metals with a BCC lattice. The experimental results produced with single crystals of the alloys confirmed the general nature of the monotonous change in emission properties in solid solutions of binary equilibrium systems both for polycrystals and for single crystals. In performing measurements with single crystals, a change was noted in the fine structure of the alloys, influencing their emission properties. 2 Tables; 2 Figures; 11 Bibliographic References.

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USSR

UDC 669-172:541.12.03

SAVITSKIY, Ye. M., BUROV, I. V., LITVAK, L. N., POLYAKOVA, V. P., and KHORLIN, Ye. M.

"Thermo-Emission Properties of Iridium Single Crystals"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 81-85

Translation: Certain thermo-emission characteristics of an iridium single crystal are reproduced in a vacuum of  $10^{-9}$  torr, grown by the method of zone refining by an electron beam. A thermo-emission image of iridium is produced in a Martin projector. The brightness of luminence indicates the following order of increasing work function for various faces: (311)-(110)-(100)-(111). It is established that the iridium does not change its emission picture with changing residual gas pressure in the  $10^{-5}$ - $10^{-8}$  torr interval. An instrument with flat geometry is used to determine the work function on the (100) and (110) faces. The following values are produced for full current: for the (100) face at  $1,900^{\circ}\text{K}$ ,  $\phi = 5.37 \pm 0.05$  ev, for the (110) face at  $1,900^{\circ}\text{K}$ ,  $\phi = 4.83 \pm 0.05$  ev. The Richardson work functions correspondingly are  $\phi_{(100)} = 5.50 \pm 0.05$  ev,  $\phi_{(110)} = 4.85 \pm 0.05$  ev. 7 Figures; 10 Bibliographic References.

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1/2 047

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--PRIME210 PB AND PRIME210 PD IN ARCTIC REGIONS OF THE NORTHEAST -U-

AUTHOR--(05)-LITVER, B.YA., RAMZAYEV, P.V., MOYSEYEV, A.A., TROITSKAYA,  
M.N., KRISYUK, E.M.  
COUNTRY OF INFO--USSR

SOURCE--(AEC-TR-7128, PP 180-93) TRANSLATION OF REPORT A-AC-82-G-L-1293

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, BIOLOGICAL AND MEDICAL  
SCIENCES

TOPIC TAGS--RADIATION BIOLOGIC EFFECT, NUCLEAR WEAPON TEST, BONE, LEAD  
ISOTOPE, FOOD CONTAMINATION, RADIOACTIVE CONTAMINATION, ARCTIC TEST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1983/1745

STEP NO--UR/0000/70/000/000/0180/0193

CIRC ACCESSION NO--AT0054587

UNCLASSIFIED

2/2 047

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0054587

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LICHEN REINDEER MAN FOOD CHAIN HAS BEEN FOUND TO EXERT A CUMULATIVE ACTION ON RADIOISOTOPES. IN THIS CONNECTION, STUDIES WERE CARRIED OUT TO DETERMINE THE PRIME210 PB CONTENT OF BIOSAMPLES FROM SUBARCTIC REGION, COLLECTED BOTH BEFORE AND AFTER THE ATOMIC BOMB TESTS; IN ADDITION, THE PRIME226 RA AND PRIME228 TH CONTENT OF LICHENS AND REINDEER BONES WAS ALSO DETERMINED. THE SPECIMENS WERE COLLECTED IN THE MURMANSK AND NENETS REGIONS; THE BONES OF NATIVE INHABITANTS OF ARCTIC REGIONS WERE OBTAINED FROM THE LENINGRAD MUSEUM. THE RESULTS INDICATED THAT THE PRIME210 PB CONTENT IN THE NORTHERN FOOD CHAIN BEFORE (1900 TO 1945) AND AFTER (1958, 1965-66) THE ATOMIC TESTS DID NOT DIFFER SUBSTANTIALLY. THE PRIME210 PB DATA OF REINDEER BONES ALSO REVEALED THAT THE CONCENTRATION OF THIS ELEMENT DOES NOT CHANGE WITH TIME. THE DIFFERENCES OBSERVED IN HUMANS MAY BE ATTRIBUTED TO CONTAMINATION. IT WAS CONCLUDED THAT THE PRIME210 PB CONTENT IS PROBABLY DUE TO THE NATURAL DECAY OF PRIME226 RA; THE EFFECT OF ATOMIC TESTING IS SMALL. THE INTERNAL SKELETAL DOSE OF REINDEER POLONIUM WAS CALCULATED TO AMOUNT TO 0.8 RAD-YEAR UP TO 1900, 1 RAD-YEAR FROM THE 1900 TO 1945 AND 1945 TO 1966 PERIODS. THE DATA ALSO INDICATE THAT PRIME210 PB IS CUMULATED IN REINDEER BY A FACTOR OF 4 AND PRIME226 RA BY A FACTOR OF 8; THESE VALUES ARE MUCH LOWER THAN THOSE REPORTED FOR MAN.

FACILITY: GOSUDARSTVENNYI KOMITET PO ISPOL'ZOVANIYU ATOMNOI ENERGII SSSR, MOSCOW.

UNCLASSIFIED

Coatings

USSR

UDC 620.171.3:678.744.743

TRACHEV, V. I., BEYDER, E. YA., LITVIN, A. K., GUDIMOV, M. M., AND SOSHIKO, A. I., All Union Scientific Research Institute of Aviation Materials, Moscow, Physico-Mechanical Institute Academy of Sciences UkrSSR, L'vov

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 5, 1973, pp 102-103

Abstract: The optimum conditions for the heat treatment of steel, before applying a polyethylene coating to increase its fatigue strength in an aggressive corrosive medium, were investigated on 30KhGSNA steel specimens, one part of which was coated with polyethylene. The composition of the coated specimens was selected so as to eliminate the effect of the coating, i.e., that the lasting quality of coated and uncoated specimens in air was the same. The investigation results are analyzed by reference to tabulated data, showing the longevity of coated and uncoated specimens in air, 30% NaCl, and in normal  $H_2SO_4$ , at low and high tempering temperatures, and diagrams of the effects of tempering temperatures on two coefficients characterizing the influence of the medium on the longevity relation in cycles of coated and uncoated specimens. The investigations demonstrated that poly-

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TKACHEV, V. I., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 5, 1973, pp 102-103

ethylene coatings of high density increase the corrosion-fatigue strength of 30KhGSNA steel specimens in aggressive media; this increase is most effective in acid media. The most protective effect of polyethylene coating was found on hardened and low-temperature annealed specimens. Two figures, one table, eight bibliographic references.

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USSR

UDC 669.017:539.56:669.788

KARPENKO, G. V., LITVIN, A. K., TKACHEV, V. I., and SOSNIKO, A. I., Physico-mechanical Institute, Academy of Sciences Ukrainian SSR, L'vov

"Problem on the Mechanism of Hydrogen Brittleness"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 4, 1973, pp 6-12

Abstract: The article consists of an examination of Soviet and non-Soviet works dealing with hydrogen brittleness of metals in conjunction with studies by the authors on the effect of hydrogen in steels USA and 2Kh13. The authors' interpretation of hydrogen "embrittlement" is based on the general theory of the effect of a medium on mechanical properties, with consideration of the specific (for hydrogen) temperature relationship of interaction with a metal; it makes it possible to explain the unmonotonous curve of the temperature relationship of strength properties, intensification of hydrogen brittleness at the minimum rate of deforming (caused by the time function of the chemosorption process), and other experimental facts which are not explained in known hypotheses. According to the authors the phenomenon of hydrogen brittleness should be examined as a mechanicochemical effect of selective microplasticification of metal caused by chemosorption of hydrogen which is activated by stresses. 2 figures, 36 bibliographic references.

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USSR

UDC 620.17

TKACHEV, V. I., ROMANIV, A. N., KRIPYAKEVICH, R. I., LITVIN, A. K., Physico-Mechanical Institute of the Ukrainian SSR Academy of Sciences, Lvov

"Device for Low-Cycle Fatigue Testing of Metals in an Atmosphere of Hydrogen and other Gases at Augmented Temperatures"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 8, No 2, 1972, pp 91-93

Abstract: The VTP-1 device is introduced which was designed and manufactured for low-cycle fatigue testing of flat specimens by pure bending at temperatures to 700° C in an atmosphere of hydrogen and other gases and also in a vacuum. The device was built on the basis of the IP-2 [V. I. Tkachev, et al., FKhM, No 2, 1966] designed for low-cycle testing of metals in liquid media at room temperature. The basic assemblies include the following: a working chamber, a hydraulic drive for the loading system, a vacuum section with a forepump and diffusion pump, furnace transformers for heating the sample, a module for controlling the drive and vacuum section, a furnace temperature-regulating module, and a tank with the gases used to create the required atmosphere in the working chamber. The operation of these various assemblies is described. The design of the drive permits creation of hard or soft loading. The device is automated so that when testing at high temperatures in a vacuum with rupture of the specimen the oil supply to the slide valve system is cut off, and the piston

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KACHEV, V. I., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 8, No 2, 1972, pp 91-93

stops in the position it was in at the time of rupture. The diffusion pump and furnace heating are shut off simultaneously. The device then automatically steps through a shutdown and safety program.

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1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--HYDROTHERMAL METHOD FOR PREPARING A PRIMEV B PRIMEVI C PRIME VII  
COMPOUNDS -U-  
AUTHOR-(02)-LITVIN, B.N., POPOLITOV, V.I.  
COUNTRY OF INFO--USSR L  
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 575-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHALCOGENIDE GLASS, ANTIMONY, BISMUTH, TITANIUM, TEFLON,  
HYDROGEN SULFIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/0895 STEP NO--UR/0363/70/006/003/0575/0576  
CIRC ACCESSION NO--AP0118064

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118064

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HIGH TEMP. SYNTHESIS OF A PRIMEV B  
PPRIMEVI C PRIMEVII (A EQUALS SB, BI; B EQUALS S, SE, TE; C EQUALS CL,  
BR, I) FROM AQ. SOLNS. UNDER PRESSURE (HYDROTHERMAL METHOD) IS  
DESCRIBED. IN ALL CASES, PH 3-6 AQ. SOLNS. AT THE PARTIAL H SUB2 S  
PRESSURE OF 0.2-1.5 ATM, CHALCOGENIDES OF SB AND BI FORM WITH THE YIELD  
BEING CLOSE TO 100PERCENT. THE SYNTHESIS WAS PERFORMED IN CONVENTIONAL  
HYDROTHERMAL REACTORS WITH THE USE OF TEFLON OR TI LINING AT  
250-320DEGREES, PRESSURE OF 200-600 ATM, AND TEMP. GRADIENT OF  
0.3-0.8DEGREES-CM. ALL THE CRYSTALS OBTAINED HAVE AN ACICULAR HABIT,  
WHICH IS ASSOCD. WITH THE PRICULIAR CHAINLIKE STRUCTURE OF THESE COMPS.  
MOST OF THE CRYSTALS ARE NONTRANSPARENT, AND OF BLACK OR GREYISH COLOR.  
SBSI HAS A RED COLOR, AND SBSBR IS ORANGE. FACILITY: INST.  
KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

. USSR

UDC: 539.22

VINTAYKIN, YE. Z., ~~LITVIN, D. F.~~ and UDOVENKO, V. A., Institute of General Metallurgy and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Certain Characteristic Features of Phase Transformations in Nickel-Manganese Alloys"

Sverdlovsk, Fizika metallov i metallovedeniye, Vol 33, No 1, Jan 72, pp 77-85

Abstract: Neutron diffraction and narrow-angle scattering studies of phase transformation in nickel-manganese alloys are described. The five alloys involved were of various compositions with 22.7 to 38 at. % Mn at 400-535°C. All specimens exhibited concentrated lamination. The critical ordering temperature and the comparison of the ordering kinetics with that of lamination of the alloy of a composition close to the stoichiometry of  $\text{Ni}_3\text{Mn}$  within the testing temperatures suggests the metastable nature of the ordered  $\text{Ni}_3\text{Mn}$  phase. The transformation of a hardened solid solution in the process of low-temperature annealing proceeds along two sides, one conforming to  $\text{Ll}_2$ -type ordering and the other -- to the separation of

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USSR.

VINTAYKIN, YE. Z., et al, Fizika metallov i metallovedeniye, Vol 33, No 1,  
Jan 72, pp 77-85

Ni<sub>3</sub>Mn intermetallide. Annealing for ordering produces a complex fine Ni<sub>3</sub>Mn structure which may explain the rather uncommon magnetic and other physical properties of these alloys. The study involved the use of "UNSA" and "Rawar" neutron diffractometers. (6 illustrations, 14 bibliographic references).

2/2

- 51 -

Acc. Nr:

AP0046548

Ref. Code: UR 0216

PRIMARY SOURCE: Izvestiya Akademii Nauk SSSR, Seriya  
Biologicheskaya, 1970, Nr 1, pp 43-54

F. F. LITVIN, B. A. GULYAYEV

THE SYSTEM OF AGGREGATED FORMS OF BACTERIAL PIGMENTS

M. V. Lomonosov State University, Moscow

Investigation of the structure of absorption spectra of green and purple bacteria as well as its changes in the course of pigment accumulation and action of agents disturbing their native state suggests that the peculiarities of the structure of the absorption spectra of live cells may be explained by the existence in vivo of several different forms of the pigments (bacterioviridin and bacteriochlorophyll). It was found that the structure of the spectra of the studied model system with aggregated pigments reproduces truly the structure of the spectra of corresponding pigments in the cell. The data obtained entitle one to think that the system of native pigment forms — chlorophyll

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analogous is represented by aggregates (polymer and crystalline formations). An estimation of the number of molecules in an aggregate, their respective distance and angles was carried out on the basis of the position of the maxima of the aggregates. A mathematical method of analysis of the spectra is proposed which permits to determine the fraction of absorption of every native pigment form and estimate approximately the respective pigments contents in a cell.

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USSR

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LITVIN, F. L.

"Determination of the Function of the Position of a Three-Dimensional Mechanism By Arbitrary Opening of a Circuit"

Moscow, Mashinovedeniye, No. 3, 1970, pp 51-57.

Abstract: This article suggests a simplified method of determining the function of position of a driven link based on arbitrary opening of the circuit formed by the links of the mechanism. With this type of procedure, an entire link can be removed from the circuit, or the circuit can be opened at one of the kinematic couples; relative movement of the links of the open halves of the circuit are retained. In order to determine the relationships between parameters of movement remaining after opening of the circuit, equations must be composed allowing the movements of the disconnected halves of the circuit to be matched. Opening of the circuit is achieved by: removal of a link occupying an intermediate position between the driving and driven links or by disconnection of the circuit at one of the kinematic couples.

1/1

1/3 024 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--USE OF ISOENZYMES OF LACTATEDEHYDROGENASE SPECTRA IN THE SERUM IN  
THE DIAGNOSIS OF DISEASES OF THE PANCREAS -U-  
AUTHOR--(05)-CHAZOV, YE.I., SMIRNOV, V.N., TARSIS, G.B., LITVIN, G.D.,  
KANSHIN, N.N.  
COUNTRY OF INFO--USSR  
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 4, PP 23-29  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--INTERNAL ORGAN DISEASE, PANCREAS, TUMOR, PACREATITIS, BLOOD  
CHEMISTRY, LACTATE DEHYDROGENASE, DIAGNOSTIC MEDICINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1990/0547 STEP NO--UR/0504/70/042/004/0023/0029  
CIRC ACCESSION NO--AP0108763  
UNCLASSIFIED



2/3

024

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0108763

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE PRESENTS THE RESULTS OF THE USE OF ISOENZYME SPECTRA OF LACTATE DEHYDROGENASE IN THE BLOOD SERUM FOR DIAGNOSIS OF DISEASES OF THE PANCREAS: HEMORRHAGIC PANCREONECROSIS, CHOLISTOPANCREATITIS, CANCER OF THE PANCREAS. THE AUTHORS USED AN ORIGINAL METHOD OF DIVISION OF ISOENZYMES OF LDG OF THE SERUM IN POLYACRYLAMIDE BLOCKS. DATA CONCERNING THE DYNAMIC CHANGES IN THE ENZYME SPECTRA OF LDG OF THE SERUM FOR PATIENTS WITH THE MENTIONED DISEASES WERE COMPARED WITH THE RESULTS OF DIASTASIS DETERMINATION IN THE SERUM. IT WAS FOUND THAT IN CASE OF HEMORRHAGIC PANCREATITIS A POSITIVE CORRELATION BETWEEN THE GROWTH OF LDG-3 AND LDG-4 CONTENT OF THE SERUM IN POLYACRYLAMIDE BLOCKS. DATA CONCERNING THE DYNAMIC CHANGES IN THE ENZYME SPECTRA OF LDG OF THE SERUM FOR PATIENTS WITH THE MENTIONED DISEASES WERE COMPARED WITH THE RESULTS OF DIASTASIS DETERMINATION IN THE SERUM. IT WAS FOUND THAT IN CASE OF HEMORRHAGIC PANCREATITIS A POSITIVE CORRELATION BETWEEN THE GROWTH OF LDG-3 EXPECTED. AND LDG-4 CONTENT OF THE SERUM AND HIGH FIGURES OF THE BLOOD DIASTASIS. SIMILAR RECONSTRUCTION OF THE ISOENZYME SPECTRUM OF LDG OF THE SERUM WAS NOTED IN THE MAJORITY OF PATIENTS WITH EXACERBATION OF CALCULOUS CHOLECYSTITIS IN NORMAL FIGURES OF THE SERUM DIASTASIS. CONSERVATIVE TREATMENT OF PATIENTS WITH CHOLECYSTOPANCREATITIS AND CHOLYCYSTITIS MAY BRING ABOUT A CHANGE IN THE INITIAL PICTURE OF THE ISOENZYME SPECTRUM. IN CASE OF CANCER OF THE PANCREAS CHANGES IN THE ISOENZYME SPECTRUM OF THE SERUM LDG WERE NOT OBSERVED.

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3/3 024

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0108763

ABSTRACT/EXTRACT--IT WAS FOUND THAT DETERMINATION OF THE ISOENZYME SPECTRA OF THE SERUM LDG ALLOWS A DIFFERENTIAL DIAGNOSIS OF MYOCARDIAL INFARCTION AND AN ATTACK OF ACUTE PANCREATITIS TO BE MADE. THE AUTHORS ASSUME THAT THE CHANGES IN THE ISOENZYME SPECTRUM OF THE SERUM LDG OBSERVED IN PANCREATITIS AND CHOLECYSTOPANCREATITIS ARE PECULIAR NOT ONLY TO THE DISEASE OF THE PANCREAS. AT THE SAME TIME THE METHOD IS VERY USEFUL IN DIAGNOSIS OF THESE DISEASES AND CAN BE USED FOR THE ASSESSMENT OF THE EFFICACY OF THE THERAPY USED. FACILITY: TSENTRAL'NAYA N-I LABORATORIYA 4-GO GLAVNOGO UPRAVLENIYA PRI MINISTERSTVE ZDRAVOOKHRANENIYA SSSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 51

LITVIN, I. Z., ROZHKOV, I. M., SAAKYAN, M. A.

"A Problem of Optimal Servicing in an Open-Hearth Shop"

V sb. Mat. vopr. upr. proiz-vom (Mathematical Problems of Production Control--collection of works), Moscow, vyp. 3, 1971, pp 15-21 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V402)

No abstract

1/1

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USSR

UDC 616.988.75(A2)

4

KETILADZE, YE. S., KRYAZEVA, L. D., KRYLOV, V. F., ALEKSEYEVA, A. A.,  
POLYAKOVA, T. G., TSAREVA, R. G., LITVIN, L. L., and SHUL'ZHENKO, T. V.,  
Clinical Department, Institute of Virology imeni D. I. Ivanovskiy, Academy  
of Medical Sciences, USSR; and Municipal Infectious Disease Hospital No 82

"Clinical Picture and Some Aspects of the Pathogenesis of Influenza Caused  
by Virus A2 (Hong-Kong)"

Moscow, Sovetskaya Meditsina, No 7, 71, pp 115-120

Abstract: The article reports findings of a study of 402 influenza patients  
between 17 and 84 years of age, observed during the Moscow influenza epidemic  
of January and February 1969. The subjects included both those observed in  
the clinic and others in military units. The disease showed all the classical  
traits of influenza infection: acute beginning; rapid rise in temperature  
(39°C and higher in 83% of the civilian and 26% of the military cases); and  
swiftly increasing signs of toxicosis. Almost all patients showed headache,  
prostration, pains in the limbs, chill, dizziness, and vomiting. More severe  
cases showed changes in the vascular and central nervous systems: delirium,  
brief loss of consciousness, syncope, convulsions, and meningeal symptoms.  
Cyanosis of the lips and oral mucous membranes, microscopic hemorrhages of the  
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USSR

KETILADZE, YE. S., et al., Sovetskaya Meditsina, No 7, 71, pp 115-120

soft palate, and nosebleeds were observed in relatively small percentages of cases. A table shows the relative frequency of various symptoms in successive influenza epidemics from 1959 through 1969. However, these figures show no consistent pattern. As is clear from the data presented, the clinical picture of A2 (Hong-Kong) influenza does not differ in the character of individual symptoms from the A2 influenza of previous years. However, in the degree of manifestation of toxicosis and the number of severe cases among patients hospitalized in the clinic, the influenza in 1969 was more severe than in 1967, but less so than in 1959. Patients in military units generally showed a less severe course. Older patients, especially those with chronic respiratory disorders, showed intensification of these conditions.

2/2

1/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--DETONATION FAILURES DURING BLASTING --U--  
AUTHOR--(04)--DRUKOVANY, M.F., KOMIR, V.M., LITVIN, L.N., OBEREMOK, U.N.  
COUNTRY OF INFO--USSR  
SOURCE--GORN. ZH. 1970, 145(2), 56-9  
DATE PUBLISHED--70  
SUBJECT AREAS--ORDNANCE  
TOPIC TAGS--EXPLOSIVE, DETONATION, TRINITROTOLUENE, WATER, HEXOGEN, SHOT  
BLASTING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3003/0434 STEP NO--UR/0127/70/145/002/0056/0059  
CIRC ACCESSION NO--AP0129659  
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129659

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SYSTEMATIC EXPTL. STUDIES WERE DONE TO CLARIFY CAUSES OF DETONATION FAILURES DURING BLASTING. TNT AND GRANULIT AS WERE USED AS EXPLOSIVES. EXPLOSIVE CHARGES WERE PLACED IN GLASS TUBES 3.5-4 M LONG AND OF 100-140 MM IN DIAM. FACTORS CONSIDERED INCLUDED: STICKING OF THE CHARGE; FORMATION OF VOIDS; CONTAMINATION OF THE CHARGE WITH WATER, DUST, GRANULES, AND PIECES OF ORE; PRESENCE OF WATER IN THE BLASTING HOLE; ETC. DETONATION FAILURES ARE NOT LIKELY TO BE CAUSED BY VOIDS AND THE PRESENCE OF INERT CONTAMINANTS. THE PRESENCE OF H SUB2 O CAN CAUSE FAILURES IN THE CASE OF SOL. OR H SUB2 O REACTIVE EXPLOSIVES. UNSTABLE EXPLOSIVES CAN THEN FORM A KIND OF INERT BARRIER. TROTYL AND TROTYL HEXUGEN DETONATORS ARE EFFECTIVE AND RELIABLE EVEN IN LOW WTS. (13-200 G); THEY MUST BE USED IN SOMEWHAT LARGER AMTS. FOR INITIATION OF DETONATION OF H SUB2 O CONTAMINATED EXPLOSIVES. THE MOST FREQUENT FAILURES ARE DUE TO QUENCHING OF BURNING OF THE DETONATION CORD, WHICH HAPPENS WHEN THE CORE OF THE CORD IS MOIST. IT IS RECOMMENDED THAT THE MOISTURE INSULATION OF DETONATION CARDS BE INCREASED BY APPLYING AN EXTRA BITUMINOUS LAYER. FACILITY: INST. GEOTEKH. MEKH., KIEV, USSR.

UNCLASSIFIED

Miscellaneous

USSR

UDC 517.512.6

LITVIN, O. M., PODGORNYY, A. M., Khar'kov Affiliate of the Institute of Engineering Heat Physics of the Academy of Sciences UkrSSR, Khar'kov Polytechnical Institute

"On Satisfying Boundary Conditions Occurring in a Calculation of Multilayer Shells"

Kiev, Doklady Akademii Nauk Ukrainskoy SSR, Seriya A, No. 2, 1972, pp 121-124

Abstract: A method is proposed for constructing functions satisfying boundary conditions of the type

$$\Delta^j u|_r = f_j|_r, j = 0, n-1,$$

where  $G$  is a sphere of radius  $R$ ,  $f_j(P) = f_j$  are given functions,  $r$  is the boundary of the sphere  $P = (x, x, x)$ , and  $\Delta$  is the Laplace operator, with  $\Delta^n u = 0$  in  $G$ . It is stated that the functions constructed can be used to construct coordinate sequences.

1/1



1/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--COULOMB STRIPPING IN A WIDE ENERGY RANGE OF EMITTED PROTONS -U-  
AUTHOR--(05)-LITVIN, V.F., NEMILOV, YU.A., KRASNOV, L.V., GRIDNEV, K.A.,  
ZHEREBTSOVA, K.I.  
COUNTRY OF INFO--USSR  
SOURCE--YAD. FIZ. 1970, 11(2), 273-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--EXCITED NUCLEUS, NICKEL ISOTOPE, DEUTERON BOMBARDMENT,  
EXCITATION ENERGY, ELECTRON TRANSITION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1980/0380 STEP NO--UR/0367/70/011/002/0273/0276  
CIRC ACCESSION NO--AP0048652  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0048652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROSCOPIC FACTORS WERE OBTAINED FOR TRANSITIONS TO LEVELS OF THE PRIME63 NI NUCLEUS BY USING EXCITATION ENERGIES IS SMALLER THAN 5 MEV. THE SPECTROSCOPIC FACTORS FOR TRANSITIONS OBTAINED BY USING EXCITATION ENERGIES UP TO 3 MEV COINCIDE WITH THE VALUES OBTAINED FROM EXPTS. AT "OVER BARRIER" D ENERGIES (15 MEV). AT HIGHER EXCITATION ENERGIES (E EQUALS 2, E SUBD EQUALS 4.096 MEV), ANOMALOUSLY LARGE SPECTROSCOPIC FACTORS ARE OBTAINED.

FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.621.59:621.396.669.8(088.8)

POSYAKOV, S. N., NERONOV, V. V., LITVIN, V. M.

"A Reception Device for Radio Communications Lines With 'Floating' Frequency"

USSR Author's Certificate No 259969, filed 26 Jul 68, published 4 May 70  
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D55 F)

Translation: This Author's Certificate introduces a device which contains a wide-band amplifier with automatic control of the transfer constant, a frequency converter, a heterodyne with "floating frequency", a controlled synchronization module, and a narrow-band IF amplifier. To improve the effectiveness of suppressing concentrated interference and prevent this type of interference from overloading the signal processing channel, the device is equipped with an additional frequency converter and a stable fixed frequency oscillator which together effect transfer of the output signal spectrum from the wide-band amplifier into the range of variation of the floating-frequency heterodyne. The heterodyne voltage and the output voltage of the additional frequency converter are fed to the inputs of a low-frequency beat detector made in the form of a frequency converter, low-frequency filter and inertial amplitude detector connected in series. The output voltage of the inertial amplitude detector is fed to the transfer constant control circuit of the wide-band amplifier through an isolating capacitor which prevents the possibility of zero beats between the heterodyne voltage and signals from the radio line transmitter. To prevent the possibility of these low-fre-

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POSYAKOV, S. N. et al., USSR Author's Certificate No 259969

quency beats in the case of a low degree of synchronism, the heterodyne is connected to the frequency converter in the main channel through a delay line which introduces a time lag greater than the ratio of the passband of the narrow-band IF amplifier to the rate of change in the "floating" frequency, but less than the time constant. N. S.

USSR

UDC: 621.396.621.59:621.396.669.8

LOSIAKOV, S. N., NERONOV, V. V., LITVIN, V. M.

"A Reception Device for Radio Communication Lines with 'Floating' Frequency"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3, 1970, p 50, patent No 259969, filed 26 Jul 68

Abstract: This Author's Certificate introduces: 1. A reception device for radio communication lines with "floating" frequency. The device contains a wide-band amplifier with automatic transmission factor control, a frequency converter with a mixer and beat oscillator with "floating" frequency controlled by a synchronization unit, and an intermediate-frequency narrow-band amplifier. As a distinguishing feature of this patent, the effectiveness of lumped interference suppression is improved and overloading of the signal processing line channel by this kind of interference is prevented by incorporating into the device an auxiliary mixer and a stable fixed-frequency oscillator. These additional elements shift the frequency spectrum of the signal from the output of the wide-band amplifier to the frequency range of the beat oscillator. The beat oscillator voltage and the output voltage of the auxiliary mixer are fed to the inputs of a low-frequency beat detector made in the form of a mixer, low-frequency filter and inertial amplitude detector connected in series. The output voltage of the amplitude detector is

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USSR

LOSIAKOV, S. N., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3, 1970, p 50, patent No 259969, filed 26 Jul 68

fed to the transmission factor control circuit of the wide-band amplifier through a blocking capacitor which prevents the possibility of zero beats between the beat oscillator voltage and signals from the radio line transmitter. 2. A modification of this device in which the distinguishing feature is prevention of the possibility of low-frequency beats between the beat oscillator voltage and signals from the radio line transmitter at a low degree of synchronism by connecting the beat oscillator with "floating" frequency to the mixer in the main channel through a delay line with a lag time which is greater than the ratio of the pass-band of the narrow-band IF amplifier to the rate of change in the "floating" frequency, but is less than the time constant of the inertial amplitude detector.

2/2

- 19 -

Vector Studies

UDC 599.323.4:591.526:59.08

USSR

LITVIN, V. Yu., KARULIN, B. Ye., NIKITINA, N. A., KARASEVA, Ye. V., and  
KHLIAP, L. A., Institute of Epidemiology and Microbiology, Academy of  
Medical Sciences USSR, Moscow

"Repeated Trapping and Radioisotopic Labeling in Studying the Use of  
Territory by Rodents (as Illustrated by the Common Vole)"

Leningrad, Zoologicheskii Zhurnal, No 6, 1973, pp 931-938

Abstract: The advantages and disadvantages of studying the home ranges of  
small rodents (voles) by labeling them with P32 and Co60 are compared. The  
use of P32 and recording of radioactive excretions is useful in determining  
the size and approximate contours of the animals' ranges over several days  
and on individual days. Drawbacks of the technique are the small number of  
animals that can be observed at the same time (on common territory) and the  
short period in which information can be collected. Labeling the animals  
with Co60 and tracking them round the clock produces the most detailed and  
objective information. The resolving power of the method is very great  
but its usefulness is limited by the small number of animals that can be  
observed at the same time. Both methods yield more information than the

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USSR

LITVIN, V. Yu., et al., Zoologicheskii Zhurnal, No 6, 1973, pp 931-938

old technique of amputating toes. The choice is determined by the particular objective of a study and by the degree of precision and completeness of the results desired.

2/2

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1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--DAILY DIURESIS AND DYNAMICS OF LEPTOSPIRA EXCRETION BY ROOT VOLES  
MICROTUS DECONOMUS -U-  
AUTHOR--(04)--KARASEVA, YE.V., PASSOVA, O.M., LITVIN, V.YU., KOKOVIN, I.L.  
COUNTRY OF INFO--USSR  
SOURCE--ZOOLOGICHESKIY ZHURNAL, 1970, NR 3, PP 435-439  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RODENT, LEPTOSPIRA, URINE, EXCRETION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/1384 STEP NO--UR/0439/70/000/003/0435/0439  
CIRC ACCESSION NO--AP0136738  
UNCLASSIFIED

... of Organic  
... of Homogeneous Hydrogenation ...  
... (phosphine)rhodium Chloride ...  
... Integrated, Mutual Agreement ...

UNCLASSIFIED

PROCESSING DATE--0408070

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CIRC ACCESSION NO--AF0135738

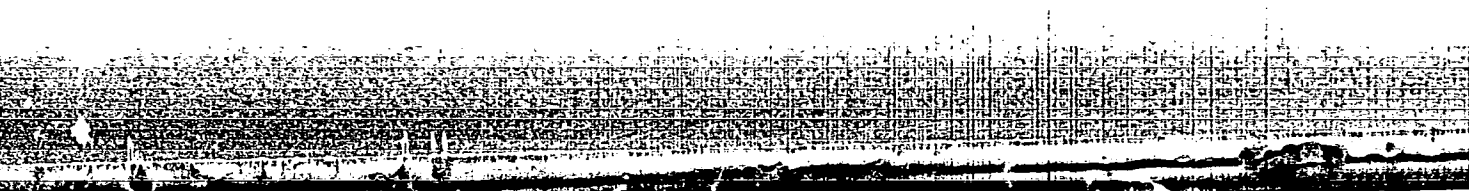
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. STUDY OF THE DAILY DIURESIS AND EXCRETION OF LEPTOSPIRA IN THE URINE OF MICROTUS DECUMONUS SHOWED THAT THE DAILY URINE VOLUME VARIED FROM 8.1-30.1 ML (AVERAGE 18.2 ML) AND INDIVIDUAL URINE SAMPLES AVERAGED 0.12 ML. URINE WAS PASSED 11-18 TIMES A DAY (25 AVERAGE). THE NUMBER OF LEPTOSPIRA EXCRETED IN THE URINE IN 24 HOURS VARIED FROM 1 TO 10 OUT OF 70-80 MICROSCOPE FIELDS. DURING THE DAY THERE WERE GAPS IN LEPTOSPIRA EXCRETION IN THE URINE, WHILE AT NIGHT DIURESIS WAS INTENSIFIED (URINE WAS PASSED MORE TIMES), AND CONSEQUENTLY THE NUMBER OF LEPTOSPIRA IN THE URINE INCREASED. MICROTUS DECUMONUS WAS THE MAIN CARRIER OF L. GRIFFITHSII IN NATURAL LEPTOSPIROSIS FOCI. THE VOLES WERE ARTIFICIALLY INFECTED WITH L. GRIFFITHSII. STRAIN MICROTUS DECUMONUS 425, AND URINE VOLUMES WERE COLLECTED IN THE LABORATORY. IN INITIAL STAGES OF LEPTOSPIROSIS, FEW LEPTOSPIRA WERE EXCRETED, WITH LEVELS INCREASING ON THE FOURTH AND FIFTH DAYS IN TWO VOLES STUDIED. FACILITY: INSTITUT EPIDEMIOLOGII I MIKROBIOLOGII, AMN SSSR; INSTITUT MEDITSINSKOY PARAZITOLOGII I TROPICHESKOY MEDITSINY, MINISTERSTVA ZDRAVOOZHRAVENIYA, SSSR, MOSCOW.

UNCLASSIFIED

"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002201820001-5



APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002201820001-5"

UDC 616.988.75(A2)

USSR

KETILADZE, YE. S., KNYAZEVA, L. D., KRYLOV, V. F., ALEKSEYEVA, A. A.,  
POLYAKOVA, T. G., TSAREVA, R. G., LITVIN, L. I., and SHUL'ZHENKO, T. V.,  
Clinical Department, Institute of Virology imeni D. I. Ivanovskiy, Academy  
of Medical Sciences, USSR; and Municipal Infectious Disease Hospital No 82

"Clinical Picture and Some Aspects of the Pathogenesis of Influenza Caused  
by Virus A2 (Hong-Kong)"

Moscow, Sovetskaya Meditsina, No 7, 71, pp 115-120

Abstract: The article reports findings of a study of 402 influenza patients between 17 and 84 years of age, observed during the Moscow influenza epidemic of January and February 1969. The subjects included both those observed in the clinic and others in military units. The disease showed all the classical traits of influenza infection: acute beginning; rapid rise in temperature ( $39^{\circ}\text{C}$  and higher in 88% of the civilian and 26% of the military cases); and swiftly increasing signs of toxicosis. Almost all patients showed headache, prostration, pains in the limbs, chill, dizziness, and vomiting. More severe cases showed changes in the vascular and central nervous systems: delirium, brief loss of consciousness, syncope, convulsions, and meningeal symptoms. Swelling of the lips and oral mucous membranes, microscopic hemorrhages of the

USSR

KETILADZE, YE. S., et al., Sovetskaya Meditsina, No 7, 71, pp 115-120

soft palate, and nosebleeds were observed in relatively small percentages of cases. A table shows the relative frequency of various symptoms in successive influenza epidemics from 1959 through 1969. However, these figures show no consistent pattern. As is clear from the data presented, the clinical picture of A2 (Hong-Kong) influenza does not differ in the character of individual symptoms from the A2 influenza of previous years. However, in the degree of manifestation of toxicosis and the number of severe cases among patients hospitalized in the clinic, the influenza in 1969 was more severe than in 1967, but less so than in 1959. Patients in military units generally showed a less severe course. Older patients, especially those with chronic respiratory disorders, showed intensification of these conditions.

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PROCESSING

1/2 029

TITLE—DETONATION FAILURES DURING BLASTING —U—

AUTHOR—(04)—DRUKOVANYI, M.F., KOMIR, V.M., LITVIN, L.N., OBEREMOK, G.N.

COUNTRY OF INFO—USSR

SOURCE—GORN. Zh. 1970, 145(2), 56-9

DATE PUBLISHED—70

SUBJECT AREAS—ORDNANCE

TOPIC TAGS—EXPLOSIVE, DETONATION, TRINITROTOLUENE, WATER, HEXOGEN, SHOT  
BLASTING

CONTROL MARKING—NO RESTRICTIONS

UNCLASSIFIED 10434

STEP NO—UK/0127/70/145/002/0056/0059

2/2 029

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129659

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SYSTEMATIC EXPTL. STUDIES WERE DONE TO CLARIFY CAUSES OF DETONATION FAILURES DURING BLASTING. TNT AND GRANULIT AS WERE USED AS EXPLOSIVES. EXPLOSIVE CHARGES WERE PLACED IN GLASS TUBES 3.5-4 M LONG AND OF 100-140 MM IN DIAM. FACTORS CONSIDERED INCLUDED: STICKING OF THE CHARGE; FORMATION OF VOIDS; CONTAMINATION OF THE CHARGE WITH WATER, DUST, GRANULES, AND PIECES OF ORE; PRESENCE OF WATER IN THE BLASTING HOLE; ETC. DETONATION FAILURES ARE NOT LIKELY TO BE CAUSED BY VOIDS AND THE PRESENCE OF INERT CONTAMINANTS. THE PRESENCE OF H SUB2 O CAN CAUSE FAILURES IN THE CASE OF SOL. OR H SUB2 O REACTIVE EXPLOSIVES. UNSTABLE EXPLOSIVES CAN THEN FORM A KIND OF INERT BARRIER. TROTYL AND TROTYL HEXOGEN DETONATORS ARE EFFECTIVE AND RELIABLE EVEN IN LOW WTS. (13-200 G); THEY MUST BE USED IN SOMEWHAT LARGER AMTS. FOR INITIATION OF DETONATION OF H SUB2 O CONTAMINATED EXPLOSIVES. THE MOST FREQUENT FAILURES ARE DUE TO QUENCHING OF BURNING OF THE DETONATION CORD, WHICH HAPPENS WHEN THE CORE OF THE CORD IS MOIST. IT IS RECOMMENDED THAT THE MOISTURE INSULATION OF DETONATION CORDS BE INCREASED BY APPLYING AN EXTRA BITUMINOUS LAYER. FACILITY:  
INST. GEOTEKH. MEKH., KIEV, USSR.

UNCLASSIFIED

Miscellaneous

UDC 517.512.6

USSR

LITVIN, O. M., POEGORNYI, A. M., Khar'kov Affiliate of the Institute of Engineering Heat Physics of the Academy of Sciences USSR, Khar'kov Polytechnical Institute

"On Satisfying Boundary Conditions Occurring in a Calculation of Multilayer Shells"

Kiev, Doklady Akademii Nauk Ukrainskoy SSR, Seriya A, No. 2, 1972, pp 121-124

Abstract: A method is proposed for constructing functions satisfying boundary conditions of the type

$$\Delta^j u|_{\Gamma} = f_j|_{\Gamma}, \quad j = 0, n-1,$$

where  $G$  is a sphere of radius  $R$ ,  $f_j(P) = f_j$  are given functions,  $\Gamma$  is the boundary of the sphere  $P = (x, x, x)$ , and  $\Delta$  is the Laplace operator, with  $\Delta^n u = 0$  in  $G$ . It is stated that the functions constructed can be used to construct coordinate sequences.

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1/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--COULOMB STRIPPING IN A WIDE ENERGY RANGE OF EMITTED PROTONS -U-  
AUTHOR--(05)--LITVIN, V.F., NEMILOV, YU.A., KRASNOV, L.V., GRIDNEV, K.A.,  
ZHEREBTSOVA, K.I.  
COUNTRY OF INFO--USSR  
SOURCE--YAD. FIZ. 1970, 11(2), 273-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--EXCITED NUCLEUS, NICKEL ISOTOPE, DEUTERON BOMBARDMENT,  
EXCITATION ENERGY, ELECTRON TRANSITION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1980/0380 STEP NO--UR/0367/70/011/002/0273/0276  
CIRC ACCESSION NO--AP0048652  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0048652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROSCOPIC FACTORS WERE OBTAINED FOR TRANSITIONS TO LEVELS OF THE  $^{63}\text{Ni}$  NUCLEUS BY USING EXCITATION ENERGIES IS SMALLER THAN 5 MEV. THE SPECTROSCOPIC FACTORS FOR TRANSITIONS OBTAINED BY USING EXCITATION ENERGIES UP TO 3 MEV COINCIDE WITH THE VALUES OBTAINED FROM EXPTS. AT "OVER BARRIER" D ENERGIES (15 MEV). AT HIGHER EXCITATION ENERGIES ( $E$  EQUALS 2,  $E$  SUBD EQUALS 4.096 MEV), ANOMALOUSLY LARGE SPECTROSCOPIC FACTORS ARE OBTAINED. FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

USSR

POSYAKOV, S. N., NERONOV, V. V., LITVIN, V. M.

UDC: 621.396.621.59:621.396.507

"A Reception Device for Radio Communications Lines With 'Floating' Frequency"  
 USSR Author's Certificate No 259969, filed 26 Jul 68, published 4 May 70  
 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D55 P)

Translation: This Author's Certificate introduces a device which contains a wide-band amplifier with automatic control of the transfer constant, a frequency converter, a heterodyne with "floating frequency", a controlled synchronism of suppressing concentrated interference and prevent the effectiveness of interference from overloading the signal processing channel, the device is equipped with an additional frequency converter and a stable signal spectrum from the wide-band amplifier into the range of variation of the floating-frequency heterodyne. The heterodyne voltage and the output voltage of the additional frequency converter are fed to the inputs of a low-frequency beat detector made in the form of a frequency converter, low-frequency filter and inertial amplitude detector connected in series. The output voltage of the inertial amplitude detector is fed to the transfer constant control circuit through an isolating capacitor and signals from the heterodyne voltage and signals from the inertial amplitude detector are fed to the inputs of a low-frequency beat detector. To prevent the possibility of these low-frequency beats between the heterodyne voltage and signals from the inertial amplitude detector.

POSYAKOV, S. N. et al., USSR Author's Certificate No 259969

quency beats in the case of a low degree of synchronism, the heterodyne is connected to the frequency converter in the main channel through a delay line which introduces a time lag greater than the ratio of the passband of the narrow-band IF amplifier to the rate of change in the "floating" frequency, but less than the time constant. N. S.

2/2

- 78 -

USSR

UDC: 621.396.621.59:621.396.669.3

LOSIAKOV, S. N., NERONOV, V. V., LITVIN, V. M.

"A Reception Device for Radio Communication Lines with 'Floating' Frequency"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 3, 1970, p 50, patent No 259969, filed 26 Jul 68

Abstract: This Author's Certificate introduces: 1. A reception device for radio communication lines with "floating" frequency. The device contains a wide-band amplifier with automatic transmission factor control, a frequency converter with a mixer and beat oscillator with "floating" frequency controlled by a synchronization unit, and an intermediate-frequency narrow-band amplifier. As a distinguishing feature of this patent, the effectiveness of lumped interference suppression is improved and overloading of the signal processing line channel by this kind of interference is prevented by incorporating into the device an auxiliary mixer and a stable fixed-frequency oscillator. These additional elements shift the frequency spectrum of the signal from the output of the wide-band amplifier to the frequency range of the beat oscillator. The beat oscillator voltage and the output voltage of the auxiliary mixer are fed to the inputs of a low-frequency beat detector made in the form of a mixer, low-frequency filter and inertial amplitude detector connected in series. The output voltage of the amplitude detector is

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USSR

LOSIAKOV, S. N., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obozretsiya,  
Tovarnyye Znaki, No 3, 1970, p 50, patent No 259969, filed 26 Jul 68

fed to the transmission factor control circuit of the wide-band amplifier through a blocking capacitor which prevents the possibility of zero beats between the beat oscillator voltage and signals from the radio line transmitter. 2. A modification of this device in which the distinguishing feature is prevention of the possibility of low-frequency beats between the beat oscillator voltage and signals from the radio line transmitter at a low degree of synchronism by connecting the beat oscillator with "floating" frequency to the mixer in the main channel through a delay line with a lag time which is greater than the ratio of the pass-band of the narrow-band IF amplifier to the rate of change in the "floating" frequency, but is less than the time constant of the inertial amplitude detector.

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Vector Studies

UDC 599.323.4:591.526:59.08

USSR

LITVIN, V. Yu., KARULIN, B. Ye., NIKITINA, N. A., KARASEVA, Ye. V., and  
KHLIAP, L. A., Institute of Epidemiology and Microbiology, Academy of  
Medical Sciences USSR, Moscow

"Repeated Trapping and Radioisotopic Labeling in Studying the Use of  
Territory by Rodents (as Illustrated by the Common Vole)"

Leningrad, Zoologicheskii Zhurnal, No 6, 1973, pp 931-938

Abstract: The advantages and disadvantages of studying the home ranges of  
small rodents (voles) by labeling them with p32 and Co60 are compared. The  
use of p32 and recording of radioactive excretions is useful in determining  
the size and approximate contours of the animals' ranges over several days  
and on individual days. Drawbacks of the technique are the small number of  
animals that can be observed at the same time (on common territory) and the  
short period in which information can be collected. Labeling the animals  
with Co60 and tracking them round the clock produces the most detailed and  
objective information. The resolving power of the method is very great  
but its usefulness is limited by the small number of animals that can be  
observed at the same time. Both methods yield more information than the

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USSR

LITVIN, V. Yu., et al., Zoologicheskii Zhurnal, No 6, 1973, pp 931-938

old technique of amputating toes. The choice is determined by the particular objective of a study and by the degree of precision and completeness of the results desired.

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"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002201820001-5

PROCESSING DATE--04DEC70  
LEPTOSPIRA EXCRETION BY ROOT VOLES  
JVA, D.M., LITVIN, V.YU., KOKOVIN, I.L.  
JOURNAL, 1970, NR 3, PP 435-439  
BIOLOGICAL AND MEDICAL SCIENCES  
-RODENT, LEPTOSPIRA, URINE, EXCRETION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--3007/1384  
RC ACCESSION NO--AP0136738 UNCLASSIFIED  
STEP NO--UR/0439/70/000/00  
00/000/00/000/00

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002201820001-5"

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--DAILY DIURESIS AND DYNAMICS OF LEPTOSPIRA EXCRETION BY ROOT VOLES  
MICROTUS OECOMOMUS -U-  
AUTHOR--(04)-KARASEVA, YE.V., PASSOVA, O.M., LITVIN, V.YU., KOKOVIN, I.L.  
COUNTRY OF INFO--USSR  
SOURCE--ZOOLOGICHESKIY ZHURNAL, 1970, NR 3, PP 435-439  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RODENT, LEPTOSPIRA, URINE, EXCRETION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/1384 STEP NO--UR/0439/70/000/003/0435/0439  
CIRC ACCESSION NO--AP0136738  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 014  
CIRC ACCESSION NO--AP0136738  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE DAILY DIURESIS AND  
EXCRETION OF LEPTOSPIRA IN THE URINE OF MICROTUS DECONOMUS SHOWED THAT  
THE DAILY URINE VOLUME VARIED FROM 8.1-30.1 ML (AVERAGE 18.3 ML) AND  
INDIVIDUAL URINE SAMPLES AVERAGED 0.72 ML. URINE WAS PASSED 11-38  
TIMES A DAY (25 AVERAGE). THE NUMBER OF LEPTOSPIRA EXCRETED IN THE  
URINE IN 24 HOURS VARIED FROM 1 TO 10 OUT OF 70-80 MICROSCOPE FIELDS.  
DURING THE DAY THERE WERE GAPS IN LEPTOSPIRA EXCRETION IN THE URINE,  
WHILE AT NIGHT DIURESIS WAS INTENSIFIED (URINE WAS PASSED MORE TIMES),  
AND CONSEQUENTLY THE NUMBER OF LEPTOSPIRA IN THE URINE INCREASED.  
MICROTUS DECONOMUS WAS THE MAIN CARRIER OF L. GRIPPOTYPHOSA IN NATURAL  
LEPTOSPIROSIS FOCI. THE VOLES WERE ARTIFICIALLY INFECTED WITH L.  
GRIPPOTYPHOSA, STRAIN MICROTUS DECONOMUS 475, AND URINE VOLUMES WERE  
COLLECTED IN THE LABORATORY. IN INITIAL STAGES OF LEPTOSPIROSIS, FEW  
LEPTOSPIRA WERE EXCRETED, WITH LEVELS INCREASING ON THE FOURTH AND NINTH  
DAYS IN TWO VOLES STUDIED. FACILITY: INSTITUT EPIEMIOLOGII I  
MIKROBIOLOGII, AMN SSSR; INSTITUT MEDITSINSKOY PARAZITOLOGII I  
TROPICHESKOY MEDITSINY, MINISTERSTVA ZHRAYOOKHRANENIYA, SSSR, MOSCOW.

UNCLASSIFIED

UDC 547.315.2

USSR

FREYDLIN, L. Kh., ~~LITVIN Ye. E.~~ and TOPURIDZE, L. F., Institute of Organic Chemistry imeni N. D. Zelinskiy, Acad. Sc. USSR

"Study of the Direction and Mechanism of Homogeneous Hydrogenation of Dienes in Presence of Tris-(triphenylphosphine)rhodium Chloride"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 8, No 4, Apr 72, pp 669-674

Abstract: Hydrogenation in presence of  $\text{RhCl}(\text{PPh}_3)_3$  was studied using cis-1,3-pentadiene (I), trans-1,3-pentadiene (II), 2,3-dimethyl-1,3-butadiene (III), 2-methyl-1,3-butadiene (IV), 1,3-butadiene (V) and 1,4-pentadiene (VI); for comparison, monoolefines were also hydrogenated. The hydrogenation rate depends on the structure of the dienes, decreasing in the following order: (VI) (I) (II) (III) (IV). The conjugated diene C=C bonds are hydrogenated much more selectively over  $\text{RhCl}(\text{PPh}_3)_3$  than over rhodium black. (IV) adds hydrogen preferentially at the 1,2-position, while (III) does it exclusively so. During the 1,4-addition of hydrogen, (V) reacts predominantly in the cis-conformation, while (VI) does it in the trans-conformation.

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USSR

AFONIKOVA, N. S., LEGTYAREVA, V. F. LITVIN, YU. A., RABIN'KIN, A. G.,  
SAKOV, YU. A.

"Superconductivity and the Structure of Titanium Alloys with Niobium Subjected  
to Hydrostatic Pressures of up to 120 kilobars"

Leningrad, Fizika Tverdogo tela, Vol 15, No 4, 1973, pp 1096-1101

Abstract: A study was made of the structure and superconducting properties of Ti alloys with 10-90 atomic percent Nb subjected to pressures of up to 120 kilobars. Radiographic analysis indicated that in alloys with 10 and 20 atomic percent Nb under the effect of 30 and 50 kilobars of pressure, respectively, an  $\omega$ -phase is formed and retained after loading in the metastable state at  $P = 1$  atmosphere. This is accompanied by a significant drop in  $T_c$  of the alloys. In an alloy with 10 atomic percent Nb after treatment at  $P = 120$  kilobars in the metastable state, the structure of 1  $\omega$ -phase was recorded. The structure and lattice parameters of the  $\omega$ -phase obtained as a result of the pressure or ordinary heat treatment are similar; however, the formation of the  $\omega$ -phase during heat treatment leads to a rise in  $T_c$ . A study was made of the possible causes of the different effect on  $T_c$  of the processes of formation of the  $\omega$ -phase under pressure or during heat treatment. In alloys with 30 and 40 atomic percent Nb, the  $P = 120$  kilobar effect also caused a

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USSR

AFONIKOVA, N. S., et al., Fizika Tverdogo tela, Vol 15, No 4, 1973, pp 1096-1101

noticeable drop in  $T_c$ . This indicates the formation of an  $\omega$ -phase in them which, as is known, does not occur in such alloys for any heat treatment conditions.

Conclusions are drawn from the presented data regarding the boundaries of the region of existence of the  $\omega$ -phase in the titanium-niobium alloys at room temperature.

A schematic is presented of the region of stability of the  $\omega$ -phase in P-C-coordinates at 300° K. The P-C-plane is divided into three regions: region I where there are structures corresponding to the initial state of the alloys after quenching and where the application of pressure still does not lead to the occurrence of the  $\omega$ -phase; region II where the  $\omega$ -phase exists combined with the initial phases and region III where one  $\omega$ -phase is stable.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002201820001-5

SEMICONDUCTOR DIAMONDS -U-  
AUTHOR--(05)-BEZRUKOV, G.N., BUTUZOV, V.P., GERASIMENKO, N.N., LEZHEYKO,  
L.F., LITVIN, YU.A.  
COUNTRY OF INFO--USSR  
SOURCE--FIZIKA I TEKHNIKA POLUPROVOODNIKOV, VOL. 4, APR. 1970, P 693-696.  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ELECTRIC PROPERTY, OPTIC PROPERTY, SEMICONDUCTOR R AND D,  
DIAMOND, BORON, LUMINESCENCE SPECTRUM, NITROGEN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--3001/0068  
CIRC ACCESSION NO--AP0125903  
STEP NO--UR/0449/70/004/000/0693/0696  
UNCLASSIFIED

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002201820001-5"

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125903

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. EXPERIMENTAL INVESTIGATION OF THE TEMPERATURE DEPENDENCE OF THE RESISTANCE OF ARTIFICIAL BORON DOPED DIAMOND CRYSTALS OF VARIOUS CONCENTRATION, DURING THE GROWTH PROCESS, AT TEMPERATURES RANGING FROM 300 TO 800 DEG K. THE TYPE OF CONDUCTIVITY OF THE CRYSTALS, AND THE LUMINESCENCE SPECTRA FOR FAST ELECTRON EXCITATION AT TEMPERATURES BETWEEN 90 AND 300 DEG K ARE STUDIED IN THE RANGE FROM 3000 TO 10,000 A. IT IS FOUND THAT SUCH CRYSTALS HAVE A P TYPE CONDUCTIVITY WITH A BORON ACCEPTOR LEVEL OF 0.35 EV, AND THAT THE CRYSTALS ARE COMPENSATED BY A DEEP SEATED NITROGEN LEVEL (3.6 EV) DETERMINED FROM THE LUMINESCENCE SPECTRUM OF THE CRYSTALS.  
FACILITY: AKADEMIIA NAUK SSSR, INSTITUT FIZIKI POLUPROVODNIKOV, NOVOSIBIRST, USSR.

UNCLASSIFIED



in synthetic diamonds. A. Samsonenko, N. D. Sobolev, *Izv. Akad. Nauk SSSR, Ser. Khim.* 1970, 6(2), 368-9 (Russ). A new type of EPR spectra obtained in nonirradiated synthetic diamonds is discussed. In synthetic diamonds which had been synthesized with various amts. of solvents (Ni, Co, Mn, Fe, Cr) present, at  $<150^\circ$ , a spectrum is obsd. consisting of a central narrow isotropic line with one and the same g-factor, equal to 2.0324, and of 2 satellites with the very same g-factor and a distance between them of 2.7 Oe. The intensity of the spectrum significantly increases for those diamonds, which have probably been grown at a higher rate. A similar spectrum has not been obsd. in nonirradiated natural diamonds. These facts make one assume that this spectrum is caused by lattice defects arising during growth of these crystals. The most probable defect can be interstitial atoms, the concn. of which can increase with increasing growth rate of the diamonds. The presence of the 2 satellite lines can be assoc. with the hyperfine interaction between electrons with unpaired spins. There is absence of anisotropy in the g-factor because the deformation of the surrounding cell by virtue of the Jahn-Teller

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Abstracting Service:  
CHEMICAL ABST.

Ref. Code

4P0363

Electron paramagnetic resonance in lattice defects  
Bratshevskii, Yu. A.; Litvin, Yu.  
Fiz. Tekh. Mater.

AP0105560

effect is of a dynamic nature; it proceeds at a rate which is significantly higher than the spin relaxation rate, as a result of which a slight averaging of the g-factor is obsd. exptl.

S. A. Mersol

LLB

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UDC 621.315.592

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USSR

BEZRUKOV, G.N., BUTUZOV, V.P., GERASIMENKO, N.N., LEZHEYKO, L.V., LITVIN, Yu.A.,  
and SMIRNOV, L.S.

"Electrical and Optical Characteristics of Artificial Semiconductor Boron-Doped  
Diamonds"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 693-696

Abstract: The artificial diamond specimens were doped by boron in their growth process, and had a carrier concentration, determined by the Hall effect at room temperature, within the limits of  $5 \cdot 10^{16}$  to  $10^{18} \text{ cm}^{-3}$ , corresponding to a boron content of 0.25 to 0.25% by weight. With the variation in concentration of the boron the color of the crystals changed from blue to black. The crystals used in the measurements were cubic, with an edge of 0.5 to 1.5 mm, or in octahedral form. The following characteristics were investigated: type of conductivity, from thermoelectrical measurements; the resistance as a function of the temperature in the interval of 300-800° K, in which the two-contact method of

USSR

BEZRUKOV, G.N., et al., Fizika i Tekhnika Poluprovodnikov. Vol 4, No 4, 1970, pp 535-536

electrical measurement was used, with the electrodes made of silver or graphite; radiation recombination spectrum at temperatures of 300 and 90° K with electron pulse excitation, and its dependence on the excitation density. In this latter, the electron energy was 200 kev with a pulse duration of  $0.3 \cdot 10^{-6}$  seconds. Also investigated was the duration of the afterglow after the excitation pulse stopped, and its dependence on the wavelength. The authors found these diamond semiconductors to be of the p type.

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USSR

LITVINCHEVA, A. S., FADEYEVA, V. I., and ALIMARIN, I. P., Moscow State University imeni M. V. Lomonosov

UDC 542.61+546.631

"Heptylphosphoric Acid Tetraethyl Diamide Extraction of Scandium, Thorium and Zirconium From Perchloric Acid Solutions in the Presence of Thiocyanate Ion"

Moscow, IAN SSSR, Seriya Khimicheskaya, No 9, Sep 70, pp 1,935-1,940

Abstract: Heptylphosphoric acid tetraethyl diamide  $C_7H_{15}OP(O)[N(C_2H_5)_2]_2$  (HPADA) in benzene was used to extract scandium, thorium and zirconium from perchloric acid solutions. An investigation of extraction as a function of the concentration of hydrogen ions in the aqueous phase showed that optimum extraction of Sc is observed at pH of 1-3, while optimum Th extraction is at pH of 1.7-3. Extraction of zirconium thiocyanates at concentrations of 0.15-2.5 M  $HClO_4$  remains constant, with somewhat of a reduction when the concentration is raised to 4 M. A further increase of perchloric acid concentration in the aqueous phase causes precipitation of a yellow substance -- products of decay, polymerization and isomerization of thiocyanic acid. Graphic and analytical data showed existence of the following complexes in the organic phase:  $Sc(SCN)_3 \cdot 3HPADA$  (pH 1),  $Sc(OH)(SCN)_2 \cdot 3HPADA$  (pH 2.5),  $Th(SCN)_4 \cdot 2HPADA$  and  $Zr(OH)_2(SCN)_2 \cdot 2HPADA$ .

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UDC 621.374

USSR

YELISEYEV, V. K., LITVINCHUK, N. I.

"Problems of Accuracy and Reliability Arising During Technical Planning and Design of Digital Automata without Memory"

Kiev, Kibernetika i Vychislitel'naya Tekhnika, Tochnost' i Nadezhnost' Kiberneticheskikh Sistem, No 10, 1971, pp 58-64

Abstract: Problems connected with considering the characteristics of real logical elements when planning and designing combination circuits are classified. A general approach to the solution of these problems is proposed on the basis of the theory of statistical solutions. A real combination circuit is interpreted as a digitalized analog device for this purpose. A mathematical model of a real digital automaton without memory, the problems of investigating the accuracy and reliability of a real digital automaton without memory from the point of view of the general theory of statistical solutions, the problem of optimization of efficiency with respect to accuracy and reliability indexes and the initial prerequisites required to solve the investigated problems of accuracy and reliability are discussed. The problems of investigating the mathematical model include 1) investigation of systematic, nonrandom distortions of physical signals in a real automaton; 2) study of the

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YELISEYEV, V. K., Kibernetika i Vychislitel'naya Tekhnika, *Tekhnost' i Nadezhnost'* Kiberneticheskikh Sistem, No 10, 1971, pp 58-64

behavior of a real automaton with random nature of the input signals; 3) analysis of the behavior of a real automaton when the parameters of the parts of its logical elements vary randomly; 4) study of the behavior of an automaton in time in connection with the presence of random irreversible failures of the parts of the elements; 5) analysis of the functioning efficiency; 6) optimization of the efficiency of functioning of automata. The proposed procedure can be used as a basis for constructing an algorithm for machine design of combination circuits. The presented arguments were taken into account when developing the simulation algorithm for designing combination integral circuits made of MOS-transistors [N. I. Litvinchuk, *Tr. seminarov Konstruirovaniye tekhnicheskikh sredstv kibernetiki*, No 1, Publishing House of the Cybernetics Institute of the Ukrainian SSR Academy of Sciences, Kiev, 1971.].



USSR

UDC 615.365.015.45:612.453.018.015.36

PETRUN', N. M., LEVINCHUK, N. K., and SHUL'GINOVA, Z. I., Kiev Institute of Kidney and Urinary Tract Diseases, and Kiev Institute of Endocrinology and Metabolism

"Comparative Study of the Effect of Large Doses of Antiadrenal cortex, Antimitochondrial, and Antimicrosomal Cytotoxic Sera on the Biosynthesis of Corticosteroids"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/Jun 70, pp 28-31

Abstract: It was found that administration of antiadrenal cortex serum in large doses had an inhibitory effect on the biosynthesis of corticosteroids, when the serum was used as the precursor of such steroid hormones as progesterone or pregnenolone. A large dose of antimitochondrial serum (with progesterone as precursor), had an inhibitory effect on the 21-hydroxylation of progesterone (the formation of 11-desoxycorticosterone and corticosterone was reduced by 37 and 49% respectively). However, the amount of 17-hydroxycorticosteroids--11-desoxycortisole, hydrocortisone, and cortisone -- was not changed. Antimicrosomal serum had no effect on the biosynthesis of corticosteroids from progesterone. In experiments with pregnenolone, a substantial drop in the biosynthesis of 17-hydroxycorticosteroids was observed. Apparently, antimicrosomal serum exerts this effect

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USSR

PETRUN', N. M., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/Jun 70, pp 28-31

only on the transformation rate of pregnenolone into its 17-hydroxy derivative. Since the serum in large doses inhibits 17-hydroxylation of pregnenolone but not of progesterone, these two hydroxylases apparently are not identical. Sera developed against particular cellular organisms (mitochondria or microsomes) had a more selective inhibitory effect on the biosynthesis of corticosteroids than did those developed against the whole tissue.

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UNCLASSIFIED

PROCESSING DATE--3000...

TITLE--A COMPARATIVE STUDY OF THE EFFECT OF HIGH DOSES OF  
ANTICORTICOSUPRARENAL ANTIMITOCHONDRIAL AND ANTIMICROSOMAL CYTOTOXIC  
AUTHOR--(03)--PETRUN, N.M., LITVINCHUK, N.K., SHULGINOVA, Z.I.

COUNTRY OF INFO--USSR

SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970,  
VOL 14, NR 3, PP 28-31  
DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CORTICOSTEROID, BIOSYNTHESIS, INHIBITION, SELECTIVE DRUG  
EFFECT, MITOCHONDRION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/1929

STEP NO--UR/0396/70/014/003/0028/0031

ACCESSION NO--AP0127330

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 023

CIRC ACCESSION NO--AP0127330

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

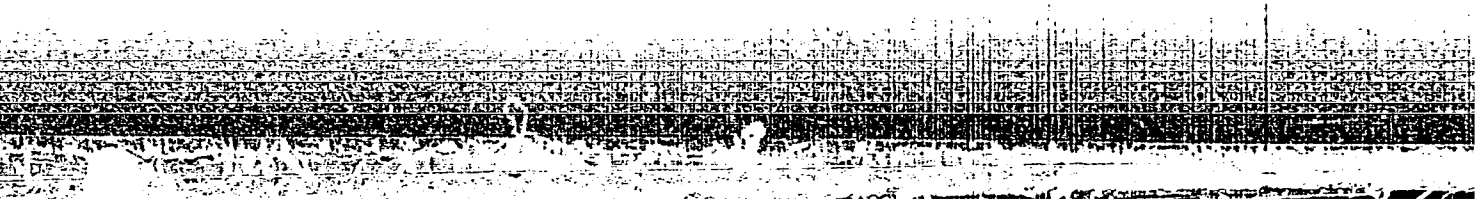
ABSTRACT. A COMPARATIVE (IN VITRO) STUDY WAS MADE OF THE EFFECT OF HIGH DOSES (30 PER CENT OF THE VOLUME OF THE INCUBATION MEDIUM OF ANTICORTICOSUPRARENAL, ANTIMITOCHONDRIAL AND ANTIMICROSOMAL CYTOTOXIC SERA ON BIOSYNTHESIS OF STEROID HORMONES IN THE ADRENAL CORTEX OF CATTLE. THE TITRE OF THE MENTIONED SERA WAS 1:320. SERA PRODUCED AGAINST INDIVIDUAL CELLULAR ORGANOIDS (MITOCHONDRIA AND MICROSOMES) PRODUCED A MORE SELECTIVE INHIBITORY EFFECT ON BIOSYNTHESIS OF CORTICOSTEROIDS THAN THOSE AGAINST THE WHOLE TISSUE.

FACILITY: KIEVSKIY INSTITUT ZABOLEVANIYA POCHEK I MOCHEVYVODYASHCHIKH. VESHCHESTV. PUTY KIEVSKIY INSTITUT ENDOKRINOLOGII I OBmena

UNCLASSIFIED

**"APPROVED FOR RELEASE: 09/19/2001**

**CIA-RDP86-00513R002201820001-5**



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**CIA-RDP86-00513R002201820001-5"**

APONIKOVA, N. S., ISETYANSKYA, V. F., LITVIN, YU. A., KARIM'KIN, A. G.,  
BAKOV, YU. A.

"Superconductivity and the Structure of Titanium Alloys with Niobium Subjected  
to Hydrostatic Pressures of up to 120 kilobars"

Leningrad, Fizika Tverdogo tela, Vol 15, No 6, 1973, pp 1096-1101

Abstract: A study was made of the structure and superconducting properties of Ti alloys with 10-90 atomic percent Nb subjected to pressures of up to 120 kilobars. Radiographic analysis indicated that in alloys with 10 and 20 atomic percent Nb under the effect of 30 and 50 kilobars of pressure, respectively, an  $\alpha$ -phase is formed and retained after loading in the metastable state at  $P = 1$  atmosphere. This is accompanied by a significant drop in  $T_c$  of the alloys. In an alloy with 10 atomic percent Nb after treatment at  $P = 120$  kilobars in the metastable state, the structure of the  $\alpha$ -phase was recorded. The structure and lattice parameters of the  $\alpha$ -phase obtained as a result of the pressure or ordinary heat treatment are similar; however, the formation of the  $\alpha$ -phase during heat treatment leads to a rise in  $T_c$ . A study was made of the possible causes of the different effect on  $T_c$  of the processes of formation of the  $\alpha$ -phase under pressure or during heat treatment. In alloys with 30 and 40 atomic percent Nb, the  $P = 120$  kilobar effect also caused a

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172 058 UNCLASSIFIED PROCESSING DATE--21NOV70  
TITLE--CERTAIN ELECTRICAL AND OPTICAL PROPERTIES OF ARTIFICIAL BORON-DOPED  
SEMICONDUCTOR DIAMONDS -U-  
AUTHOR--(05)-BEZRUKOV, G.N., BUTUZOV, V.P., GERASIMENKO, N.N., LEZHEYKO,  
L.F., LITVIN, YU.A.  
COUNTRY OF INFO--USSR

SOURCE--FIZIKA I TEKHNIKA POLUPROVODNIKOV, VOL. 4, APR. 1970, P 693-696.

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRIC PROPERTY, OPTIC PROPERTY, SEMICONDUCTOR R AND D,  
DIAMOND, BORON, LUMINESCENCE SPECTRUM, NITROGEN

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PROCESSING DATE--27NOV70

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CIRC ACCESSION NO--AP0125903

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL INVESTIGATION OF THE TEMPERATURE DEPENDENCE OF THE RESISTANCE OF ARTIFICIAL BORON DOPED DIAMOND CRYSTALS OF VARIOUS CONCENTRATION, DURING THE GROWTH PROCESS, AT TEMPERATURES RANGING FROM 300 TO 800 DEG K. THE TYPE OF CONDUCTIVITY OF THE CRYSTALS, AND THE LUMINESCENCE SPECTRA FOR FAST ELECTRON EXCITATION AT TEMPERATURES BETWEEN 90 AND 300 DEG K ARE STUDIED IN THE RANGE FROM 3000 TO 10,000 A. IT IS FOUND THAT SUCH CRYSTALS HAVE A P TYPE CONDUCTIVITY WITH A BORON ACCEPTOR LEVEL OF 0.35 EV, AND THAT THE CRYSTALS ARE COMPENSATED BY A DEEP SEATED NITROGEN LEVEL (3.6 EV) DETERMINED FROM THE LUMINESCENCE SPECTRUM OF THE CRYSTALS.  
FACILITY: AKADEMIIA NAUK SSSR, INSTITUT FIZIKI POLUPROVODNIKOV, NOVOSIBIRST, USSR.

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Acc. Nr.

AP0105560

Abstracting Service:  
CHEMICAL ABST.

Ref. Code

4P0363

127137s Electron paramagnetic resonance in lattice defects in synthetic diamonds. Bratashevskii, Yu. A.; Litvin, Yu. A.; Samsonenko, N. D.; Sobolev, E. V. (Donetsk. Fiz.-Tekh. Inst., Donetsk, USSR). *Izv. Akad. Nauk SSSR, Neorg. Mater.* 1970, 6(2), 368-9 (Russ). A new type of EPR spectra obtained in nonirradiated synthetic diamonds is discussed. In synthetic diamonds which had been synthesized with various amounts of solvents (Ni, Co, Mn, Fe, Cr) present, at  $<150^\circ$ , a spectrum is obsd. consisting of a central narrow isotropic line with one and the same g-factor, equal to 2.0324, and of 2 satellites with the very same g-factor and a distance between them of 2.7 Oe. The intensity of the spectrum significantly increases for those diamonds, which have probably been grown at a higher rate. A similar spectrum has not been obsd. in nonirradiated natural diamonds. These facts make one assume that this spectrum is caused by lattice defects arising during growth of these crystals. The most probable defect can be interstitial C atoms, the concn. of which can increase with increasing growth rate of the diamonds. The presence of the 2 satellite lines can be assocd. with the hyperfine interaction between electrons with unpaired spins. There is absence of anisotropy in the g-factor because the deformation of the surrounding cell by virtue of the Jahn-Teller

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effect is of a dynamic nature; it proceeds at a rate which is significantly higher than the spin relaxation rate, as a result of which a slight averaging of the g-factor is obsd. exptl.

S. A. Mersol

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UDC 621.315.592

BEZRUKOV, G.N., BUTUZOV, V.P., GERASIMENKO, N.N., LEZHEYKO, L.V., LITVIN, Yu.A.,  
and SMIRNOV, L.S.

"Electrical and Optical Characteristics of Artificial Semiconductor Boron-Doped  
Diamonds"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 693-696

**Abstract:** The artificial diamond specimens were doped by boron in their growth process, and had a carrier concentration, determined by the Hall effect at room temperature, within the limits of  $5 \cdot 10^{16}$  to  $10^{18} \text{ cm}^{-3}$ , corresponding to a boron content of 0.25 to 0.25% by weight. With the variation in concentration of the boron the color of the crystals changed from blue to black. The crystals used in the measurements were cubic, with an edge of 0.5 to 1.5 mm, or in octahedral form. The following characteristics were investigated: type of conductivity, from thermoelectrical measurements; the resistance as a function of the temperature in the interval of 300-800° K, in which the two-contact method of

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BEZRUKOV, G.N., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 693-696

electrical measurement was used, with the electrodes made of silver or graphite; radiation recombination spectrum at temperatures of 300 and 90° K with electron pulse excitation, and its dependence on the excitation density. In this latter, the electron energy was 200 kev with a pulse duration of  $0.3 \cdot 10^{-6}$  seconds. Also investigated was the duration of the afterglow after the excitation pulse stopped, and its dependence on the wavelength. The authors found these diamond semiconductors to be of the p type.

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UDC 542.61+546.631

USSR

LITVINCHEVA, A. S., FADEYEVA, V. I., and ALIMARIN, I. P., Moscow State University imeni M. V. Lomonosov

"Heptylphosphoric Acid Tetraethyl Diamide Extraction of Scandium, Thorium and Zirconium From Perchloric Acid Solutions in the Presence of Thiocyanate Ion"

Moscow, IAN SSSR, Seriya Khimicheskaya, No 9, Sep 70, pp 1,935-1,940

Abstract: Heptylphosphoric acid tetraethyl diamide  $C_7H_{15}OP(O)[N(C_2H_5)_2]_2$  (HPADA) in benzene was used to extract scandium, thorium and zirconium from perchloric acid solutions. An investigation of extraction as a function of the concentration of hydrogen ions in the aqueous phase showed that optimum extraction of Sc is observed at pH of 1-3, while optimum Th extraction is at pH of 1.7-3. Extraction of zirconium thiocyanates at concentrations of 0.15-2.5 M  $HClO_4$  remains constant, with somewhat of a reduction when the concentration is raised to 4 M. A further increase of perchloric acid concentration in the aqueous phase causes precipitation of a yellow substance -- products of decay, polymerization and isomerization of thiocyanic acid. Graphic and analytical data showed existence of the following complexes in the organic phase:  $Sc(SCN)_3 \cdot 3HPADA$  (pH 1),  $Sc(OH)(SCN)_2 \cdot 3HPADA$  (pH 2.5),  $Th(SCN)_4 \cdot 2HPADA$  and  $Zr(OH)_2(SCN)_2 \cdot 2HPADA$ .

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UDC 621.374

YELISEYEV, V. K., LITVINCHUK, N. I.

"Problems of Accuracy and Reliability Arising During Technical Planning and Design of Digital Automata without Memory"

Kiev, Kibernetika i Vychislitel'naya Tekhnika, Tochnost' i Nadezhnost' Kiberneticheskikh Sistem, No 10, 1971, pp 58-64

Abstract: Problems connected with considering the characteristics of real logical elements when planning and designing combination circuits are classified. A general approach to the solution of these problems is proposed on the basis of the theory of statistical solutions. A real combination circuit is interpreted as a digitalized analog device for this purpose. A mathematical model of a real digital automaton without memory, the problems of investigating the mathematical model of the real automaton without memory, problems of investigating the accuracy and reliability of a real digital automaton without memory from the point of view of the general theory of statistical solutions, the problem of optimization of efficiency with respect to accuracy and reliability indexes and the initial prerequisites required to solve the investigated problems of accuracy and reliability are discussed. The problems of investigating the mathematical model include 1) investigation of systematic, nonrandom distortions of physical signals in a real automaton; 2) study of the

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YELISEYEV, V. K., Kibernetika i Vychislitel'naya Tekhnika, Technost' i Nadezhnost' Kiberneticheskikh Sistem, No 10, 1971, pp 58-64

behavior of a real automaton with random nature of the input signals; 3) analysis of the behavior of a real automaton when the parameters of the parts of its logical elements vary randomly; 4) study of the behavior of an automaton in time in connection with the presence of random irreversible failures of the parts of the elements; 5) analysis of the functioning efficiency; 6) optimization of the efficiency of functioning of automata. The proposed procedure can be used as a basis for constructing an algorithm for machine design of combination circuits. The presented arguments were taken into account when developing the simulation algorithm for designing combination integral circuits made of MOS-transistors [N. I. Litvinchuk, Tr. seminarov Konstruirovaniye tekhnicheskikh sredstv kibernetiki, No 1, Publishing House of the Cybernetics Institute of the Ukrainian SSR Academy of Sciences, Kiev, 1971].

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UDC 615.365.015.45:612.453.018.015.36

PETRUN', N. M., LITVINCHUK, N. K., and SHUL'GINOVA, Z. I., Kiev Institute of Kidney and Urinary Tract Diseases, and Kiev Institute of Endocrinology and Metabolism

"Comparative Study of the Effect of Large Doses of Antiadrenal cortex, Antimitochondrial, and Antimicrosomal Cytotoxic Sera on the Biosynthesis of Corticosteroids"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/Jun 70, pp 28-31

Abstract: It was found that administration of antiadrenal cortex serum in large doses had an inhibitory effect on the biosynthesis of corticosteroids, when the serum was used as the precursor of such steroid hormones as progesterone or pregnenolone. A large dose of antimitochondrial serum (with progesterone as precursor), had an inhibitory effect on the 21-hydroxylation of progesterone (the formation of 11-desoxycorticosterone and corticosterone was reduced by 37 and 49% respectively). However, the amount of 17-hydroxycorticosteroids--11-desoxycortisol, hydrocortisone, and cortisone -- was not changed. Antimicrosomal serum had no effect on the biosynthesis of corticosteroids from progesterone. In experiments with pregnenolone, a substantial drop in the biosynthesis of 17-hydroxycorticosteroids was observed. Apparently, antimicrosomal serum exerts this effect

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PETRUN', N. M., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/Jun 70, pp 28-31

only on the transformation rate of pregnenolone into its 17-hydroxy derivative. Since the serum in large doses inhibits 17-hydroxylation of pregnenolone but not of progesterone, these two hydroxylases apparently are not identical. Sera developed against particular cellular organisms (mitochondria or microsomes) had a more selective inhibitory effect on the biosynthesis of corticosteroids than did those developed against the whole tissue.

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--A COMPARATIVE STUDY OF THE EFFECT OF HIGH DOSES OF  
ANTICORTICOSUPRARENAL ANTIMITOCHONDRIAL AND ANTIMICROSOMAL CYTOTOXIC  
AUTHOR--(03)--PETRUN, N.M., LITVINCHUK, N.K., SHULGINOVA, Z.I.  
COUNTRY OF INFO--USSR  
SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970,  
VOL 14, NR 3, PP 28-31  
DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--CORTICOSTEROID, BIOSYNTHESIS, INHIBITION, SELECTIVE DRUG  
EFFECT, MITOCHONDRION

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STEP NO--UR/0396/70/014/003/0028/0031

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127330

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMPARATIVE (IN VITRO) STUDY WAS MADE OF THE EFFECT OF HIGH DOSES (30 PER CENT OF THE VOLUME OF THE INCUBATION MEDIUM OF ANTICORTICOSUPRARENAL, ANTIMITOCHONDRIAL AND ANTIMICROSOMAL CYTOTOXIC SERA ON BIOSYNTHESIS OF STEROID HORMONES IN THE ADRENAL CORTEX OF CATTLE. THE TITRE OF THE MENTIONED SERA WAS 1:320. SERA PRODUCED AGAINST INDIVIDUAL CELLULAR ORGANOIDS (MITOCHONDRIA AND MICROSOMES) PRODUCED A MORE SELECTIVE INHIBITORY EFFECT ON BIOSYNTHESIS OF CORTICOSTEROIDS THAN THOSE AGAINST THE WHOLE TISSUE.

FACILITY: KIEVSKIY INSTITUT ZABOLEVANIYA POCHK I MOCHEVYVODYASHCHIKH.  
FACILITY: PUTY KIEVSKIY INSTITUT ENDOKRINOLOGII I OBMENA  
VESHCHESTV.

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USSR

UDC 681.326.34(681.325.65)

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SALANSKIY, N. M., LITVINCHUK, V. I., SHCHERBAKOV, V. M., Institute of Physics  
of the Siberian Department of the Academy of Sciences of the USSR

"A Method of Forming Several Stable States in Parametrons Based on a Thin  
Magnetic Film"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 8, 10 Feb 70, p 37, Patent No 263668, Filed 24 Dec 68

Translation: This Author's Certificate introduces a method of forming several  
stable states in parametrons based on a thin magnetic film. The method differs  
because to improve the resistance to interference, flexural oscillations of  
the film-substrate system are induced by magnetoelastic interaction, and the  
amplitude of the magnetizing field is then changed to the threshold values of  
the subsequent elastic modes.

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