

USSR

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UDC 669.27:669.14:621.372.01.01.02

BONDARENKO, B. V., and SHCHUKIN, A. M., *Abstracts Physicochemical Sciences*.

"Electrical Resistance and Structure of Tungsten, Molybdenum, and Chromium Films Produced by Laser Vaporization"

Sverdlovsk, Akademiya Nauk SSSR, *Viznik Metallov i Metallovedeniya*, No. 1, Jul 70, pp 207-210.

Abstract: An experimental investigation was made of tungsten, molybdenum, and chromium condensates produced by laser vaporization. A solid-state laser (output energy 3-11 J, impulse width 105 msec) was used to produce them. Their structure and electrical resistance were studied. The temperature dependence of the specific resistance of the produced films is shown. The specific resistance of the condensates is higher than that of corresponding solid metals. The temperature coefficient of resistance is lower than that of solid metals in the range of 273-373° C.

USSR

UDC: 621.315.5

SOKOLOV, B. P., BONDARENKO, E. A., YUSOV, Yu. P., VLASOV, L. G., Moscow
Institute of Aviation Technology

"A Resistive Material"

USSR Author's Certificate No 283366, filed 22 Apr 69, published 22 Dec 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V461 P)

Translation: This Author's Certificate introduces a resistive material based on valence semiconductors made from salts of alkali-earth metals and ortho acids activated by a dopant in the form of metallic compounds. The material is distinguished by the fact that the range of ratings is extended and the stability of parameters is improved by using zinc ortho-silicate as the base material and adding 2-4 percent by weight of manganese chloride as the dopant.

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1/2 028 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--VARIANTS OF VIBRATION DISEASE IN DRIFTERS OF THE DONBASS COAL MINES

-U-
AUTHOR--(05)--BASAMYGINA, L.YA., BONDARENKO, G.A., ZHILKO, S.M.,
LYUBCMUDROV, V.YE., SUKHARSKAYA, L.M.
COUNTRY OF INFO--USSR

SCURCE--VRACHEBNOYE DELO, 1970, NR 5, PP 137-140

DATE PUBLISHED-----70

B

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOLOGIC VIBRATION EFFECT, NERVOUS SYSTEM DISEASE, INDUSTRIAL
HYGIENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1747

STEP NO--UR/0475/70/000/005/0137/0140

CIRC ACCESSION NO--APO129115

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129115

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANALYSIS OF VIBRATION DISEASE IN DRIFTERS OF COAL MINES INDICATES THAT THE CLINICAL PICTURE OF THE DISEASE IN DRIFTERS OF HORIZONTAL SHAFTS IS DOMINATED BY PHENOMENA OF VEGETATIVE POLYNEURITIS, MAINLY IN THE UPPER EXTREMITIES; IN COAL MINE BUILDING WORKERS VEGETATIVE POLYNEURITIS IS MARKED BOTH IN THE UPPER AND LOWER EXTREMITIES AND IS DETECTED AT THE BACKGROUND OF DISORDERS OF THE NERVOUS ACTIVITY AND ORGANIC LESIONS OF THE NERVOUS SYSTEM.
FACILITY: DCNETSKIY MEDITSINSKIY INSTITUT.

UNCLASSIFIED

Acc. Nr.: APC029821

Ref. Code: UR 0475

5

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 1, pp 102-105

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ON THE THERAPEUTIC EFFICIENCY OF ELEUTHEROCOCCUS
Lyubomudrov, V.Ye.; Basamygina, L.Ya.; Bikezina, V.G.;
Mukhina, M.S.; Mikhaylova, T.I.; Osadchuk, V.S.;
Shidlovskiy, Ye.F.; Bondarenko, G.A.; Demkovich, O.A. (Donetsk)

Eleutherococcus improves abnormal pulmonary ventilation, favours normalization of the arterial pressure, positively influences cardiac rhythm and His bundle conduction. It proved rather efficient in the treatment of patients with initial stages of vibration disease. It is promising in the treatment of chronic lead intoxication. The preparation favours more rapid acclimatization of pneumoconiosis involved miners.

It is concluded that eleutherococcus may be recommended for the complex treatment of patients with some professional diseases and more rapid acclimatization of patients to sanatorium conditions.

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USSR

UDC 619:616.981.51-036.21

BONDARENKO, G. F., POGREBNIYAK, L. I., DUBROVIN, Ye. I., KHARCHUK, A. N., and SHEPCHENKO, V. U., Ukrainian Scientific Research Institute of Experimental Veterinary Science

"Some Problems of the Epizootiology of Anthrax"

Moscow, Veterinariya, No 6, Jun 73, pp 48-50

Abstract: In the period 1949-1970, the number of outbreaks of anthrax of farm animals, the incidence of anthrax among these animals, and the mortality rate of animals from anthrax decreased in the UkrSSR by factors of 11.1, 12.8, and 11.5, respectively. The incidence of anthrax of cattle increased from 57.2 to 73.8%, with the cattle owned by the population being affected to the principal extent, while that of sheep and goats decreased. Anthrax of hogs increased. The number of outbreaks of the disease and of the animals affected by it during the period under consideration were highest in the forest-steppe zone of the UkrSSR, being followed by the Steppe, Carpathian mountains and foothills, and forest zone, in that order. Of all identified stationary points unsatisfactory from the sanitary standpoint with respect to anthrax, 77.7% have been inactive for more than 11 yrs.
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BONDARENKO, G. F., et al., Veterinariya, No 6, Jun 73, pp 48-50

The number of such points that were newly recorded decreased vs. 1946 by a factor of 25.7 on the average in 1966-1970 and by a factor of 40 in 1970. One of the conditions that contributes to the persistence of outbreaks is the presence of Bac. anthracis in the soil at locations of old cattle burying grounds. Research is being conducted on the isolation from infected soil of actinomycetes with a heightened antibacterial activity towards Bac. anthracis with the view of applying these actinomycetes for the decontamination of cattle burying grounds.

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USSR

UDC 535.211

BONDARENKO, G. G., IVANOV, L. I., and YANUSHKEVICH, V. A., Moscow

"Effect of Gigantic Laser Pulses on the Microstructure of Aluminum"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 73, pp19-21

Abstract: An electron microscope study was made of defect formation in aluminum under the effect of gigantic laser pulses where the aluminum had a purity of 99.99%. Disk samples, 50 microns thick, were vacuum annealed at 600°C for four hours prior to laser bombardment. After annealing, the samples were placed on a glass plate in distilled water and bombarded with laser pulses at room temperature. Bombardment was done in three modes -- I, II, III, determined by the level of laser pumping, with mode III being the maximum radiation capacity. The study showed that structural damage results from laser exposure where the nature and degree of sample damage depended on the mode of irradiation and the distance of the investigated section from the crater epicenter. High concentrations of dislocation loops were found in samples for all three modes with the densities amounting to $10^{14}/\text{cm}^3$ for mode I, $5 \cdot 10^{12}/\text{cm}^3$ for mode II, and $7 \cdot 10^{13}/\text{cm}^3$ for mode III. Three figures, three bibliographic references.

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USSR UDC 543.422.4:542.957:547.357.4:546.821'131:547.558.1:547.315.1

BONDARENKO, G. N., KHAR'KOVA, Ye. M., MUSHINA, Ye. A., TETERINA, M. P., and KRENTSEL', B. A., Institute of Petrochemical Synthesis Imeni A. V. Topchiyev, Academy of Sciences USSR

"IR Spectra of the Reaction Products of Bis- π -allylnickel Bromide With Titanium Tetrachloride, Triphenylphosphine, and Allene"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 73, pp 1224-1227

Abstract: The IR spectra were studied of the reaction products of bis- π -allylnickel bromide with $TiCl_4$ and triphenylphosphine. It was proposed that there occurs a $\pi \rightarrow \sigma$ isomerization in π -allyl-nickel complex. The π -allyl structure is retained in the reaction of bis- π -allylnickel bromide with allene. During allene polymerization the activity of the complexes decreases in the order $(\pi-C_3H_5NiI)_2 > (\pi-C_3H_5NiBr)_2 > (\pi-C_4H_7Cl)_2$.

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USSR

UDC 51.330.115

BONDARENKO, G. V.

"Mathematical Economics Modeling of Consumption of Vegetables by the Populations of Large Cities (Using Kiev as an Example)"

Mat. Metody Issled. i Oppimiz. Sistem. Vyp. 4 [Mathematical Methods of Studying an Optimizing Systems, No. 4, -- Collection of Works], Kiev, 1970, pp 91-114 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No 4 V610).

No Abstract.

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USSR

UDC: 621.317.73(088.8)

BONDARENKO, I. K.

"A Coaxial Automatic Impedance Meter"

USSR Author's Certificate No 263701, filed 6 Sep 65, published 15 Jun 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A298 P)

Translation: This Author's Certificate introduces an automatic coaxial impedance meter for microwave elements. The device contains a sweep generator, a four-detector impedance pickup, and a single-detector or two-detector oscilloscope display tube stabilization signal pickup. As a distinguishing feature of the instrument, the overall dimensions of the device are reduced, and its amplitude-phase characteristics are improved by accommodating the impedance pickup and stabilization signal pickup in a single section of coaxial line. A decoupling attenuator or diode is fastened between the pickups on the inner conductor of the coaxial line.

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Waveguides

USSR

UDC 621.372.83

BAKANOV, S. A., BONDARENKO, I. K., SALAMATIN, V. V.

"A Unit for Automatically Measuring the Parameters of Waveguide Devices"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 2, Jan 71, Author's Certificate No 290460, division H, filed 17 Jan 69, published 22 Dec 70, p 162

Translation: This Author's Certificate introduces a unit for automatically measuring the parameters of waveguide devices. The unit consists of a tee connected to a measurement channel and a reference channel. Installed in these channels are couplers of circular polarization and ballast loads connected to a detector section. As a distinguishing feature of the patent, the overall dimensions of the device are reduced and the design is simplified by using a section of circular waveguide to connect the couplers of circular polarization in the measurement and reference channels. Connected in series in this waveguide section are a fixed detector section and a phase-shifting plate which turns through 180 degrees.

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USSR

UDC: 621.317.73(088.8)

BONDARENKO, I. K.

"A Waveguide Instrument for Measuring Impedances"

USSR Author's Certificate No 255380, filed 22 Apr 67, published 12 Mar 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A373 P)

Translation: Existing waveguide impedance meters which contain a wobulator, a four-detector impedance pickup, etc. do not provide sufficiently high measurement precision and have a relatively narrow band of working frequencies. In the proposed design, these deficiencies are eliminated by proper arrangement of the detector heads in the above-mentioned impedance pickup, and by decoupling these heads from those of the stabilization signal pickup. E. L.

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USSR

UDC: 621.317.34

BONDARENKO, I. K., VIT'KO, Yu. K.

"Loop Reflectometers and Circuits for Automatic Measurements of the Parameters of SHF Channels"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 18-20 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A367)

Translation: Measurement of mismatches (SWR or modulus of the coefficient of reflection) makes up the greatest proportion of the measurements in adjusting and checking the elements and junctions of an SHF channel. For these purposes, automatic SWR meters are used whose error is characterized chiefly by non-identity of the parameters of directional couplers. To reduce these errors, cut down the overall dimensions of the SHF section, etc., a loop reflectometer is developed which replaces the directional couplers in the SWR meter. The construction and principle of operation of the reflectometer are described. Data are given on errors. Bibliography of one title. E. L.

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USSR

UDC: 621.317.7-5

BAKANOV, S. A., BONDARENKO, I. K.

"Methods of Improving Precision and Widening the Band of Multidetector Amplitude-Phase Discriminators of SHF Signals"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 126-128 (from RZh-Radiotekhnika, No 12, 1970, Abstract No 12A405)

Translation: It is pointed out that the error of instruments designed for automatic measurement of the complex parameters of SHF devices is determined chiefly by the nonuniformity of the amplitude-frequency and phase-frequency characteristics of the amplitude - phase discriminators of SHF signals which isolate information on the amplitude and phase of the parameter being studied. The appreciable frequency-dependent error in a four-detector amplitude-phase discriminator is due to the phase angles of the detector heads. To eliminate this error component, a pickup is introduced into the amplitude-phase discriminator circuit which consists of two detector heads, each of which is coupled only to the reference channel waveguide by two dumbbell slots. The pickup signal is fed to the input of an automatic power regulator for the sweep generator. The amplitude-frequency characteristics

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BAKANOV, S. A., BONDAPENKO, I. K., Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2, Novosibirsk, 1970, pp 126-128

of the detector heads must be identical to ensure high measurement precision. Tuning of instruments is appreciably simplified by using an amplitude-phase discriminator which contains only three detector heads (instead of 5-6); a circuit is given for such an amplitude-phase detector together with formulas which characterize its operation, including a formula for error. It is pointed out that under certain conditions this error is no greater than $\pm 12\%$. E. L.

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Veterinary Medicine

USSR

UDC 619:616.988.73-097:636.5

RAFALOVICH, A. Ye., GUSEV, N. S., BONDARENKO, I. M., and BURTSEV, V. I.,
All-Union Scientific Research Institute of Veterinary Virology and
Microbiology

"The Effects of Aerosol Particle Dimensions on Vaccine Efficacy"

Moscow, Veterinariya, No 8, 1973, pp 39-40

Abstract: Evaluation was made of a Newcastle disease virus (NDV) B₁ aerosol vaccine, using 35-40-day-old chicks (pulmonary ventilation volume 0.21-0.4 liters/min; 2-10 min exposure). On the basis of hemagglutinin titers in the 103 chicks, vaccines in which the particle size ranged from 1-12 μ m were 17.7 times more effective than those in which the range was 20-80 μ m. The larger sized particles are retained at the upper levels of the respiratory tract and do not reach the alveoli, where absorption of the particles into the blood stream is the greatest.

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USSR

JDC 619:616.986.75-084.47:636.5

LAGUTKIN, N. A., CHERNYSHEV, V. V., BONDARENKO, I. M., KHARLAMOV, V. T.,
POLIKARPOV, B. V., BOLOTOV, B. V., NEZAMETDINOV, P. B., and RUDEBEL'SKAYA, G.A.

"Aerosol Vaccination of Poultry Against Newcastle Disease"

Moscow, Veterinariya, No 1, 1972, pp 54-56

Abstract: One-time aerosol vaccination of poultry against Newcastle disease produced strong and lasting immunity in almost 3 million animals of different ages and breeds and had no adverse effect on their productivity. The procedure required fewer workers and considerably less vaccine than for nasal or intramuscular vaccination. For example, some 80,000 to 90,000 5-day-old chicks could be vaccinated per day by three men. In 5- to 12-day old chicks hatched from the eggs of hens inoculated with live vaccine, transovarian passive immunity interfered with the development of postvaccinal immunity. Such animals required increased doses of the vaccine or revaccination 12 to 14 days later.

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USSR

UDC 619:614.9-084.47:636

BURTSEV, V. I., BONDARENKO, I. M., and BAKULOV, I. A., All Union Scientific Research Institute of Veterinary Virology and Microbiology

"Classification of Methods of Immunizing Animals"

Moscow, Veterinariya, No 10, 1971, pp 50-53

Abstract: With respect to the technique of using antigen, the authors propose classifying methods of vaccinating animals: (1) injection, (2) scarification, (3) instillation, (4) dispersion, (5) alimentary, and (6) combined. With respect to the site of injecting antigen, they distinguish the following: (1) enteral (oral) and cloacal, (2) respiratory (nasal, intratracheal, inhalation or aerosol), (3) subcutaneous, (4) cutaneous - epicutaneous and intracutaneous; (5) intramuscular, (6) intravenous, (7) intraudder or intracisternal, (8) intraperitoneal, (9) conjunctival, and (10) intrasinusal. In discussing the respiratory site, the authors note that when an aerosol is used, part of the vaccine enters the respiratory tract and part settles on the skin. Under these conditions the antigen has little immunizing effect because it is inactivated by environmental factors (temperature, ultraviolet rays, and so forth).

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USSR

UDC 619:616.981.452:636.4

KUSHNIR, A. T., BURTSEV, V. I., BONDARENKO, I. M., ZHOGOLEVA, S. P., SERGEYEV, V. A., FISENKO, O. F., ORLOV, V. A., and TROYAN, N. D., All Union Scientific Research Institute of Veterinary Virology and Microbiology

"Aerosol Vaccination of Swine Against Swine Fever"

Moscow, Veterinariya, No 10, Oct 70, pp 50-52

Abstract: Cultural vaccine prepared from the 31st passage of the lapinized K strain of swine fever virus in a culture of lamb testicular cells and concentrated 10-fold was highly immunogenic in gilts and piglets vaccinated by the aerosol method. Exposure of the animals for 5 minutes to vaccine diluted 1:1000 with physiological solution conferred stable immunity on 50% of the gilts and 100% of the piglets. Even in a dilution of 1:10,000, the vaccine produced immunity in a number of the animals. The immunizing dose (ImD_{50}) of the vaccine applied via aerosol was equivalent to 7.25 intramuscular ImD_{50} for gilts and 5.25 ImD_{50} for piglets. Clinical-hematological and biochemical studies of the vaccination process showed that the time at which the immunological reaction occurred and its intensity were the

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KUSHNIR, A. T., et al, Veterinariya, No 10, Oct 70, pp 50-52

same, regardless of the method of vaccination. The degree of decrease in immunogenic activity of the vaccine in the process of atomization was less than 54.2% for one of the vaccines tested.

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1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--PULSED NQR NUCLEAR QUADRUPOLE RESONANCES RADIO SPECTROMETER
RELAXOMETER FOR THE 2-70 MEV RANGE -U-
AUTHOR-(03)-KLEBANOV, A.N., BONDARENKO, I.S., PAVLOV, B.N.
COUNTRY OF INFO--USSR **B**
SOURCE--PRIB. TEKH. EKSP. 1970, 1, 150-2
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--NUCLEAR RESONANCE, QUADRUPOLE MOMENT, NUCLEAR SPINE, SPIN
RELAXATION, SPECTROMETER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1480 STEP NO--UR/0120/70/001/000/0150/0152
CIRC ACCESSION NO--AP0106236
UNCLASSIFIED

2/2 013 . UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0106236
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DESCRIBED DEVICE PERMITS
OBSERVATION OF SIGNALS OF NUCLEAR INDUCTION AND SPIN ECHO AND THE
MEASUREMENT OF THE RELAXATION TIME IN THE FREQUENCY RANGE 2-70 MEHZ.
THE MECH. COUPLING, THE AUTOMATIC ALIGNMENT OF THE HETERODYNE FREQUENCY,
AND THE BLOCK OF SIGNAL ACCUMULATION MAKES IT POSSIBLE TO SEARCH
AUTOMATICALLY FOR WEAK SIGNALS OF NQR WITH RECORDING OF THE SPECTRUM ON
A TAPE. FACILITY: INST. RADIOTEKH. ELEKTRON., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 532.5

BONDARENKO, L. A., and YAKIMOV, Yu. L., Moscow

"The Force Acting From the Side of the Fluid Flow on a Curved Thin Body of Circular Cross Section"

Moscow, Izvestiya Akademii Nauk USSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 73, pp 9-12

Abstract: Results of classical hydromechanics and previously obtained results by one of the authors (Yu. L. Yakimov, Ibid.: 1970, No 2), concerning the streamlining of a cylinder by an arbitrary fluid flow are generalized for the case of the motion of a curved thin body of circular cross section in an arbitrary three-dimensional potential flow of an ideal non-compressible fluid. The solution of the problem is found by determining singularities on the curved axis of the body under the assumption that the functions characterizing the distribution of singularities on a length l of the analyzed section of the body depend slightly on the changing character of the variable along the axis of the body. An expression is derived in which the first three members characterize the force acting on an arbitrary contour of small dimensions in a plane potential flow. Seventeen formulas, five bibliographic references.

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USSR

UDC 537.312.62

KOLIN'KO, L. YE., NARBUT, T. P., BONDARENKO, L. A., BONDARENKO, S. I.,
DMITRIYENKO, I. M.

"Methods of Creating Weak Superconducting Contacts"

Tr. Fiz.-tekhn. in-t nizk. temperatur AN USSR (Works of the Physico-Technical
Low Temperature Institute of the Ukrainian SSR Academy of Sciences), 1970,
vyp. 9, pp 91-110 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4D469)

Translation: A study was made of the basic methods of obtaining weak super-
conducting contacts: 1) micropuncture of the dielectric layer or normal
metal between the superconductors; 2) pressing a sharp needle to the flat
surface of the superconductor; 3) electric microrupture (fritting) of the
dielectric layer between the metals. The possibility of using whiskers of
various metals as thin conducting couplings is also investigated. The basic
characteristics of the contacts obtained by the enumerated methods are
analyzed, and conclusions are drawn regarding the prospectiveness of their
application in devices using the phenomenon of quantum interference in super-
conductors. There are 6 illustrations, 1 table and a 37-entry bibliography.

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USSR

UDC: None

YEROZOLIMSKIY, B. G., BONDARENKO, L. N., MOSTOVOY, Yu. A.,
OBINYAKOV, B. A., FEDUNIN, V. P., and FRANK, A. I.

"Measurement of Neutron Spin-Electron Impulse Angular Correlation
in the Decay of Polarized Neutrons"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki,
vol. 13, No. 7, 5 April 1971, pp 356-359

Abstract: This letter offers an experimental method for precise measurement of the angular correlation coefficient in the beta decay of neutrons. To avoid errors due to proton recoil and other factors, the operating part of the neutron beam in the experimental apparatus is separated out by a diaphragm from the electron detector, and the recording of all decay protons corresponding to the recorded electrons is thus guaranteed. A cross-sectional sketch of the apparatus is given. The polarization coefficient of the neutron beam, measured by the Stern-Gerlach method, was 0.77 ± 0.02 at an intensity of $3 \cdot 10^7$ neutrons/sec. The

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YEROZOLIMSKIY, B. G., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoriticheskoy Fiziki, vol. 13, No. 7, 5 April 1971, pp 356-359

experimental work was done in the IRT-M reactor of the Institute of Atomic Energy imeni I. V. Kurchatov. The authors express their gratitude to P. Ye. Spivak for his interest; to A. I. Afonin, A. G. Roshchin, A. Yu. Kulikov, and S. I. Kuznetsov for setting up the equipment and making measurements; and to the personnel under the direction of V. P. Chernyshevich, in charge of the IRT-M reactor.

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USSR

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YEROZOLINSKIY, B. G., BONDARENKO, L. N., MOSTOVOY, Yu. A., OBINYAKOV, B. A.;
ZAKHAROVA, V. P., and TITOV, V. A., Institute of Atomic Energy imeni I. V.
Kurchatov

"Search for Three-Vector Correlation in the Decay of Polarized Neutrons"

Moscow, Yadernaya Fizika, Vol. 11, No. 5, May 70, pp 1049-1057

Abstract: An experiment conducted to measure the constant D of triple correlation between the vectors of the neutron spin σ and the electron and antineutrino momenta p_e and $p_{\bar{\nu}}$ is described. The experiment was conducted on the IPT-M reactor of the Institute of Atomic Energy imeni I. V. Kurchatov. 23 series of measurements of duration 35-100 hours each were conducted and approximately $9.1 \cdot 10^4$ decay events were recorded. The average value of the coefficient D for all series was -0.01 ± 0.01 . The accuracy in obtaining the constant D made it possible to establish the difference from 180° of the phase difference between the axial-vector and the vector constants of weak interaction; this was found to be

$$\phi = 181.3^\circ \pm 1.3^\circ.$$

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1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SEARCH FOR THREE VECTOR CORRELATION IN POLARIZED NEUTRON DECAY -U-

AUTHOR--(05)--YEROZOLIMSKIY, B.G., BONDARENKO, L.N., MOSTOVOY, YU.A.,
OBINYAKOV, B.A., ZAKHAROVA, V.P.
COUNTRY OF INFO--USSR

SOURCE--YADERN. FIZ.; 11: 1049-57, MAY 1970

DATE PUBLISHED----MAY70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NEUTRON, RADIOACTIVE DECAY, ELECTRON, ANTIPARTICLE, WEAK
NUCLEAR INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605020/D09 STEP NO--UR/0367/70/011/000/1049/1057

CIRC ACCESSION NO--AP0141021

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0141021

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VALUE OF THE CONSTANT D OF THE TRIPLE CORRELATION BETWEEN THE VECTORS OF THE NEUTRON SPIN SIGMA AND THE DIRECTIONS OF THE ELECTRON AND ANTINEUTRINO MOMENTA P_{SUBE} AND P_{SUBPI} IS FOUND TO BE MINUS 0.01 PLUS OR MINUS 0.01. THE CORRESPONDING PHASE SHIFT BETWEEN AXIAL VECTOR AND VECTOR CONSTANTS OF THE WEAK INTERACTION IS Φ EQUALS 181.3 PLUS OR MINUS 1.3 DEGREES. FACILITY: INST. OF ATOMIC ENERGY, MOSCOW.

UNCLASSIFIED

USSR

UDC 681.3

MALINOVSKIY, B. N., SIVACHENKO, P. M., BONDARENKO, L. T.

"Certain Problems in the Planning of a Basic Control Machine"

1-ya Nauchno-tekhn. Konferentsiya Spets. Konstrukt. Byuro Mat. Mashin i Sistem [First Scientific and Technical Conference of the Special Design Bureau for Mathematical Machines and Systems -- Collection of Works], Kiev, 1970, pp 108-119, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V571 by V. Mikheyev).

Translation: Problems of the selection of basic technical parameters for digital control equipment are studied. Two possible approaches are discussed: using one series produced universal control machine and using individual specialized high-reliability digital devices. A method is suggested for determining the necessary number of logic cells for the creation of a processor combining arithmetic and logic operations in the memory device. The authors base themselves on the necessity of producing the maximum possible speed with little increase in equipment volume.

USSR

BONDARENKO, M. D., et al, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 4, Apr 71, pp 529-538

resonator mirrors, etc. All these reasons together, as a rule, lead to a complex irregular distribution of the amplitude and phase of the field in the near zone of the resonator. The amplitude and phase configurations of the near field and the degree of its spatial coherence make a contribution to the angular distribution of radiated energy. A study of the effect of each of these factors on the magnitude of the radiation divergence of a laser is one of the important problems in quantum electronics. The field structure in the far zone is calculated with the aid of the method on the basis of an experimentally determined configuration of the near field of the radiation of a ruby laser. The calculated structure is in good agreement with the structure observed experimentally.

2/2

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USSR

UDC: 8.74

BONDARENKO, M. F., PUTYATIN, Ye. P., SHABANOV-KUSHNARENKO, Yu. P.

"Axiomatic Construction of a Mathematical Model of Visual Adaptation"

Kibernet. i vychisl. tekhn. Resp. mezhved. sb. (Cybernetics and Computer Technology. Republic Interdepartmental Collection), 1972, vyp. 14, pp 40-49 (from RZh-Kibernetika, No 5, May 73, abstract No 5V852 by the authors)

Translation: The article deals with questions of axiomatic construction of a mathematical model of visual adaptation. The validity of the axioms is confirmed by experiments.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ACTIVITY OF LIPOPROTEIN LIPASE OF THE CARDIAC MUSCLE IN
EXPERIMENTAL DIABETES IN ASSOCIATION WITH STRESS -U-
AUTHOR--BGNDARENKO, M.F.
COUNTRY OF INFO--USSR *B*
SOURCE--PROBL. ENDOCRINOL. 1970, 16(2), 92-5
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIABETES MELLITUS, HEART MUSCLE, LIPOPROTEIN, ENZYME ACTIVITY,
BLOOD CHEMISTRY, GLUCOSE, PHYSIOLOGIC STRESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1854

STEP NO--UR/0502/70/016/002/0092/0095

CIRC ACCESSION NO--AP0127264

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSIGN NO--AP0127264

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LIPOLYTIC ACTIVITY OF THE
CARDIAC MUSCLE WAS INCREASED IN RATS WITH EXPTL. DIABETES IN COMPARISON
WITH INTACT ANIMALS. STRESS IN DIABETES WAS NOT ASSOCD. WITH ELEVATION
OF THE LIPOLYTIC ACTIVITY OF THE CARDIAC MUSCLE AS IN INTACT ANIMALS.
AN INCREASE IN THE BLOOD SUGAR LEVEL DURING STRESS WAS GREATER IN RATS
WITH DIABETES THAN IN INTACT ANIMALS BUT THE CONTENT OF TOTAL BLOOD
LIPIDS FELL IN A NO. OF DIABETIC ANIMALS. FACILITY: TSENT.
INST. USOVERSH. VRACH., MOSCOW, USSR.

UNCLASSIFIED

USSR

Bondarenko, N. A., *Kombinator. Geometriya i Optim. Razemshcheniya*, Kiev, 1972, pp 81-93.

element l_{ij} is the shortest distance of objects S_i and S_j . Furthermore, if $i = j$, then $l_{ij} = 0$; c) the fixed minimum distances between each object S_i ($i = 1, \dots, n$) and area K_t ($t = 1, \dots, m$) must be maintained according to the distance matrix $|R_{it}|$, where its arbitrary element ρ_{it} is the shortest distance between object S_i and the forbidden area K_t ; d) the fixed minimum distances α_i ($i = 1, \dots, n$) between each object S_i ($i = 1, \dots, n$) and boundary σ of area Σ must be maintained.

V. Mikheyev

2/2

- 70 -

USSR

UDC 539.143.43:661.718.1

ISHMAYEVA, E. A., BONDARENKO, N. A., and PUDOVIK, A. N., Kazan' State University imeni V. I. Ul'yanov-Lenin

"Dipole Moments of Para-Substituted Styryl Phosphonates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71, pp 2565-2567

Abstract: Using the addition reaction of PCl_5 to para-substituted styrenes, the authors synthesized the acid dichloride and diethyl ester of p-chlorostyrylphosphonic acid, determined their dipole moments and calculated the moment of the interaction of chlorine in the para position of the phenyl ring with the diethoxyphosphono group (1.12 D). This value indicates that the diethoxyphosphono group plays an important part in the general conjugation chain. The authors also determined the dipole moment of styrylphosphonic acid dichloride (3.14 D). The diethoxyphosphonic group and phenyl ring in the diethyl esters of p-halogen- and p-nitro- α -cyanostyrylphosphonic acids are in the transposition.

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1/2 043 UNCLASSIFIED PROCESSING DATE--20NDV70
TITLE--INFLUENCE OF THE ZIRCONIUM ADDITIONS ON THE RELAXATION SPECTRUM OF
NICKEL -U-
AUTHOR-(04)-AZHAZHA, V.M., BONDARENKO, N.P., ZEYDLITS, M.P., SHAPOVAL,
B.I.
COUNTRY OF INFO--USSR **B**
SOURCE--FIZIKA METALLOV I METALLOVEDENIE, VOL. 29, FEB. 1970, P. 324-328
DATE PUBLISHED----FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ZIRCONIUM CONTAINING ALLOY, NICKEL ALLOY, METAL INTERNAL
FRICTION, HYDRIDE, METAL CREEP, SPECTRUM, VIBRATION DAMPING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0894 STEP NO--UR/0126/70/029/000/0324/0328

CIRC ACCESSION NO--AP0116404

UNCLASSIFIED

2/2 043

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0116404

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE EFFECT OF ZIRCONIUM ADDITIONS (UP TO 0.5PERCENT) ON THE BEHAVIOR OF INTERNAL FRICTION IN NICKEL SUBJECTED TO CREEP. IT IS FOUND THAT ZIRCONIUM CONTENTS OF 0.1 AND 0.3PERCENT INCREASE THE MAXIMA (ON THE RELAXATION SPECTRUM CURVE) THAT ARE DUE TO MAGNETOMECHANICAL DAMPING, GRAIN BOUNDARIES, AND BLOCK STRUCTURE, RESPECTIVELY. ZIRCONIUM CONTENT OF 0.5PERCENT DECREASES THESE MAXIMA. IT IS SUGGESTED THAT 0.3PERCENT ZR CORRESPONDS TO THE SOLUBILITY LIMIT OF ZR IN NI. THE PEAK DETECTED ON THE CURVE OF INTERNAL FRICTION IS SUGGESTED TO BE DUE TO THE PRECIPITATION OF ZIRCONIUM HYDRIDE.

FACILITY: AKADEMIJA NAUK UKRAINSKOI SSR.

FACILITY: FIZIKO TEKHNICHESKII INSTITUT, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--090CT70
TITLE--OPERATIVE MANAGEMENT OF CONGENITAL DISLOCATION OF THE PATELLA OF
SEVERE DEGREE IN CHILDREN -U-
AUTHOR--BONDARENKO, N.S.
COUNTRY OF INFO--USSR *B*
SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 4, PP 32-36
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PEDIATRICS, PLASTIC SURGERY, ORTHOPEDIC SURGERY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0969 STEP NO--UR/9115/70/000/004/0032/0036
CIRC ACCESSION NO--AP0109126

2/2 021

UNCLASSIFIED

PROCESSING DATE--0900170

CIRC ACCESSION NO--APG109126

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN 6 CHILDREN BETWEEN THE AGES OF 6 TO 16 YEARS WITH III DEGREE CONGENITAL DISLOCATION OF THE PATELLA, THE AUTHOR HAS USED WITH SUCCESS THE RECONSTRUCTIVE REHABILITATION OPERATION ON THE EXTENSOR APPARATUS OF THE KNEE JOINT WITH TRANSPOSITION OF MM. RECTUS AND LATERALIS FEMORIS, PATELLA, LIG. PROPRIUM AND TUBEROSITAS TIBIAE ON THE ANTERIOR ASPECT OF THE KNEE JOINT. TO ENSURE THE ANATOMICAL AND FUNCTIONAL RESTORATION OF THE EXTREMITY AND PREVENT RECURRENCE OF THE DEFORMITY, IT IS CONSIDERED NECESSARY TO SIMULTANEOUSLY PERFORM DISSECTION AND ELONGATION OF THE TRACTUS ILIOTIBIALIS (MAISSIATI), WITH CREATION OF DOUBLE FIBROUS FASCIAL LAYER INWARD TO THE PATELLA. IT IS STRESSED THAT INTERSUTURE OF ONLY THE DENSE CONNECTIVE TISSUE FORMATIONS IS MORE EXPEDIENT; INTERSUTURE OF MUSCLES IS UNDESIRABLE. IN ALL 6 PATIENTS THE RESULTS OF TREATMENT WERE FAVOURABLE. FACILITY: KAPLORY UKTOPLDII I TRAVMATOLOGII UKRAINSKOGO INSTITUTA USIVERSITIVOVANIYA VRACHLY AND 35-Y DITSKOY KLINICHESKOY BOL'NITSY.

UNCLASSIFIED

USSR

UDC: 544.944/945

BONDARENKO, N. V., Vitebsk Technological Institute of Light Industry

"Alkaloids of Veratrum Lobelianum. V"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1973, p 132

Translation: Five alkaloids were isolated by chromatography from the alkaloid fraction of Veratrum lobelianum Bernh. obtained by diethyl ether treatment of an acetic acid solution of the alkaloid sum. Spectroscopic and physical analyses identify these bases as veramarin, veralkamine, veralinine, verazine and veramine.

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USSR

UDC 669.721.472

STRELETS, Kh. L., DEVYATKIN, V. N., TATAKIN, A. N., CHESNOKOV, A. S., CHISTYAKOVA, V. S., MEDVETSKAYA, G. A., BONDARENKO, N. V.

"Development of Designs of Diaphragmless Magnesium Electrolyzers"

Tr. Vses. N-i. i Proyechn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 41-47. (Translated from Referativnyy Zhurnal Metallurgiya. No. 5, 1971, Abstract No. 5 G195 by the authors).

Translation: Results are presented from testing of pilot-scale diaphragmless electrolyzers (DE) with upper and lower input of anodes. The DE allow the specific consumption of electric power to be decreased by about 1500 kw-hr/t Mg, increasing the specific removal of Mg by 30-35% and decreasing the losses of Cl in the exhaust gases. The results of testing indicated that DE with lower position of the anodes should be introduced at two plants. 2 figs; 2 tables, 6 bibliographic refs.

1/1

USSR

UDC 547.944/945

~~PONDARENKO, N. V.~~ SHINKARENKO, A. L., GERASHCHENKO, G. I., Vitebsk Techno-
logical Institute of Light Industry, Pyatigorsk Pharmaceutical Institute

"Alkaloids from Veratrum Lobelianum. III"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 6, 1971, pp 854-855

Abstract: Chromatography in a cellulose column was used to isolate three alkaloids from the alkaloids obtained by processing the roots with rhizomes of Veratrum lobelianum Bernh. with ether. The alkaloids had the following R_f values: I -- 0.45, II -- 0.20, III -- 0.75. Experimentally obtained physical and chemical characteristics of the alkaloids are presented indicating that alkaloid I is desacetylprotoveratrin A, alkaloid II is rubijervine and alkaloid III is isorubijervine. The experimental procedures used on the three alkaloids to determine the presented data are given.

1/1

USSR

UDC 547.944:945

BONDARENKO, N. V., SHINKARENKO, A. L., and GERASHCHENKO, G. I., Vitebsk Technical Institute of Light Industry, Pyatigorskiy Pharmaceutical Institute

"Determination of the Location of the Acyl Groups and the Nature of Some Amino Alcohols in Native Ester Alkaloids of the Veratrum Species"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 4, 1970, pp 440-443

Abstract: The ester alkaloids of Veratrum are based on the amino alcohols zygadenine, protoverine, and germine. Depending on the degree of esterification, one distinguishes between mono-, di-, tri-, and tetraester alkaloids. The acyl groups occurring in these alkaloids are derived from eight acids. They may be located at positions C₃, C₆, C₇, or C₁₅. The authors derived a scheme according to which the position of the acyl group is easily ascertained. It is necessary only to determine the nature of the amino alcohol, the acyl groups, and the number of ester groups, which is relatively easily accomplished in the course of a structural study of the ester alkaloids. Subsequently one uses the scheme worked out by the authors, following the observed regularities in regard to the arrangement of the acyl groups in the Veratrum ester alkaloids, the boiling point, the nature of the substituent

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USSR

BONDARENKO, N. V., et al, Khimiya Prirodnikh Soyedineniy, No 4, 1970, pp 440-443

at the C₇ atom, and in regard to the forms of the amino alcohols on which the ester alkaloids are based. In particular, it was found that alkaloids with a free hydroxyl group at the C₇ position melt at a temperature below 220°C and alkaloids with no hydroxyl group or an esterified hydroxyl group melt at temperatures above 220°C. Monoester alkaloids melting above 220°C are derived from zygadenine; triester alkaloids melting above 220°C are derived from germine, those melting below 220°C and all tetraester alkaloids are derived from protoverine.

2/2

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USSR

B UDC 621.357.1:661.418(088.8) *12/24/84*

KONONCHUK, T. I., KISELEV, G. P., RED'KO, L. P., BONDARENKO, N. V.
SHAKHNOVSKAYA, M. Z.

"electrolytic Method of Preparing Chlorine and Alkali Using a Mercury Cathode"

Translation: A patent has been issued for an electrolytic method of preparing Cl₂ and alkali using an Hg-cathode and introducing into

the electrolyte additives which promote a reduction in the liberation of H₂ in the bath. To expand the variety of additives, polyacrylamide is used as an additive in amounts of 0.01-10 mg/liter. Data characterizing the action of polyacrylamides of various specimens on the extent of reduction of hydrogen liberation are cited.
V. N. Kudryavtsev

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- 22 -

Acc. Nr:

AP0047327

B

Ref. Code: UR 0300

PRIMARY SOURCE: Ukrayns'kiy Biokhimichnyi Zhurnal, 1970,
Vol 42, Nr 1, pp 44-49

PECULIARITIES OF MUCOPOLISACCHARIDE METABOLISM
OF LYMPHATIC NODE STRUCTURAL ELEMENTS IN THE RAT ONTOGENY

O. D. Bondarenko

Institute of Zoology, Academy of Sciences, Ukrainian SSR, Kiev

Summary

It is established by means of histochemical and autoradiographic methods that lymphatic nodes in the ontogeny undergo not only morphological but also biochemical changes. Mucopolysaccharide metabolism in the lymphatic node structural elements takes place during the whole life of animal. But depending on the animal age and the degree of structural element differentiation a specific set of mucopolysaccharides in them changes. In the lymphatic nodes of young rats PAS-positive substance and the reactions for the presence of sulfurized mucopolysaccharides chondroitin sulphates A and C, heparin, heparitin sulphate B are more pronounced, in old animals synthesis of these substances in lymphatic nodes gradually yields to the synthesis of carboxylated and neutral mucopolysaccharides (hyaluronic acid and chondrotin).

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A weak positive reaction of metachromasia in fibrous frame of young rat lymphatic nodes apparently evidences for the presence of insignificant quantity of precollagen fibres. A thick net of reticular stroma of the animal lymphatic nodes, losing its metachromatism and alcyanophilia testifies to the presence of neutral mucopolysaccharides. In experiments with labelled sodium sulphate the dynamics of cell differentiation is observed, namely: the highest intensity of isotope incorporation into endothelium and mast cells, plasmatic and neutrophile cells as well as into macrophages is observed in the period from 3 to 24 hrs after the moment of injection. The label intensity depends on the quantity of sulfurized mucopolysaccharides of the type of heparin, heparitin-sulphate B and chondritin-sulphates A and C by which slightly differentiated cells are rich.

Thus, the mucopolysaccharide synthesis activity in the aelastic and smooth muscle frame, reticular stroma and cellular elements reflects their differentiation degree and age changes testifying thus to a close connection of this process with the functional activity of lymphatic nodes in ontogeny.

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del

AA0053142

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent 2-7d

238584

SYSTEM FOR FILLING TANKS WITH PETROLEUM PRODUCTS having flexible tubes (24 & 26)

to a sealing cover (9) which has a data transmitter (10) for liquid level. The tubes are connected to the cover via a movable trolley (1) (along rails (2)), activated by a drive unit (5) with a cable system. To automate the process of tank filling, the sealing cover is equipped with a mechanism controlling the attitude of the data transmitter. The mechanism consists of vertical rods (8) fastened to a cross piece (7) with the data unit and levers (11) secured to the end of one of the rods. The cover connects with the cross piece via a spring (13) and the cross piece is fitted with a cup containing the spring loaded rod connected to the control cable system, the control switch (19) being located under this rod.

2.3.64 as 886601/23-26 P.M. BONDARENKO et al.
(16.7.69) Bul. 10/10.3.69. Class 20c, Int. Cl. B 61d.

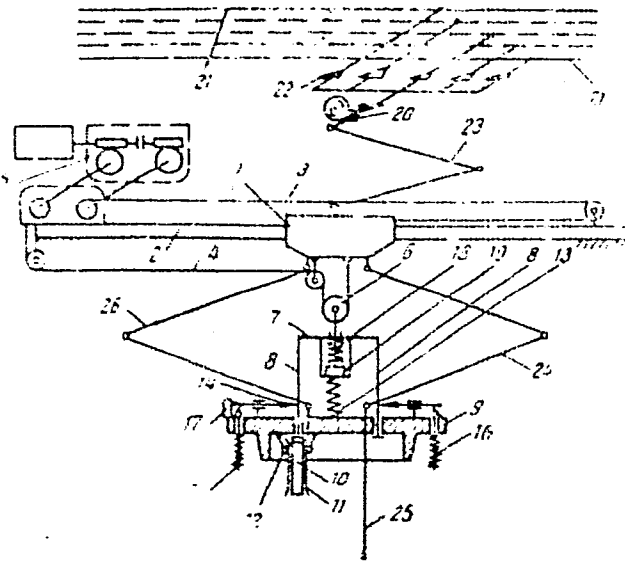
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19830089

AA0053142

AUTHORS:
Bondarenko, P.
M.; Polyakov,
V. G.; Kondrat'
yev, N. A.



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19830089

1/2 029 UNCLASSIFIED PROCESSING DATE--30OCT79
TITLE--EFFECT OF ALKALI METAL ION ON THE POLYMERIZATION RATE AND BEHAVIOR
OF N VINYLAMIDOSUCCINIC ACID SALTS -U-
AUTHOR-(02)-NIKOLAYEV, A.F., BONDARENKO, S.G.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 885-9
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ALKALI METAL, METAL ION, POLYMERIZATION RATE, VINYL COMPOUND,
SUCCINIC ACID, AMIDE, ACTIVATION ENERGY, ELECTROLYTE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0682 STEP NO--UR/0459/70/012/004/0885/0889
CIRC ACCESSION NO--AP0124354
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124354

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LI, NA, OR K SALTS OF THE TITLE ACID WERE POLYMD. IN WATER AT 50DEGREES WITH H SUB2 O SUB2 AS THE INITIATOR OR AT 60-70DEGREES IN MEQH SOLN. CONTG. (ME SUB2 CCN)SUB2 N SUB2 (I). THE REACTION RATE (V) IN MEQH WAS PROPORTIONAL TO I CONC. (C) AND THE SALT (M) CONC., V EQUALS K (C)PRIME0.5(M)PRIME2. THE EFFECTIVE ACTIVATION ENERGIES OF POLYMN. DECREASED IN THE SALT CATION ORDER LI IS GREATER THAN NA IS GREATER THAN K. THE MOL. WT. OF THE OBTAINED POLYELECTROLYTES DEPENDED ON THE MONOMER CATION AND THE REACTION CONDITIONS. FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

Adsorption

USSR

UDC 541.183.2

BONDARENKO, S. V., VDOVENKO, N. V., BUNTOVA, M. A., RUDENKO, V. H., AND
TARASEVICH, YU. I., Institute of Colloidal Chemistry and Chemistry of Water,
Academy of Sciences, UkrSSR

"Wetting Heat and Water Adsorption on Organopalygorskite"

Kiev, Ukrainskiy Khimicheskii Zhurnal, Vol 38, No 10, Oct 71, pp 1008-1013

Abstract: The wetting heat and adsorption of water on a natural sample of palygorskite and on samples treated with organic materials were investigated. It has been shown that mineral surfaces modified with organic cations have a lower adsorption capacity. This is due principally to the replacement of the most active adsorption centers of the internal surface of the mineral (inorganic exchange ions, hydroxyl groups) by less active organic cations. The surface covered with organic modifiers increases with their increasing chain length, and consequently a gradual decrease occurs of the wetting heat and of the magnitude of adsorption. On the basis of thermochemical studies, changes were calculated for the differential thermodynamic functions of the
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USSR

BONDARENKO, S. V., et al., Ukrainskiy Khimicheskij Zhurnal, Vol 38,
No 10, Oct 71, pp 1008-1013

adsorption process. It has been established that the A. V. DUMANSKY law
applies in determining the quantity of water bound by the palygorskite
modified with organic materials.

2/2

- 1 -

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ADSORPTION OF WATER ON CATION SUBSTITUTED HALLOYSITE AND KAOLINITE
-U-
AUTHOR--(05)-OVCHARENKO, F.D., TARASEVICH, YU.I., RUDENKO, V.M.,
BONDARENKO, S.V., ALEKSEYEV, O.L.
COUNTRY OF INFO--USSR
SOURCE--UKR. KHIM. ZH. 1970, 36(3), 253-9
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--ADSORPTION, ISOTHERM, KAOLINITE, WATER, METHANOL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0895 STEP NO--UR/0073/70/036/003/0253/0259
CIRC ACCESSION NO--AP0137923
UNCLASSIFIED

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2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137923

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADSORPTION DESORPTION ISOTHERMS FOR H SUB2 O ON NATURAL HALLOYSITE AND KAOLINITE AND ON THE NH SUB4, NA, CA, AL, AND TH FORMS ARE GIVEN. THERE ARE NO GREAT DIFFERENCES IN THE HYSTERESIS LOOPS FOR THE VARIOUS FORMS OF HALLOYSITE, BUT THE KAOLINITES AT LOW RELATIVE PRESSURES HAD INCREASINGLY LARGE HYSTERESIS LOOPS IN GOING FROM THE NATURAL AND CA FORMS TO THE NA, AL, AND TH FORMS. THIS IS DISCUSSED IN TERMS OF HYDRATION OF METAL CATIONS AND IN TERMS OF THE ENERGY INVOLVED IN DISPLACING THE CATIONS FROM THE SILICATE SURFACE WITH RESULTANT HYDRATION OF BOTH METAL AND SURFACE. THE HYSTERESIS LOOPS OF MEQH ADSORBED ON KAOLINITE AND HALLOYSITE ARE MUCH NARROWER THAN THOSE OF H SUB2 O. AT A RELATIVE PRESSURES LARGER THAN 0.9, THERE IS A RAPID INCREASE IN ADSORPTION. THIS IS ATTRIBUTED TO THE PRESENCE OF PORES OF RADIUS LARGER THAN 200 ANGSTROM. A TABLE IS GIVEN OF HEATS OF WETTING AND OF VOLS. OF THE MONOLAYER FOR THESE MATERIALS. FACILITY: INST. KOLLOID, KHIM. KHIM. VODY, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 577.1:547.96:612.8.015

BONDARENKO, T. I., KRICHEVSKAYA, A. A., Department of Biochemistry of the Rostov-na-Donu University

"N-Acetyl- α - β -Aspartyl- β -Glutamate and N-Acetyl- β -Aspartic Acid in Different Compartments of a Rat's Brain in the Presence of Hyperoxia"

Kiev, Ukrain's'kiy Biokhimichniy Zhurnal, Vol 44, No 4, 1972, pp 434-436

Abstract: The various compartments of the brain of white rats differ with respect to N-acetyl- α - β -aspartyl- β -glutamic (NAAG) and N-acetyl- α - β -aspartic acid (NAAA). With respect to the increase in dipeptide content it is possible to arrange them in the following order: the cerebral hemispheres > cerebellum > mesencephalon and diencephalon > medulla oblongata. The N-acetyl- β -aspartic acid content increases in the same sequence. When developing oxygen poisoning, the amount of dipeptide and NAAA in the investigated compartments of the brain decreases.

The experiments were performed on white rats weighing from 120 to 150 grams subjected to increased oxygen pressure in a pressure chamber at 3.25 atmospheres for 60 minutes. The carbon dioxide exhaled during respiration of the animals was captured by means of an alkaline absorber. The methods of ion exchange chromatography, paper chromatography and electrophoresis were used to

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BONDARENKO, T. I. and KRICHEVSKAYA, A. A., Ukrain'skiy Biokhimiicheskii Zhurnal, Vol 44, No 4, 1972, pp 434-436

determine the content of the designated compounds in the areas of the rats' brains under investigation. A decrease in the NAAA and NAAG contents took place in all areas after the animals were subjected to oxygen poisoning. The mechanism of this effect is discussed, and the special significance of the inhibition of the enzyme system of the acid decarboxylation of pyruvic acid under pressure is noted.

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USSR

UDC 529.26

ZHURAKOVSKIY, YE. A., NESHPOR, V. S., BONDARENKO, T. N., and NIKITIN, V. P.,
Institute of the Problems of Material Sciences, Academy of Sciences UkrSSR

"X-Ray Spectral Investigation of the Electron Structure of Non-Stoichiometric
Titanium Carbide"

Kiev, Poroshkovaya Metallurgiya, No 6(126), Jun 73, pp 75-79

Abstract: Investigation results are presented of a detailed x-ray spectral investigation of titanium carbide of limiting composition and in the region of homogeneity; K-emission lines of titanium and carbon genetically combined with the p-component (with admixture of d-states) of the valent zone of both atoms in its occupied part, L_{III} -line of titanium emission reflecting basically d-states of the valent zone of titanium, and K-region of titanium emission reflecting p- and d-like conditions above the Fermi level. At the lower boundary of the homogeneity region of the L_{III} -line of emission, in contrast to other spectra, the parameters of which do not depend on the carbon concentration, on the top of the L_{III} -line an additional substructure is observed which is interpreted as a redistribution of d-states in the abundance of vacancies with respect to carbon. Three figures, one table, twenty-three bibliographic references. 1/1

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BONDARENKO, T.T.

EFFECTS OF LSD, CHLORPROMAZINE, AND ORGANOPHOSPHOROUS CHOLINESTERASE INHIBITORS ON BRAIN

JPRS 58003
17 January 1973

Selected articles from the Russian-language journal Nyulleten' Eksperimental'noy Biologii i Meditsiny, No 11, 1972, Moscow.

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Metabolism of Individual Phospholipid Fractions in the Brain of Mice Intoxicated With Organophosphorous Cholinesterase Inhibitors (V. Ia. Ivorkin, G. V. Kiselev).....	7

[1 - USSR - C]

INTERACTION OF THE EFFECTS OF LYSERGIC ACID DIETYLAMIDE AND 6-OH-DOPAMINE ON INDIVIDUAL NEURONS OF THE MIDBRAIN'S RETICULAR FORMATION

UDC 615.714.015.4:612.897.1

[Article by Dr. V. A. Kozlov, Institute of Psychopharmacology, Central Research Institute of Psychiatry of the USSR Academy of Sciences, Leningrad, USSR, Journal of Medical Psychology, Moscow, 1972, No. 11, 1972, pp. 44-47]

It is established that the same neurons of the midbrain's reticular formation are found to both lysergic acid diethylamide (LSD) and chlor- butyl ergoline. Apparently, as in the level of these ergoline base, the ergoline interaction be- comes stronger and stronger. In this case, chlorbutyl ergoline both can inhibit and can stimulate effects of LSD. Its action can be either independent or synergistic. The conclusion is made that there is an adrenergic component in action of LSD on the central ner- vous system.

Today we have a wide circle of research that allows us to establish with the precision of effects of lysergic acid di- ethylamide (LSD) in connection with the drug's action on certain neurons and ergoline systems of the brain. In 1969, How- ard et al. [1] on the basis of the neurochemical nature of the effect of LSD on the central nervous system with con- siderable accuracy. In this case both amphetamine and chlorbutyl ergoline, in this case both amphetamine and chlorbutyl ergoline, according to data of other authors the effect of LSD on the central nervous system is not only dependent on the activity of the midbrain's reticular formation [2] and



Pharmacology and Toxicology

USSR

UDC 615.214.015.45:612.822

BONDARENKO, T. T., Laboratory of Psychopharmacology, Central Research Institute
of Forensic Psychiatry im. Serbskiy, Ministry of Health USSR

"The Effect of Lysergic Acid Diethylamide on the Activity of Single Neurons in
Some Brain Regions"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 10, 1971, pp
53-55

Translation: Abstract: The frequency of background impulse activity of neurons
of the midbrain reticular formation was found to be approximately three times
greater than that of hippocampal neurons. Under the influence of lysergic acid
diethylamide (LSD), the background rhythm of the neurons in these brain regions
changed, as shown by the presence in the reticular formation and hippocampus of
specific sensitivity to LSD. This reaction to LSD may be manifested either by
stimulation or depression of impulse activity. No relationship was noted be-
tween the nature of the neuronal reaction to LSD and the background impulses.

* * *

Elucidation of the mechanism of action of lysergic acid diethylamide (LSD) is of
interest because of the psychotomimetic properties of this drug. Some investi-
gators believe that the brainstem is the central site of LSD action.

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USSR

BONDARENKO, T. T., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 10, 1971, pp 53-55

Our laboratory showed that the midbrain reticular formation (RF) and hippocampus are specifically sensitive to LSD. LSD was found to affect the functioning of both serotonergic and adrenergic elements in these regions. Our findings were confirmed by the histochemical studies of N. A. Khristolyubova, who observed that LSD has a distinct effect on the metabolism of the biogenic amines of the brain. She also found that LSD acts selectively on certain cell groups in the vicinity of the RF.

As part of our continuing study of the mechanism of action of LSD, we thought it worthwhile to investigate the effect of this preparation on the functioning of single neurons in brain regions specifically sensitive to it -- the RF and hippocampus.

Procedure and Results

The research was conducted on white male rats weighing 200 to 300 g under conditions of an acute experiment with the animals anesthetized with urethan (1 to 3 g/kg). A twin-beam oscillograph (made by Disa Electronic) with a

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BONDARENKO, T. T., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 10, 1971, pp 53-55

motion picture camera were used to record the impulse activity of the neurons. Discharges of the neurons of the RF and dorsal hippocampus were derived extracellularly from glass microelectrodes 1 to 2 μ in diameter at the tip; the electrodes were filled with 3 M sodium chloride solution. The coordinates of the brain structures were determined from the Fikova-Marshala stereotactic atlas. The activity of 25 RF neurons and 20 hippocampal neurons was recorded.

In recording the background activity of neurons in rats anesthetized with urethan, we found that the neurons of the dorsal hippocampus fire at the rate of 2 to 10 a second. The frequency of firing of the RF neurons is much higher -- from 5 to 30 discharges a second.

Subcutaneous injection of LSD (0.5 mg/kg) produced changes in the background rhythm of the neurons within 4 to 7 min. Most of the hippocampal and RF neurons reacted to LSD either by a slowing or acceleration of the original rhythm of the neurons. The frequency of the background impulses changes under the influence of LSD by a factor of 2 or 3. It will be noted too that the hippocampal neurons reacted much more often with inhibition than with excitation.

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USSR

BONDARENKO, T. T., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 10, 1971, pp 53-55

Their inhibition was manifested in most cases by complete cessation of impulse activity (in 10 of 13 neurons). The RF neurons reacted either by stimulation or depression of activity with approximately equal frequency, but complete inhibition of the spontaneous rhythm occurred much less often than in the hippocampal neurons (in 5 of 12 neurons).

We also attempted to determine whether the nature of the neuronal reaction to LSD varied with the frequency of the original impulses. No such relationship was detected. For example, regardless of the background frequency of the discharges, the hippocampal neurons generally responded with inhibition. The RF neurons with a low original rhythmicity (5 to 10 a second) responded with inhibition or suppression with approximately equal frequency, but those with a medium (11 to 20 a second) or high (21 to 30 a second) rhythmicity responded somewhat more often with inhibition.

Thus, our findings on the effect of LSD on impulse activity of neurons of the RF and dorsal hippocampus are consistent with those of other investigators on the existence of specific sensitivity to LSD in these brain structures.

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USSR

BONDARENKO, T. T., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 10, 1971, pp 53-55

However, the results of our experiments differ significantly from those of Sailer et al. who found that LSD inhibits the hippocampal neurons and from those of Foote et al., who found that it stimulates RF neurons. We discovered that the reactions of the hippocampal and RF neurons to LSD are not limited to one type, that they can be manifested either by stimulation or suppression of impulse activity. Apparently, the original rhythm of the neurons is not the determining factor. It is reasonable to assume that the difference in the reaction to LSD of neurons in the same brain structure may be due to the fact that these neurons belong to different functional systems within which they could be subjected to reflected influences or to the fact that they differ in neurochemistry.

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USSR

UDC: 539.3

BOHDARENKO, V. A.

"Contact of Thin-Wall Spherical Shell with Rigid Sphere"

Kiev, Prikladnaya Mekhanika, Vol 7, No 12, 1971, pp 51-57

Abstract: The case is considered of a thin-wall hemispherical shell fixed along the equator and loaded at the pole by a rigid sphere located inside the shell. The radial clearance between the two is small, about .01 of the radius.

The differential equation (2) expresses the relation between the radial deflections and pressures. The solutions are presented for the zone of contact and outside of the zone of contact. From the equality of the two solutions at the boundary the distance X_1 of the boundary from the polar axis and the deflection at the pole can be determined; X_1 is found from equation (24) and the table, the deflection at the pole from equation (25).

A numerical example is given graphs of deflections, tangential forces and bending moments versus nondimensional distance from the polar axis are presented for three values of radial clearance.

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USSR

UDC 621.771.23

GRUDEV, A. P., ZIL'BERG, Yu. V., and BONDARENKO, V. A., Dnepropetrovsk Metallurgical Institute

"Effect of the Metal's Temperature on the Coefficient of Friction in Cold Rolling"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 1, 1971, pp 80-81

Abstract: Earlier papers dealing with friction in cold rolling have failed to take into account the role of the temperature factor, although the temperature of the metal sometimes rises to 250-300° C, which drastically affects the properties of lubricants. This study discusses the effect of the metal's temperature on the friction factor in cold rolling within 20-250° C. The lubricants were castor and spindle oils. The experiment involved specimens of 08 kp work-hardened steel rolled on a duo mill on hardened steel rolls 191.1 mm in diameter at a reduction in area of 10%. The effectiveness of lubricants was found to be greatly affected by the temperature of the metal being rolled. The extent to which the friction factor was affected by temperature appears to depend on the viscosity of
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USSR

GRUDEV, A. P., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 1, 1971, pp 80-81

the lubricant. The increase in the friction factor with the temperature of the metal is due to the decrease in the layer of lubricant in the area of deformation.

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1/2 051

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--EMISSION CHARACTERISTICS OF SOME REFRACTORY METALS WITH MIXED ADSORBED CESIUM AND BARIUM FILMS -U-

AUTHOR-(03)-~~BONDARENKO~~, V.D., LOSHKAREV, A.I., ULMASBAYEV, B.SH.

COUNTRY OF INFO--USSR

B

SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(1), 211-13

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--REFRACTORY METAL, CESIUM, BARIUM, FIELD EMISSION, METAL FILM, TUNGSTEN, MOLYBDENUM, NIOBIUM, METAL COATING, WORK FUNCTION, CRYSTALLOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1951

STEP NO--UR/0294/70/008/001/0211/0213

CIRC ACCESSION NO--AP0118913

UNCLASSIFIED

2/2 051

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118913

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WORK FUNCTIONS, PHI, AND FIELD EMISSION IMAGES OF VARIOUS CRYSTALLOGRAPHIC PLANES OF W, MO, AND NB COATED WITH ABSORBED CS AND BA FILMS WERE STUDIED AT (1-2 TIMES 10 PRIME NEGATIVE 9 MM HG. SINGLE CS FILMS ARE ACTIVE MAINLY IN THE (112) AND (110) PLANES; THE EMISSION OF SINGLE BA FILMS IS MAX. FROM (122), (123), AND (111) PLANES; THE EMISSION OF SINGLE BA FILMS IS MAX. FROM (122), (123), AND (111), (112) PLANES AT THETA BA IS MUCH LESS THAN L AND THETA BA CONGRUENT TO L, RESP. (THETA EQUALS T-T SUBOPT, WHERE T IS THE ACTUAL DURATION OF BA OR CS DEPOSITION, AND T SUBOPT IS THE TIME REQUIRED FOR OBTAINING THE MIN. PHI). MIXED CS-BA FILMS WERE OBTAINED BY DEPOSITING CS ON BA-COATED METALS; IN ALL CASES, PHI CS-BA WAS LOWER THAN PHI BA. THE EMISSION OF THE CS-BA-METAL SYSTEM IS MAX. FROM (112) AND (110) PLANES AT THETA BA IS LESS THAN OR EQUAL TO 0.3; THE CONTRIBUTION FROM (112) DECREASES FOR THETA BA YIELDS 1.

UNCLASSIFIED

USSR

UDC 621.385.632

POBEDNOSTSEV, A.S., MAL'KOVA, N.YA., BORODENYO, V.G.

"To A Nonlinear Theory Of A Resonant TWT Oscillator"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 8, pp 7-10 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A178)

Translation: The peculiarities of the mechanism of interaction and the energy characteristics of traveling-wave tube oscillator are considered in the approximations of nonlinear one-dimensional theory. It is shown that with respect to efficiency this device considerably surpasses conventional and resonant backward-wave tubes, and is not inferior to the latter in other output parameters. 8 ref. Summary.

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USSR

UDC: 621.373.421.13

B
BONDARENKO, V. G., KARLINSKIY, S. I.

"Frequency Stability of a Bridge Type Tunnel-Diode Quartz-Controlled Self Oscillator"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Electrical Communications Technology--collection of works), Vyp. 5, Moscow, "Svyaz", 1970, pp 133-152 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7B375)

Translation: An investigation was made into the frequency stability of a bridge type quartz-controlled tunnel-diode self oscillator with a transformer. Expressions are derived to account for the effect of such destabilizing factors as change in supply voltage, changes in the values of the active and reactive circuit elements, and also the current flowing through the resistor. Three illustrations, three tables, bibliography of twelve titles. Resumé.

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Acc. Nr: **AP0038112**

Ref. Code: UR 0326

PRIMARY SOURCE: Fiziologiya Rasteniy, 1970, Vol 17, Nr 1,
pp 107-111

**ONTOGENETIC CHANGES IN FORMATION OF THE ROOT
SYSTEM OF WINTER WHEAT**

A. I. ZADONTSEV, V. I. BONDARENKO, A. L. GRINCHENKO, A. A. SAMOSHKIN

All-Union Scientific Research Institute of Maize, Dnepropetrovsk

Results are briefly described of field and vegetation experiments carried out in 1957—1968 with the aim of studying the formation of the root system and aerial part of winter wheat (Mironovskaya 808 and Odesskaya 3 varieties) sown at various periods and supplied with various amounts of nutrients during growth. Data are presented on linear growth of roots and overground parts, rate of water consumption by the plants from various soil horizons, root abundance of plants, root absorbing surface and also grain productivity of wheat.

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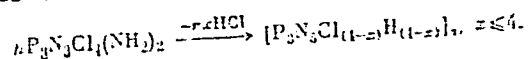
UDC 678.86

NIKOLAYEV, A. F., BONDARENKO, V. M. and BELYAYEV, Yu. P., Leningrad Technological Institute imeni Lensovet

"The Process of Thermal Conversion of 2,2-Diamino-4,4,6,6-tetrachlorotriphosphonitrile"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 1028-1032

Abstract: Using differential-thermal and thermogravimetric analysis, it was shown that 2,2-diamino-4,4,6,6-tetrachlorotriphosphonitrile is thermally stable to 140°. Higher temperatures (over 150°) cause decomposition with the continuous evolution of hydrogen chloride up to a temperature of 600°. The spectrum and X-ray diffraction analysis of the title compound and the products of its thermal decomposition verified the process of thermal conversion of the bonds with intermolecular dehydrochlorination and the formation in the final step, of irregular spatial molecules of the general formula $[P_3N_5Cl_z]_n$. The general reaction for the interval 150-600° can be expressed by the following equation:



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1/2 016
TITLE--SYNTHETIC FIBERS -U-

UNCLASSIFIED

PROCESSING DATE--20NOV70

AUTHOR--(03)--BENDARENKO, V.M., BYCHKOV, R.A., SHOSHIN, A.V.

COUNTRY OF INFO--USSR

SOURCE--USSR. 265,367

REFERENCE--OTKRYTIYA, IZOBRET., PRGM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SYNTHETIC FIBER, CELLULOSE RESIN, POLYACRYLONITRILE FIBER,
POLYCLEFIN FIBER, CHEMICAL PATENT, PLASTIC FABRICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1437

STEP NO--UK/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128836

UNCLASSIFIED

2/2 018
CIRC ACCESSION NO--AA0128836

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SYNTHETIC FIBERS ARE PREPD. BY
ESTRUDING POLYMER SOLNS. INTO A COAGULATING BATH IN WHICH THE HARDNESS
IS CHANGED GRADUALLY OR STEPWISE BY REGULATING ITS COMPN. AND CONC.
FOR REGENERATED CELLULOSE FIBERS THE COAGULATION BATH CONC. IS
INCREASED FROM 2PERCENT TO 80PERCENT. FOR SYNTHETIC FIBERS (E.G.,
POLYACRYLONITRILE, POLYOLEFINS), THE CONC. IS INCREASED FROM 1 TO
95PERCENT.

UNCLASSIFIED

RUSSIA

UDC 621.396.677.83

Исследование, Г. А. Агаев, В. И. и др. Известия высших учебных заведений. Радиофизика

"Investigating the Frequency Characteristics of Selectively Reflecting Radio Screens"

Moscow, Antenny, No. 10, 1971, pp 27-47

Abstract: The principle of the method of selectively reflecting screens is briefly explained, and the authors attack the problem of finding their frequency characteristics by using the solution of the electromagnetic problem regarding the diffraction of an arbitrarily polarized plane wave slantingly incident on a fine, infinite metallic screen with a system of slots, of width a_1 and a_2 cut in two mutually perpendicular directions, at intervals of d_1 and d_2 . It is assumed that the width of the slots is much less than d_1 and d_2 , and that a_1 and a_2 are much less than the wavelengths throughout the range of investigated frequencies. A system of equations is derived for which an approximate solution can be found with an electronic computer, and the solution is found directly and analytically for the case of normal incidence of the wave. For the experimental part of the paper, a diagram of the equipment and an explanation of the experimental method are given. The results of the experiments, with inductance coils connected
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USSR

POFERECHENKO, B. A., et al, Antenny, No. 10, 1971, pp 27-47

between the metallic plates of the selectively reflecting screen, show that the steepness of the antenna's experimental curve increases in its transition region. The experimental curves for the antenna are plotted.

USSR

UDC: 621.396.677.833.2

POPERECHENKO, B. A., NOSOV, O. N., BONDARENKO, V. N.

"Investigation of the Frequency Responses of Selectively Reflecting Radio Shields"

V sb. Antenny (Antennas--collection of works), vyp. 10, Moscow, "Svyaz'", 1971, pp 27-47 (from RZh-Radiotekhnika, No 5, May, 71, Abstract No 5B58)

Translation: The authors present the results of theoretical and experimental studies of some selectively reflecting shields used in multichannel parabolic antennas. Ten illustrations, bibliography of eight titles. Resumé.

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USSR

UDC 536.45.001.2

BONDARENKO, V. P., and FOMICHEV, YE. N.

"Experimental Research in the Thermodynamic Properties of Substances in the Condensed Phase at High Temperatures"

Khar'kov, Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby USSR, 1972, -- sb. (Ukrainian Republic Scientific and Technological Conference Honoring the 50th Anniversary of the Ukrainian SSR's Metrological Service, 1972 -- Collection of Works), 1972, p 66 (from Referativnyy Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 2, 1973, Abstract No 2.32.1010 by V.S.K.)

Translation: The authors present the results of KhGNIM Khar'kov State Scientific Research Institute of Metrology] projects aimed at measuring the enthalpy, heat, and phase transition temperatures for elements, oxides, carbides, and silicides at temperatures on the order of 2,800 K. They describe the equipment that was used, the sample preparation that was done, and the procedure used to take the measurements. They also discuss evaluating the systematic and random measurement errors, in addition to showing that the maximum error in the enthalpy measurements over to 500-2,800 K range is 0.3-0.8 percent.

1/1

Receivers & Transmitters

USSR

UDC 621.317.79

DYATLOV, A. P. and BONDARENKO, V. P.

"Increasing the Interference-Resistance of Correlators"

Tr. Taganrog. radiotekhn. in-ta (Works of the Taganrog Radio-Engineering Institute), 1972, vyp.28, pp 140-145 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A248)

Translation: An essential shortcoming of multiplication correlators widely used in reception technology is their low interference resistance. As a result of this, an integral effect is observed at the output during the simultaneous action of several signals on the correlator input. The integral effect makes the separation of the useful signal difficult. An analysis is given of three methods for raising the interference resistance of multiplication correlators: 1) separation of the useful signal against a background of interfering, continuous signals; 2) separation of the continuous signal against a background of pulsed interference with a high repetition frequency; and 3) separation of signals with linear frequency modulation against a background of interfering, continuous, narrow-band signals. A.K.

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USSR

UDC 621.357.7:669.245'27

BONDARENKO, V. P., RYABUKHIN, A. G.

"X-Ray Diffraction Investigation of Electrolytic Alloys of Nickel with Tungsten"

Tr. Kurgan. mashinostroit. in-ta (Works of the Kurgan Machine Building Institute), 1971, vyp. 17, pp 34-36 (from RZn-Khimiya, No 6 (II), Jun 72, Abstract No (L313)

Translation: Ni-W alloys (20-5% W) were obtained from ammonium solution. By the data from x-ray diffraction studies it was established that up to 36% of the W of the coating was a supersaturated solid solution; with higher concentrations of W in the coating occurrence of the intermetallide compound WNi_4 is assumed.

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USSR

UDC 621.357.7:669.245'27

~~BOGDARUKO~~, V. P., RYABUKHIN, A. G.

"X-Ray Diffraction Study of the Effect of Some Parameters of Electrolysis on the Composition of Nickel Alloys with Tungsten"

Tr. Kurgan. mashinostroit. in-ta (Works of the Kurgan Machine Building Institute), 1971, vyp. 17, pp 37-41 (from RZh-Khimiya, No 6, (II), Jun 72, Abstract No 6L314)

Translation: Ni-W alloys were obtained from ammonia and ammonium citrate solutions for various currents. An x-ray diffraction study was made of the effect of the solution temperature and the coating composition on the intensity of the 111 Ni line. The maximum intensity corresponded to a temperature of 60°. With a W content of 44%, the line corresponding to reflection from the Ni₄W lattice appeared on the diffraction curves.

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USSR

UDC 621.762.001

BONDARENKO, V. P., CHERNYAK, L. V., and SHLYUKO, V. Ya.

"Alloying of Lanthanum Hexaboride With Hafnium"

Vestn. Kiyev. politekhn. in-ta. Ser. mashinostr. (Herald of Kiev Polytechnic
Institute: Machine-Building Series), 1971, No 8, pp 178-180 (English summary)
(from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G246 by authors)

Translation of Abstract: The authors studied the coreduction of La_2O_3 and HfO_2 by boron in vacuum. An alloy was obtained containing a solid solution of Hf in LaB_6 and HfB_2 and possessing elevated thermostability as compared with pure LaB_6 . One table. Bibliography with four titles.

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Controls

USSR

UDC 621.314.61

BONDARENKO, V. P.

"Calculation of Pulse Shapers for a Thyristor Control System"

Gorn. elektromekh. i avtomatika. Resp. mezhved. nauch.-tekhn.sb (Mining Electromechanics and Automation. Republic Interdepartmental Scientific-Technical Collection), 1970, Issue 16, pp 8-13 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B459)

Translation: A method is considered for calculation of pulse shapers for a thyristor control system applicable for use in thyristorized converter system for control of ion devices. An example is given of the calculation of pulse shapers. The parameters are given of pulse shapers for several types of systems, as well as oscillographs of voltages taken during laboratory and industrial tests. 3 ill. 3 ref. Author's Abstract.

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USSR

UDC 612.46.014.45

GEKHMAN, B. S., LAZARETNIK, A. Sh., VARSHAVER, L. G., BONDARENKO, V. P.,
DANILENKO, N. F., Kiev District Military Hospital

"The Effect of Supersonic Waves on Kidneys and Urinary Tracts"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/
Jun 70, pp 17-21

Abstract: A high-intensity source emitting a spherical supersonic wave was used for irradiating 30 dogs, ten of which were in an acute test, 19 of which had been under observation for six months, and one control. The vesical, center, and perirenal parts of the ureter, the renal pelvis, and kidney were subjected to the supersonic waves. In 12 tests, temperature gradients were measured. No significant morphological changes in the tissues of the urinary bladder or ureters were detected after short or long periods of treatment. In no case was thermocoagulation of the tissues observed. Results of histochemical studies of the kidneys were in agreement with histological data. The results were explained by the fact that a supersonic source producing a spherical wave comparatively rapidly, i.e., over short distances, loses its intensity. When a 1:5 irradiation rhythm was used, elimination of heat by the systems of the organism regulating heat exchange was assured.

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USSR

UDC 620.018

SAMSONOV, G. V., BOYKO, P. A., MOTYAZHEV, V. I., BONDARENKO, V. P., and SLEPTSOV, V. M., Kiev

"Solubility and Solid Phase Reaction of Carbides of Transition Metals With Nickel and Copper"

Moscow, Fizika i Khimiya Obrabotki Metallov, No 1, Jan-Feb 71, pp 112-119

Abstract: The solubility and solid phase reactions of carbides of Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, and W with Ni and Cu were investigated by X-ray graphic, X-ray microspectral, and metallographic analytical methods. It was found that the solubility and the width of the diffusion band in reactions of these carbides with nickel increase with the transition of carbides of group IV metals to group VI metals and are practically absent in the case of copper. The results are discussed from the standpoint of a model of a contour localization of valent electrons in atoms of reacting components. It is demonstrated that carbides of transition metals are effective hardeners of copper and less effective hardeners of nickel in dispersion-hardened composite materials.

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1/2 022

UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--TEMPERATURE FUNCTION OF THE ELECTROPHYSICAL PROPERTIES OF COMPOUNDS
OF LANTHANUM HEXABORIDE WITH TRANSITION METALS. II -U-

AUTHOR--(02)--BOGDARENKO, V.P., KUVENSKAYA, B.A.

COUNTRY OF INFO--USSR

B

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 90-3

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--CRYSTAL LATTICE STRUCTURE, ELECTRICAL CONDUCTIVITY, LANTHANUM
COMPOUND, BORIDE, TUNGSTEN COMPOUND, HAFNIUM COMPOUND, TANTALUM
COMPOUND, RHENIUM COMPOUND, CHEMICAL BONDING, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/1917

STEP NO--UR/0139/70/013/002/0090/0093

CIRC ACCESSION NO--AT0114357

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AT0114357

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELEC. RESISTANCE WAS MEASURED OF LAB SUB6 CONTG. 0.5-15 AT. PERCENT HF, TA, W, OR RE AT 200-800DEGREES. THE THERMAL COEFF. OF ELEC. RESISTANCE (BETA) DEPENDS ON THE PROPERTIES OF THE DISSOLVED METAL. VALUES OF BETA INDICATE THAT ADDN. OF 0.5 AT. PERCENT OF W CAUSED STRENGTHENING OF THE INTERAT. BONDS IN THE L SUBA B SUB6 LATTICE, WHILE WITH 0.5 AT. PERCENT HF, THE EFFECT WAS OPPOSITE. FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--ELECTRICAL PROPERTIES OF COMPOUNDS OF LANTHANUM HEXABORIDE WITH
TRANSITION METALS -U-
AUTHDR--(03)-BONDARENKO, V.P., KOVENSKAYA, B.A., MOROZOV, V.V.
COUNTRY OF INFO--USSR **B**
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 12-15
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ELECTRICAL PROPERTY, LANTHANUM COMPOUND, BORIDE, ELECTROMOTIVE
FORCE, HALL EFFECT, TUNGSTEN ALLOY, TANTALUM, RHENIUM, HAFNIUM

CCNTRGL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/1914 STEP NO--UR/0139/70/013/002/0012/0015
CIRC ACCESSION NO--AT0114354
UNCLASSIFIED

2/2 025
CIRC ACCESSION NO--AT0114354

UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESISTANCE, THERMAL EMF., AND THE HALL EFFECT WERE STUDIED FOR LAB SUB6 WITH W, TA, RE, AND HF. THE ALLOYS WITH 0.5 AT. PERCENT OF THE ADDN. ARE SINGLE PHASE. THOSE CONTG. 1, 5, 10, AND 15 AT. PERCENT OF THE ADDN. ARE 2 PHASE MIXTS. OF A SOLID SOLN. BASED ON LAB SUB6 AND THE BORIDE OF THE METAL. FOR ALL OF THE SYSTEMS THE ADDN. OF 0.5 AT. PERCENT OF THE METAL DECREASES THE SP. RESISTANCE. THE MAX. DECREASE (SIMILAR TO 45PERCENT) WAS OBSERVED WITH HF AND W. INCREASING THE AMT. OF METAL TO 1 AT. PERCENT INCREASES THE RESISTANCE. THE RESISTANCE REMAINS CONST. FOR FURTHER INCREASES IN THE ADDN. CALCNS. BASED ON THE HALL EFFECT SHOW THAT THE INTRODUCTION OF THE METALS RESULT IN SOME DECREASE IN THE CARRIER CONC. AND THEREFORE THE DECREASE IN THE RESISTANCE IS ATTRIBUTED TO AN INCREASE IN THE MOBILITY OF THE CURRENT CARRIERS. FACILITY: KIEV. POLITEKH. INST., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 546.824-31'42':539.23:537.226

BULGAKOV, N. A., DUDKEVICH, V. P., BONDARENKO, V. S., ZAKHARCHENKO, I. N.,
and FESENKO, YE. G., Rostov State University

"Structure and Certain Dielectric Properties of Strontium Titanate Thin
Films Produced by Cathode Sputtering"

Moscow, Neorganicheskiye Materialy, Vol 9, No 10, Oct 73, pp 1833-1834

Abstract: Strontium titanate (ST) films, 1-12 microns thick, were produced on titanium substrates by cathode sputtering. From this experimental work the optimum mode of ST film formation was selected: 900 v, 80 ma, residual air pressure of 0.6 mm Hg, distance between anode and cathode -- 12 c, distance between cathode and substrate -- 6 mm, and coating rate -- 0.2 micron/hour. It was determined that the dielectric strength of ST films in a constant filed amounts to about 500 kv/cm which is higher than for volume ceramic samples for which this value does not exceed 100 kv/cm. One figure, three bibliographic references.

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USSR

UDC: 546.32/54-31'882-31:537.228.1

CHKALOVA, V. V., BONDARENKO, V. S., STEMBER, N. G., STRIZHEVSKAYA, F. N.,
FOKINA, G. O.

"Solid Solutions Based on Alkali Metal Niobates"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 6, Jun 73,
pp 987-991.

Abstract: The study of solid solutions based on alkali metal niobates is of interest, since these materials have high piezoelectric properties plus high sound propagation rates, an important factor for practical applications. In this article, primary attention is concentrated on the investigation of trinary solid solutions $(\text{NaLiK})\text{NbO}_3$ and binary solid solutions $(\text{NaLi})\text{NbO}_3$. The solid solutions based on alkali metals were produced using the carbonate salts Na_2CO_3 , K_2CO_3 , Li_2CO_3 and niobium pentoxide. Some of the dielectric, piezoelectric and elastic properties of the binary and trinary solid solutions were studied. The studies showed that in the system $(\text{NaLi})\text{NbO}_3$, solutions with two and three mol. % LiNbO_3 have the maximum piezoelectric and elastic properties. The compositions with the highest sound propagation velocities, lowest dielectric

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USSR

Chkalova, V. V., Bondarenko, V. S., Stember, N. G., Strizhevskaya, F. N., Fokina, G. O., Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 6, Jun 73, pp 987.991.

constants and highest piezoelectric properties are determined. These materials are most promising for use in high frequency ultra-acoustics. The solid solutions studied have good temperature stability and a broad range of working temperatures.

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1/2 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--ELECTROKINETIC POTENTIAL OF A POLYACRYLONITRILE FIBER MODIFIED WITH
HYDRAZINE HYDRATE -U-

AUTHOR--(05)-ANDROSOV, V.F., ANDREYEVA, K.I., BONDARENKO, V.S., ZHARKOVA,
M.A., ROMANOVA, T.A.

COUNTRY OF INFO--USSR

B

SOURCE--KHIM. VOLOKNA 1970, (2), 28-30

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYACRYLONITRILE FIBER, HYDRAZINE HYDRATE, PHYSICAL CHEMISTRY
PROPERTY, TRANSITION TEMPERATURE, ELECTRIC POTENTIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0043

STEP NO--UR/0183/70/000/002/0028/0030

CIRC ACCESSION NO--AP0132338

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0132338
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYACRYLONITRILE (I) FIBERS,
TREATED WITH AQ. N SUB2 H SUB4 H SUB2 O SOLN., FOLLOWED BY HEAT
TREATMENT UNDER N, ACQUIRED NEW PHYSICOCHEM. PROPERTIES. THE
ELECTROKINETIC POTENTIAL (ZETA) AND GLASS TRANSITION TEMP. OF THE
MODIFIED I FIBERS WERE PROPORTIONAL TO THE HEAT TREATMENT TEMP. A
METHOD WAS PROPOSED FOR THE DETN. OF THE DEGREE OF CROSSLINKING FROM THE
RELATIVE CHANGE IN ZETA. FACILITY: LITLP IM. KIROVA, LENINGRAD,
USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DEPENDENCE OF ZETA POTENTIAL OF MAN MADE FIBERS ON THEIR STRUCTURE
-U-
AUTHOR--(02)-ANDROSOV, V.F., BONDARENKO, V.S. *B*
COUNTRY OF INFO--USSR
SOURCE--DEUT. TEXTILTECH. 1970, 20(5), 283-5
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--POLYACRYLONITRILE FIBER, POLYVINYL ALCOHOL FIBER, POLYMER
STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605017/F06 STEP NO--GE/0043/70/020/005/0283/0285
CIRC ACCESSION NO--AP0140776
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--04085

CIRC ACCESSION NO--AP0140776

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ZETA POTENTIAL DECREASED LINEARLY WITH INCREASING GLASS TEMP. FOR POLYACRYLONITRILE FIBERS STRUCTURED WITH HYDRAZINE HYDRATE SOLN. THE ZETA POTENTIAL ATTAINED A MAX. AT DRAW RATIO SIMILAR TO 3.5 DURING THE WET DRAWING OF POLY(VINYL ALC.) FIBERS. THE RELATIONS BETWEEN FIBER STRUCTURE AND ZETA POTENTIAL ARE DISCUSSED. FACILITY: S. M. KIROV INST. TEXTILCHEM., LENINGRAD, USSR.

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