

USSR

UDC 577.11

SOROKIN, V. M., NIGMATOV, Z., and YUKEL'SON, L. Ya., Institute of Biochemistry, Academy of Sciences Uzbek SSR, Tashkent

"Fractionation of Central Asian Cobra Venom on Ethylsulfonic Sephadex and the Biological Activity of the Resulting Fractions"

Moscow, Biokhimiya, No 1, 1972, pp 112-116

Abstract: Central Asian cobra (*Naja oxiana* Eichwald) venom was separated into 10 fractions when applied to ethylsulfonic Sephadex C-50. Fractions 4, 7, 8, and 9 proved to be toxic. Phospholipase A, cholinesterase, hyaluronidase, ATP-pyrophosphatase, and 5-nucleotidase activities were detected in one or two fractions each. The yields were highest for hyaluronidase (67 percent), cholinesterase (52 percent), and 5-nucleotidase (47 percent). Hyaluronidase and cholinesterase were found to be highly homogeneous.

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UDC 547.993:616.9.098:598.126

HISHANKHODZHAYEVA, S. A., SOROKIN, V. M., and YUKEL'SON, I. YA., Institute of Biochemistry, Academy of Sciences, Uzbek SSR

"Terminal Amino Acids of the Toxins of Central Asian Cobra Venom"

Uzbekskiy, Biologicheskii Zhurnal, No 6, 1971, pp 61-62

Abstract: It has been determined that the venom of the Central Asian cobra *Naja oxiana* contains two neurotropic agents (toxin I and toxin II), extracted from the venom. The results of determination of the terminal amino acids from the C-ends of the molecules of both toxins is as follows: Ash-COOH. With respect to the terminal amino acids, toxin II of Central Asian cobra venom is most similar to the neurotoxin of the South African Cobra *Naja nigricollis* and to the cobra toxin of the Formosan cobra *Naja naja atra*, which have an analogous sequence of amino-acid residues and contain leucine on the N-end. Toxin I differs from these toxins by virtue of the N-end amino acid (valine); this is of particular interest because of its lower effectiveness.

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USSR

UDC 591.105:577.15:598.126

YUKEL'SON, L. Ya., AKHUNOV, A., SADYKOV, E., and SOROKIN, V. M.

"Some Properties of the ATP-Pyrophosphatase and 5'-Nucleotidase of the Venoms of *Vipera lebetina turanica* and *Naja oxiana* E."

Tashkent, *Uzbekskiy Biologicheskij Zhurnal*, No 6, 1970, pp 8-11

Abstract: Venoms of Central Asian snakes contain various enzymes, including the highly active ATP-pyrophosphatase and 5'-nucleotidase. The object of this study was to determine the effects of the pH, temperature, and duration of incubation on the activity of these two enzymes in the venoms of *Vipera lebetina turanica* and *Naja oxiana* E. Desiccated venom samples were obtained from the Herpetology Laboratory of the Uzbek SSR Academy of Sciences. The activity of the enzymes was determined according to the amount of dissociated inorganic phosphates. The incubation samples contained 0.1 ml of a 0.1% venom solution, 0.1 ml of a 1.2% ATP solution or of a 1.5% A₂P solution, and 0.8 ml of a buffer solution. Results indicate that the ATP-pyrophosphatases of both venoms have an optimum pH of 8.4-9.0 and an optimum temperature of 37-38°C. The corresponding values for the 5'-nucleotidases are pH 8.4-8.5 and 37-39°C. The best incubation period is 1 hour. Both ATP-pyrophosphatases are thermolabile. The 5'-nucleotidases are more resistant to high temperatures.

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1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ISOLATION OF PHOSPHOLIPASE A FROM THE VENOM OF THE CENTRAL ASIAN
COBRA -U-
AUTHOR--(03)-SAKHIBOV, D.N., SOROKIN, V.M., YUKELSON, L.YA.
COUNTRY OF INFO--USSR
SOURCE--BIOKHIMIYA 1970, 35(1), 13-16
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--VENOM, ELECTROPHORESIS, CHROMATOGRAPHY, PROTEIN, ABSORPTION
SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/1159 STEP NO--UR/0218/70/035/001/0013/0016
CIRC ACCESSION NO--AP0123136

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123136

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO FRACTIONS POSSESSING PHOSPHOLIPASE A (I) ACTIVITY WERE ISOLATED FROM THE VENOM OF NAJA OXIANA (SNAKE) USING SEPHADEX G-75 GEL FILTRATION AND CHROMATOG. ON CM CELLULOSE. ONE FRACTION WAS PURE (POLYACRYLAMIDE GEL ELECTROPHORESIS AT PH 4.7, 7.1, 8.6, AND 8.8) AND THE MOL. WT. OF I WAS 14-15,000 (GEL FILTRATION). ABSORPTION SPECTRA SHOWED A MAX. AT 280 M MU; M EXTINCTION COEFF WAS 2.2-2.3 TIMES 10 PRIME⁴ AS CALCD. FROM THE ABSORPTION OF A 0.1PERCENT I SOLN. THE OTHER I FRACTION WAS CONTAMINATED WITH PROTEIN AS EVIDENT FROM POLYACRYLAMIDE GEL ELECTROPHORESIS, WHICH PRODUCED 2 BANDS. FACILITY: INST. BIOCHEM. TASHKENT, USSR.

UNCLASSIFIED

USSR

UDC 591.145.2

TURAKULOV, YA. KH., SOROKIN, V. M., NISHANKHODZHAYEVA, S. A., and YUKEL'SON, L. YA., Institute of Biochemistry, Academy of Sciences Uzbek SSR, Tashkent

"Toxins in the Venom of the Central Asian Cobra"

Moscow, Biokhimiya, Vol 36, Vyp 6, Ncv/Dec 71, pp 1282-1287

Abstract: Two toxic agents, tentatively called toxin I and toxin II, were isolated from cobra venom by means of filtration through Sephadex G-75 and chromatography on CM-cellulose. Their homogeneity was established by electrophoresis in starch and polyacrylamide gels, and their molecular weight estimated at 6000-6500. Intraperitoneal and intravenous injections of the compounds into mice revealed that the LD₅₀ of toxin I is 0.56 and its LD₁₀₀ 0.85 mg/kg body weight, while the LD₅₀ of toxin II is 0.13 and its LD₁₀₀ 0.17 mg/kg. All nonsurvivors die within 1 hr after injection. The highest non-lethal doses for mice are 0.45 mg of toxin I and 0.07 mg of toxin II per kg body weight. Toxin II is not only more poisonous, but its concentration in the venom is four times that of toxin I. Absorption spectra of the toxins are presented.

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UDC 591.105:577.15:598.126

NIGMATOV, Z. N., SOROKIN, V. M., and YUKEL'SON, L. YA., Institute of
Biochemistry, Academy of Sciences UzSSR

"Phosphodiesterase of the Central Asian Cobra Venom"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 5, 1972, p 688

Abstract: The venom was chromatographed on C-50 sulfoethyl sephadex column, ten fractions being collected. Fractions 7 and 8 showed the 5'-nucleotidase activity; the ATP-pyriphosphatase activity was distributed between fractions 6 and 7, and phosphodiesterase was found only in fraction 6, coming out concurrently with cholinesterase. Fraction 6 was passed through G-25 sephadex column, separating the phosphodiesterase from cholinesterase.

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UDC 591.105:577.15.598. 126

SOROKIN, V. M., NIGMATOV, Z., and YUKEL'SON, L.YA., Institute of Biochemistry, Acad. Sc. UzSSR

"Characterization of the Cholinesterase of Middle Asian Cobra Venom"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1972, pp 783-789

Abstract: Electrophoretically homogeneous preparation of cholinesterase has been obtained by chromatographing the venom of *Naja oxiana* Eichwald on a sulfocethylsephadex C-50 column. The activity of the isolated cholinesterase depends on the concentration of the enzyme, on time and on the temperature of incubation as well as on the pH. Optimal conditions are: incubation time of the enzyme with the substrate -- 20-30 min; pH -- 8.0-8.5; temperature -- 37-38°. Already at the concentration of 2.4 μmoles diisopropyl fluorophosphate suppresses completely the activity of cobra venom cholinesterase. The venom cholinesterase hydrolyzes acetylcholine chloride and acetylthiocholine bromide, but exhibits no effect on butyrylthiocholine bromide, in analogy to true cholinesterases. Cobra venom preparations of the cholinesterase have no lethal activity and do not amplify the activity of this venom's neurotoxins. This cholinesterase is thermally stable.

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USSR

UDC: 8.74

VOLGIN, B. N., YUKHIMOVICH, S. A.

"Optimizing Modular Redundancy in a Circuit With a Quorum Element for Equipment With Two Types of Failures Unequal in Damage Value"

V sb. Osnovn. voopr. teorii i praktiki nadezhnosti (Basic Problems in the Theory and Practice of Reliability--collection of works), Moscow, "Sov. radio", 1971, pp 155-167 (from EZh-Kibernetika, No 1, Jan 72, Abstract No 1V964)

Translation: The author proposes use of a standby circuit whose failures result in minimum expected damage as optimum redundancy with quorum element assuming a given multiplicity for an equipment module with two types of failures which are unequal in damage value. The concept of an equivalent redundancy module is introduced, enabling quantitative analysis with a fair degree of generality. An algorithm is described for digital computer determination and comparison of reliability characteristics of all possible schematic diagrams of redundancy. Graphs of regions of domination are presented for direct determination of the optimum circuit when the reliability characteristics of the initial module and the relation between damages from failures of each type are known. Authors' abstract.
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USSR

UDC:621.785

DVORINA, L. A., YUKHIMENKO, Ye. V., VDOVENKO, S. A., Institute of Problems of Material Science, Academy of Sciences UKrSSR

"Interaction of Titanium Diboride with Titanium Disilicide and Silicon at High Temperatures"

Kiev, Poroshkovaya Metallurgiya, No 4, 1972, pp 61-65.

Abstract: This work presents a study of the high-temperature interaction of titanium diboride and disilicide, as well as titanium diboride with silicon in a vacuum in the 900-1800°C temperature interval. The initial materials used were titanium diboride and disilicide powders; the experiments were performed in a vacuum resistance furnace with a graphite heating element. Analysis of the data produced showed that at high temperatures, titanium disilicide and diboride interact without forming other phases. However, above 1100°C a clear tendency toward decreasing silicon content is observed, apparently resulting from its evaporation upon dissociation of the titanium disilicide. Analysis of data on the high temperature interaction of titanium diboride with silicon showed slight solubility of silicon in titanium diboride. The high chemical stability of titanium diboride against silicon and titanium disilicide apparently results from the high bond strength of the Me-B and B-B bonds.

1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--CALCULATION AND STUDY OF THE INFRARED ABSORPTION SPECTRUM OF
THIOHYDANTOIN -U-
AUTHOR--LEBEDEV, R.S., CHUMAKOVA, R.P., YUKHIMETS, V.N., YAKIMENKO, V.I.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(1), 29-33
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--IR SPECTRUM, IMIDAZOLE, FREQUENCY VIBRATION, HYDROGEN BONDING,
DIELECTRIC CONSTANT, ORGANIC SULFUR COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0172 STEP NO--UR/0139/70/013/001/0029/0033
CIRC ACCESSION NO--AT0105248
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AT0105248

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRUM (400-3500 CM PRIME NEGATIVE) OF THIOHYDANTOIN (I) WAS MEASURED; THE FREQUENCIES OF NORMAL VIBRATIONS WERE CALCD. ON THE BASIS OF A MECH. MODEL (SYM. WITH REGARD TO THE RING PLANE, GIVING 18 SYM. A PRIME AND 9 ANTISYM. A DOUBLE PRIME VIBRATIONS) AND COMPARED WITH THE EXPTL. ONES. THE FREQUENCIES AND ASSIGNMENTS TOGETHER WITH THE KINEMATIC COEFFS. OF I ARE TABULATED. THE FREQUENCIES OF ALL INTENSE LINES IN THE SPECTRUM OF I ARE COMPARABLE WITH THE CALCD. ONES. THE BANDS AT 3231 AND 3118 CM PRIME NEGATIVE (WHICH WERE NOT CALCD.) WERE ASSIGNED TO THE INTRA OR INTERMOL. INTERACTIONS. THE EXISTENCE OF AN INTERMOL. H BOND INCREASES IN THE SERIES I, RHODANINE, AND HYDANTOIN. ON THE BASIS OF A COMPARISON OF THE DIELEC. CONSTS. EPSILON AND THE FREQUENCIES OF CH SUB2 SCISSORING VIBRATIONS OF I (EPSILON EQUALS 3), RHODANINE (EPSILON EQUALS 3.06), AND 2,THIO,2,4,OXAZOLIDINEDIONE (EPSILON EQUALS 3.28), THE BAND AT 1412 CM PRIME NEGATIVE WAS ASSIGNED TO THE CH SUB2 SYM. DEFORMATION VIBRATIONS. THE IR SPECTRUM OF I CAN BE INTERPRETED BY CONSIDERING A C SUBS SYMMETRY TOGETHER WITH A SLIGHT THE WHOLE AND AN APPROX. C SUB2V SYMMETRY TOGETHER WITH A SLIGHT EFFECT OF D SUBSH SYMMETRY FOR THE RING.

UNCLASSIFIED

172 044 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--THEORY OF THE ACCELERATION OF CHARGED PARTICLES IN THE PLASMA OF
OUTER SPACE -U-
AUTHOR--(02)--KATS, M.YE., YUKHIMUK, A.K.
COUNTRY OF INFO--USSR
SOURCE--GEOMAGNETIZM I AERONOMIJA, VOL. 10, NO. 2, 1970, P. 328-331
DATE PUBLISHED-----70
SUBJECT AREAS--ATMOSPHERIC SCIENCES, PHYSICS
TOPIC TAGS--CHARGED PARTICLE, ACCELERATION, PLASMA INSTABILITY,
ATMOSPHERIC PHYSICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0151 STEP NO--UR/0203/70/010/002/0328/0331
CIRC ACCESSION NO--AP0119147
UNCLASSIFIED

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PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0119147

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

ABSTRACT. THEORETICAL ANALYSIS OF THE MECHANISM OF ACCELERATION OF CHARGED PARTICLES IN THE PLASMA OF OUTER SPACE. EQUATIONS DESCRIBING THE DYNAMICS OF ION ACOUSTIC INSTABILITY OF SPACE PLASMA ARE DERIVED BY APPLYING THE QUASI LINEAR THEORY. AN EXPRESSION DESCRIBING THE ACCELERATION OF CHARGED PARTICLES IN THIS PLASMA IS DERIVED FROM THESE EQUATIONS. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT GEOFIZIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

Acc. Nr: **AP0048030**

Abstracting Service: 5170
INTERNAT. AEROSPACE ABST.

Ref. Code:
LR 0185

A70-23198 #. Ion-acoustic instability of a plasma in a strong electromagnetic field (Ionozvukova nestiikist' plazmi v poli sil'noi elektromagnitnoi khvili). M. Ia. Kotsarenko (Kiiiv's'kii Derzhavnii Universitet, Kiev, Ukrainian SSR) and A. K. Yukhimuk (Akademiia Nauk Ukrain's'koi RSR, Institut Geofiziki, Kiev, Ukrainian SSR). *Ukrains'kii Fizichnii Zhurnal*, vol. 16, Jan. 1970, p. 171-173. In Ukrainian.

Analysis of available theoretical and experimental data according to which a strong electromagnetic wave can generate ion-acoustic oscillations in a weak-collision plasma, and ion-acoustic instability can occur when transverse and ion-acoustic waves propagate in the same direction. The latter result is extended to include the case of arbitrary directions of wave propagation. It is shown that the excitation of ion-acoustic oscillations by an electromagnetic wave is easier to observe in a magnetically confined plasma or with the aid of a plasma waveguide.

V.P.

ALS

REEL/FRAME
19791712

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USSR

UDC 621.382.2:546.28

SOPRYAKOV, V.I., YUKHNEVICH, A.V., YANCHENKO, A.H.

"Structure Of Forward Branch Of Current-Voltage Characteristics Of Silicon Diodes Irradiated By Gamma Quanta"

V sb. Radiats. fiz. nemet.kristallov. T. 3, Ch. 2 (Radiation Physics Of Non-metallic Crystals. Vol 3, Part 2 -- Collection Of Works), Kiev, "Nauk.dumka," 1971, pp 193-196 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B188)

Translation: The results are presented of measurements of the current-voltage characteristics (CVC) of silicon semiconductor diodes irradiated by Gamma quanta Co^{60} . The CVC was measured in a current generator regime. The semiconductor diodes were prepared from n-type Si; $\rho = 15 \text{ ohm.cm}$, the O_2 content of which amounted to $>10^{17} \text{ cm}^{-3}$ and $<2 \cdot 10^{16} \text{ cm}^{-3}$. The p-n junction was formed by fusion of Al; the junction area amounted to $(1 - 2) \cdot 10^{-3}$, and the thickness of the base equalled 20 - 150 micrometers. With fluxes $>5 \cdot 10^{16} \text{ cm}^{-2}$ and a temperature of 80° K at the forward branches of the CVC, in addition to an increase of the diffusion resistance, there were also located sections of negative curvature, which with an increase of the flux up to $(1 - 2) \cdot 10^{17} \text{ cm}^{-2}$, were transformed

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SOPRYAKOV, V. I., et al., Radiats. fiz. nemet.kristallov. T. 3, Ch. 2
(Radiation Physics of Nonmetallic Crystals. Vol 3, Part 2 -- Collection Of
Works), Kiev, "Nauk.dumka," 1971, pp 193-196 (from RZh---Elektronika i yeve
primeneniye, No 12, Dec 1971, Abstract No 12B188)

into sections of negative resistance, and with increase of the flux into hysteresis loops. A difference is noted in the behavior of semiconductor diodes prepared from Si with different O_2 contents at temperatures of 80 and 300° K. These peculiarities are connected with nonuniformity of distribution of the doping and compensating impurities in the initial p-n junction. Formation of the hysteresis loops was simulated by a parallel connection of a semiconductor diode with ordinary CVC and with the presence of a section of negative resistance. 2 ill. 3 ref. V.S.

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USSR

UDC 535.343.31

STYRIKOVICH, M. A., Academician, YUKHNEVICH, G. V., VETROV, A. A., and VIGASIN, A. A., High-Temperature Institute, Academy of Sciences USSR, Moscow

"Molecular Composition of High-Density Water Vapor and Some of Its Thermodynamic Properties"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 2, 1973, pp 321-323

Abstract: Measurements previously performed by the authors on the fraction of monomeric molecules in superheated vapor showed that the degree of dissociation sharply changes as the vapor density increases and therefore it has to be considered in an analysis of the vapor properties. The present article continues the study of the formation of associates in high-density water vapor and analyzes the effect of such complexing on the enthalpy and entropy of water vapor. For this purpose a series of measurements were taken of the fraction of monomeric molecules in vapor at pressures from 27 to 180 ata and a temperature of 360° C. The size of the associate was found, and a comparison was made of tabular water-vapor enthalpy and entropy data with calculated data for a mixture of ideal monomeric and dimeric gases. The results

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STYRIKOVICH, M. A., et al., Doklady Akademii Nauk SSSR, Vol 210, No 2, 1973, pp321-323

indicate that the degree of association of water molecules in superheated vapor found by spectral measurements plays a very important role in explaining not only its thermodynamic potentials. but also a whole series of other thermophysical properties.

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1/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--INTERACTION OF H SUB2 O, D SUB2 O, AND HDO WITH THE SURFACE OF AN
ALUMINOSILICATE CATALYST -U-
AUTHOR--IGNATYEVA, L.A., CHUKIN, G.D., YUKHNEVICH, G.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 318-22
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--WATER, DEUTERIUM OXIDE, ADSORPTION, ALUMINUM SILICATE, IR
SPECTROSCOPY, CATALYST, HYDROGEN BONDING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/0238 STEP NO--UR/0368/70/012/002/0318/0322
CIRC ACCESSION NO--AP0106894
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106894

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MECHANISM OF ADSORPTION OF H
SUB2 O, D SUB2 O, AND HDO ON ALUMINOSILICATE CATALYST (12.7PERCENT
GAMMA, AL SUB2 O SUB3 WITH SP. SURFACE 450 M PRIME2-G, DEHYDRATED UNDER
VACUUM AT 550DEGREES FOR 6 HR) WAS EXAMD. BY MEANS OF IR SPECTROSCOPY.
THE SPECTRA SHOWED THAT AT SMALL CONCNS. WATER WAS ADSORBED IN THE FORM
OF A MOL., I.E. COORDINATION BONDS BETWEEN O AND SI WERE FORMED. THIS
WATER WAS THERMOSTABLE, REMAINING ON THE SURFACE AT 400-500DEGREES.
FURTHER MOLS. WERE ADSORBED VIA H BONDS AND WERE DESORBED AT SMALLER
THAN OR EQUAL TO 200DEGREES.

UNCLASSIFIED

YUKHNO, N. P.

JPRS 55570
29 Mar 72

UDC: 616-023.2-082:362.11.005

ORGANIZATIONAL AND METHODOLOGICAL WORK AT DONETSKAYA OBLAST HOSPITALS WITH REFERENCE TO MEDICAL CARE FOR CHILDREN

Article by R.A. Uklonskaya, candidate of medical sciences, N.P. Yukhno, L.P. Gol'detsyn, All-Union Scientific Research Institute of Social Hygiene and Public Health Organization imeni N.A. Semashko, Moscow; Donetskaya Oblast Children's Hospital; Donetskaya Oblast Central Clinical Hospital; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 2, 1972, submitted 28 September 1971, pp 12-16]

There are three oblast hospitals with distinct functions in Donetskaya Oblast. Oblast Hospital imeni M.I. Kalinina is the center for therapeutic and consultative as well as organizational and methodological work related to medical care for the adult population; the Oblast Children's Hospital takes care of the urban child population, and the Oblast Central Clinical Hospital takes care of the rural population, including children.

Donetskaya Oblast is an industrial area. The urban population is larger than the rural (76 and 26%, respectively). There are 257 therapeutic and prophylactic institutions with 1,579 pediatricians taking care of the children. Specialized care in polyclinics is rendered by 39 ophthalmological, 42 otorhinolaryngological, 12 surgical, 36 neurological and psychiatric, 31 rheumatological, and 13 endocrinological offices. The oblast hospitals have 9,950 beds for children, including 2,543 in 19 children's therapeutic hospitals.

The Oblast Children's Hospital has a capacity of 500 beds and a polyclinic that can see 500 patients per day; the latter services six pediatric districts of the city and, at the same time, offers consultations; the structure of the Oblast Children's Hospital includes an organizational and methodological office, laboratories with departments for clinical, biochemical, and bacteriological examinations, X-ray laboratory, functional diagnostic office, three physiotherapy departments and three offices for therapeutic physical culture, a pathoanatomical department with a pathohistological laboratory.

There are ten specialized departments in the hospital: three therapeutic (160 beds), two infectious (120), two surgical (120) including a department

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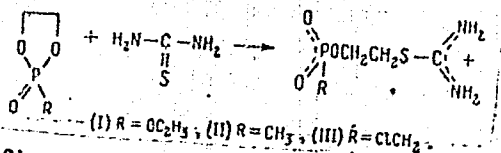
UDC 547.26'118

MIZRAKH, L. I., YAKOVELEV, YUKHNO, YE. M., and MAMONOV, V. I.

"Phosphorus-containing Derivatives of Isothiuronos. II. Cleavage of Dioxaphospholane and Dioxaphosphorene Rings by Thiocarbamide"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 8, 1972, pp 1700-1705

Abstract: Thiocarbamide (TCA) will react with 1,3,2-dioxaphospholane by opening the ring in the following manner:



The R exerts a significant influence on the ease of alkylation, in the order ClCH₂ > OC₂H₅ > CH₃. 4-Methyl-1,3,2-dioxaphospholanes and 2-(formamidentio)-ethyl esters of phosphorous acid react with TCA in an analogous manner. Seven compounds were prepared by TCA reactions. These were characterized by elemental composition and IR, UV, and NMR spectra.

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USSR

UDC 621.892:546.77'22:621.793

KURILOV, G. V., UDOVENKO, V. F., YUKHNO, T. P., SENTRYURIKHINA, L. N., and LYUBARSKIY, I. M., Physicotechnical Institute of Low Temperatures of the Academy of Sciences UkrSSR, Char'kov

"Method for Investigation of Solid Lubrication Coats on MoS₂ Base"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 1, 1973, pp 48-50

Abstract: A method was developed for the investigation of solid lubrication coats on MoS₂ base (All-Union Scientific Research Institute of the Petroleum Industry, VNII NP -209, -212, -213, -229, and -230) on friction under atmospheric conditions and in deep vacuum at low (-90-196 °C) and room temperatures. The gaseous products separating on friction were analyzed on the MSKh-3A mass-spectrometer located in the vacuum chamber. The

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KURILOV, G. V., et al., *Zavodskaya Laboratoriya*, Vol 39, No 1, 1973, pp 48-50

longevity of VNII NP -212 coat was found to remain unchanged in deep vacuum at room and low temperatures and its friction process is accompanied by separation of the same masses as at +25 °C. On friction of the VNII NP -212 coat with carbamide resin, close mass-spectrograms at low and room temperatures resulted. Two figures, one table, six bibliographic references.

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USSR

UDC 547.26'118

3

MIZRAKH, L. I., BABUSHKINA, T. A., YAKOVLEV, V. G., KOZLOVA, L. N., YUKHNO, Ye. M., STAROSTINA, L. N., and YANOCHKINA, G. A.

"Phosphorus-Containing Derivatives of Isothiuronium. III. Alkylation of Thiourea with Diethyl Chlorophosphate and the Diethyl Ester of 2-Bromoethylphosphonic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2364-2367

Abstract: It was established that the metaphosphate of S-ethylisothiuronium formed upon the reaction of diethyl chlorophosphate with thiourea. A study of the reaction of O, O-diethyl 2-bromethylphosphonate with thiourea showed that in this reaction, as distinguished from that with alpha-halophosphonates (Mizrakh et al, Zh. Obshch. Khim., Vol 41, 2654, 1971), which proceeded in the opposite order, alkylation of thiourea with the halocalkyl group took place initially, while participation of the ester group of the alkylation occurred only under more severe conditions. On further heating of the product $(EtO)_2P(O)CH_2CH_2 \cdot SC(NH_2)_2 Br^-$ that formed initially, $EtBr$ evolved and the product $O_2P(OEt)_2 \cdot CH_2CH_2SC(NH_2)_2$ was obtained.

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173 011 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--DENITRATION OF SULFURIC ACID IN THE PRODUCTION OF AMMONIUM SULFATE

-U-
AUTHOR--(05)-ZLATIN, L.YE., TRONDINA, G.I., ARTAMONOV, YU.P., SHETEYN,
A.L., YUKHIVETS, YU.D.
COUNTRY OF INFO--USSR

SOURCE--KOKS KHIM. 1970. (3), 45-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDUSTRIAL PRODUCTION, AMMONIUM SULFATE, NITROBENZENE, COKE,
GAS, UREA, SULFURIC ACID, DENITRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1990/1386

STEP NO--UR/0068/70/000/003/0045/0047

CIRC ACCESSION NO--AP0109455
UNCLASSIFIED

2/3 011

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109455

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WHEN THE SPENT H SUB2 SO SUB4, TAKEN FROM PHNO SUB2 PRODUCTION FOR (NH SUB4) SUB2 SO SUB4 MANUF. IN COKE-CHEM. PLANTS, IS CONTAMINATED WITH N OXIDES, IT CONTAMINATES THE COKE GAS AND THE USE OF THIS GAS FOR NH SUB3 SYNTHESIS IS PREVENTED. THE N OXIDES IN THE COKE GAS FOR THIS SYNTHESIS SHOULD BE SMALLER THAN 8 CM PRIME3-M PRIME3, AND THE GAS CANNOT BE USED IF IT CONTAINS LARGER THAN OR EQUAL TO 10-12 CM PRIME 3 OXIDES-M PRIME3. LAB. DENITRATION OF THE ACID WITH UREA REDUCED THE N OXIDES HARPLY BY THE REACTION: 2HNO SUB2 PLUS (NH SUB2) SUB2 CO YIELDS 3H SUB2 O PLUS CO SUB2 PLUS 2N SUB2. IN PHNO SUB2 PLANTS, THIS REACTION WAS SLOW. SINCE THE SPENT H SUB2 SO SUB4, OF 72PERCENT STRENGTH, CONTAINED OTHER KNOWN COMPS., SYNTHETIC SOLNS. WERE PREPD. TO DET. THE EFFECT OF EACH OF THESE ON DENITRATION. DURING A 17 HR PERIOD AND IN 72.4-2.6PERCENT H SUB2 SO SUB4, THE DENITRATION WAS SATISFACTORY IN THE PRESENCE OF THE H SUB2 SO SUB4, HNO SUB3, AND THE N OXIDES. THE PHNO SUB2 CONTENT WAS 0.3PERCENT OF THE H SUB2 SO SUB4 AND THE PROCESS WAS COMPLETE EVEN AT HIGHER HNO SUB3 AND THE H SUB2 SO SUB4 CONCNS. IN THE PHNO SUB2 PLANT, THE SPENT H SUB2 SO SUB4 AND THE UREA WERE INTRODUCED SIMULTANEDUSLY AND COMPRESSED AIR WAS USED FOR MIXING. THE FORCED AIR ALSO REMOVED THE N FORMED FROM THE H SUB2 SO SUB4 TREATMENT, THUS ACCELERATING THE REACTION. SULFATE SEPN. FROM THE DENITRATED ACID DID NOT INCREASE THE N OXIDES IN THE COKE GAS. THE UREA WHICH DID NOT REACT WITH THE OXIDES BUT ENTERED THE MOTHER LIQUOR WITH THE ACID WAS BENEFICIAL, SINCE IT IMPROVED THE PARTICLE SIZE COMPN. OF THE (NH SUB4) SUB2 SO SUB4.

UNCLASSIFIED

3/3 011
CIPC ACCESSION NO--AP0109455

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--FACILITY: KEMEROV, KOKSOKHIM. ZAVOD., KEMEROVJ, USSR.

UNCLASSIFIED

89

USSR

UDC 532

YUKHNOVSKIY, I. R., VYSOCHANSKIY, V. S., GOLOVKO, M. F.

"Study of Group Expansion for Binary Distribution Functions of Systems of Particles With Electrostatic Interaction. I. Third Virial Coefficient"

In-t teor. fiz. AN USSR. Preprint, ITF-72-1R (Institute of Theoretical Physics. Academy of Sciences UkrSSR. Preprint, ITF-72-1R), Kiev, 1972, 29 pp, ill., 8 kop. (from RZh-Fizika, No 1, Jan 73, Abstract No 1Ye87)

Translation: The curves of the binary distribution function of three-variety ion-dipole systems were obtained in the approximation of the third virial coefficient. The density of the dipole particles corresponds to their concentration in the liquid. It is shown that the effect of higher virial coefficients intensifies with a decrease in the ion concentration, and the value of the first approximation of the binary function rises unnaturally. It is also shown that one must replace the pair interaction potential by the active force potential under infinite dilution to account for the dipole subsystem in the region of small ion concentrations. The ion subsystem at small concentrations should be taken into account by expansion of the distribution functions in powers of the plasma parameter.

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USSR

UDC: 621.396.967.004

AVER'YANOV, V. Ya., BAYRASHEVSKIY, A. M., GEORGIYANOV, K. V., TUPYSEV, A. N.,
YUKHOV, I. V.

"Marine Radar Stations and Their Use (Handbook). Vol. 3"

Sudovyye radiolokatsionnyye stantsii i ikh primeneniye. (Spravochnoye
rukovodstvo). T. 3 (cf. English above), Leningrad, "Sudostroyeniye", 1970,
265 pp, ill. 1 r. 1 k. (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No
1G 73 K)

[No abstract]

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Amplifiers

USSR

UDC 621.375.421

KABANOV, D. A., ~~YUKHTANOV, G. F.~~

"Correction of a High-Frequency Traveling-Wave Tunnel-Diode Amplifier"

Kiev, Izvestiya Vysshikh Uchebnykh Zavedeniy, Radioelektronika, Vol XIV, No 6, 1971, pp 663-669

Abstract: A resonance tunnel-diode traveling wave amplifier is analyzed theoretically and experimentally. The possibility of expanding its pass band and carrying over the results of correcting an aperiodic traveling wave amplifier [G. F. Yukhtanov, et al., Radioizmeritel'naya Tekhnika, No 1, 100, 1969; D. A. Kabanov, et al., Radioizmeritel'naya Tekhnika, No 2, 8, 1970] to the high-frequency range is demonstrated. An expression is obtained for the optimal correction parameter of the amplifier, and experimental results are presented for comparison with the theoretical analysis.

The normalized amplitude-frequency characteristics of the amplifier are plotted, and some results of calculating the basic parameters of the amplifier as a function of a number of values of β , α and p when $m = 10^{-2}$, $s = 0$ and $r = 0.7$ are tabulated. These data lead to the conclusions that 1) when $\delta = 0$ and $1/2$

KABANOV, D. A., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Radioelektronika, Vol XIV, No 6, 1971, pp 663-669

the detuning $\Delta x_1 = |x - x_{\text{resonance}}| > 0$ the characteristics $K(x)$ decrease monotonically; 2) increasing the resonance frequency $x_{\text{resonance}}$ causes a decrease in $K(x_{\text{resonance}})$ and x_0 with simultaneous expansion of the pass band Δx ; 3) detuning of the circuits ($x_c \neq x_{\text{resonance}}$) with $\beta = \text{const}$ leads to an increase in the scattering Δ_0 in the characteristic $K(x)$; 4) the coefficient δ depends weakly on r and β since the capacitance $C(x) \approx \text{const}$; and 5) the coefficient x_0 and the scattering Δ_0 decrease on introduction of the diode capacitance C .

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USSR

UDJ 621.376.234

KIREYEV, P.S., KHOLOPKIN, A.I., KOL'TSOV, G.I., YUKHTANOV, YE.D.

"On The Nature Of The Quick Action Of Cadmium Telluride Detectors"

Radiotekhnika i elektronika, Vol XVII, No 3, Mar 1972, pp 604-608

Abstract: The cadmium telluride p-n junction detectors used in this study had a working area of 0.1 cm^2 , a thickness of 200 micrometer, a capacitance measured at 600 kHz of 5 pf with a back bias of 220 v, and a back current with this voltage of 0.1 microamp. The thickness of the region of the space charge, assessed from the voltfarad characteristic, had a magnitude of approximately 10 micrometer. The output signal was taken from a load resistance of 75 ohm, and the time constant of the circuit did not exceed 0.6 nanosec. With the use of an amplifier, the time constant increased to 4.6 nanssec. The complex structure of the output signal is interpreted as the result of a collection of charges from the space charge region, giving a current pulse with a duration of approximately 10 nanosec, and from the base with a pulse duration of 150-100 nanosec. The drift collection of charges from the base is assured as a result of redistribution of the field with a sufficiently high level of generation of the charge carriers. 2 fig. 9 ref. Received by editors, 4 Dec 1970.

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USSR

UDC: 621.382.001.5

KALUGINA, L. I., YUKHTANOV, Ye. D., KIREYEV, P. S.

"On the Capacitance-Voltage Characteristics of PN Junctions in Cadmium Telluride"
Moscow, Radiotekhnika i Elektronika, Vol 15, No 12, Dec 70, pp 2623-2625

Abstract: The authors study the capacitance-voltage characteristics of PN junctions in cadmium telluride of P-type conductivity with a resistivity of $10^6-10^8 \Omega \cdot \text{cm}$. It was found that the capacitance falls sharply with an increase in reverse bias from 0 to 10 V. However, there is very little change in capacitance with a further increase in voltage. It was found that capacitance is inversely proportional to the cube root of the voltage in the 1-10 V range. The weak change in capacitance with bias voltage in excess of 10 V is attributed to impact ionization of deep acceptor levels.

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USSR

UDC 621.315.593:535.215.6

KIREYEV, P. S., FEDOROVSKIY, A. M., POLISAN, A. A., YIKHIANOV, Ye. D.

"Photomagnetolectric Effect in P-Type Cadmium Telluride"

Elektron. tekhnika. Nauchno-tekhn. sb. (Electronic Technology. Scientific-Technical Collection), 1970, Series 14, No 1, pp 72-74 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8B204):

Translation: The photomagnetolectric effect is investigated in p-type cadmium telluride. Complete conformity of the results obtained with theory is established. The spectral characteristics of the effect are presented and the diffusion length and life time of minority carriers is determined. Summary.

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USSR

UDC 632.95

YUKHTIN, N. N., FILATOV, L. N., SHCHERBATYKH, Yu. I., SMOL'CHENKO, A. I., and SHVINDLERMAN, G. S.

"Preparation of Technical Chloro-Isopropylphenyl Carbamate in Crystalline Form"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 2, Moscow, 1972, pp 31-35 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N570 by A. F. Grapov)

Translation: In running the reaction of $m\text{-ClC}_6\text{H}_4\text{NCO}$ with absolute iso-PrOH in the absence of solvents, it is easy to obtain chloro-isopropylphenyl carbamate in the form of a melt from which it can be processed quite efficiently in a drum crystallizer to obtain a crystalline product. Example. 68 ml of absolute iso-PrOH at $50\text{-}65^\circ$ is added a drop at a time to 100 ml of 99% $m\text{-ClC}_6\text{H}_4\text{NCO}$, kept for 30 min at $60\text{-}70^\circ$ and the excess iso-PrOH distilled off at $90^\circ/150\text{-}200$ mm. The melt with a melting point ≥ 45 to 50° is then placed in the crystallizer. Yield of chloroisopropylphenyl carbamate 98.2%, melting point $35.5\text{-}36.5^\circ$. The laboratory model of the crystallizer consists of a hollow cylinder (150 mm high and 50 mm in diameter) cooled by water. Rate of crystallization 10 to 11 $\text{kg/m}^2/\text{hour}$.

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USSR

YUKHTIN, N. N., FURSENKO, I. V., IVANOVA, N. S., SELEZNEV, A. P., SHALINA,
N. A.

"Synthesis of N-3,4-Dichlorophenyl-N'-hydroxyurea"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protective Agents -- collection of works), No 2, Moscow, 1972, pp 59-65 (from RZh-Khimiya, No 19, Oct 73, Abstract No 19N546)

Translation: Experimental results are reported of the first stage in the synthesis of lynurone -- synthesis of N-3,4-dichlorophenyl-N'-hydroxyurea [I]. The relationship between the yield of I and the type of solvents has been investigated. Maximum yield of I has been achieved using the solvent system chlorobenzene-methanol-water 2:2:1. It has been shown that I is capable of reacting in two directions during its carbamoylation with 3,4-dichlorophenylisocyanate. NH_3 is passed through a solution of 8.61 g hydroxylamine sulfate in 60 ml water at 20° until pH of 7.4 is reached, MeOH is added, the reaction mixture cooled to 0-3°, 18.8 g of 3,4-dichlorophenylisocyanate in 121 ml ClPh is added, the mixture is left standing for 15 min., evaporated and filtered, yielding 20.6 g of 94% I.

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USSR

UDC 632.95

YUKHTIN, N. N., Editor

"Short Handbook on Poisonous Chemicals"

Moscow, *Kratkiy spravochnik po yadokhimikatom* (cf. English above), "Kolos", 1973, 223 pp, ill. 75 k (from *RZh-Khimiya*, No 10, May 73, Abstract No 10N524 X by T. A. Belyayeva)

Translation: Based on scientific data and many years of industrial experience the handbook gives recommendations on using poisonous chemical: insecticides, fungicides, herbicides, and other preparations approved for use in agriculture by the ministries of public health and agriculture of the USSR. The handbook includes the following sections: classification and principles of application of chemicals for plant protection; chemicals for controlling harmful insects, ticks, rodents, etc.; physical and chemical properties of agents for pest control; recommendations on using insectoacaricidal chemicals; chemicals for controlling plant diseases; physical and chemical properties of fungicides; recommendations on using chemicals against plant diseases; weed control chemicals and defoliants; physical and chemical properties of herbicides; sensitivity of the principal forms of weeds to herbicides used in recommended dosages on crop fields; recommendations on using herbicides;

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USSR

YUKHTIN, N. N., Kratkiy spravochnik po yadokhimiakan, "Kolos", 1973, 223 pp, ill. 75 k.

recommendations on defoliation and desiccation of crops; chemical designed for use in individual and collective orchards and gardens; compatibility of chemical; safety measures when working with poisonous chemicals.

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USSR

UDC 632.95

YUKHTIN, N. N., ANDREYEVA, YE. I., MEL'NIKOV, N. N., SKALOZUBOVA, A. V.,
PRORCHENKO, T. S., SHKURATOVA, G. N., YURKOVA, A. G., KURGANOV, L. B.,
NOVIKOVA, R. G., and OBUKHOVA, V. I.

"Phenylmercury and Hexylmercury"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection --
collection of works), vyp 1, Moscow 1970, pp 145-150 (from RZh-Khimiya, No 11,
Jun 72, Abstract No 11N426)

Translation: Seed disinfectant dusts -- hexylmercury (1% EtHgCl, 18-22%
hexachlorobenzene, and up to 20% γ -hexachlorocyclohexane) and phenylmercury
(1% EtHgCl and 18-22% hexachlorobenzene) -- are officially authorized in the
Soviet Union for use against the same plant diseases as those controlled by
granosan. About half the EtHgCl expended when granosan is used is expended
when phenylmercury and hexylmercury are used. Phenylmercury can be used
against fusarium wilt and helminthosporiosis. The new disinfectants show
promise as agents for controlling dwarf wheat infections and wheat kernel
smut. The most promising signal dyes for the disinfected grain are Rhodamine
G, methylene blue, acid blue-black and direct red 2C.

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USSR

UDC 632.95

YUKHTIN, N. N., SHCHELOKOV, B. I., and SHALINA, N. A.

"Detection of Impurities in Commercial Diuron and Theirs Characterization"

V sb. Khim. Sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 301-304 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N535 by O. A. Korotkova)

Translation: The principal impurities of commercial diuron are resins (0.5-4.2%), the hydrochlorides of Me_2NH (I) (0.3-0.6%), $\text{Me}_2\text{NCONMe}_2$ (II), $3,4\text{-Cl}_2\text{C}_6\text{H}_3\text{NHCONHMe}$ (III) and traces of $3,4\text{-Cl}_2\text{C}_6\text{H}_3\text{NH}_2$ (IV). The resins are formed in the phosgenation stage and in solution with $3,4\text{-Cl}_2\text{C}_6\text{H}_3\text{NCO}$ enter into condensation with Me_2NH , where they are deposited on the diuron suspension. I is obtained in the condensation stage as a result of incomplete blow-off HCl (gas). II is formed from the Me_2NH and Me_3N contained in the returned PhCl . The presence of III is due to the impurity MeNH_2 in commercial Me_2NH . IV apparently is a product of the reaction of $3,4\text{-Cl}_2\text{C}_6\text{H}_3\text{NCO}$ with small amounts of moisture.

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USSR

UDC 632.95

YIKHTIN, N. N.; MOLCHANOV, A. V.; KELEKHSAYEVA, YE. A.; BAZANOVA, S. S.,
LEBEDEVA, L. I., GRISHINA, YE. A., and PRESNYAKOVA, S. H.

"Propanid -- A Highly Effective Herbicide for Weed Control in Rice Paddies"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 156-163 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N514 by. O. A. Korotkova)

Translation: As a result of a study of propanid yield dependence on the solvent, reactant molar ratios and crystallization conditions, it is suggested that propanid be obtained by acylation of 3,4-Cl₂C₆H₃NH₂Etcos H [sic] in a petroleum solvent medium at a 3,4-Cl₂C₆H₃NH₂ and solvent ratio of 1:0.5. The reaction is conducted for 12-15 hours with stirring and at 140-160°, distilling the aqueous azeotrope at 90-95° at the beginning of the process, and 135° at the end. The unreacted starting materials are recycled. The resultant propanid has a purity of 98.5-99.5 percent, melting point 89-91°, yield 83-98 percent.

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USSR

UDC: 536.46

YUKHVID, V. I., MAKSHOV, E. I., MERZHANOV, A. G., and KOZLOV, V. S., Moscow

"Formation of a Semi-Liquefied Layer During the Combustion of Condensed Systems With Solid Non-agglomerating Admixtures in a Field of Mass Forces"

Novosibirsk, Fizika Goreniya i Vzryva, Vol 9, No 4, Jul-Aug 73, pp 496-501

Abstract: The authors conduct an experimental study to explain the regularities associated with the pseudo-liquefied layer and its effect on combustion. This study is based on an earlier work by V. I. Yukhvid et al., Fizika Goreniya i Vzryva, Vol 9, No 2, 1973, where the authors observed that the rate of combustion of ammonium perchlorate with a refractory metal admixture (titanium) increases as the overload is increased where the overload is set up by centrifugal acceleration. On the basis of the results of that study, a mechanism is proposed for the combustion of the composition under the effect of mass forces. In the current study, inert refractory particles were used in the form of aluminum oxide. The test was conducted on a centrifuge. The combustion rate was measured by photoregistration. The overload vector in all of the tests was directed along the normal to the combustion surface, in the front propagation direction. The specimens were in the form of cylindrical tablets 0.8 cm in diameter and 2.4-2.5 cm high. These had been pressed to the point of maximal density. The results show that the motion of the com-

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USSR

YUKHVID, V. I., et al, Fizika Goreniya i Vzryva, Vol 9, No 4, Jul-Aug 73, pp
496-501

bustion front is uniform and that the effect of mass forces is complex in nature.
A fall in the rate of combustion follows the combustion rate increase segment.
These results can be explained by the properties of the pseudo-liquefied layer
and the effect that they have on the combustion process.

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USSR

UDC: 662.612.3

YUKHVID, V. I., MAKSIMOV, E. I., MERZHANOV, A. G., KHAYKIN, B. I.,
and KOZLOV, V. S.

"Combustion Mechanism of Condensed Systems With Solid Admixtures
in a Mass Force Field"

Novosibirsk, Fizika gorennya i vzryva, No 2, 1973, pp 235-240

Abstract: This paper presents the results of experiments to study the rarely examined case of the combustion of systems with non-agglomerating admixtures. The experiments were conducted in a mass force field on compositions of ammonium perchlorate and titanium. The assumption of non-agglomeration is based on the fact that the melting point of Ti is, at 1700^o, much higher than that of the perchlorate, at 1100^o C. A diagram of the centrifuge in which the experiments were conducted is given together with a description of the experimental method. The rate of combustion was measured by film photography. The reader is referred to an earlier paper (B. B. Serkov, et al, FGV, 1968, 4, 4) for a more detailed description of the apparatus and methodology. The combustion rate was measured as a function of accelerations in the interval of 36 to 1200 g at room temperature. A model of the combustion process is devised to explain the experimental results.

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Lasers/Masers

UDC 621.373.029.7.001.5

USSR

BAZAROV, YE.N., BIKETOV, V.D., GUBIN, V.P., YUKHVIDIN, YA.A.

"Buffer Gas Influence On A Laser Operating On Rb⁸⁷ Vapors With Optical Pumping"Radiotekhnika i elektronika, Vol XVII, No 3, Mar 1972, pp 556-564

Abstract: A theoretical and experimental study is made of the operation of a rubidium laser in the process of generation, with filling of its resonator with nitrogen and mixtures of nitrogen-argon. The experiments were conducted on a model of a rubidium laser, the construction of which is analogous to that described by Ye. N. Bazarov and V.P. Gubin (Radiotekhnika i elektronika, 1969, 14, 6, 1045). However, in a given case, the magnitude of the coupling of the rubidium laser with the load can be selected within certain limits with the aid of a matching plate in the output waveguide. The resonator of the model was connected to a vacuum-pumping assembly which made it possible to evacuate it to a pressure of 10^{-5} torr and to fill it with various gases. It is shown that with a concentration of rubidium atoms considerably exceeding the threshold, the limiting short-term stability of the rubidium laser does not depend on the parameters of the buffer mixture. The theoretical and experimental study conducted shows the possibility of creating a rubidium laser with a small temperature coefficient of the frequency, a large power of generation, and a high short-term stability. The authors thank B.H. Glebov for help in preparing the experiment and V.F. Zolin and E.I. Alekseyev for discussion of results. 7 fig. 12 ref. Received, 8 Dec 70.

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USSR

Y
UDC: 621.373.530.245.6

ALBARTOV, V. S., ERMANOV, V. P., YURKOVICH, Yu. A.

"State and Developmental Prospects of Some Quantum Electronics Devices"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SNT Electronics), 1970, vyp. --, pp 52-73 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No TD205)

Translation: A state-of-the-art survey is given on gas lasers, quantum frequency standards and atomic clocks. The prospects for development of these devices are considered. Their regions of application are indicated. Resumé.

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1/2 012 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--GENETIC PROBLEMS IN THE STUDY OF SYSTEMIC CONGENITAL ORTHOPAEDIC
DISEASES -U-
AUTHOR--(04)-VOLKOV, M.V., MEYERSON, YE.M., NECHVULOODOVA, D.L., YUKINA,
~~G.B.~~
COUNTRY OF INFO--USSR
SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 4, PP 8-14
DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BONE DISEASE, HEREDITARY DISEASE, LESION, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0593

STEP NO--UR/9115/70/000/004/0008/0014

CIRC ACCESSION NO--AP0103808

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NJ--AP0108808

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INHERITED SYSTEMIC BONE DISEASES BELONG TO HEREDITARY AFFECTIONS OF THE CONNECTIVE TISSUE WITH MARKED SKELETAL AND EXTRASKELETAL LESIONS, AND CONSTITUTE A LARGE GROUP OF DISEASES WITH A WIDE RANGE OF CLINICAL MANIFESTATIONS. A NUMBER OF CLINICAL SIMILAR SYSTEMIC BONE DISEASES ARE THE RESULT OF MUTATIONS IN VARIOUS LOCUSES AND REPRESENT GENOCOPIES. THE CORRELATION AND INTERDEPENDENCE BETWEEN THE CLINICO ROENTGENOLOGIC, LABORATORY AND GENETIC METHODS OF INVESTIGATION IN HEREDITARY SYSTEMIC BONE DISEASES IS DISCUSSED. THE GENIC MUTATIONS ARE CONSIDERED AS THE CAUSE OF DEVELOPMENT OF SPORADIC CASES OF THESE DISEASES, AND THE IMPORTANCE IS STRESSED OF THE KINDRED AND STUDY OF ISOLATES IN THE ELUCIDATION OF THE RECESSIVE FUND OF HEREDITARY MUTABILITY. THE ROLE OF DIAGNOSIS OF MICROSIGNS AND THE EFFACED FORMS OF DISEASES IN THE STUDY OF THE PENETRABILITY AND EXPRESSIVITY OF GENES IS DISCUSSED. FACILITY: TSENTRAL'NOGO INSTITUTA TRAVMATOLOGII I ORTOPEDII.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--MODELING OF NUCLEAR REACTIONS OF COSMIC RAY INTERACTION WITH THE
MATERIAL OF STONY METEORITES -U-
AUTHOR--(05)-LAVRUKHINA, A.K., REVINA, L.D., MALYSHEV, V.V., YUKINA, L.V.,
SATAROVA, L.M.
COUNTRY OF INFO--USSR
SOURCE--GEOKHIMIYA 1970, (5), 531-9
DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, ATMOSPHERIC SCIENCES,
ASTRONOMY, ASTROPHYSICS, PHYSICS
TOPIC TAGS--METEORITE, COSMIC RAY, NUCLEAR REACTION, ISOTOPE, BERYLLIUM
ISOTOPE, IRON ISOTOPE, OXYGEN ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/0911

STEP NO--UR/0007/70/000/005/0531/0539

CIRC ACCESSION NO--AP0136343

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136343

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A POSSIBLE USE OF THE SEMI EMPIRICAL EQUATIONS OF RUDSTAM (1966) AND V. SCHWARTZ-H. DESCHGER (1967) FOR CALCG. THE CROSS SECTION OF ISOTOPE FORMATION IN TARGETS OF COMPLICATED CHEM. COMPN., IRRADIATED BY PROTONS WITH E EQUALS 660 MEV AND 19.2 GEV, WAS INVESTIGATED. THE CROSS SECTIONS FOR REACTION OF THE PRIME7 BE FORMATION FROM THE PRIME16 O NUCLEI AND BY PRIME56 FE(P, PN) PRIME55 FE REACTIONS WERE EVALUATED. THE MATERIAL OF THE ZAISAN LAKE AND KUNZSHAK STONY METEORITES WAS IRRADIATED BY PROTONS WITH ENERGIES OF 660 MEV AND 19.2 GEV, RESP. THE DIFFERENT FRACTION OF ELEMENTS WERE ISOLATED RADIOCHEM. THE MEASURED RADIOACTIVITIES WERE COMPARED WITH CALCD. VALUES. SATISFACTORY AGREEMENTS WERE OBSQ. FOR MOST ISOTOPES. IN GENERAL THE AGREEMENT WAS BETTER AT E EQUALS 660 MEV THAN AT 3 EQUALS 19.2 GEV. THIS WAS POSSIBLE CAUSED BY AN APPEARANCE OF THE MECHANISM OF NUCLEI SPALLATION IN THE E IS CONGRUENT TO 10 GEV REGION WHICH WAS QUAL. DIFFERENT THAN THE CASCADE MECHANISM. THE DATA OBTAINED CAN BE USED FOR MODELING OF THE DISTRIBUTION OF RATES OF RATES OF COSMOGENIC ISOTOPE FORMATION IN COSMIC BODIES WHICH IS NECESSARY FOR QUAL. INVESTIGATIONS OF THE EFFECT OF COSMIC RAYS ON THE STONY METEORITES, SURFACE LAYERS OF THE MOON, AND ASTEROIDS. FACILITY: V. I. VERNADSKII INST. GEOCHEM. ANAL. CHEM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 616.12-073.75

YANUSHKEVICHUS, Z. I., VITENSHTYNAS, G. A., PRANEVICHYUS, A. A., VALUZHIS, K. K.,
and YUKNELIS, L. V., Chair of Hospital Therapy, Kaunas Medical Institute

"A Method for Continuous Recording of an Amplified EKG"

Moscow, Meditsinskaya Tekhnika, No 5, Sep/Oct 70, pp 54-55

Abstract: A description is given of a method for direct recording of an amplified EKG by means of an electrocardiograph designed at the Kaunas Medical Institute. The amplification is effected by application of the feedback principle. The diagnostic advantages of an amplified EKG were established on the basis of an examination of 400 persons, including those in good health as well as those with hypertension, chronic coronary insufficiency resulting from atherosclerosis, and indistinct heart rhythm. Comparative analysis of conventional and amplified electrocardiograms showed that the new method for recording the EKG permits additional information to be obtained in the diagnosis of a number of heart diseases.

1/1

USSR

UDC 621.375.82

YUKOV, Ye. A.

"Elementary Processes in Active Medium of Photodissociation Iodine Laser"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2(14), Moscow, "Sov. Radio," 1973, pp 53-58 (English summary) (from RZh-Fizika, No 10, Oct 73, Abstract No 10D879 from author's abstract)

Translation: The article considers elementary processes in the active medium of a photodissociation iodine laser which affect its oscillation spectrum. An evaluation is given of the transition cross-sections between hyperfine components inside the ground $2p_{3/2}$ and excited $2p_{1/2}$ states of the iodine atom during collisions with various particles of the active medium. It is shown that mixing of the hyperfine components of the $2p_{3/2}$ state under typical conditions takes place very rapidly during collisions with any particles, while mixing of the sublevels of the $2p_{1/2}$ state is due chiefly to collisions with iodine atoms in the ground state. Broadening of the amplifying transition line is discussed. Bibliography with nine titles.

1/1

USSR

UDC 621.375.82

VINOGRADOV, A. V., and YUKOV, YE. A.

"Effect of Two-Photon Processes on X-Ray Spectrum of Laser Plasma"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2(14), Moscow, "Sov. Radio," 1973, pp 105-107 (English summary) (from RZh-Fizika, No 10, Oct 73, Abstract No 10D89/4 from authors' abstract)

Translation: It is shown that as a result of Raman scattering of laser radiation and stimulated two-photon radiation additional lines appear in the X-ray spectrum of a laser plasma -- satellites of forbidden transitions which at a flux density of $I_0 \sim 10^{14} - 10^{15}$ w/sq cm are comparable in intensity to allowed lines. Measurement of the ratio of the intensity of the laser satellites to the intensity of the allowed lines can be used to determine the intensity of the light field and the electron density in the plasma. Bibliography with nine titles.

1/1

1/2 051 UNCLASSIFIED PROCESSING DATE--04DEC70
 TITLE--CHEMICAL CHANGES IN POLY, VINYL FLUORIDE, INDUCED BY IRRADIATION -U-
 AUTHOR--(03)-USMANOV, KH.U., YULCHIVAYEV, A.A., LATYPDY, T.V.
 COUNTRY OF INFO--USSR
 SOURCE--UZB. KHIM. ZH. 1970, 14(2), 63-6
 DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY
 TOPIC TAGS--FLUORINATED ORGANIC COMPOUND, POLYMER, GAMMA RADIATION,
 RADIATION POLYMERIZATION, RADIATION EFFECT, POLYMER CROSSLINKING,
 POLYMER DEGRADATION, CONJUGATE BOND SYSTEM, COBALT ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3008/0918

STEP NO--UR/0291/70/014/002/0063/0066

CIRC ACCESSION NO--AP0137946

UNCLASSIFIED

2/2 051 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0137946
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLY(VINYL FLUORIDE) OBTAINED BY RADIATION POLYMN. IN BULK WAS IRRADIATED WITH PRIME60 CO GAMMA RAYS AT 10 PRIME3 MM IN A WIDE RANGE OF IRRADN. RATES AND DOSES. POLYMER D. AND ITS F CONTENT WERE DETD. IN THE COURSE OF IRRADN. AT ALL RATES AND DOSES OF IRRADN. THE F CONTENT DECREASE WAS PROPORTIONAL TO THE OVERALL DOSE BECAUSE OF HF EVOLUTION. THE D. OF POLYMER DECREASED BECAUSE OF LOOSENING THE POLYMER MASS BY THE GAS EVOLVED. AT LOW DOSES EVOLUTION OF GAS WAS ACCOMPANIED BY POLYMER DEGRADATION WHEREAS AT HIGH DOSES CROSSLINKING WAS ALSO OBSD. IR ANAL. REVEALED FORMATION OF CONJUGATED DOUBLE BONDS. IRRADIATED POLYMER WAS EASILY OXIDIZED BY O.
FACILITY: TASHKENT, GOSUNIV, IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

1/2 057 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--GRAFTING OF METHYL METHACRYLATE ON POLY(VINYL FLUORIDE) UNDER THE
INFLUENCE OF GAMMA RADIATION -U-
AUTHOR-(03)-LATYPOV, T., YULCHIBAYEV, A.A., USMANDOV, KH.U.
COUNTRY OF INFO--USSR
SOURCE--UZB. KHIM. ZH. 1970, 14(1), 53-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--GRAFT POLYMERIZATION, METHYL METHACRYLATE, FLUORINATED ORGANIC
COMPOUND, GAMMA RADIATION, RADIATION EFFECT, COPOLYMER, THERMOMECHANICAL
PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/1840 STEP NO--UR/0291/70/014/001/0053/0056
CIRC ACCESSION NO--AP0123629
UNCLASSIFIED

2/2 057

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123629

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IRRADN. OF A POLY(METHYL METHACRYLATE) (I)-H SUB2 C:CHF (II) MIXT. WITH GAMMA RAYS IN VACUUM GAVE GRAFT COPOLYMERS CONTG. LESS THAN OR EQUAL TO 74.2 II UNITS. THE CONVERSION RATE OF II IS CONSIDERABLY GREATER IN THE PRESENCE OF I THAN THE II HOMOPOLYMN. RATE UNDER THE SAME CONDITIONS. THE GRAFT COPOLYMERS HAVE GREATER SWELLING IN ACETONE, HCON4E SUB2, OR DIOXANE AND ARE ESP. SOL. IN PHME AT ROOM TEMP. GRAFTING DECREASES THE MELT FLOW INDEX OF II AND IT CHANGES THE SHAPE OF ITS THERMOMECH. CURVES. FACILITY: TASHKENT. GOSUNIV. IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

ELECTRICAL ENGINEERING

USSR

Circuit Elements

UDC 621.315.1(23)

YUL'CHIYEV, S.

"Study of the Electric Strength of the Insulation of High-Voltage Overhead Electric Power Transmission Lines in the Case of Commutation Surges under Mountainous Conditions"

Dushambe, Izvestiya Akademii Nauk Tadzhikskoy SSR, Otdeleniye Fiziko-Matematicheskikh i Geologo-Khimicheskikh Nauk, No 3 (41), 1971, pp 28-31

Abstract: A study was made of the electric strength of long air gaps and insulator chains characteristic of 110-500 kilovolt overhead electric power transmission lines under the effect of commutation surges on a high-voltage mountain test network at an altitude of 3,400 meters above sea level. Under high-altitude conditions ($P_{mean} = 512 \text{ mm Hg}$) there is a significant reduction of the 50 percent discharge voltages both of the air gaps and the insulator chains by comparison with lowland conditions. The magnitude of the standard σ is appreciably less: $\sigma = 2\%$. Considering the natural variations in the meteorological conditions, it is recommended that $\sigma = 4.0\%$ be used for insulator chains and 3.0% for air gaps [σ is the standard for the dependence of the discharge probability on the effective voltage amplitude characterizing the measure of steepness of the function $\psi(U_m)$, the probability of arcover for a

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USSR

YUL'CHIYEV, A., Izvestiya Akademii Nauk Tadzhikskoy SSR, Otdeleniye Fiziko-Matematicheskikh i Geologo-Khimicheskikh Nauk, No 3(41), 1971, pp 28-31

defined amplitude of the effective voltage (U_m)]. Voltage oscillograms and graphs are presented showing the functions $U_{50\%} = f(S)$ for a rod-plane gap, a wire-stanchion gap and an insulator chain under the effect of an oscillatory damping voltage pulse of positive polarity under the mentioned high altitude conditions. Photographs of the arcover of the insulator chains show that the discharge basically develops in the air and partially along the surface of the insulator chains. This is reason for practical independence of the discharge voltages of the chains with respect to type of insulator.

2/2

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AZINOV, S. A., MYALKOVSKIY, V. M., NURITDINOV, Kh., RASULKULOV, M. S.,
ABDULLAYEV, A. M., BEYSENBAYEV, R. U., GAVRILIN, Ye. V., TALIPOV, D. A.,
MULLAZHONOV, E. Zh., TILLAYEV, T., RAKHMANOV, Zh., UMEROV, R.,
ULIMAYEVA, F. A., KHEN, E., YULDASHBAYEV, T. S., Institute of Nuclear
Physics of the Academy of Sciences UZBEK SSR

"Study of the Characteristics of High-Energy Interactions of Pions and
Nucleons"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 36,
No. 8, Aug 72, pp 1626-1631

Abstract: Experimental data obtained at the Kum-Bel' High-Altitude
Station of the Physicotechnical Institute of the Academy of Sciences
Uzbek SSR are reported. The station is 3200 m above sea level. The
setup contains three series of wide-gap spark chambers with effective
areas of 2 m² placed above and below the target. The Cerenkov spectro-
meter with total absorption and an ionization calorimeter with an area of
10 m² were used to measure the primary energy E_0 . Up to the present time
experimental data obtained over 630 hours of operation of the device have
been processed, with a high-voltage pulse being supplied to the electrodes of
the spark chambers. Showers with an energy of >200 Gev generated in the target
were selected for analysis. The following ratio was obtained for the number
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USSR

AZIMOV, S. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 36, No 8, Aug 72, pp 1626-1631

of primary charged N_c and neutral N_n particles: $N_c/N_n = 2.3 \pm 0.3$;
this shows that the proportion of charged particles is ~34% of all nuclear active particles, thus making it possible to study pion-nuclear collisions by comparing the characteristics of the interaction of charged and neutral primary particles. A weak functional dependence between the inelasticity coefficient $\langle K_{\pi^+} \rangle$ and the atomic number of the target nucleus and a strong functional dependence between this coefficient and the nature of the primary particles were obtained for interactions of hadron with $E_0 > 200$ Gev. $\langle n_s \rangle$ is almost a logarithmic function of E_0 . The average multiplicity in the interaction of pions with neutrons in paraffin is identical within the experimental limit. A considerable azimuthal effect was observed for the angular distribution of secondary particles. The azimuthal effect has its greatest value for showers with $n_g = 8-15$, or a multiplicity close to average.

2/2

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US-3

UDC 539.171.017

ABDULLAYEV, A. M., AZIMOV, S. A., BEYSEMBAYEV, R. U., BELITSKIY, M. T.,
MULLIZHANOV, E. ZH., MYALKOVSKIY, V. M., TALPOV, T. A., TILLAYEV, T.,
UMEROV, R., KHER, E., and YILDASHBAYEV, T. S.

"Study of Characteristics of Inelastic Interactions of Cosmic-Ray Particles
in the 10^{11} to 10^{12} -ev Energy Range"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10,
Oct 71, pp 2065-2068

Abstract: Experiments that were performed at the high-altitude test station
(3,200 m.) at Kum-Bel' in Uzbekistan are described. The purpose of the exper-
iments was to investigate the angle of arrival and the energy characteristics
of interactions of pions and nucleons with light and heavy nuclei at 2×10^{11}
to 2×10^{12} ev and the mechanism of generating muons at energies above 2×10^{12}
ev. Equipment consisted of spark chambers, located above and below the target
(paraffin wax, carbon, and iron), a Čerenkov spectrometer of full absorption,
and an ionization calorimeter. This complex method of measurements was found
convenient for use in various modes of operation. A detailed description of
various parts of the installation and their disposition is given in the paper.
1/3

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USSR

ABULAYEV, A. M., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 10, Oct 71, pp 2065-2068

Joint operation of ionizing calorimeters and spark chambers is normally difficult because of the need for high voltage on the calorimeter electrodes, combined with the time lag of the input pulse from the spark chambers, amounting to over 20 microseconds. This difficulty was avoided in the present experiments by storing pulses in memory cells, with the subsequent input of a high-voltage pulse of about 120 kv. Operation was controlled by a master-pulse, prior to which all parts of the equipment were kept inoperative.

Results of 200 hours of the joint operation of a Čerenkov spectrometer and ionizing calorimeter, with graphite used as the target, have been processed so far. For analysis, showers with energy above 1.5×10^{11} ev were selected, 130 of them having been observed. The ratio of charged to neutral nucleons were determined and, from it, the fraction of charged pions of the total nucleus-active stream of particles. The inelastic coefficient for the formation of π^0 -mesons was computed from the experiments related to the interaction of neutral particles with nuclei of graphite.

It is concluded that the combination of ionizing calorimeter with Čerenkov spectrometer of full absorption for the simultaneous determination of energy of primary particles made it possible to determine the fraction of

2/3

USSR

ABULLAYEV, A. M., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 35, No 10, Oct 71, pp 2065-2068

energy supplied by the ionizing particles $\tilde{\eta}$, since a Čerenkov spectrometer measures only the energy emitted by relativistic particles. It was found that for the mean energy of primary particles of 350 Gev the energy part lost on nuclear fissions in the spectrometer, with CCl_4 as the light emitter, is $\tilde{\eta} = 0.25$,

CSO: 1362 -W

- END -

3/3

- 124 -

Acc. Nr:

AP0053769

Abstracting Service:

CHEMICAL ABST. 5-70

Ref. Code:

UR0366

110862b Possible synthesis of isomeric methylcyclohexyl chlorides and bromides from the corresponding methylcyclohexanols under the influence of phosphorus pentahalides and hydrohalic acids. Bundel, Yu. G.; Yildashev, A. M.; Reutov, O. A. (USSR). Zh. Org. Khim. 1970, 6(2), 321-5 (Russ). The action of PCl₅ on *cis*-2-methylcyclohexanol (*cis*-I) gave a mixt. of products contg. 1-chloro-1-methylcyclohexane, the *cis* and *trans* isomers of 1-chloro-2-methylcyclohexane (II), and α -chloroethylcyclopentane (III). *trans*-I gave with PCl₅ II and III only. *cis*-I or *trans*-I analog with PBr₅ gave different product distribution, including 1-methylcyclohex-1-enes. *cis* or *trans*-3-Methylcyclohexanols or 4-methylcyclohexanols gave only isomeric methylcyclohexyl halides and no cyclopentane derivs. The reactions of 4-methylcyclohexanols proceed 80-90% with inversion of configuration. The action of concd. HCl or HBr on the above methylcyclohexanols gave complex mixts. from which *cis*- and *trans*-2-methylcyclohexyl chlorides were sepd. by gas chromatog.

CPJR

BW

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REEL/FRAME
19830832

7

UDC 547.26'118

USSR

YULDASHEV, A. Yu., ABIDOV, S. AND AZIMOV, Z.

"On the Synthesis of Several Dialkyl Phosphates"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 1034-1035

Abstract: Higher dialkyl phosphates (C₄-C₈) were obtained by oxidation of dialkylphosphites with nitrogen dioxide or chlorine dioxide. These phosphates were tested for use as liquid ionites for reducing ash content, and for improving the reactivity of cotton cellulose.

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- 60 -

UDC 612.014+612.11

USSR

SHARIPOV, F. Kh. and YULDASHEV, I. Yu., Tadzhik State Medical Institute imoni
Abuali ibn-Sino

"Effect of Adaptation on Composition of Peripheral Blood in Rats in High-Altitude
Conditions"

Tashkent, Doklady Akademii Nauk Tadzhikskoy SSR, Vol 13, No 8, 1970, pp 60-63

Abstract: A study was made of changes in composition of peripheral blood occurring in rats at high altitudes. A total of 160 white male rats, weighing 109-130 g each, were divided into 14 groups of 10 animals each. Tests were conducted in the Anzobskiy Pass (3,379 m above sea level). Blood samples were taken 1, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, and 90 days after the animals were brought to the mountain site. A group of 20 rats of the same weight were used as controls in the city of Dushanbe (820 m above sea level). The erythrocyte count showed a slight rise at the outset, reaching a maximum by the 15th day, and then stabilized at 7344.6 ± 74.0 thousand per mm³. As for reticulocytes, a slight decrease was noted initially, followed by a rise, reaching a maximum by the 10th day. This value exceeded the control by a factor of (8.5±0.13%) compared with 3.0±0.16% in the valley (Dushanbe). The most abrupt shifts were shown in the numerical

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USSR

SHARIPOV, F. Kh., et al, Doklady Akademii Nauk Tadzhikskoy SSR, Vol 13, No 8, 1970
pp 60-63

composition of monocytes: even by the third day after the mountain ascent this index rose 2.5 times to $7.7 \pm 0.24\%$, as compared with $2.9 \pm 0.11\%$ in controls. A maximum was reached by the 10th day of the experiment: $8.6 \pm 0.12\%$, exceeding control levels almost threefold. These shifts agree with literature data.

2/2

USSR

UDC 621.316.001.24

FAZYLOV, KH. F., YULDASHEV, KH.

"Formula for the Derivative Losses in Electric Power System Networks"

V. sb. Razvitiye i optimiz. rezhimov energosistem (Development and Optimization of the Operating Conditions of Power Systems -- collection of works), vyp. 2, Tashkent, Fan Press, 1970, pp 66-89 (from RZh-Elektrotehnika i Energetika, No 4, Apr 71, Abstract No 4 Ye220)

Translation: A system of equations is derived for determining the derivatives of the total losses in power systems with respect to the power of each regulated power plant. The determination of the derivatives of this system is connected with calculation difficulties and can be used as the standard calculation for estimating approximate methods. Five simplified formulas are proposed for estimating the derivative losses. The machine time (the Ural-2 computer) required to determine the derivative losses in the power system with 35 units and with 10 participating in the economical load distribution of the plants by these formulas is about 30 seconds. By the numerical differentiation method it is on the order of 3 hours. There is 1 illustration, 3 tables and a 2-entry bibliography.

1/1

USSR

UDC 577.15.04 + 577.153

RAKHIMOV, H. M., AIZIKOV, E. I., and YULDASHEV, P. KH., Order of the Labor
Red Banner Institute of the Chemistry of Natural Products

"The Effect of Growth Regulators on the Activity of Lipase. II"

Tashkent Khimiya Prirodnykh Soyedineniy, No 1, 1972, pp 100-103

Abstract: Fatty acids can either inhibit or stimulate the cotton seed lipases, depending on their concentration. At a given concentration some plants may be stimulated, while other would be inhibited. This may be due to different lipases being specific to these plants, or to the differences in concentration specificity governing the inhibitory or stimulating zones. Comparing a series of acid homologs, it was determined that the stimulating activity decreases in the order: phenylbutyric, valeric, δ -phenylvaleric, β -(3-methyl-4-hydroxy)-phenylbutyric acids. The inhibitory activity decreases in the following order: butyric, valeric, γ -phenylbutyric, β -(3-methyl-4-hydroxy)phenylbutyric, and δ -phenylvaleric acids.

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USSR

UDC 547.26:118

IL'INA, N. A., YULDASHEVA, I. N., TRUTNEVA, YE. P.

"Reactions of Dialkylamidoalkylphosphorous Acids With Aldehydes and Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2173-2177

Abstract: The title reactions were studied in an effort to ascertain the existence of two tautomeric forms: the phosphonate (I) and the hydroxyphosphite (II) forms of dialkylamidoalkylphosphorous acids. In the presence of sodium alkoxide catalyst, N,N-dialkylamidoalkylphosphorous acids (III) reacted exothermally and rapidly with aromatic aldehydes, aromatic and aliphatic ketones to give N,N-dialkyl(α -hydroxy)alkyl(aryl)phosponamides which were identified by their IR spectra. A high reaction rate indicated a possible ionic mechanism involving an attack on the electrophilic carbonyl carbon by the nucleophilic phosphorus atom with formation of an intermediate compound which reacts with a second (III) molecule to give the final product. In the absence of a catalyst, aromatic aldehydes and ketones react very

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- 49 -

USSR

IL'INA, N. A., et al, Zhurnal Obshchey Khimii, Vol 41, No 10, 1971, pp 2173-2177

vigorously with (III), probably in (II) form, to give an intermediate compound with a negatively charged oxygen atom. This oxygen atom attacks P atom and simultaneously an amin-anion is eliminated from P atom and attacks C atom to form an intermediate cyclic cation which rearranges to crystalline alkyl amino-alkylarylphosphonates which exhibit differences in IR spectra, compared with those of the products of catalyzed reactions. The products of the (III) reaction with aliphatic aldehydes were not identified. The experimental procedures are outlined and elemental analysis data and physical constants of the reaction products are tabulated.

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1/2 010

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--REFLECTION EFFECT IN DERIVATIVES OF
TETRAMETHYLTETRAHYDROTHIOPYRAN, 4, ONE -U-
AUTHOR--(04)-ARBUZOV, B.A., YULDASHEVA, L.K., ARSHINOVA, R.P., ZOLOVA, D.D.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAO. NAUK SSSR, SER. KHIM. 1970, (3), 526-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SULFUR COMPOUND, HETEROCYCLIC OXYGEN COMPOUND, DIPOLE
MOMENT, SULFUR OXIDE, SULFONE, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--2000/0738

STEP NO--UR/0062/70/000/003/0526/0529

CIRC ACCESSION NO--AP0124408

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124408

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPTL. DIPOLE MOMENT VALUE FOR 2,2,6,6-TETRAMETHYLTETRAHYDRO,4,PYRONE IS 1.49 D, SULFOXIDE 1.58 D, SULFONE 2.45 D, TETRAHYDROTHIS,4,PYRONE 1.51 D, AND ITS SULFONE 2.41 D. FROM THESE DATA IT WAS CONCLUDED THAT ALL THESE COMPS. HAVE THE PREFERRED CHAIN CONFORMATION. INTRODUCTION OF GEM ME GROUPS IN THE 3 POSITION RELATIVE TO THE CO GROUP CAUSES BUT SLIGHT DEFORMATION OF THE RING. FACILITY: KHIM. INST. IM. BUTLEROVA, KAZAN. GOS. UNIV. IM. UL'YANOVA LENINA, KAZAN, USSR.

UNCLASSIFIED

1/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--DIPOLE MOMENT AND CONFORMATION OF
3,5-DIBENZYLIDENE, TETRAHYDRO, 4H, THIOPYRAN, 4, ONE AND ITS 1,1-DIOXIDE -U-
AUTHOR--(04)-ARBUZOV, B.A., YULDASHEVA, L.K., ARSHINOVA, R.P., BALABANOVA,
F.B.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 448-50

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DIPOLE MOMENT, SULFONE, IR SPECTRUM, BENZENE DERIVATIVE,
HETEROCYCLIC OXYGEN COMPOUND, KETONE, ORGANIC OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0844

STEP NO--UR/0062/70/000/002/0448/0450

CIRC ACCESSION NO--AP0119748

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119748

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONDENSATION OF
TETRAHYDRO,4H,THIOPYRAN,4,ONE WITH BZH GAVE THE 3,5,DIBENZYLIDENE
DERIV., M. 150-1DEGREES, DIPOLE MOMENT 2.5 D. THE DIPOLE MOMENT OF ITS
SULFONE, M. 198-9DEGREES, WAS 3.55 D. THUS, BOTH ARE IN THE "ENVELOPE"
CONFORMATION, A CONCLUSION SUPPORTED BY IR SPECTRA. FACILITY:
KAZAN, USSR. KHIM. INST. IM. BUTLEROVA, KAZAN. GOS. UNIV. IM. UL'YANOVA, LENINA,

UNCLASSIFIED

USSR

UDC 577.1:615.7/9

YULETSKIY, Yu. K.

"Histochemical Analysis of Enzymic Changes Occurring in Rat Liver in Acute Alcohol Intoxication"

Tr. Mosk. o-va ispyt. prirody (Works of Moscow Society of Naturalists), 1971, 37, pp 70-77 (English summary) (from RZh-Biologicheskaya Khimiya, No 20, 25 Oct 71, Abstract No 20F1676 from summary)

Translation: A 50-percent solution of ethyl alcohol (10 ml. abs. alc. per kg) was administered by gastric probe to male rats after starvation for 16-18 hours, and the activity of a number of liver enzymes was determined by histochemical methods 30 minutes to six days later. It was established that in the first few hours after intoxication there was a decline in succinic dehydrogenase activity, and somewhat later in lactic and glutamic dehydrogenase as well as alpha-glycerophosphate dehydrogenase activity; there was a rise in alkaline phosphatase activity. These changes reached a maximum by the end of the first day and then normalized gradually in the course of 4-5 days. The author considers the lowering of the oxidative enzyme activity of the liver one of the essential factors in the development of the pathological process resulting from acute alcoholic intoxication of the organism.

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Acc. Nr.: AP0029499

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp 25-28

A STUDY OF THE CHEMICAL COMPOSITION AND ANTITUMOR ACTIVITY OF PROTAMINES, ISOLATED FROM STURGEON MILT

Yermol'yeva, Z.V.; Silayev, A.B.; Yulikova, Ye.P.;

Pokidova, N.V.; Pasternak, N.A.; Kolosova, I.V.;

Yevseyenko, L.K.; Shenderovich, V.A.

Central Post Graduate Medical Institute, Moscow State University

Triprotamines in the form of sulfates were isolated from the milt of individual sturgeon stocks. The amino acid composition of triprotamines was determined and their antitumor activity was studied. It was shown that protamine from *Ac. guldenstadti* and *Ac. stellatus* inhibited tumor growth by 60-80 per cent, while protamine from *Ac. nudiventris* was practically inactive.

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REEL/FRAME

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19681100

USSR

UDC 662.7

KRICHKO, A. A., and YULIN, M. K.

"Obtaining Fuels and Chemical Products from Mixtures of Coal and Oil"

Moscow, Khimiya Tverdogo Topliva, No 6, 1973, pp 75-80

Abstract: A theoretical scheme has been developed for obtaining commercial products from distillates with a boiling point to 320 degrees from the liquid-phase hydrogenation product of a mixture of coal and oil. The scheme includes the isolation of C₆-C₈ phenols from the fraction with a boiling point to 240 degrees, hydrofining distillates with a boiling point to 320 degrees, reforming gasolines and hydrocracking of distillates with a boiling point of 180-320 degrees. When refining the hydrogenation product it is possible to obtain the following compounds: 3.4% phenols, 81.2% gasoline, 13.5% hydrocarbon gases C₁-C₄, 0.5 percent ammonia, 0.5 percent hydrogen sulfide and 1.0% water. Data are tabulated characterizing the hydrogenation product from a 1:1 mixture of coal and oil, the results of hydrofining distillate with a boiling point to 320 degrees, the characteristics of the raw material and recycle for hydrocracking, the results of catalytic reforming of hydrofined

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KRICHKO, A. A., and YULIN, M. K., *Khimiya Tverdogo Topliva*, No 6, 1973,
pp 75-80

gasoline, the results of hydrocracking the fraction with a boiling point of
180-320 degrees, and the characteristics of hydrocracked gasolines.

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1/2 009 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--DEALKYLATION OF P TERT ALKYLPHENOLS IN THE PRESENCE OF SULFURIC
ACID -U-
AUTHOR--(03)-VOLEPSHTEIN, A.B., YULIN, M.K., DOBRUSHKINA, I.N.
COUNTRY OF INFO--USSR
SOURCE--NEFTEKHIMIYA 1970, 10(1), 76-82
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DEALKYLATION, ALKYLPHENOL, SULFURIC ACID, ISOBUTENE, PROPANE,
STYRENE, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1884

STEP NO--UR/0204/70/010/001/0076/0082

CIRC ACCESSION NO--AP0112864

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--09OCT70
CIRC ACCESSION NO--AP0112864
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE PHENOLS WERE HEATED WITH
0.5 WT. PERCENT CONCD. H SUB2 SO SUB4 60 MIN AT 100-204DEGREES.
4,TERT,BUTYLPHENOL (I) AT 130-60DEGREES FORMS PHENOL AND
2,4,DI,TERT,BUTYLPHENOL, AND, AT 180-204DEGREES, ISOBUTYLENE AND PHENOL.
P,TERT,OCTYLPHENOL (II) AT 190DEGREES FORMS 39.4 WT. PERCENT
DIISOBUTYLENE, 33.0 PHENOL, 5.2 I, AND 19.4 II. AN EQUIMOLAR MIXT. OF
PHENOL AND II AT 190DEGREES GAVE 29, 15.7, 26.8, AND 23.0PERCENT, RESP.
2,PHENYL,2, (4,HYDROXYPHENYL)PROPANE (III) AT 204DEGREES GAVE 2.9
ALPHA,METHYLSTYRENE, 27.9 PHENOL, 32.1 1,1,3,TRIMETHYL,3,PHENYLINDAN,
AND 37.1PERCENT III. 2,2,BIS(4,HYDROXYPHENYL)PROPANE (IV) AT 204DEGREES
GAVE 53.5PERCENT PHENOL; THE REST WAS UNIDENTIFIED. THE RELATIVE
DEGREES OF DEALKYLATION AT 190DEGREES ARE: I, 3.7; II, 80.6; III, 42.9;
IV, 72.0. FACILITY: INST. GORYUCH. ISKOP, MOSCOW, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--THE SYNDROME OF COLICODYNTIA IN OSTEOCHONDROSIS OF THE LUMBAR
REGION OF THE SPINE -U-
AUTHOR--(04)-YUKASHEV, G.S., YELIZAROV, M.N., VARSHAVICHIK, F.P., FAYZIYEV,
KH.F.
COUNTRY OF INFO--USSR
SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 6, PP 116-119
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BONE DISEASE, PAIN, MEDICAL EXAMINATION, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1881

STEP NO--UR/0497/70/048/006/0116/0119

CIRC. ACCESSION NO--AP0129241

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0129241

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. THE CONTROVERSIAL OPINIONS OF SOVIET AND FOREIGN AUTHORS ON THE ORIGIN OF COCCYGEAL PAIN TESTIFY TO THE FACT THAT IT IS STILL INADEQUATELY STUDIED. LITERATURE SOURCES GIVE NO DATA ON THE RELATION OF COCCYGDYNIA WITH OSTEOCHONDROSIS OF THE LUMBAR REGION OF THE SPINE. IN 15 (13PERCENT) OUT OF 114 PATIENTS UNDER OBSERVATION COCCYGDYNIA WAS OF A SOMEWHAT DIFFERENC CHARACTER THAN THAT DESCRIBED IN OTHER SOURCES. THUS, COCCYGEAL PAIN WAS COMBINED WITH PAIN IN THE LUMBSACRAL REGION; IT WAS ASSOCIATED WITH MOVEMENTS AND NOTICABLY INTENSIFIED IN INDUCTION OF SYMPTOMS OF STRETCHING THE NERVE TRUNKS. IN SINGLE PURPOSE EXAMINATION OF THE PATIENTS, THE AUTHORS DIAGNOZED OSTEOCHONDROSIS OF THE LUMBAR REGION OF THE SPINE. THE DIAGNOSIS WAS CONFIRMED BY MEANS OF EPIDUROGRAPHY AND DISCOGRAPHY. AFTER CONSERVATIVE TREATMENT OF LUMBAR OSTEOCHONDROSIS A SIGNIFICANT IMPROVEMENT OCCURRED IN ALMOST ALL PATIENTS AND THEY RESUMED THEIR WORK. THE AUTHORS ARE OF THE OPINION THAT COCCYGDYNIA MAY BE ONE OF THE SYMPTOMS OF OSTEOCHONDROSIS OF THE LUMBAR REGION OF THE SPINE.

FACILITY: KAFEDRA TRAVMATOLOGII I ORTOPEDII I MOSKOVSKOGO MEDITSINSKOGO INSTITUTA IM SECFENOVA, NEVROLOGICHESKOE OTDELENIYE GORODSKOY KLINICHESKOY BOL'NITSY NO 67 RENTGENODIAGNOSTICHESKIY OTDOL MOSKOVSKOGO NAUCHNO-ISSLED. RENTGENO-RADIOLOGICHESKOGO INSTITUTA I UZBEKSKOGO NAUCHNO ISSLED. RENTGENO-RADIOLOGICHESKOGO I ONKOLOGICHESKOGO INSTITUTA.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--WHIPLASH INJURIES OF THE CERVICAL AND UPPER THORACIC SPINE IN THE
EXPERIMENT AND CLINIC -U-
AUTHOR-(04)-YUMASHEV, G.S., GRGMOV, A.P., DMITRIYEV, A.YE., PYRLINA, N.P.
COUNTRY OF INFO--USSR
SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 6, PP 1-5
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SPINAL CORD, SPINAL NERVE, INJURY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605003/C05 STEP NO--UR/9115/70/000/006/0001/0005
CIRC ACCESSION NO--AP0139508
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139508

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EVIDENCE SHOWS THAT THE EXPERIMENTALLY PRODUCED "WHIPLASH" INJURIES OF THE CERVICAL AND UPPER THORACIC SEGMENTS OF THE SPINE, VESSELS AND NERVES LOCALIZE PRINCIPALLY AT THE LEVEL OF C SUB5 -TH SUB3. THEIR INTENSITY DEPENDS ON THE RATE OF OSCILLATION OF THE HEAD DURING "JERK" AND MAGNITUDE OF THE ARISING OVERLOADS. IN 23 PATIENTS OBSERVED BY THE AUTHORS FOLLOWING AUTOACCIDENTS, THE CLINICAL PICTURE IN SUCH "WHIPLASH" TYPE OF INJURIES WAS FOUND TO BE REPRESENTED BY A RANGE OF REGULARLY RECURRING SYMPTOMS OF A PATTERN WHICH GIVES REASON TO SPEAK ABOUT, TRAUMATIC CERVICAL WHIPLASH SYNDROME". THE AUTHORS COMMUNICATE THEIR SCHEME OF EXAMINATION OF PATIENTS AND THE METHODS OF TREATMENT APPLIED BY THEM.
FACILITY: KLINIKI TRAVMATOLOGII I ORTOPEDII I KAFEDRA SUDEBNOY MEDITSINY I MOSKOVSKOGO MEDITSINSKOGO INSTITUTA IM SECHENOVA.

UNCLASSIFIED

USSR

GALUSHKIN, A. I., YUMASHEV, S. G.

"The Use of Piecewise-linear Dividing Surfaces in a Problem of Pattern Recognition"

Tr. Mosk. In-ta Elektron. Mashinostr. [Works of Moscow Institute of Electronic Machine Building], No 6, 1970, pp 238-254, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V740 by M. Chel'shev).

Translation: Three algorithms are suggested for the construction of piecewise-linear dividing surfaces. A statistical algorithm calls for division of the space of characteristics and its subspaces by planes passing through the middle of a straight line connecting the ends of the vectors which are the mathematical expectations of the vectors of stimuli of the teaching sequence in the space or subspace of characteristics. An iterational algorithm is basically similar to the statistical algorithm, and differs from it only in that the normal vectors of the separating hypersurfaces are calculated by an iterational method based on the method of learning with error correction. A combined statistical and iterational algorithm consists
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USSR

GALUSHKIN, A. I., YUMASHEV, S. G., Tr. Mosk. In-ta Elektron. Mashinostr., No 6, 1970, pp 238-254.

of a combination of the two algorithms just described. At each step, the normal vector of the dividing plane is determined first using the statistical method, then is refined using the iterational method. The results of modeling of the algorithms on the MIR computer are presented. The advantages of the algorithms suggested are: 1) relative simplicity of calculations and apparatus required for realization; 2) possibility of constructing dividing surfaces of rather complex form; 3) gradual complication of dividing surface; 4) absence of apriori knowledge on the structure of the actual areas of the classes. 9 Biblio. Refs.

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USSR

UDC: 8.74

YIMASHEV, S. G.

"Using Methods of Linear Programming for Constructing Piecewise-Linear Separating Surfaces in the Problem of Pattern Recognition"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1970, vyp. 6, pp 255-260 (from RZh-Kiber-netika, No 1, Jan 72, Abstract No 1V1072)

Translation: Algorithms are proposed for construction of piecewise-linear separating surfaces in the problem of pattern recognition. It is shown that determination of the best hyperplane may be presented as the solution of a problem of partially integral linear programming. Methods are proposed for reducing the dimensionality of the problem of partially integral linear programming. Author's resumé.

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USSR

UDC: 536.46

FROST, V. A., YUMASHEV, V. L., Moscow

"Investigation of Powder Extinction in a Model of Combustion With Variable Surface Temperature"

Novosibirsk, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 3, May/Jun 73, pp 92-100

Abstract: The paper gives the speed of unsteady burning of powder with a pressure drop as calculated by numerical integration of the equations of unsteady burning theory with regard to variation of the surface temperature of the k-phase. When pressure drops are steep and of considerable magnitude extinction is observed, and it is not necessary to introduce any special extinction conditions. The change in burning rate during extinction is smooth.

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USSR

UDC 536.24

LUK'YANOV, A. T., ROZENFEL'D, G. O., YUMASHEVA, M. G.

"Heat Transfer of Concrete Blocks Under Forced Convection"

V sb. Prikl. i teor. fizika. Vyp. 3 (Applied and Theoretical Physics. No. 3 -- Collection of Works), Alma-Ata, 1972, pp 218-221 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B913)

Translation: Computational formulas for determining the coefficient of heat transfer of bodies under various conditions of utilization are obtained on the basis of similarity theory. Tables of the relationship between the coefficient of heat transfer and the temperature and velocity of the air flow are given to facilitate practical calculations. 5 ref. Authors' abstract.

USSR

UDC 621.315.592:546.28

ARUSHANOV, A. Ya., GRIDNEVA, G. N., and YUMATOV, K. A.

"Autoepitaxia of Silicon During Vaporization by Electron Beam in Ultrahigh Vacuum"

V sb. Protsessy rosta kristallov i plenok poluprovodn. (Procedures for the Growth of Semiconductor Crystals and Films -- Collection of Works), Novosibirsk, 1970, pp 238-245 (from RZh-Elektronika i yeye primeneniye, No 7, July 1971, Abstract No 7B100)

Translation: Autoepitaxial layers of Si are obtained by the deposition method in a vacuum of 10^{-5} -- $5 \cdot 10^{-9}$ mm of mercury. In order to assure high deposition rates, vaporization of the Si is conducted with the aid of a sharp-focused electron beam. The substrates are placed at 50--60 mm from the molten Si on a massive Mo disk which is heated by an electron gun. As substrates n-type Si wafers are used of (111) orientation, 25 mm in diameter and 0.3 mm thick with a resistivity of 80--100 ohm.cm, which are subjected beforehand to mechanical polishing with subsequent degreasing, or are chemically polished. Immediately preceding deposition, the substrates are briefly heated at increased temperatures. The process of deposition is conducted at a temperature of the substrate of 1100--1300° C and a deposition rate of 0.01--2.5 micrometer/min. The thickness of the film is 3--60 micrometer. It is shown that the density of packing defects depends to a considerable degree on the deposition rate, the vacuum in the working chamber, and the substrate temperature. The assumption is confirmed concerning an extension of the deposition rate during which perfect layers

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USSR

ARUSHANOV, A. Ye., et al., Protsessy rosta kristallov i plenok poluprovodn.
(Procedures for the Growth of Semiconductor Crystals and Films -- Collection
of Works), Novosibirsk, 1970, pp 238-245 (from RZh-Elektronika i yeye
primeneniye, No 7, July 1971, Abstract No 7B100)

are obtained, with an improvement of the vacuum. It is found that conditions of growth determine the properties of the Si film. In a vacuum of 10^{-8} -- 10^{-9} mm of mercury, layers practically without defects are obtained of n- and p-type Si. The resistivity of p-type film is 200--300 ohm.cm. On the basis of the monocrystalline layers obtained, laboratory specimens were prepared of p-n junctions of the type "film-film" with reverse voltage on the order of 500 v. 8 ref. V.G.

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USSR

UDC 621.385.032.269

PEREVODCHIKOV, V.I.*, FEDOROV, O.L., YUMATOV, K.O. [*Transliterated from Ukrainian]

"Pulsed Electron Gun With Current Up To 1 ka"

Ukr.fiz.zh. (Ukrainian Journal Of Physics), 1971, 16, No 6, pp 971-976 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11A24)

Translation: A pulsed electron gun (EG) is considered, with a cathode of lanthanum boride, which assures a choice of electron current densities up to 300 a/cm^2 . The construction is described of an EG for current up to 1 ka, and a number of advantages are shown of EG with thermocathodes as compared with EG with cathodes operating in prebreakdown regimes. The requirements are determined for the high-voltage power supply of a pulsed EG. 4 ref. Summary.

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USSR

RYABOV, V. R., YUMATOVA, V. I., SAYENKO, M. I., Institute of Electric Welding
im. Ye. O. Paton, An UkrSSR, KAZACHINSKAYA, N. V., Kiev Polytechnic Institute

"Use of the Method of Multifactor Planning of Experiments for Studies of
Calorizing of Kh18N10T and Type 3 Steels Before Welding With Aluminum"

Kiev, Avtomaticheskaya Svarka, No 12, 1972, pp 34-37

Abstract: The dependence of diffusion layer thickness formed upon calorizing of Kh18N10T and type 3 steels on melt temperature, calorizing time, and specimen volume was studied. The influence of heating rate and cooling on growth of the diffusion layer was also studied. Mathematical dependences were produced, showing that in direct welding of aluminum with steel, calorizing and the production of bimetallic castings, the basic factor determining the thickness of the diffusion layer is the melt temperature. This provides technological possibilities for regulation of layer thickness. The influence of volume (mass) of the specimens is less significant.

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USSR

Welding

UDC 621.791.75.011:669.14.018+669.715

RYABOV, V. R., Candidate of Technical Sciences, YUMATOVA, V. I., Engineer, BUTNIK, A. L., Engineer, GRABIN, V. F., Candidate of Technical Sciences, KUZNETSOV, YE. P., Engineer, and BELOZEROV, L. F., Engineer, Institute of Electric Welding imeni YE. O. Paton

"Effect of Alloying Elements in Steel on the Properties of Steel-Aluminum Welded Joints"

Moscow, Svarochnoye Proizvodstvo, No 4, Apr 71, pp 9-12.

Abstract: A study was made of the effect of alloying elements (Mb, Mn, Si, Va, Ti, Zr, Co, Nd) in steel on the properties of the diffusion zone created during aluminizing and welding and on the strength of welded steel-aluminum joints. The preparation of samples and the experimental procedure are described. The results show that introduction of alloying elements into a steel base delays the growth of the aluminized diffusion layer. The silicon introduced substantially reduces the microhardness of the aluminized diffusion layer. The plating method (aluminizing or galvanizing) before welding strongly affects the hardness of the joint.

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USSR

UDC 621.791.856.3:669.15-194:546.621

RYABOV, V. R., YIMATOVA, V. I., GRABIN, V. F., BUTNIK, A. P., DZYKOVICH, I. Ya., KUZNETSOV, Ye. P., and BELOZEROV, L. F., Institute of Electric Welding imeni Ye. O. Paton

"Effect of Nickel and Chromium in Steel on the Characteristics of Alloy Combinations"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 71, pp 18-23

Abstract: An investigation was made of the effect of additions of nickel and chromium to Armco iron on the characteristics of the diffusion layer which appears during calorization. The dependence of the durability of steel-aluminum alloys on the additions contained in the steel was also studied. The nickel and chromium alloys with steel were prepared in an induction furnace with a capacity of 7 kg, and the ingots obtained were annealed at 1100-1200°C for three hours. They were then rolled into plates measuring 220 x 1200 x 3 mm. After slag removal, the specimens were calorized in an aluminum bath and cleaned. Tests were made of welds of experimental alloys prepared in the ADSV-2 automatic welder, and the phases of the layers formed during calorization and welding were studied

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