"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AP0048453 PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE MOVEMENT OF AN ELEMENTARY STEP (A STEP OF MONOAT. HEIGHT) OF A CRYSTAL SURFACE ON THE KINETIC PROCESSES IN THE STEP WAS STUDIED. IN AN EQUIL. STATE, A STEP WITH LOW INDICES CONTAINS A NO. OF CHAOTICALLY MOVING FRACTURES, BUT WITH INCREASING OVERSATN., THE CHAOTIC MOTION OF THE FRACTURES BECOMES MORE REGULAR; THE FORMATION OF 1 DIMENSIONAL NUCLEI APPEARS TO BE THE SOURCE OF THE FRACTURES. THE NUCLEI FORMATION RATE, THE FRACTURE D., AND THE RATE OF STEP MOVEMENT ARE CALCD.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC 539.14.144.3

PEKER, L. K., VOLNYANSKIY, E. I., VORONKOV, Yu. P., KAZAKOV, A. L.

"Concerning the Causes of Lowering of the Levels $s\frac{1}{2}$ and $d\frac{3}{2}$, Caused by Holes in Filled Shells"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 4, 1971, pp 856-857

Abstract: Since, according to results of recent research, lowering of the hole level in light nuclei is linked to a large amount of particle-hole interaction, an attempt is made to ascertain the role of such interaction in lowering of the hole levels in heavy nuclei. It is found that whereas in light nuclei the effect of lowering of the hole levels is determined by particle-hole interaction, in heavy nuclei it is determined by the effect of rearrangement of the nuclon shells. The possible causes of the decrease of particle-hole interaction in heavy nuclei are enumerated. An important cause of the weakening of particle-hole interaction in heavy nuclei is the fact that in such nuclei the particle-hole interaction is reduced to an interaction of the p -- p type, whereas in light nuclei an important part is played by interactions of the n -- p type. 1 table, 7 bibliographic entries.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 024 UNCLASSIFIED

TITLE--NUCLEAR MATRIX ELEMENTS OF THE BETA DECAY OF DEFORMED NUCLEI -U- PROCESSING DATE--23OCT70

AUTHOR-(02)-VOYKHANSKIY, M.YE., VORONKOV, YU.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 444-8

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DEFORMED NUCLEUS, MATRIX ELEMENT, BETA DECAY, FORBIDDEN TRANSITION, WAVE FUNCTION, HARMONIC OSCILLATOR, TRANSITION PROBABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0218 STEP NO--UR/0048/70/034/002/0444/0448

CIRC ACCESSION NO--AP0105294

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105294

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BETA TRANSITIONS IN DEFORMED NUCLEI WERE STUDIED AND A COMPARISON OF EXPTL. AND THEORETICAL RESULTS WAS PERFORMED IN A WAY SIMILAR TO THAT APPLIED TO GAMMA TRANSITIONS. FORBIDDEN BETA TRNASITIONS OF THE 1ST, AS WELL AS OF HIGHER ORDERS, CAN BE EXPRESSED BY SEVERAL MODELS. THE INTERNAL WAVE FUNCTIONS, X SUBK, ARE EXAMD. AS LINEAR COMBINATIONS OF BASIC FUNCTIONS OF THE ISOTROPIC HARMONIC OSCILLATOR. THE TRANSITION WAVE FUNCTION IS FORMED BY BASIC FUNCTIONS OF THE ANISOTROPIC HARMONIC OSCILLATOR. HERE, CALCNS. OF A PROBABILITY OF THE TRANSITION INCLUDE SELECTION RULES FOR ASYMPTOTIC QUANTUM NOS. THEORETICAL RELATIONS ARE CONSIDERED FOR FORBIDDEN TRANSITIONS OF ANY ORDER.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC: 621.315.59

VORONKOV, V. V., VORONKOVA, G. I., and IGLITSYN, M. I.

"Effect of Second-Phase Inclusion on Conductivity and the Hall Effect"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol. 4, No. 12, 1970, pp 2263-2266

Abstract: The included second phase is represented by the impurities that precipitate out of the semiconductor solid solution. Because of this inclusion, there is a deviation in the conductivity in the neighborhood of the inclusion from the volume value. If the inclusion is metallic, it acts as an emitter; if it is nonmetallic, the distortion of the conductivity within the Debye screening distance is low. In addition to these phenomena, this article considers the case in which the radius of the nonuniformity in the semiconductor caused by the inclusion is small compared to the average distance between inclusions, and estimates the correction that must be given the measured value of the conductivity and the Hall effect coefficient. The authors also discuss their study of the form of Cu precipitation when introduced into Si for diffusion as well as for alloying.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

Microelectronics

VORONKOVA, G. M.

JPRS 57333

25 October 1972

MICROELECTRONICS

Excerpts from Russian-language book edited by F. V. Lukin, Mikroelektronika, No 5, 1972, Sovetskoye Radio Publishing House, Moscow, UDC 621.382:621.396.6-181.5.

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[I - USSR - F]

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

recording and readout. The memory element consists of two four-electrode Gunn instruments, the first of which serves for recording and storage, the second of which serves for readout of the stored information. The time of the recording-readout cycle is about 0.5 nsec. The power computed in storage mode 1 is about 100 mW; in storage mode 0 it is about 115 mW.

The article contains 4 figures and 3 bibliographic references.

UDC 681.142 → 621.374.3

Diode-Transistor Logic Circuit With Feedback. Naumov, Yu.Ye. and Puchkov, I.F. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 166, Sovetskoye Radio Publishing House, 1972.

The article gives a theoretical analysis of the electrical parameters of a circuit with feedback; its advantages are analyzed in comparison to the diode-transistor circuit without feedback. It is shown that the use of a feedback circuit is especially effective in designing micropower circuits. An experimental investigation is given for the circuit with feedback in the micropower band a comparison is given with the microcircuit "Mikrovatt-1".

The article contains 11 figures, 1 table, and 6 bibliographic references.

UDC 621.382.029.54

Logic Elements on Gunn Diodes. Voronkova, G.M., Orlova, L.K., Starosel'skiy, V.I., and Sapel'nikov, A.N. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 182, Sovetskoye Radio Publishing House, 1972.

The article describes the properties of experimental samples of planar Gunn diodes. On 200-μm long samples the authors make a current impulse shaper and memory elements of two types.

The article contains 6 figures, 1 table, and 5 bibliographic references.

UDC 621.375.001.24:621.382.32

Static Analysis of the Simplest Differential Cascade on MDP Transistors. Stepanenko, I.P. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 190, Sovetskoye Radio Publishing House, 1972.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

VORONKOVA, G.M.

Microelectronics

JPRS 57333

25 October 1972

MICROELECTRONICS

Excerpts from Russian-language book edited by F. V. Lukin; Mikroelektronika, No 5, 1972, Sovetskoye Radio Publishing House, Moscow, UDC 621.382:621.396.6-181.5.

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Annotation..... 1

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

recording and readout. The memory element consists of two four-electrode Gunn instruments, the first of which serves for recording and storage, the second of which serves for readout of the stored information. The time of the recording-readout cycle is about 0.5 nsec. The power computed in storage mode 1 is about 100 mW; in storage mode 0 it is about 115 mW.

The article contains 4 figures and 2 bibliographic references.

UDC 681.142 → 621.374.3

Diode-Transistor Logic Circuit With Feedback. Naumov, Yu.Ye. and Puchkov, I.P. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 166, Sovetskoye Radio Publishing House, 1972.

The article gives a theoretical analysis of the electrical parameters of a circuit with feedback; its advantages are analyzed in comparison to the diode-transistor circuit without feedback. It is shown that the use of a feedback circuit is especially effective in designing micropower circuits. An experimental investigation is given for the circuit with feedback in the micropower band a comparison is given with the microcircuit "Mikrovatt-1".

The article contains 11 figures, 1 table, and 6 bibliographic references.

UDC 621.382.029.64

Logic Elements on Gunn Diodes. Voronkova, G.N., Orlova, L.K., Starosel'skiy, V.I., and Sapel'nikov, A.M. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 182, Sovetskoye Radio Publishing House, 1972.

The article describes the properties of experimental samples of planar Gunn diodes. On 200-μm long samples the authors make a current impulse shaper and memory elements of two types.

The article contains 6 figures, 1 table, and 5 bibliographic references.

UDC 621.375.001.24:621.382.32

Static Analysis of the Simplest Differential Cascade on MDP Transistors. Stepanenko, I.P. In the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 190, Sovetskoye Radio Publishing House, 1972.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 018

UNCLASSIFIED

TITLE--LATTICE PARAMETERS AND ELECTRICAL PROPERTIES OF GALLIUM ARSENIDE BEFORE AND AFTER HEAT TREATMENT -U-

PROCESSING DATE--16OCT70

AUTHOR-(05)-KUZNETSOV, G.M., BARSUKOV, A.D., KANDYBA, G.I., VORONKOVA, G.M., BULATOVA, O.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 7(3), 452-6

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELECTRIC PROPERTY, GALLIUM ARSENIDE, LATTICE PARAMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0843

STEP NO--UR/0363/70/006/003/0452/0456

CIRC ACCESSION NO--AP0118019

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 018

UNCLASSIFIED

CIRC ACCESSION NO--AP0118019 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE LATTICE PARAMETER OF UNDOPED GAAS ON CURRENT CARRIER CONCN. WAS INVESTIGATED. A SHARP DECREASE IN THE LATTICE PARAMETER IN THE CONCN. REGION OF (0.7-3) TIMES 10 PRIME15-CM PRIME3 WAS OBSD., WHICH IS ASSOCD. WITH AN INCREASE IN THE VACANCY CONCN. BY 1.44 TIMES 10 PRIME19-CM PRIME3. BY MAKING USE OF THE PREVIOUSLY REPORTED DATA, THE AT. VOL. OF THE VACANCIES IN GAAS WAS DETD. IT IS 0.767 RELATIVE TO THE AV. VOL. OF THE ATOM, WHICH IS IN GOOD AGREEMENT WITH THE RESULTS OF THE D. MEASUREMENTS. THE DEPENDENCE OF THE LATTICE PARAMETER AND THE ELEC. PROPERTIES OF GAAS ON AS VAPOR PRESSURE, P SUBAS, DURING THE ANNEALING PROCESS WAS INVESTIGATED. AT P SUBAS GREATER THAN 2 ATM THERE IS OBSD. AN INCREASE IN THE LATTICE PARAMETER BY 1 TIMES 10 PRIME NEGATIVE4 ANGSTROM, CORRESPONDING TO THE DECREASE IN THE VACANCY CONCN. BY 1 TIMES 10 PRIME19-CM PRIME3. THE CARRIER CONCN. IN SAMPLES SUBJECTED TO ANNEALING AT 700DEGREES FOR 7 HR DEPENDS ON THE P SUBAS AND IT INCREASES WITH INCREASING P SUBAS. ANNEALING AT P SUBAS GREATER THAN 2 ATM LEADS ALSO TO A SYSTEMATIC INCREASE IN THE CARRIER MOBILITY (TO 25PERCENT). FACILITY: MOSK, INST. STALI SPLAVOV, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC 591.1.15

SAKHAROV, V. N., VORONKOVA, L. N., and CHENTSOV, Yu. S.

"Ultrastructure of Intranuclear Inclusions Formed During the Division of Cells Irradiated with an Ultraviolet Microbeam"

Nauch. dokl. vyssh. shkoly. Biol. n. (Scientific Reports of Higher Schools. Biological Sciences), 1972, No 5, pp 56-59 (from RZh-Biologicheskaya Khimiya, No 17, 10 Sep 70, Abstract No 17 F1481)

Translation: The division of cells with a prophase nucleolus locally injured by an UV microbeam results in the formation of daughter cells whose nuclei contain numerous inclusions, prenucleoli, in addition to normal nucleoli. The former contain RNA but, unlike normal nucleoli, they are lacking in granules and consist mainly of delicate fibrils (40 to 80 Å). The appearance of prenucleoli is thought to be due either to specific disruption of the ribosomal RNA synthesis in the daughter cells or to radiation-induced injury to the nucleolar substance.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC: 681.3.055

POTAPOV, V. I., MIRENKOV, P. V., VORONKOVA, L. V., Omsk Polytechnical Institute

"A Multifunctional Threshold Element"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332575, Division H, filed 13 Jul 70, published 14 Mar 72, p 225

Translation: This Author's Certificate introduces a multifunctional threshold element based on magnetic cores with rectangular hysteresis loop. The element operates in accordance with the principle of current distribution, and contains a unit for setting the threshold value, and also threshold cores carrying series-connected windings for recording the weight coefficients of variables and threshold windings. As a distinguishing feature of the patent, the logic possibilities are extended by adding units for input of the code for weight coefficients of variables, and units for recording the weight coefficients on the threshold cores. The distribution windings of the units for recording the weight coefficients on the threshold cores and of the unit for setting the threshold value are con-

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USSR

POTAPOV, V. I. et al, USSR Author's Certificate No 332575

nected to the windings for recording the weight coefficients of variables and to the threshold windings, while the distribution windings of the units for input of the code for weight coefficients are connected in series with the corresponding controlling windings of the units for recording the weight coefficients on the threshold cores.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR UDC 578.089.843:616-001.28

VORONKOVA, N. A., and SHAMRAY, A. E., Kiev Scientific Research Institute of Roentgenradiology and Oncology; Kiev Scientific Research Institute of Hematology and Blood Transfusion

"Effect of Bone Marrow Homotransplantation on the Intensity of the Pentose Phisphate Cycle Reaction and the Lifetime of Erythrocytes in Animals With Acute Radiation Sickness"

Kiev, Ukrayins'kyy Biokhimichnyy Zhurnal, Vol 43, No 6, Nov/Dec 71, pp 738-741

Abstract: Rabbits and rats were used to determine the effect of ionizing radiation with subsequent bone marrow homotransplantation on the half-life of erythrocytes and the pentose phosphate cycle reaction in the erythrocytes. Acute radiation sickness was induced in the rabbits by x-ray irradiation with doses of 1110-1250 rads, and in the rats, 800-850. Bone marrow homotransplantation in both instances was carried out intraosseously 24 hours after irradiation with quantities of $3.2-3.5 \cdot 10^8$ cells for the rabbits, and $2.6-3.4 \cdot 10^7$ for the rats. The half-life of erythrocytes was determined by the Gray-Sterling method in Karavanov's modification. The effect on the pentose phosphate cycle reaction -- by the Brin-Yonemoto method. The experiments established that ionizing radiation reduces the half-life of erythrocytes and 1/2

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

VORONKOVA, N. A., and SHAMRAY, A. E., Ukrayins'kyy Biokhimichnyy Zhurnal, Vol 43, No 6, Nov/Dec 71, pp 738-741

disturbs the pentose phosphate cycle reaction. Under the influence of bone marrow transplantation, however, improvement of the metabolic processes is already noted on the third day, and within one week the half-life of the erythrocytes is restored to its normal level. It is assumed that the disturbance of the pentose phosphate cycle reaction is one of the reasons of the intensive destruction of erythrocytes by ionizing radiation.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 014 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--EFFECT OF RESIN CANCER ON THE RESPIRATION INTENSITY AND ACTIVITY OF PINE OXIDATIVE ENZYMES -U-

AUTHOR-(03)-FEDOROV, N.I., RAPTUNOVICH, E.S., VORONKOVA, N.G.

COUNTRY OF INFO--USSR

SOURCE--MIKOL. FITOPATOL. 1970, 4(1), 44-50

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED PLANT PRODUCT, FUNGUS, PLANT DISEASE, ENZYME ACTIVITY, SEASONAL VARIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/60500L/E12 STEP NO--UR/9063/70/004/001/0044/0050

CIRC ACCESSION NO--AP0139384

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 014 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0139384

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHANGES IN THE ACTIVITIES OF THE OXIDATIVE ENZYMES AND IN THE RESPIRATION OF PINE TREES INFECTED WITH RESIN CANCER, CAUSED BY THE GROWTH AND DEVELOPMENT OF THE RUST FUNGI CRONARTIUM FLACCIDUM AND PERIDERMIUM PINI, WERE STUDIED. AN INFECTION WITH THE ABOVE MENTIONED FUNGI INCREASED THE RESPIRATION OF THE PINE NEEDLES, ESP. DURING THE SPRING. DURING THE SUMMER, THE 2 YEAR OLD NEEDLES OF INFECTED PINES HAD A HIGHER RESPIRATION THAN THE NEEDLES OF HEALTHY TREES. THE RESPIRATION OF THE OXIDATIVE ENZYMES IN THE NEEDLES OF INFECTED TREES CHANGED ACCORDINGLY TO THE TIME OF ANAL.

FACILITY: TEKHNOL. INST. IM. KIROVA, MINSK, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EFFECT OF THE ADSORPTION OF A TUNGSTATE MELT ON THE SHAPES AND GROWTH MECHANISM OF CORUNDUM CRYSTALS -U-

AUTHOR-(03)-VORONKOVA, V.I., YANOVSKIY, V.K., KOPTSIK, V.A.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 362-6

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS, CHEMISTRY

TOPIC TAGS--TUNGSTATE, CORUNDUM, CRYSTAL GROWTH, ADSORPTION, EPITAXIAL GROWTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0891 STEP NO--UR/0070/70/015/002/0362/0366

CIRC ACCESSION NO--AP0116401

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AP0116401 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF EPITAXIAL ADSORPTION OF THE SOLVENT IN GROWING ALPHA AL SUB2 O SUB3 FROM ALKALI AND ALK. EARTH TUNGSTATE MELTS WAS STUDIED AT 1100-1250DEGREES. THE HEXAGONAL DIPYRAMID WITH (22BAR43) EDGES WERE RETAINED AT GROWTH RATES OF 0.1-25 MM-DAY, REGARDLESS OF THE ALKALI OR ALK. EARTH OXIDE PRESENT IN THE SOLVENT, WITH THE EXCEPTION OF CRYSTALS OBTAINED BY SPONTANEOUS CRUSTN. FROM SRWO SUB4 ABOVE 1400DEGREES. IN THIS CASE, RHOMOBHEDRAL CRYSTALS WITH (10BAR11) EDGES WERE OBTAINED. THE ADDN. OF CRYOLITE CALCD. ON THE BASIS OF NA SUB6 W SUB8 O SUB27 PLUS XNA SUB3 ALF SUB6 YIELDS YNA PRIME POSITIVE PLLS (X-2)AL SUB2 O SUB3 PLUS ZWO SUB4 PRIME NEGATIVE NEGATIVE PLUS UWO SUB3 F GAVE TRUNCATED PYRAMIDS AND BIPYRAMIDS WITH HEIGHT:DIAGONAL RATIOS FROM 1:1 TO 1:10. THE SIDE PLANES (22BAR43) AND (10BAR11) REMAINED. THE (22BAR43) PLANES GREW IN LAYERS STARTING PRIMARILY FROM THE SHARP APEXES. THESE LAYERS END IN RECTILINEAR MACROSCOPIC STEPS IN THE (BAR1100) DIRECTION. AT SUFFICIENTLY HIGH TEMPS. ADSORPTION DECREASED, GROWTH BECAME RHOMBOHEDRAL, AND THE DECOMPN. OF POLYMER ANIONS ON ISOLATED WO SUB4 PRIME NEGATIVE NEGATIVE TETRAHEDRONS, IN THE PRESENCE OF FLUORIDES, DEVELOPED BASAL PINACOIDS.

FACILITY: MOSK. GOS. UNIV., IM. LOMONOSOVA, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR UDC 632.95

VORONKOVA, V. V., CHEKAREVA, T. G., and BASKAKOV, YU. A.

"Thin Layer Chromatography of N-Carbamoyl-N-aryl(alkyl)hydroxylamines and Their O-Acyl Derivatives"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 187-191 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N536 by T. G. Chekareva)

Translation: A study was made of the chromatographic behavior of 20 N-carbamoyl derivatives of aryl(alkyl)-hydroxylamine of the general formula RR'NC(O)NR"R"' (I) [R=H, OH, OMe, OC(O)NH_2, OC(O)NHMe; R'=Me, aryl; R"=H, Me, R"'=H, C_1 - C_4-alkyl, Ph] on plates with silica gel KSK [expansion unknown] (5-80 microns). R_f values are given for I in seven systems of solvents. Iodine vapors, an 0.05-percent solution of bromophenol blue in a 1% solution of $AgNO_3$, an acid solution of $KMnO_4$ are used for detection of I on the chromatograms. TLC sensitivity: 0.1-2 mcg. Silica gel with acetic or citric acid is used to separate substances of the general formula PhN [OC(O)X] C(O)NHMe, where X-C_1 - C_4-alkyl. Values are given for R_f in seven systems of solvents. Detection sensitivity 1-5 mcg.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

UDC 632.95

USSR

CHEKAREVA, T. G., VASSERMAN, A. M., VORONKOVA, V. V., UAKIMENKO, Ye. F., and BASKAKOV, Yu. A.

"Photochemical Decomposition of Meturin, Its Derivatives and Analogs"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of words), No 2, Moscow, 1972, pp 285-291 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N575 by G. A. Kosminskaya)

Translation: The photochemical decomposition of the herbicide meturin (I) and some of its derivatives and analogs following UV irradiation was studied. The end product of the photochemical decomposition of I is PhNHCONHMe (II). EPR-spectroscopy was used to show that the photochemical decomposition of I proceeds through the formation of the N-methylcarbamoil-N-phenyl nitrate radical (III). Identical EPR spectra can be obtained by the oxidation of I by PbO_2. I and II are found by thin-layer chromatography among the decomposition products of III. There is a direct relationship between the sensitivity of the derivatives and analogs of I to UV light and their herbicidal activity.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

Nitrogen Compounds

USSR UDC 632.95

MEL'NIKOV, N. N., KHASKIN, B. A., VORONKOVA, V. V., YAKIMENKO, Ye. F., and SABLINA, I. V.

"Thermal Stability of Quaternary Salts of 4,4'-Dipyridyl"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 2, Moscow, 1972, pp 306-311 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N572 by V. A. Kozlov)

Translation: A study was made of the thermal stability of compounds with the general formula (I) /X = I, $MeOSO_3$, $(MeO)_2PO_2$, and (MeO)MeS)-PO_2/ and II by paper electrophoresis. Examples. (1) 15 ml of MeI is added to 0.02 mole of 4,4'-dipyridyl (III). The mixture is sealed in an ampul and allowed to stand at 20° for 24 hours when the crystals are filtered off and washed with ether to obtain I (X = I), yield 72%, melting point 240° (alcohol containing water = 3:7). I /X = (MeO)(MeS) PO_2) (Ia) is obtained in a similar manner by heating to 50° for 12 hours. Purification is carried out by reprecipitation, adding an acetonitryl solution of I a drop at a time to acetone at -50 to -70° to obtain Ia, yield 34%, melting point 59-61.5°. (2). A mixture of 0.03 mole of III, 0.04 mole of $(MeO)_3 \cdot PO$ and 10 ml of water is heated to 90-100° for 5

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MEL'NIKOV, N. N., et al., Khim. sredstva zashchity rast, No 2, 1972, pp 306-311

hours in the presence of 0.1 g of alkaline activated carbon (A brand). The carbon is filtered off, the filtrate evaporated in a vacuum, the residue kept in a vacuum (40-50°/0.2 mm) and treated with methyl ethyl ketone. The mass crystallizes and purification is carried out by reprecipitation to obtain I [X = $(MeO)_2PO_2$] (Ib), yield 90%, melting point 117-20°. 0.03 mole of III is added to 0.06 mole of $(MeO)_3$-PO at 60-65%, heated for 2 hours to 7-80°, left to stand for 7 days at 20° after which the crystals formed are washed with dimethyl formamide, dissolved in MeCN, and poured a drop at a time into AcOEt chilled by dry ice to obtain II [X = $MeO)_2PO_2$], yield 53%, melting point 95-102°. I is kept at 90, 120, 150, and 200°. I (X = I, $MeOSO_3$) when heated for 4 hours to 200° forms a monoquaternary salt and when heated to over 200° it forms the original III. Ib at 90° forms on an electrophoregram the spot of a cation of a monoquaternary salt within 3 hours and at 120 and 150° within 20 to 10 min, respectively. Under these conditions the cation of N-methylpyridinium is formed within 40 and 10 min, respectively. Ia is even less stable at 90, 120, and 150°; the monoquaternary salt is formed within 20 and 5-6 min, respectively, and at 120-150° the cation of N-methylpyridinium is formed within 30 min. II is not broken down at 90° but at 120 and 150° forms

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MEL'NIKOV, N. N., et al., Khim. sredstva zashchity rast, No 2, 1972, pp 306-311

III within 60 and 30 min, respectively. The thermal stability of I was shown to depend on the structure of the anion and falls into the following series: $I \sim MeOSO_3 > (MeO)_2PO_2 > (MeO)\text{-}(Mes)PO_2$.

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UDC 632.95

VORONKOVA, V. V., BASKAKOV, YU. A., CHEKAREVA, T. G., SVIRSKAYA, P. I.

"A Method of Making Derivatives of N-Carbamoyl-o-phenylene-diamine"

USSR Author's Certificate No 292965, filed 24 Sep 69, published 5 May 71 (from RZh-Khimiya, No 1(II), Jan 72, Abstract No 1N378

Translation; Physiologically active derivatives of o-phentlene diamine of the general formula $X_nC_6H_{4-n}NHR-2-NHCONR'R''-1$ (I) (R = alkyl, R', R'' = H, alkyl, X = Cl, Br, Me, MeO, NO_2, n = 1-2) are obtained by heating an aqueous suspension of O,N-biscarbamoylated arylhydroxylamines at 35-100°C. A solution of 0.496 g of O,N-bis-(methylcarbamoyl)-phenyl-hydroxylamine in 10 ml of water is heated at 40-45°C until CO_2 is no longer evolved, and the mixture is extracted with EtOAc (15 ml x 5)m yielding 0.39 g of I from the organic layer (R = R' = Me, R'' = X_n = H). The yield is 97% mp 136°C. The compounds (I) (R =Me, X_n = H) are similarly obtained (given are R' = R'', yield in %, mp in °C): Me, 99, 184; H, 86,). I. A. Mel'nikova.

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USSR

SIMONOV, V. D., VORONOV, A. A.

"Use of Clatrate Compounds of Urea with Surfactants in the Production of Pesticides"

Dokl. Neftikhim. Sektsii. Bashkir. Resp. Pravl. Vses. Khim. O-va im. D. I. Mendeleyeva, [Works of Petrochemical Section, Vashkir Republic Administration of All-Union Chemical Society imeni D. I. Mendeleyev], Vol 6, 1971, pp 326-329. (Translated from Referativnyy Zhurnal Khimiya, No 4, Moscow, 1972, Abstract No 4N648 by S. E. Lyubarskaya).

Translation: The introduction of paste surfactants as clatrates (I) with urea to powdered pesticide preparates facilitates mixing and improves the distribution of surfactants in the preparate (stability factor of aqueous suspensions constant). I of surfactants with the formula $R(OCH_2CH_2)_nOH$ (II) (R=mono or dialkylphenol, n is number of oxy groups) and urea (III) with a ratio II:III=1:2-3 (n=7-10) is produced by mixing II with III cold, then fusing 1-1.5 hr at 135-40°, mixing at this temperature 1-1.5 hr, cooling and holding until solidified. Best for mixing are I containing up to 20% surfactants (solidify in 2-3 days). I were used for preparation of 50% wetting powders of methaldehyde, EF-1 fungicide and pyramine.

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USSR

VORONOV, A. A., CHISTYAKOV, Yu. V.

"Approximate Methods of Determining Busy Period"

Teoriya i Prakt. Mekhanizir. Obrab. Ekon. Inform. [Theory and Practice of Mechanized Processing of Economic Information -- Collection of Works], Moscow, 1971, pp 65-74 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V71 from the Resume).

Translation: A one-line queueing system with waiting and unlimited line length is studied with a recurrent input flow and arbitrary distribution of servicing time. Approximate methods for production of the distribution functions and mathematical expectation of the busy period are developed.

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USSR

UDC: 681.3.06:51

VORONOV, A. A., MAKSIMTSOV, M. M., POMERANTSEVA, I. V.

"Problems in Organizing Blocks of Information in the Planning of Atomic Power Installations"

V sb. Teoriya i praktika mashin. obrab. ekon. inform. (Theory and Practice in the Computer Processing of Economic Information--collection of works), Moscow, 1971, pp 65-72 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V722)

[No abstract]

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR UDC: 681.3.06:51

VORONOV, A. A., CHISTYAKOV, Yu. V.

"One Mathematical Model of Computer Solution of Problems of Varying Priority"

V sb. Teoriya i praktika mashin. obrab. ekon. inform. (Theory and Practice in the Computer Processing of Economic Information--collection of works), Moscow, 1971, pp 50-64 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V740)

Translation: In the face of the random nature of the presentation of demands for solution of individual problems and random time of their solution, it is necessary to be able to evaluate the reliability of the solution of problems within the deadlines established even in the planning stage of atomic power plants. This paper deals with the problem of making this kind of evaluation.

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1/2 027 UNCLASSIFIED

TITLE--INERT GASES IN THE GAS DEPOSITS OF ESTONIA -U- PROCESSING DATE--30OCT70

AUTHOR-(02)-VORONOV, A.B., CHEUSOVA, YE.

COUNTRY OF INFO--USSR

SOURCE--EESTI NSV TEAD. AKAD. TIOM., KEEM., GEOL. 1970, 19(1), 80-3

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, CHEMISTRY

TOPIC TAGS--GEOGRAPHIC LOCATION, GAS, NATURAL GAS, NITROGEN, CARBON DIOXIDE, ARGON, HELIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1522 STEP NO--UR/0470/70/019/001/0080/0083

CIRC ACCESSION NO--AP0118509

UNCLASSIFIED

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CIRC ACCESSION NO--AP0118509 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GAS OCCURRENCES WERE STUDIED IN THE SUUR PRANGH ISLAND, ESTONIAN SSR. THE ISLAND HAS A SIMPLE GEOL. STRUCTURE: THE GRANITES OF THE CRYST. BASEMENT, SITUATED AT DEPTHS OF 128-35 M, ARE OVERLAIN BY THE QUATERNARY LACUSTRINE, GLACIAL, AND MARINE ROCKS. THE VARVED CLAYS, RICH IN ORG. SUBSTANCES WERE SOURCE ROCKS. THE AV. COMPN. OF GASES FROM THE 2 LAYERS (HAVING NO COM. SIGNIFICANCE) WAS CH SUB4 93.7, HEAVY HYDROCARBONS 0.3, N 5.0, CO SUB2 1.0, AR 0.073, AND HE 0.006PERCENT. FORMATION WATERS CONTAIN AN AV. OF N 27.9PERCENT AT 1.6 ATM, AR 0.40PERCENT AT 0.1 ATM, AND HE 0.002PERCENT AT 0.0004 ATM OF PARTIAL PRESSURE. MORE THAN HALF OF THE ENTIRE HE, PRESENT IN GASES AND FORMATION WATERS, MIGRATED FROM THE ROCKS OF THE BASEMENT. THE ANAL. OF INERT GAS CONCN. SUBSTANTIATED THE RECENT ORIGIN OF HYDROCARBON DEPOSITS IN QUATERNARY FORMATIONS. SIMILAR DEPOSITS ARE WIDELY DISTRIBUTED IN ESTONIA, THE LENINGRAD REGION, AND ADJACENT AREAS. THEY HAVE SIMILAR COMPNS. AND SMALL SOURCES WHICH ARE INSUFFICIENT FOR COM. PRODUCTION. FACILITY: VSES. NEFT. NAUCH.-ISSLED. GEOL.-RAZVED. INST., USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC: 621.317.39: 543.275.3.08

TURUBAROV, V.I., PODOL'SKIY, A.A., KALAKUTSKIY, L.I., LOGVINOV, L.M., POPOV, B.I., RUMYANTSEV, V.V. and VORONOV, A.F.

"High-Sensitivity Device for Continuous Measurement of Dust Concentration in Biosphere"

Sb. Fiz. metody i vopr. metrol. biomed. izmereniy (Symposium on Physics Methods and Biomedical Metrology Problems) Moscow, 1972, pp 288-289 (from Referativnyy Zhurnal-Metrologiya i Izmeritel'naya Tekhnika, No 8, 1972, Abstract No. 8.32.1007 by V.S.K.)

Translation: The design and operating principle are described of a continuous-action, electronic, induction dustmeter, developed by the Leningrad Aviation Instrument Building Institute jointly with the Kuybyshev Aviation Institute. The dust concentration measurement method is based on the relation between the size of aerosol particles and their charges received in the corona discharge field. This type

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TURUBAROV, V. I., et al., Sb. Fiz. metody i vopr. metrol. biomed. izmereniy, 1972, pp 288-289

dustmeter measures the surface concentration, therefore the change in dispersion concentration does not cause errors in dust concentration count. The dustmeter can be also calibrated by the weighing method with constant dispersion concentration and variation of weight concentration. Several modifications of electronic dustmeters characterized by sensitivity and range have been developed. The technical characteristics of EIP-3 dustmeter are: sensitivity, 10^{-2} mg/m^3; weight, 5 kg; power consumption, 10 w; dynamic concentration range, -10^3; overall dimensions, 280 x 190 x 80 mm. Test results of electronic induction dustmeters are presented.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC 620.179.16

VORONOV, A. I., KOZLOV, Yu. V., MALYSHEV, V. I., and MOROZOV, V. M., Tomsk Polytechnical Institute imeni S. M. Kirov

"Attachment to a UKB-1 Defectoscope for Inspection of Concrete at Negative Temperatures"

Sverdlovsk, Defektoskopiya, No 4, Jul-Aug 72, pp 59-63

Abstract: A shock-excited thyristor with increased output voltage amplitude (up to 6 kv) is proposed as an attachment for a UKB-1 defectoscope for use in the non-destructive testing of concrete at negative temperatures. Since it is not possible to use ultrasonic instruments equipped with Seignette salt heads in unheated locations, the authors employed ceramic piezoelements such as TsTS-19 which require a higher voltage and produce a higher voltage. The modified defectoscope with TsTS-19 radiation elements was tested on a standard concrete sample at -20 C. The tests showed reliability in the +60 to -20 C interval. 3 figures, 1 table, 1 bibliographical reference.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC 621.771.23.001.5

KONOVALOV, Yu. V., and VORONOV, A. I.

"Tension of Strips in a Finishing Group of Continuous Hot Rolling Sheet Mill Stands"

Moscow, Plasticheskaya Deformatsiya Metallov i Splavov, "Metallurgiya" Publishing House, No 64, 1970, pp 103-106

Translation: The values of tension between stands of a continuous hot rolling mill were studied.

It was established that specific tensions reach their maximal value between the ninth and tenth stands. However, these values do not reach the yield point of the material. One illustration, one table, and four bibliographic entries.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

VORONOV, A. V., SALIENKO, YE. A.

UDC 621.397.335(088.8)

"Device for Synchronizing a Television Image"

USSR Author's Certificate No 215259, Filed 27 Mar 65, Published 16 Jan 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9G220P)

Translation: A device is proposed for synchronizing a television image containing a selector, a slave oscillator and frequency dividers. It is controlled by a signal transmitted once per frame; the signal has the shape of a packet of sinusoidal oscillations cut by spaces of line frequency. In order to decrease the image distortions caused by the doppler effect during transmissions from high speed targets, a phase detector which generates an error signal is connected between the selector and the slave oscillator. A ready-access memory element is connected to the phase detector for the time of formation of the error signal in order to store it.

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1/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--OBITUARY -U-

AUTHOR-(04)-BREZHNEV, L.I., VORONOV, G.I., KIRILENKO, A.P., KOSYGIN, A.N.

COUNTRY OF INFO--USSR

SOURCE--SOVETSKAYA ROSSIYA, JUNE 30, 1970, P 3, COLS 1-2

DATE PUBLISHED--30JUN70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--BIOPHYSICS, PHARMACOLOGY, BIOCHEMICAL PERSONNEL, CHEMICAL PERSONNEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0086 STEP NO--UR/9022/70/000/000/0003/0003

CIRC ACCESSION NO--AN0113064

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 021 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AN0113064

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACADEMICIAN MIKHAIL MIKHAYLOVICH SHEMYAKIN, BORN IN 1908, HAS SUDDENLY DIED. THE OUTSTANDING SOVIET CHEMIST WAS ELECTED CORRESPONDING MEMBER OF THE ACADEMY OF SCIENCES, U.S.S.R. IN 1953. IN 1958 HE WAS ELECTED ACTIVE MEMBER OF THE ACADEMY. SHEMYAKIN WAS THE ORGANIZER AND THE DIRECTOR OF THE INSTITUTE OF CHEMISTRY OF NATURAL COMPOUNDS, MEMBER OF THE PRESIDIUM OF THE ACADEMY, SECRETARY OF THE DEPARTMENT OF BIOCHEMISTRY, BIOPHYSICS AND CHEMISTRY OF PHYSIOLOGICALLY ACTIVE COMPOUNDS OF THE SOVIET ACADEMY OF SCIENCES. SHEMYAKIN ALSO TAUGHT AT THE MOSCOW INSTITUTE OF FINE CHEMICAL TECHNOLOGY AND THE MOSCOW TEXTILE INSTITUTE.

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Acc. Nr: AP0043768

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 753-759

EFFECT OF A STRONG OPTICAL FREQUENCY ELECTROMAGNETIC FIELD ON THE HYDROGEN MOLECULE

N. K. Berezhetskaya, G. S. Voronov, G. A. Delone
N. B. Delone, G. K. Piskova

The radiation of Nd glass laser the quantum energy of which ($\hbar\omega = 1{,}18$ eV) is much less that the potentials of ionization and dissociation are was employed. The strong electromagnetic field action on the H_2 molecule was investigated experimentally. It has been found that for the field strength $E = 5.10^7$ V/cm the multifoton ionisation process $H_2 + 14\hbar\omega \rightarrow H_2^+ + e$ has far greater probability than the process of multiphoton dissociation $H_2 + 5\hbar\omega \rightarrow H + H$. The value of multiphoton ionisation probability and its dependence on the light intensity has been mesuared.

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USSR

BEREZHETSKAYA, N. K., VOROKOV, G. S., DELONE, G. A., DELONE, N. B. and PISKOVA, G. K., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Effect of a Strong Electromagnetic Field of Optical Frequency on the Hydrogen Molecule"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 58, No 3, Mar 70, pp 753-759

Abstract: An experimental study of the effect of a strong electromagnetic field on the excitation, ionization, and dissociation of the hydrogen molecule is presented. The radiation source was a neodymium laser with a quantum energy of 1.18 ev and wavelength of 1.06 μ. In this case, four quanta were required for the dissociation of the hydrogen molecule and fourteen quanta for ionization. This quantum energy was considerably less than the ionization and dissociation potentials of the molecule. It was found that for a field strength of $E \simeq 5 \cdot 10^7$ v/cm there basically occurs ionization of the molecule with the formation of an H_2^+ ion ($H_2 + 14h\omega \rightarrow H_2^+ + e$) and not dissociation ($H_2 + 5h\omega \rightarrow H + H$). It was found that molecular ions $N(H^+)/N(H^+) \sim 10^3$ are formed principally; the probability for the formation of H_2^+ ions for a field strength $E = 10^{7.8 \pm 0.15}$ v/cm is equal to $W(H_2^+) = 10^{7.8 \pm 1.0}$ sec^{-1}; for a given field strength the dependence of

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BEREZHETSKAYA, N. K., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 58, No 3, Mar 70, pp 753-759

the probability of molecular ion formation on field strength has the form

$$W(H_2^+) = AE^{2K} \text{ for } K = 10.5 \pm 2.8.$$

The need for further experimental and theoretical work to describe the effect of a strong electromagnetic field on molecules is emphasized.

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Physics

JPRS 5736
20 Oct 72

INTERNATIONAL CONFERENCE ON PLASMA PHYSICS AND QUANTUM OPTICS

[Article by Candidate of Physical and Mathematical Sciences [illegible] S. Voronov, Moscow, Vestnik'Akademii Nauk SSSR, Russian, Vol. No 8, August 1972, pp 96-97]

An International Conference on Plasma Physics and Quantum Optics, organized by the German Physics Society, was held on 20-25 March in Kiel, West Germany. Scientists of West Germany mainly participated in it, and about 150 reports were presented.

Plasma physics is being very intensively studied in West Germany by three research centers: the Max Planck Institute of Plasma Physics in Garhing, the Institute of Plasma Physics [illegible] Julich, and the Institute of Plasma Research of the University of Stuttgart. Two large installations are now being [illegible] Garhing -- a W-VII stellarator and a "Pulsar" [illegible]. In accordance with the program of preparation for the operation of those large installations, various methods of creating and [illegible] ing plasma are being investigated on existing smaller installations. G. Rena described one such experiment -- [illegible] ing of plasma in the W-IIB stellarator. That is a relatively small two-pass stellarator (a main radius of the torus of [illegible] an average radius of the plasma of 6.5 cm, and a magnetic field of up to 15 kilogauss). By means of an air transformer [illegible] electric field with an intensity of 30 V on the [illegible] ated. In the process of heating, resonance losses of [illegible] observed, when the summary angle of rotary transformation [illegible] by the helical field of the stellarator and the [illegible] over the plasma became equal to the rational part of [illegible] that moment the rise of temperature ceased and a sharp [illegible] the plasma density was observed. By using a sharp [illegible] current it was sometimes possible to slip past the resonance value.

Of great interest is a stellarator with a large [illegible] structed at Garhing. The additional magnetic field [illegible] one- and two-turn helical windings, which were added [illegible]

VORONOV, G.S.

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USSR

UDC: 536.46:533.6

LISIYENKO, V. G., VORONOV, G. V., GUSHCHIN, S. N.

"Characteristics of the Velocity Field of a Gas Jet"

Tr. In-ta metallurgii. Ural'sk. fil. AN SSSR (Works of the Institute of Metallurgy. Ural Affiliate of the Academy of Sciences of the USSR), 1970, vyp. 21, pp 124-130 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4B791)

Translation: A computational analysis is made of the characteristics of the field of velocities in the cross sections of a burning gas jet. The optimum density and relative velocity in the cross sections of the burning jet are calculated on the basis of use of relationships of the theory of a free diffusion turbulent flare and application of conditions of similarity of the fields of dynamic heads in the cross sections of a cold jet and a burning flare, and the change in relative density lengthwise of the flare is determined. It is shown that within the limits of the zone of intense burning of the flare, the field of velocities in the beginning of the zone is more uniform in the flare than in the cold jet. At the end of this zone, the field of velocities becomes less uniform than in the cold jet. Conclusions are drawn on the effect of density on the position of the maximum velocity on the axis. It is shown how the caloricity of the gas affects manifestation of the velocity maximum. Yu. F. Dityakin.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

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UDC: 621.315.592

ZAVARITSKAYA, E. I., VORONOVA, I. D., and ROZHDESTVENSKAYA, N. V.

"Negative Reluctance in Compensated Gallium Arsenide at Low Temperatures"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1945-1953

Abstract: This paper is the continuation of an earlier paper (B. M. Vul, et al, FTP, 5, 1971, p 943) in which it was shown that the distortion of the floor relief of the conductivity zone in heavily doped and compensated GaAs at helium temperatures is sufficient to localize the conductivity electrons. The purpose of the present article is to examine the reluctance of the same GaAs specimens used in the earlier paper's experiments. These specimens had full impurity concentrations of about $5 \cdot 10^{17}/cm^3$ and an electron concentration of from $6 \cdot 10^{15}$ to $5 \cdot 10^{16}$ per cm^3. Specimens with impurity concentrations varying from $2 \cdot 10^{17}$ to $1.5 \cdot 10^{18}/cm^3$ and a constant electron concentration of $1.5 \cdot 10^{16}/cm^3$ served as controls in the measurements, which were conducted in longitudinal and transverse magnetic fields of up to 50 kOe in intensity, in the 0.6-4.2° K temperature interval. The authors promise to process the results

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC: 621.315.592

ZAVARITSKAYA, E. I., et al, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1945-1953

of the measurements and interpret them in a future paper. They thank B. M. Vul, L. V. Keldysh, and D. I. Khomskiy for their interest in the work and their discussion of the results.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 030 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--SLOWING OF FAST CRACKS BY CERTAIN STRUCTURAL DEFECTS -U-

AUTHOR-(05)-FINKEL, V.M., VORONOV, I.N., SAVELEV, A.M., ELISENKO, A.I., FEDOROV, V.A.

COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, MAR. 1970, P. 8-16

DATE PUBLISHED----MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TRANSFORMER STEEL, CRACK PROPAGATION, LITHIUM FLUORIDE, SODIUM CHLORIDE, LATTICE DEFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0122 STEP NO--UR/3663/70/002/000/0008/0016

CIRC ACCESSION NO--AP0123894

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 030 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123894

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE INTERACTION OF A FAST, BRITTLE CRACK WITH THE MECHANICAL TWINS IN TRANSFORMER STEEL AND WITH THE SLIP BANDS IN LIF AND NACL CRYSTALS. FAST MICROCINEMATOGRAPHY AND PHOTOPLASTICITY METHODS WERE USED IN THIS STUDY. IT IS SHOWN THAT THE CROSSING OF TWINS OR SLIP BANDS BY A CRACK IS ACCOMPLISHED BY A HIGHLY PRONOUNCED SHEAR AND LOCAL PLASTIC STRAIN. THE AMOUNT OF TWINS AND SLIP BANDS FOR COMPLETE INHIBITION OF CRACK PROPAGATION ID DETERMINED FOR DIFFERENT INITIAL PROPAGATION RATES.

FACILITY: TAMBOVSKII INSTITUT KHIMICHESKOGO MASHINOSTROENIIA, TAMBOV, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--SPIN PRECESSION IN A SCHWARZSCHILDIAN FIELD -U-

AUTHOR--VORONOV, N.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 4, PP 1280-1282

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RELATIVISTIC PARTICLE, SPIN SYSTEM, GYROSCOPE MOTION EQUATION, LORENTZ TRANSFORMATION, COORDINATE SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1488 STEP NO--UR/0056/70/058/004/1280/1282

CIRC ACCESSION NO--AP0106244

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106244

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPIN PRECESSION VELOCITY OF A RELATIVISTIC PARTICLE MOVING IN THE FIELD OF A POINT MASS IS CALCULATED. THE FORMULA DERIVED IS A RELATIVISTIC EXTENTION OF THE EXPRESSION FOR THE PRECESSION VELOCITY OF A CLASSICAL GYROSCOPE. IT IS SHOWN THAT THE QUANTITY CALCULATED IS EQUAL TO THE SPIN PRECESSION FREQUENCY IN THE REFERENCE FRAME OBTAINED BY A LORENTZ TRANSFORMATION OF THE COORDINATE REFERENCE FRAME IN AN ISOTROPIC METRIC.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THE OPERATION OF STEAM LINES MADE FROM 12MKH AND 15 KHM STEELS AT HIGH PRESSURE ELECTRIC POWER STATIONS AFTER A STANDARD SERVICE LIFE -U-

AUTHOR-(05)-ZLEPKO, V.F., MAZEL, R.YE., KRUTASOVA, YE.I., ZAKHAROVA, A.I., VORONOV, N.P.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, TEPLOENERGETIKA, NO. 2, 1970, PP 55-58

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--LOW ALLOY STEEL, ELECTRIC POWER PLANT, THERMOELECTRIC POWER PLANT, STEAM BOILER, STEAM TURBINE, STEEL PIPE, PIPE LINE, CHROMIUM STEEL, MOLYBDENUM STEEL, RESEARCH FACILITY, ALLOY DESIGNATION/(U)12MKH LOW ALLOY STEEL, (U)15KHM LOW ALLOY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0355 STEP NO--UR/0096/70/000/002/0055/0058

CIRC ACCESSION NO--AP0117592

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117592

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASED ON PROLONGED TESTS, CONDITIONS WERE ESTABLISHED UNDER WHICH STEAM LINES MADE FROM 12MKH AND 15KHM STEELS, WHICH HAD OPERATED 100,000 HOURS, COULD BE AUTHORIZED FOR FURTHER OPERATION. ONE TABLE, SEVEN ILLUSTRATIONS, BIBLIOGRAPHY CONTAINS THREE CITATIONS. FACILITY: ALL UNION INSTITUTE OF HEAT ENGINEERING AND THE EASTERN BRANCH OF THE ALL UNION INSTITUTE OF HEAT ENGINEERING.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

JPRS 60298

17 October 1973

(5)

UDC 591.185.5:599.537

PHYSIOLOGY OF THE SONAR SYSTEM IN BLACK SEA DOLPHINS

[Article by E. Sh. Ayrapet'yants, V. A. Voronov, Yu. V. Ivanenko, M. F. Ivanov, D. L. Ordovskiy, B. F. Gurgevev, and V. I. Chilingiris; Leningrad, Zhurnal Evolyutsionnoy Biokhimii i Fiziologii, Russian, No 4, 1973, submitted 31 January 1973, pp 416-422]

Black Sea dolphins (Tursiops truncatus and Phocaena phocaena) were found to be capable of detecting metal spheres 5 to 150 mm in diameter and cylinders of the same diameter and height from a distance of over 24 m. The spheres and cylinders could be differentiated from 17.0 and 18.5 m, respectively. The dolphin's echolocator adapted in the course of location, i.e., the locating signals adjusted to the parameters of the objects located. The directivity of emission varied widely. The directivity pattern was scanned with no change in the position of the animal's head. The directivity pattern of reception in the horizontal and vertical planes narrowed with increasing frequency and decreasing duration of the signal. When the reception pattern is scanned by turning the head, there evidently takes place a spatial-frequency filtering that ensures the directed and coordinated reception of the echosignal.

Introduction

The nature of the propagation of sound waves in water creates favorable conditions for the use of echolocation by aquatic organisms. Echolocation has reached the highest peak of development in dolphins [1-7] whose enormous and rather highly developed brain enables them to control locating sound pulses and to make a complex analysis of echosignals. Accordingly, knowledge of the physiology of the dolphin sonar system is of value not only from the general biological standpoint but also for bionics problems.

VORONOV, V. A.

[I - USSR - C]

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--HOMOLYTIC REACTION OF N VINYLPHENOTHIAZINE WITH VINYL BUTYL ETHER -U-

AUTHOR-(05)-SHOSTAKOVSKIY, M.F., SKVORTSOVA, G.G., KUROV, G.N., SIDORENKO, L.L., VORONOV, V.K.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR, 1970, 192(1), 115-17

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC-AZINE COMPOUND, ETHER, CHEMICAL REACTION MECHANISM, ORGANIC AZO COMPOUND, COPOLYMERIZATION, THIOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1879 STEP NO--UR/0020/70/192/001/0115/0117

CIRC ACCESSION NO--AT0132141

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0132141

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE PRESENCE OF AZOBISISOBUTYRONITRILE N VINYLPHENOTHIAZONE (I) (W. REPPE, 1956) FORMS POLYMERS. I REACTS WITH BUOCH:CH SUB2 (II) TO GIVE N,(6,(VINYLOXY)HEXYL)PHENOTHIAZINE (III) AND COPOLYMERS. THE STRUCTURE OF III WAS PROVEN BY PARTIAL SYNTHESIS: PHENOTHIAZINE PLUS BRCH SUB2 (CH SUB2) SUB4 CH SUB2 OET YIELDS N,(6,ETHOXYHEXYL) III ANALOG (IV). HYDROGENATION OF III GAVE IV. A FREE RADICAL MECHANISM IS PROPOSED FOR THE FORMATION OF III. FACILITY: IRKUTSK. INST. ORG. KHIM., IRKUTSK, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 009 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ADDITION OF MERCAPTANS TO N VINYL DERIVATIVES OF INDOLE AND IMIDAZOLES -U-

AUTHOR-(04)-SKVORTSOVA, G.G., GLAZKOVA, N.P., DOMNINA, YE.S., VORONOV, V.K.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (2), 167-72

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MERCAPTAN, IMIDAZOLE, INDOLE, BENZIMIDAZOLE, MOLECULAR STRUCTURE, NMR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1112 STEP NO--UR/0409/70/000/002/0167/0172

CIRC ACCESSION NO--AP0104510

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 009 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104510

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ETSH (1 G) AND 0.015 G AZOBISISOBUTYRONITRILE WAS ADDED TO 2.2 G N-VINYLINDOLE (I) WITH COOLING, AND THE MIXT. HEATED IN A SEALED TUBE UNDER N 18 HR AT 70DEGREES TO GIVE 72PERCENT N-BETA-ETHYLTHIO)ETHYLINDOLE, B SUB7 170-2DEGREES, D PRIME20 1.0897, N PRIME20 SUBD 1.6020). SIMILARLY, THE FOLLOWING COMPDS. WERE PREPD. (COMPD., PERCENT YIELD, B.P.-MM., N PRIME20 SUBD, AND D PRIME20 GIVEN): N-(BETA-ISOPROPYLTHIO)ETHYLINDOLE, 77, 161DEGREES-2, 1.5870, 1.0605; N-(BETA-TERT-BUTYLTHIO)ETHYLINDOLE, 65, 141-2DEGREES-1, 1.5770, 1.0325; N-(BETA-ETHYLTHIO)ETHYLIMIDIAZOLE, 74, 129DEGREES-1, 1.5350, 1.0863; N-(BETA-PROPYLTHIO)ETHYLIMIDAZOLE, 72, 145DEGREES-2, 1.5272, 1.0586; N-(BETA-BUTYLTHIO)ETHYLIMIDAZOLE, 94, 159DEGREES-2, 1.5218, 1.0377; N-(BETA-ETHYLTHIO)ETHYLBENZIMIDAZOLE, 38, 190-2DEGREES-2, 1.6010, 1.1409; AND N-(BETA-PROPYLTHIO)ETHYLBENZIMIDAZOLE, 42, 190-1DEGREES-1, 1.5885, 1.1162. SO SUB2 WAS PASSED INTO 2.37 G. N-VINYLIMIDAZOLE AND 1.5 G ETSH WITH COOLING AND THE MIXT. HEATED 18 HR AT 80DEGREES TO GIVE 61PERCENT N-(ALPHA-ETHYLTHIO)ETHYLIMIDAZOLE, B SUB4 113-14DEGREES, D PRIME20 1.0766, N PRIME20 SUBD 1.5270. I AND N-VINYLBENZIMIDAZOLE DID NOT REACT WITH ETSH IN THE PRESENCE OF SO SUB2 OR P-MEC SUB6 H SUB4 SO SUB3 H AT 0-70DEGREES. THE STRUCTURES WERE PROVED BY NMR SPECTROSCOPY. R SUBF VALUES WERE GIVEN.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC [621.357:621.79.027]:669.14

VORONOV, V. N., and SMOLENTSEV, V. P.

"The Effect of Electrochemical Treatment on the Quality of Automobile and Tractor Parts"

Sb. Tekhnol. vopr. elektrokhim. obrabotki materialov (Collection of Works on Electrochemical Treatment of Materials, Kazan', 1972, pp 47-50 (from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom, Abstract No 23I232 by A. D. Davydov)

Translation: Comparative fatigue studies conducted with connecting rods made of steel 18Kh2N4BA showed that the fatigue strength of parts polished electrochemically by a dimensional method was higher than of parts polished by abrasives. The main reason for the increase in the fatigue strength was better micro- and macrorelief, absence of a deformed layer with tensile residual stresses and of defective decarburized layers.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC 621.357.8:621.79.027

VORONOV, V. N.

"Electrochemical Precision Polishing of the Intricate-Shaped Surface of the Cover of a Tractor Connecting Rod"

V sb. Novoye v elektrofiz. i elektrokhim.obrabotke materialov (What's New in Electrophysical and Electrochemical Treatment of Materials — collection of works), Leningrad, Mashinostroyeniye Press, 1972, pp 59-60 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L308)

Translation: The results of the studies demonstrated that after electrochemical machining, the mechanical characteristics (ultimate strength, yield point, impact toughness) of parts made of 18Kh2N4VA steel do not become worse, but the corrosion resistance (with subsequent washing in water and passivation in a 5% aqueous solution of $NaNO_2$) increases. The electrochemical machining technique in an electrolyte flux is the most convenient for polishing previously machined intricate-shaped surfaces.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

VORONOV, V. V.; SOLOV'YEV, V. G. (Joint Institute for Nuclear Research)

"Magnetic Moments of Highly Excited States of Atomic Nuclei"

Moscow, Yadernaya Fizika; December, 1972; pp 1188-94

ABSTRACT: Based on a seminicroscopic approach, formulae for the magnetic moments of highly excited states are obtained. It is shown that magnetic moments are expressed by means of all the components of the wave functions of highly excited states. According to a rough estimate, the values of the magnetic moments of the states of intermediate excitation energy and highly excited states, including neutron resonance, should be equal in order of magnitude to single-particle values. The situation with magnetic moments differs considerably from that with probabilities of $E1_\gamma$ and $M1$-transitions from highly excited states to the lower ones, which are 10^{-5} - 10^{-7} times as large as single-particle values. Theoretical results agree with the available experimental data on neutron resonance magnetic moments.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC 621.391.17

VORONOV, YE. V, KUKLEV, L. P.

"Improving the Noise Immunity of Uniform Code Groups in Transmission Speeds Other Than 2^{-M}"

Moscow, Radiotekhnika, Vol 25, No 9, 1970, pp 15-21

Abstract: Although many codes with high noise immunity are known, they cannot be extensively used since their processing at the receiving end requires bulky decoding equipment and a large amount of computations. The authors examine a method of transmitting discrete data which provides high noise immunity with relatively simple receiving apparatus. They assume that a uniform group code is sued to transmit binary information symbols, and that majority decoding is used at the receiving end. They also assume a transmission velocity of $1/L \cdot 2^M$, where L and M are integers and $L \neq 1$. If L is odd, $n_0 - 1$ verifying symbols are transmitted between two neighboring information symbols, where $n_0 = L \cdot 2^M$; such a sequence of information and verifying symbols is said to be an elementary sequence. Elementary symbols are assumed to be independently distorted, and errors in those symbols are assumed to originate in the receiver as a result of faulty operation of the threshold decoder. The authors assert that the method of synchronization used can be applied to any

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USSR

VORONOV, YE. V., et al., Radiotekhnika, Vol 25, No 9, 1970, pp 15-21

system with one-shot repetition. They express their gratitude to E. M. Gabidulin and A. L. Larin for their assistance.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EFFECT OF AN EXCESS OF ZINC AND SULFUR ON THE EDGE RADIATION OF ACTIVATOR FREE ZINC SULFIDE PHOSPHORS -U-

AUTHOR-(04)-LEVSHIN, V.L., ARAPOVA, E.YA., VORONOV, YU.V., TIMOFEYEV, YU.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(4), 674-81

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--UV RADIATION, ZINC, SULFUR, LUMINESCENCE, ZINC SULFIDE, ELECTRON BEAM EXCITATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1450 STEP NO--UR/0368/70/012/004/0674/0681

CIRC ACCESSION NO--AP0135121

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 028 UNCLASSIFIED

CIRC ACCESSION NO--AP0135121 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ZNS PHOSPHORS, WITH AN EXCESS OF ZN OR S, WERE PREPD. BY A PREVIOUSLY DESCRIBED METHOD (. ET AL. 1966) AND THEIR SPECTRA WERE RECORDED PHOTOELEC. WITH THE AID OF A QUARTZ MONOCHROMATOR AND A PHOTOMULTIPLIER, AFTER EXCITATION BY AN ELECTRON BEAM AND BY MONOCHROMATIC UV LIGHT AT 313 NM. THE EXCESS ZN AND S HAVE A QUENCHING EFFECT ON THE "EDGE" LUMINESCENCE. HENCE, THEY CANNOT ACT AS UV LUMINESCENCE CENTERS.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC: 621.315.592

VUL, B. M., ZAVARITSKAYA, E. I., VORONOVA, I. D., and ROZHDESTVENSKAYA, N. V.

"Hot Electrons at Low Temperatures in Compensated Gallium Arsenide"

Leningrad, Fizika i Tekhnika Poluprovodnikov, No 9, September 1973, pp 1766-1770

Abstract: This paper is a continuation of an earlier article by the same authors and published in the same journal noted above (5, 1971, p 943) investigating the electrical conductivity of compensated GaAs at low temperatures, in a weak electric field with a maximum intensity of 10^{-2} v/cm, when the electron temperature was practically the same as the crystal temperature. The present paper describes experiments designed to broaden this early research to cover stronger electric fields and to clarify the effects of heating up the electrons under conditions of energy boundary distortions. The measurements in this work were conducted at temperatures of 290, 77, 20.4, 4.2, and 1.8° K. To avoid heating the crystal, it was given square pulses of 20 μs duration with a repetition rate of 100-200 pps. The results are given in the form of curves

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC: 621.315.592

VUL, B. M., et al, Fizika i tekhnika poluprovodnikov, No 9, September 1973, pp 1766-1770

of the current density as a function of the electric field intensity for various temperatures, of the electron mobility as a function of the square of the electric field intensity, and of the electron temperature as a function of the square of the electric field intensity. It is found that the described phenomena can be explained by the Boltzmann kinetic energy equation on the assumption that the electrons are scattered in dipoles.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CHANGES IN FREE AMINO ACIDS CONTENT IN THE BLOOD SERUM OF HEALTHY INDIVIDUALS AND IN PATIENTS WITH CHRONIC GASTRITIS -U-

AUTHOR--VORONOVA, L.F.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 3, PP 307-310

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD SERUM, BLOOD CHEMISTRY, AMINO ACID METABOLISM, DIGESTIVE SYSTEM DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0143 STEP NO--UR/0301/70/016/003/0307/0310

CIRC ACCESSION NO--AP0120843

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120843

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FREE AMINO ACIDS METABOLISM IN THE BLOOD OF 60 HEALTHY INDIVIDUALS AND IN 51 PATIENTS WITH CHRONIC GASTRITIS WAS STUDIED IN CONNECTION WITH SEX AND AGE. FREE AMINO ACIDS CONTENT WAS STUDIED BY MEANS OF NOE DIMENSIONAL DESCENDING PAPER CHROMATOGRAPHY. THE CONTENT OF FREE AMINO ACIDS IN THE BLOOD OF MEN AND WOMEN WAS DIFFERENT. IN WOMEN CYSTINE PLUS CYSTEINE AND LYSINE CONTENT INCREASE AS COMPARED TO MEN WAS NOTED. IN WOMEN WITH CHRONIC GASTRITIS ARGININE AND GLUTAMIC ACID PLUS THREONINE CONTENT WAS INCREASED. GLUTAMINE AND THYROSINE LEVEL WAS DIMINISHED. IN MEN CYSTINE PLUS CYSTEINE, ARGININE AND VALINE CONTENT WAS FOUND TO BE INCREASED. FACILITY: CHAIR OF PROPEDEUTICS OF THE INTERNAL DISEASES, MEDICAL INSTITUTE AND THE CHAIR OF BIOCHEMISTRY, STATE UNIVERSITY, TCHERNOVITZY.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR UDC 533.6.013.42

VORONOVA, L. S.

"On the Effect of Inelastic Pliability of a Base on the Oscillations of Structures in a Liquid"

V sb. Dinamika gidrotekhn. sooruzh. (Dynamics of Hydraulic Engineering Equipment -- Collection of Works), Moscow, 1972, pp 97-101 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V399)

Translation: Oscillations of a vertical plate adjoining a semi-infinite volume of an ideal compressible fluid below which there is a flexible bottom, are discussed. A method is used for taking into account the local flexibility of the base that is associated with the Winkler model. It is assumed that the shape of the oscillations of the vertical plate is given. The first two shapes of the oscillations of the plate are discussed. Graphs are given for the ratios of the coefficients of connected masses as calculated considering internal inelastic resistance to the corresponding ideally rigid model of the bottom and for coefficients of the connected viscous friction in resonance zones. Different boundary conditions for the plate are considered. It is

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

VORONOVA, L. S., Dinamika gidrotekhn. sooruzh., Moscow, 1972, pp 97-101

shown that considering the flexibility of the base changes the resonance frequency of the oscillations of the liquid as a static volume. It is also concluded that it is necessary to take into account the flexibility of the base in determining the amplitudes of the resonance oscillations. Ye. A. Vol'mir.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC: 533.6.013.42

VORONOVA, L. S., MAYOROVA, I. S.

"Oscillations of a Plate in a Reservoir With a Bottom Having Nonlocal Pliability"

Tr. koordinats. soveshch. po gidrotekhn. (Works of the Coordination Conference on Hydraulic Engineering), 1972, vyp. 64, pp 135-140 (from RZh--Mekhanika, No 7, Jul 72, Abstract No 7V314)

Translation: The plane problem is solved for a plate oscillating in accordance with a harmonic law on a boundary with a semi-infinite layer of ideal compressible fluid. The fluid layer is bounded by a free surface above, and from below it is bounded by a base having elastic pliability described by two characteristics: the coefficient of rigidity which characterizes the influence of elastic pliability and inertia of the base, and a coefficient which accounts for the degree of nonlocality of stress distribution due to the presence in the base material of tangential stresses which distribute the load. The calculations revealed an appreciable influence from the coefficient of rigidity and the coefficient of stress nonlocality on the position of resonance of the fluid layer. R. A. Shipov.

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USSR

VORONOVA, M. L.

"Estimating the Residual Term in a Central Theorem"

Vestn. Leningr. Un-ta. [Herald of Leningrad University], 1972, No 19, pp 9-13 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V23 by the author).

Translation: For independent random quantities $X_1, X_2, \ldots, X_n \ldots$, having, generally speaking, non-identical distribution, with mathematical expectations of 0 and finite dispersions, it is proven that

$$\sup_{-\infty<x<\infty} |\overline{F}_n(x) - \Phi(x)| < \frac{C \sum_{k=1}^{n} \lambda_k(\delta)}{S_n^{2+\delta}}, \quad 0<\delta<1.$$

where C is an absolute constant; S_n^2 is the sum of dispersions of initial random quantities; $\overline{F}_n(x)$ is the distribution function of the normalized sum $\frac{1}{S_n}\sum_{k=1}^{n} X_k$ of random quantities; $\Phi(x)$ is the distribution function of the standard normal rule and the coefficients

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USSR

VORONOVA, M. L., Vestn. Leningr. Un-ta., 1972, No 19, pp 9-13.

$$\overline{\lambda_k}(\delta)=\sup_{z>0} z^{\delta} \int_{|x|\geq z} x^2 dF_k(x).$$

The problem is studied of the order of convergence of $\overline{F}_n(x)$ to $\Phi(x)$ under certain natural additional conditions.

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USSR UDC 621.039.512.001.5

MARGULOVA, T. Kh., VORONOVA, V. P., DIK, V. P.

"Experimental Setup for Studying the Applicability of Carbon Steels in the Primary Loops of an Atomic Power Station With a Water-Moderated, Water-Cooled Power Reactor"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, No. 126, pp 1-8 (from RZh-50. Yadernyye reaktory, No 11, Nov 72, Abstract No 11.50.95)

Translation: A semi-production installation simulating conditions of the primary loop of an atomic power station with a water-moderated, water-cooled power reactor was developed and put into operation by the Chair of Atomic Power Stations in conjunction with the Heat and Electric Power Plant of the Moscow Power Engineering Institute and the Planning Office of the Moscow Regional Administration of Power System Management. The device can reproduce any water regimes and one can study the effect of individual water admixtures on the structural material and primarily on pearlite steel and zirconium alloys. Results of studies made on various experimental installations are given. 1 ill.

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USSR UDC: 621.165:536.212

IL'CHENKO, O. T., VORONOVICH, L. G.

"Nonstationary Temperature Field of a Turbine Rotor in the Case of Time--Variable Heat-Exchange Boundary Conditions"

Energ. mashinostroyeniye. Resp. mezhved. nauchno-tekhn. sb. (Power Machine Building. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 9, pp 39-45 (from RZh-Turbostroyeniye, No 8, Aug 70, Abstract No 8.49.32)

Translation: It is shown that generalized temperature functions of similar points are identical not only in identical elements of a single rotor, but also in identical elements of any one-piece rotors. On this basis, a conclusion is drawn on the possibility of calculating the temperature field of any one-piece rotor made up of similar elements with an arbitrary time change in boundary conditions on heat-exchange surfaces. The changes in temperature calculated from the thermal characteristics are compared with data from direct modeling of the problem. Three illustrations, two tables, bibliography of two titles.

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USSR

VORONOVITSKIY, M. M., GLUZBERG, G. YE. and LEVIN, V. L.

"Infinite-Dimensional Analogues of the Problem of Linear Programming and a Theorem on a Saddle Point"

Teoriya Igr [Games Theory -- Collection of Works], Yerevan, 1973, p 116 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V494)

Trnaslation: Suppose X and Y are real, distinguishable, locally convex spaces, K_x and K_y are closed convex cones in them and A is a continuous linear mapping. The following problem is studied: minimize

$$f(x) \tag{1}$$

under the conditions

$$Ax \geq y_0, \; x \geq 0, \tag{2}$$

where f X, y_0 Y.

Theorem. Suppose: 1) any non-negative linear functional in Y is continuous, 2) for any y Y we can find vector $x \geq 0$ and number λ such that $y \leq Ax + \lambda y_0$. Then, the saddle point theorem is correct for problems (1) and (2).

From the article

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--INFRARED SPECTROSCOPIC STUDY OF DOUBLE MOLYBDATES OF SOME RARE EARTH AND ALKALI METALS -U-

AUTHOR-(04)-PETROV, K.I., VORONSKAYA, G.N., SHAKHNO, I.V., SAVELYEVA, M.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSR, NEORG. MATER. 1970, 6(3), 515-18

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ALKALI METAL, CRYSTAL LATTICE, IR SPECTRUM, MOLYBDATE, RARE EARTH METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0838 STEP NO--UR/0363/70/006/003/0515/0518

CIRC ACCESSION NO--AP0118014

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 033 UNCLASSIFIED

CIRC ACCESSION NO--AP0118014 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA (400-100 CM PRIME NEGATIVE1) OF DOUBLE MOLYBDATES OF THE MM PRIME (MOO SUB4) SUB2 TYPE (WHERE M EQUALS LI, NA, K; M PRIME EQUALS Y, GD, DY, HO, AND ER) SHOWED SIGNIFICANT DIFFERENCES WITH STRUCTURE TYPE. THE INTERPRETATION OF THESE SPECTRA WAS PERFORMED ON THE BASIS OF THE LOCAL SYMMETRY OF THE MOO SUB4 PRIME2 NEGATIVE IONS IN THE CRYSTAL LATTICE. FACILITY: MOSK. INST. TONKOI KHIM. TEKHNOL. IM. LOMUNOSORA, MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--INFRARED SPECTROSCOPIC STUDY OF HIGHER HYDRATES OF SULFATES AND SELENATES OF YTTRIUM, LANTHANUM, AND THE RARE EARTH ELEMENTS -U-

AUTHOR-(03)-PETROV, K.I., VORONSKAYA, G.N., IVANOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 615-21

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, CRYSTAL HYDRATE, SULFATE, SELENATE, RARE EARTH COMPOUND, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0775 STEP NO--UR/0078/70/015/003/0615/0621

CIRC ACCESSION NO--AP0104221

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

2/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104221

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA OF LN SUB2 (SO SUB4) SUB3 .8H SUB2 O AND OF LN SUB2 (SEO SUB4) SUB3 .8H SUB2 O, WHERE LN EQUALS LA, ND, SM, Y, GD, TB, DY, HO, ER, TM, YB, OR LU, ARE GIVEN AND INTERPRETED. THE SPECTRA REVEAL THAT BOTH SERIES OF COMPDS. HAVE 1 TYPE OF XO SUB4 PRIME2NEGATIVE GROUP (X EQUALS S OR SE). SMALLER SPLITTING OF V SUB3 (F SUB2) OF SEO SUB4 PRIME2NEGATIVE IN COMPARISON TO THAT OF SO SUB4 PRIME2NEGATIVE IS DUE TO THE LOWER ELECTRON AFFINITY OF SEO SUB4 PRIME2NEGATIVE THAN THAT OF SO SUB4 PRIME2NEGATIVE. WITH THE EXCEPTION OF LA SUB2 (SO SUB4) SUB3 .8H SUB2 O WHICH HAS 2 DELTA (H SUB2 O) BANDS, ALL THE INVESTIGATED OCTAHYDRATES HAVE A SINGLE DELTA (H SUB2 O) BAND WHICH CORRESPONDS TO COORDINATED H SUB2 O.

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USSR UDC: 621.317.382.023(088.8)

VORONTSOV, A. N., KOLOMIYCHENKO, G. N.

"A Waveguide Bolometric Head"

USSR Author's Certificate No 270014, filed 1 Apr 68, published 13 Aug 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A317 P)

Translation: This Author's Certificate introduces a waveguide bolometric head which contains a section of waveguide and a wire filament. To increase power measurement precision, a longitudinal slot is made in the waveguide wall, and above this slot are turns of the wire filament which is wound over the waveguide and insulated from it by a dielectric film. Resumé.

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USSR

UDC 535.33

KON'KOV, A. A. and VORONTsOV, A. V.

"Integral Radiation of the Main MO Band at High Temperatures"

Leningrad, Optika i Spektroskopiya, Vol 34, No 5, May 73, pp 1026 - 1027

Abstract: Numerous measurements have been made of the integral coefficient of absorption of the main band of the MO molecule, most of them at room temperature. Although some earlier results deviate, most of the later studies yield a value of 125 ± 14 centimeters $^{-2}$ atmospheres $^{-1}$. Three studies have been made at higher temperatures, two at 2500°K (Breeze and Ferriso, Journal of Chemical Physics, Vol 41, page 342, and Fukuda, Journal of Chemical Physics, Vol 42, page 521) and one at 5000°K (Feinberg and Camac, J.Q.S.R.T., Vol 7, page 581). The authors of the last study believe that the centers of the line were reabsorbed in the first two (at 2500°). Feinberg and Camac obtained a value of 124 centimeters $^{-2}$ atmospheres $^{-1}$, in agreement with the studies at room temperature. The results seem to confirm the assumption of a harmonic oscillator for the main MO band.

In the present study the authors extended these tests to 7500°K by heating the MO in a shock tube, both in air and in an air-water mixture. Eliminating various sources of noise and interference, the authors obtained a value of 120 centimeter $^{-2}$ atmospheres $^{-1}$, and found that the measurements did not depend

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KON'KOV, A. A. et al, Leningrad, Optika i Spektroskopiya, Vol 34, No 5, May 73, pp 1056 - 1027

on temperature within the limits of error. This confirms the utility of the harmonic oscillator approximation.

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RAN/ /R-760/5-ARP 73 68
Dec 72

(5)

Kon'kov, A. A. and A. V. Vorontsov. Experimental investigation of infrared radiation from nitrogen. OiS, v. 32, no. 4, 1972, 655-660.

Infrared radiation from the free-free transitions of electrons in fields of nitrogen atoms is discussed. The aim was to eliminate some contradictions in the data on the infrared radiation from nitrogen, and to expand the range of conditions for infrared radiation investigations.

Nitrogen absorption coefficients were measured in the temperature range of 7000-8500° K, at pressures of 30-75 atm, and wavelengths of 2-6 μ. The nitrogen was heated by a shock tube, and the nitrogen gas parameters were determined on the basis of the shock-wave velocity. It is shown that the absorption from the free-free transition of electrons in nitrogen atom fields can be described by the relationship obtained by Firsov and Chibisov (ZhETF, v. 39, 1960, 1770) if $\sigma'_N = 1.6 \times 10^{-15} cm^2$, and $\sigma'_{N_2} = 2.7 \times 10^{-15} cm^2$, where σ is the electron elastic scattering cross section.

Andreyev, Yu. P., Ye. V. Gusev, and I. A. Semiokhin. Equilibrium in nitrogen-oxygen mixtures at high temperatures. ZhFKh, v. 46, no. 6, 1430-1432.

Equilibrium in nitrogen-oxygen mixtures within the temperature range 298 to 20,000° K is considered to evaluate the processes occurring in these mixtures in a pulse-discharge plasma. The investigation deals with two mixture ratios: $N_2:O_2 = 1:1$ (equimolecular mixture), and $N_2:O_2 = 4:1$ (air). The equilibrium was calculated for pressures which permit the operation of xenon flashlamps in an admixture of nitrogen and oxygen (760 torr) or in pure mixtures of nitrogen and oxygen (50 torr).

VORONTSOV, A. V.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

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UDC 535.33/.34-15] :546.217

KON'KOV, A. A., VORONTSOV, A. V.

"Experimental Investigation of Atmospheric Infrared Radiation"

Leningrad, Optika i Spektroskopiya, No 1, 1972, pp 47-51

Abstract: This article is in the nature of a review of the experimental work which has thus far been done on infrared radiation of the air upon reentry of space vehicles, although it does include an account of experimental work done by the authors in this field. In their experiments, the authors used air heated by a reflected shock wave in a shock tube whose construction was described by an earlier paper of the authors named above, published in the same journal (vol 32, 1972). The experiments were performed in a chamber containing air at a pressure starting from 25 mm Hg and going up to a pressure range of 40-94 atmospheres, and at temperatures of 6000-8500° K. The temperature and pressure of the air for the shock wave reflection were computed from the velocity of the incident wave with the aid of conservation laws. Portions of the infrared spectrum studied were 2.2, 3.2, 3.3, 4.5, 5.0, and 6.0 μ. Curves are plotted for the absorption factor of the air as a function of temperature and wavelength. Eighteen titles are offered by the article's bibliography.

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Power, Turbine, Engine, Pump

USSR

UDC: 62-235.5

MALYUTIN, P. V., GUNYAYEV, G. M., VORONTSOV, I. A., RUMYANTSEV, A. F., BARDINA, N. P., STEPANENKO, N. D., KARIMBAYEV, T. D., KISELEV, Yu. A., GORSHKOV, L. A.

"A Turbine Blade"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 21, Jul 72, Author's Certificate No 344168, Division F, filed 31 Aug 70, published 7 Jul 72, p 135

Translation: This Author's Certificate introduces a turbine blade for an axial compressor made of a laminar composition material. As a distinguishing feature of the patent, the rigidity and vibration strength are increased by making the blade from alternating layers of glass and carbon fiber fillers oriented relative to the longitudinal axis of the blade, 34-45% of the fiberglass-filled layers being oriented at angles from 0 to ±15°, while 5-15% of the fiberglass-filled layers are oriented at angles from ±75 to 90°, 20-30% of the carbon fiber-filled layers are oriented at angles from 0 to ±15°, and 20-30% of the carbon fiber-filled layers are oriented at angles from ±45 to ±60°.

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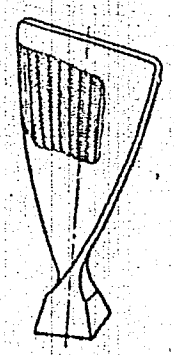
USSR

MALYUTIN, P. V. et al., USSR Author's Certificate No 344168



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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

USSR

UDC 669.15'26-194:620.172-436

PONIZOVSKIY, V. M., VORONTSOV, I. I., and VORONTSOVA, S. A., Perm State University imeni Gor'kiy

"Tensile Testing Steel ShKh15P Steel Balls by the Method of Large Centrifugal Fields"

Moscow, Zavodskaya Laboratoriya, No 10, Oct 72, pp 1270-1271

Abstract: Balls of steel ShKh15P (and ShKh15VD) with diameters of 1.00 to 3.50 mm were tensile tested by magnetically suspending them in an evacuated glass chamber of an ultracentrifuge and spinning them on their axis by a rotating magnetic field until failure. Results of the tests showed that the larger the diameter the quicker the ball was to fail, i.e., a 1-mm diameter ball could sustain 301-303 thousand revolutions per second before failure while the 3.49-mm ball failed upon reaching 83-86 thousand revolutions per second. The average peripheral velocity of the balls tested was 979 m/sec. 1 table, 4 bibliographic references.

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GLORIA

3-8448 D 8 83

VOYENNO-MEDITSINSKIY ZHURNAL, NO. 4, 1979, pp. 71-74

EFFECTIVENESS OF IMMUNIZATION BY THE AEROSOL METHOD

by

T.V. Vorontsov, Lt.Col. of Med.Serv.
M.K. Severtsova
T.A. Smirnova
T.M. Blokhov, Major of Med.Serv.

All-medicine

MEDICINE

VORONTSOV, I.V.

In the research of N.I. Aleksandrov, N.Ye. Gefen, and of others (Voyen.med.zh., 1965, No. 6; 1967, No. 4 and No. 8), well defined immunological changes were shown after aerosol immunization of people against salmonellosis: one administration and two of the antigen caused statistically significant increase in the titres of O-agglutinin, Vi-hemagglutinin, and an elevation of the preventive properties of sera.

The manufacture of appropriate samples of dry aerosol vaccines and of associated preparations is a current problem. Improvement of the method of preparing an antigen complex of salmonella bacteria can assure the acquisition of a better qualified preparation. In addition to the direct participation in the immunity production against the agent of salmonellosis, the antigen complex of salmonella bacteria is an integral part of the associated preparation, since it has an adjuvant effect, by strengthening the effectiveness of bacterial anatoxins, and it shows a stabilizing effect in case of their desiccation.

The problem of the present investigation was the study of immunological efficiency of the aerosol method of immunization of people against abdominal typhoid with a vaccine which has an antigen isolated from the bacteria according to a method which we modified. The essence of the modification is an accelerated fermentation of a concentrated suspension of microbes (500 billion per ml), which were grown on a solid nutrient medium. The work with a concentrated pancreatolysate saves from the laborious work phase of reprecipitation of the antigen with alcohol, which facilitates and considerably cheapens the manufacture and permits -- having excluded the chemical treatment with organic solvent -- to get an antigen complex of less changed structure. The laboratory examinations we made showed high immunogenicity and small toxicity of the preparations which were isolated with the alcohol-less method.

For the present investigation a dry aerosol vaccine was prepared containing in 1.0 g of the dry preparation 0.3 g antigen of salmonella bacteria which was obtained by the alcohol-free method; the bacteria grew on solid nutrient medium (Vaccine P). This vaccine was compared with a dry aerosol vaccine in which the same amount contained concentrated antigen of salmonella bacteria which was prepared by alcoholic precipitation: the bacteria grew in a fluid medium (Vaccine Zh).

First the concentration of the aerosol antigen was compared which was created at the atomizing of different amounts of both preparations. The determination of the concentration (C) was by means of bubblers each of which contained 10 ml physiological NaCl solution through which air was let through for 15 minutes (length of the immunization session) by means of an aspirator at 3 liters/min speed.

Determination of the concentration of the active start in the air samples and in the initial vaccines was made by means of a ring precipitation test (RPT) with a monoreceptorial rabbit's Vi serum of the MNIIEM (Moscow Scientific Research Institute of Epidemiology and Microbiology). The concentration was expressed

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either in milligrams of the vaccine or in units of antigenicity ... U_{rpt} (value, inverse to the RPT titre). The calculations were according to the formula

$$C = A \cdot 10/45$$

where

A - the amount of vaccine found in 1 ml of the bubbler (mg or U_{rpt});
10 - volume of the fluid in the bubbler (ml);
45 - volume of air that passed through the bubbler in 15 minutes (lit.)

With consideration of the average volume of pulmonary ventilation of man during 15 minutes, the calculated aspirated dose corresponded to the value (C · 150).

We found (Table 1) that the somewhat greater activity of Vaccine P permits to produce a correspondingly large concentration of aerosol active substance in one liter of air with less sprayed suspension per 1 m³ of room. The possibility of assuring even concentrations of aerosol in U_{rpt} with the atomization of equal amounts of antigenic units evidently proves identical volatile properties of both preparations.

Table 1

Vaccine		Amount of vaccine sprayed per 1 m³		Vaccine concentration in 1 liter of air	
Code	Amount U_{rpt} (mg)	#	U_{rpt}	mg	U_{rpt}
P	80	0.10	8,000	0.0055	0.44
		0.15	12,000	0.0097	0.78
		0.20	16,000	0.0150	1.22
Zh	60	0.10	6,000	0.0038	0.22
		0.15	9,000	0.0076	0.44
		0.20	12,000	0.0110	0.78

Considering however that the antigenic and immunogenic properties of intestinal vaccines do not correlate with each other, we made further studies of the immunological changes after aerosol revaccination of people with both preparations. As it can be seen from Table 1, the spraying of equal batches of these preparations which contain different amounts of antigenicity units in 1 mg, cannot assure equal concentrations of the aerosol. Their obtention is possible only with the spraying of equal amounts of antigenicity units. In connection with the various specific activity of Vaccines P and Zh (U_{rpt}/mg) we did not get information on the weight concentration but on the concentration expressed in antigenic units. The two preparations were compared according to the findings obtained after revaccination with equal atomized amounts of the active start (12,000 U_{rpt} per 1 m³). Moreover, by knowing the higher immunogenicity of the P preparation in comparison with the Zh in animal experimentations, we inoculated [illegible] of people [illegible] vaccine P, spraying a smaller amount of antigenic units [illegible] and 5000) per 1 m³.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203610002-5

1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--AEROSOL REVACCINATION WITH TYPHOID BOTULINUM A AND B TRIVACCINE AND WITH TYPHOID TETANUS BOTULINUM A AND B TETRAVACCINE UNDER EXPERIMENTAL

AUTHOR-(05)-ALEKANDROV, N.I., GEFEN, N.YE., YEGOROVA, N.B., YEFREMOVA, V.N., VORONTSOV, I.V.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5, PP 84-89

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AEROSOL VACCINE, TYPHOID FEVER VACCINE, IMMUNIZATION, BOTULISM, TETANUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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UNCLASSIFIED

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2/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114547

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE POSSIBILITY OF INDUCTION OF INTENSE IMMUNITY AGAINST BOTULISM, TYPES A AND B, AND TETANUS FOLLOWING SINGLE AEROSOL REVACCINATION WITH ASSOCIATED PREPARATIONS. RABBITS AND GUINEA PIGS WHICH WERE VACCINED TWICE WITH SEXTATOXOID OF THE KHARKOV INSTITUTE OF VACCINE AND SERA 5 TO 6 MONTHS BEFORE WERE SUBJECTED TO REVACCINATION. AEROSOL REVACCINATION WITH TYPHOID BOTULINUM A AND B TRIVACCINE, AND WITH TYPHOID TETANUS BOTULINUM A AND B TETRAVACCINE PRODUCED A CONSIDERABLE ELEVATION OF THE LEVEL OF ANTITOXIN AGAINST ALL THE TOXOIDS INCLUDED INTO THE COMPOSITION OF THE VACCINES. REVACCINATED RABBITS PROVED TO BE RESISTANT TO ADMINISTRATION OF 500 DLM OF BOTULIN, TYPE A, AND OF 100 DIM OF TYPE B. THERE WAS ALSO AN ELEVATION OF THE TITRES OF TYPHOID O HEMAGGLUTININS IN RABBITS. FACILITY: MOSCOW INSTITUT VAKTSIN I SYYOROTOK IM. MECHNIKOVA.

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Immunology

USSR UDC 615.471:615.835.5

VORONTSOV, I. V., Lt. Col. Med Serv, SEVERTSOVA, M. K., SMIRNOVA, T. A., and BIKULOV, I. M., Maj Med Serv.

"The Effectiveness of Aerosol Immunization"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 4, 1970, pp 71-74

Abstract: Two aerosol typhoid vaccines were made, one from bacteria grown on solid medium, and the other from bacteria grown in liquid medium and alcohol dried. All experimental subjects were of similar age, size, and had similar living conditions. They had been vaccinated with typhoid and paratyphoid strains six months before. A total of 241 received aerosol inhalation for 15 minutes (dry vaccine) and 243 were treated similarly with vaccine prepared from alcohol-dried cultures. The reaction of both groups was very much alike. Within 6-12 hours, a slight rise in temperature was noted in a small percentage of subjects. However, 24 hours after aerosol revaccination, all side reactions subsided. Immunological tests a month after vaccination showed a twofold increase in antibody titer. The findings were similar in both groups. However, a few subjects vaccinated with dry vaccine showed a slight increase in the titer of O-agglutinins. A single vaccination with dry typhoid aerosol produced a significant increase in antibody titers.

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1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CONDUCTING AEROSOL IMMUNIZATION UNDER FIELD CONDITIONS -U-

AUTHOR-(05)-VIKULOV, I.M., VORONTSOV, I.V., KREYNIN, L.S., SEVERTSOVA, M.K., KAVERINAFIRGANG, K.G.

COUNTRY OF INFO--USSR

SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, 1970, NR 1, PP 54-56

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AEROSOL IMMUNIZATION, TYPHOID FEVER, MILITARY MEDICINE, BIOMEDICAL CHAMBER/(U)UST56 CHAMBER, (U)USB56 CHAMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1314 STEP NO--UR/0177/70/000/001/0054/0056

CIRC ACCESSION NO--AP0136705

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CIRC ACCESSION NO--AP0136705 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. AEROSOL IMMUNIZATION AGAINST TYPHOID WAS CONDUCTED IN THE UST-56 CHAMBER (VOLUME 48.5 M PRIME3, AREA 22 M PRIME2) AND THE USB-56 CHAMBER (VOLUME 138.3 M PRIME3, AREA 58.5 M PRIME2). PEOPLE WERE EXPOSED TO AEROSOL TYPHOID VACCINES OF SERIES 21-65 AND 1-67 FOR 12-15 MIN. THE TEMPERATURE IN BOTH CHAMBERS BEGAN TO RISE IMMEDIATELY AFTER ENTRANCE OF PEOPLE (SEE TABLE 1), AND REACHED 28-30 C IN SPRING AND SUMMER AND 22-24 C IN FALL AND WINTER. RELATIVE HUMIDITY DID NOT INCREASE, BUT DROPPED SLIGHTLY THREE MINUTES AFTER THE START OF IMMUNIZATION AND REMAINED FAIRLY CONSTANT AT 64-72PERCENT. THE CONCENTRATION OF AEROSOL IN CHAMBERS IS SHOWN IN TABLE 3. THE DISTRIBUTION OF AEROSOL IN CHAMBERS IS SHOWN IN TABLE 4. SINGLE AEROSOL IMMUNIZATION WITH BOTH VACCINES IN THE UST-56 CHAMBER PRODUCED A STATISTICALLY RELIABLE INCREASE IN ANTIBODY TITERS. THE SAME RESULTS WERE OBTAINED AFTER IMMUNIZATION IN AN ORDINARY ROOM. THE FREQUENCY OF FEVER REACTIONS IN IMMUNIZED PEOPLE WAS TWO TO THREEPERCENT IN 12 HRS AND ONE TO TWOPERCENT IN 24 HRS, BOTH IN GROUPS INOCULATED IN CHAMBERS AND IN A ROOM. THERE WERE NO STRONG REACTIONS. A GROUP OF 2166 PEOPLE WAS INOCULATED IN THE UST-56 WITH VACCINES OF SERIES 21-65, AND A GROUP OF 1248 WITH SERIES 1-67. TWO PEOPLE (A PHYSICIAN AND HELPER) WERE ABLE TO INOCULATE 1248 PEOPLE IN A UST-56 CHAMBER IN 2 HRS, 40 MIN, AS COMPARED WITH THE NORM OF 150 STANDARD INOCULATIONS IN THE SAME PERIOD CONDUCTED BY SIX MEN. FACILITY: MEDITSINSKAYA SLUZHBA.

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Immunology

USSR

UDC 615.47:615.835.5

BIKULOV, I. M., Maj Med Serv, VORONTSOV, I. V., Lt-Col Med Serv, KREYNIN, M. K., Lt-Col Med Serv, SEVERTSOVA, M. K., and KAVERINA-FIRGANG, K. G.

"Conducting Aerosol Immunization Under Field Conditions"

Moscow, Voyenno-Meditsinskiy zhurnal, No 1, 1970, pp 54-56

Abstract: Experiments were conducted to determine the possibility and advantages of conducting aerosol immunization against typhoid fever under field conditions in a tent. Dry aerosol typhoid-fever vaccines if series 21-65 and 1-67 were used. The preparations were atmoized and dispersed with the help of a special device placed in the center of the tent. For comparative purposes, parallel dispersion of the dry vaccines was conducted under normal conditions in a room. Immunological shifts in people immunized were determined by titration of O-agglutinins and Vi-hemagglutinins before to and a month after immunization. Data obtained by both methods of immunization indicated that a considerable increase in the titer of protective antibodies was produced, and that there was practically no difference in the results obtained after immunization under normal

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USSR

BIKULOV, I. M., et al., Moscow, Voyenno-Meditsinskiy Zhurnal, No 1, 1970, pp 54-56

conditions in a room and under field conditions in a tent. The number of average temperature reactions was about the same, and no strong reactions were observed. Further investigations established that a brigade consisting of only two people -- a physician and registrar -- working in a tent and using the aerosol method, immunized an average of 1,243 people in a period of two hours and 40 minutes. A brigade of six people -- a physician, registrar, and four sanitary instructors, working continuously with a hypodermic could vaccinate only 150 people in the same period.

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USSR

UDC 621.187:669.018.2

CHERNYAKOVA, L. YE., SHUGAYENKO, V. K., VORONTSOV, N. M., SANDLER, N. I., and PATSEKA, R. F., Ukrainian Scientific Research Institute of Metals

"Electron-Microscope Study of Excess-Phase Precipitation in the Deformation of Alloy 36NKhTYu"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 8, Aug 73, pp 16-19

Abstract: The structural properties of alloy 36NKhTYu containing (in %): 0.04 C, 1.1 Mn, 0.36 Si, 36 Ni, 12-13 Cr, 3 Ti, 1.2 Al, balance-Fe, were studied in relation to degree of deformation and tempering mode. Strip samples 0.15 mm thick were water quenched from 1100°C, rolled with a high degree of reduction (50-70%), and tempered at 600-750°C for two hours. It was found that decomposition of the solid solution in the alloy with precipitation of the metastable gamma'-phase $(NiFe)_3$ (TiAl) with an FCC lattice starts even in the deformation process: at 50% primarily along the grain boundaries and at 70% -- in the grain volume. Decomposition of the solid solution when deformed at 600-650°C is characterized by discontinuous precipitation along the grain boundaries and in

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USSR

CHERNYAKOVA, ET AL., Metallovedeniye i Termicheskaya Obrabotak Metallov, No 8, Aug 73, pp 16-19

the colonies of grains in the volume of metastable gamma'-phase particles; at 700-750°C it is characterized by continuous precipitation of finely dispersed gamma'-phase particles in the matrix volume. The formation of the stable intermetallic nu-phase, leading to softening, starts during alloy deformation after temperaing at 700°C for two hours. Three figures, eight bibliographic references.

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USSR

UDC 599.32.576.312

VORONTSOV, N. N., MALYGINA, N. A., and RADZHABLI, S. I., Laboratory of Evolutionary Ecology, Institute of Biology and Soil Science, Far Eastern Science Center of the Academy of Sciences USSR (Vladivostok), and Institute of Cytology and Genetics, Siberian Laboratory of population Genetics Evolution and Karyosystematic, Department of the Academy of Sciences USSR (Novosibirsk)

"Chromosomes of Jerboas (Rodentia, Dipodidae)"

Moscow, Zoologicheskiy Zhurnal, No 12, 1971, pp 1,853-1,860

Abstract: A description is given of the chromosome sets of 15 jerboa species of the subfamilies Cardiocraniinae (1), Allactaginae (9), and Dipodinae (5). The diploid number of 13 species is 48, except in Salpingotus crassicauda in which 2n = 46 and in Scirtopoda telum in which 2n = 58. The karyotypes are strikingly similar. The chromosome sets of three species of the genus Allactaga (jaculus, severtzovi, saltator) are alike, as are those of Pygerethmus platyrus, P. vinogradovi, P. zhitkovi, and Alactagulus acontion. It was concluded from the constancy of the chromosome numbers and the insignificant variability of NFa = 86 - 92 that the evolution of jerboas was characterized by pericentric inversions rather than by the Robertsonian rearrangements characteristic of other mammalian groups. Cytogenetic mechanisms are not believed to play an

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