"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR

ZHAKHAROV, A. V., et al., Vychislitel'nyye Metody i Programmirovaniye, XVI, 1971, pp 225-243

It is assumed that far interactions are essentially greater than near interactions and the latter can be neglected inside ΔV (the charged particle density is small) and that during a time interval $0 \leq t \leq T_0$ (T_0 is the time during which the behavior of the system is studied) the real particles inside ΔV behave as a unit; this is admissible for a finite T_0 and sufficiently small ΔV. The calculations are made in time cycles in which each cycle is divided into three steps: 1) calculation of the electromagnetic field at a fixed point in time $t = T$; 2) calculation of the motion of the large particles during the time interval $T < t \leq T + \Delta T$; and 3) determination of the charge particle density $\rho(\vec{r})$ in the layer $t = T + \Delta T$ by the known values of the coordinates of the particles.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

1/2 019 UNCLASSIFIED

TITLE--HYDROGENATION OF METHYLETHYLETHYNYLCARBINOL ON A PALLADIUM CATALYST -U-

PROCESSING DATE--27NOV70

AUTHOR-(02)-TYURENKOVA, O.A., ZHAKIN, V.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 379-83

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PALLADIUM, CATALYTIC HYDROGENATION, UNSATURATED HYDROCARBON, HYDROXYL RADICAL, SOLVENT ACTION, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0815

STEP NO--UR/0074/70/044/002/0379/0383

CIRC ACCESSION NO--AP0134548

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

2/2 019 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134548

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATE OF HYDROGENATION OF MEETC(OH)C TRIPLE BOND CH OVER A PD CATALYST WAS MEASURED BY H ABSORPTION AND BY A POTENTIOMETRIC METHOD. IT DECREASED WITH THE SOLVENT IN THE ORDER MEOH GREATER THAN ETOH GREATER THAN ME SUB2 CO GREATER THAN H SUB2 O. THE SELECTIVITY FOR THE HYDROGENATION OF C TRIPLE BOND C OVER C:C DECREASED IN THE ORDER MEOH, ETOH GREATER THAN ME SUB2 CO GREATER THAN H SUB2 O. MEOH AND ME SUB2 CO POISONED THE CATALYST, BUT ETOH DID NOT. THE APPARENT ACTIVATION ENERGY IN H SUB2 O AT 10-30DEGREES FOR HYDROGENATION OF C TRIPLE BOND C OR C:C WAS 5.5 OR 1.6 KCAL-MOLE, RESP. FACILITY: KURGAN. SEL'SKOKHOZ. INST., KURGAN, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR Receivers and Transmitters UDC: 621.372.061

FEDOTOV, B. N. and ZHAKOV, V. S.

"Investigating Threshold Characteristics of an FM Demodulator With Subtracted Deviations"

Tr. NII radio (Transactions of the Scientific Research Institute of Radio) 1970, No. 1, pp 12-20 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3A128)

Translation: An analysis is made of threshold characteristics of FM demodulators with a device for deviation subtraction which transforms the input signal with frequency modulation into an intermediate frequency signal with phase modulation. Two limiting cases of the obtained FM signal detection are examined. It is shown that, to improve the threshold characteristics of the demodulator, it is best to have a broad-band filter before limiting.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

Radiobiology

USSR UDC 614.73:621.311.25

KOZLOV, V. M., ZYKOVA, A. S., ZHAKOV, Yu. A., and YAMBROVSKIY, Ya. M.

"Radiation Safety of the Population Living in the Vicinity of an Atomic Power Plant"

Moscow, Gigiyena i Sanitariya, No 4, 1970, pp 54-56

Abstract: Due to careful treatment of waste gases and liquids, installation of special facilities for long-term storage of highly active liquid and solid wastes, and creation of an extensive health zone, the Beloyarsk (uranium-graphite thermal reactor) and Novovoronezh (water-cooled thermal reactor) plants have not increased radioactivity in the atmosphere and waters of the area during the three years that they have been in operation. The amount of Sr^{90} and Cs^{137} in locally produced foods (potatoes, cabbage, milk, etc.) does not exceed the average levels for the country as a whole.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

1/2 026 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--RADIATION SAFETY OF THE POPULATION IN THE DISTRICT OF AN ATOMIC POWER PLANT -U-

AUTHOR--KOZLOV, V.M., ZYKOVA, A.S., ZHAKOV, YU.A., YAMBROVSKIY, YA.M.

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA I SANITARIYA, 1970, NR 4, PP 54-56

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NUCLEAR SAFETY, NUCLEAR POWER PLANT, INDUSTRIAL HYGIENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1679 STEP NO--UR/0240/70/000/004/0054/0056

CIRC ACCESSION NO--AP0101734

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

2/2 026 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0101734

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ATOMIC POWER PLANTS BELONG TO RAPIDLY DEVELOPING BRANCHES OF INDUSTRIES. CONSEQUENTLY A STUDY OF RADIATION SAFETY OF THE POPULATION IN THE DISTRICT OF AN ATOMIC POWER PLANT (APP) IS AN IMPORTANT HYGIENIC PROBLEM. THE PAPER CONTAINS INVESTIGATION DATA ON THE NOVOVORONEZHSKAYA AND BELOYARSKAYA APP, PROVING THE LATTER TO HAVE NO EFFECT ON THE SANITARY RADIATION CONDITION OF THE DISTRICT OF THEIR LOCATION. ON THE BASIS OF THESE DATA IT IS PERMITTED TO USE SANITARY PROTECTION ZONE AROUND APP FOR AGRICULTURAL PURPOSES.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR UDC 669.14.018.45.621.438

TERESHKOVICH, A. S., Engineer, RUNOVA, A. YE., Candidate of Technical Sciences, ZHAKOVSKAYA, I. S., GONSEROVSKAYA, T. S., Engineers, Central Scientific Research Institute of Machine Building Technology, Leningrad Metal Plant

"Heat-Resistant Steel TsZh13 for Cast Parts of Gas Turbines"

Teploenergetika, No 5, 1970, pp 23-25

Abstract: On the basis of the investigation of a series of experimental variants of alloys for cast parts of gas turbines, the composition of steel 3Kh16N22V6B (TsZh13) was selected as the optimal one from the point of view of surface properties and weldability: 0.25-0.30% C, 15-17% Cr, 21-23% Ni, 5.5-6.5% W, 0.8-1.2% Nb. Details on the production and application of the steel are presented. The steel is recommended for the production of profile castings of the guiding units of gas turbines and other similar subassemblies with a working temperature of up 750° C.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR

UDC: 51

ZHALDAK, M. I., KOVBASENKO, B. S.

"Cumulative Iteration Process for Solving a Problem of Linear Programming With Continuously Assigned Constraints"

Vychisl. i prikl. mat. Mezhved. nauch. sb. (Computational and Applied Mathematics. Interdepartmental Scientific Collection), 1972, vyp. 16, pp 75-84 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V397)

Translation: A certain iteration process patterned after the method of possible directions is presented for solving the problem of linear programming with continuous constraints. The algorithm allows one to obtain an estimate of approximation on each step of the iteration process. Authors' abstract.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR UDC 512.25/.26+519.3:330.115

ZHALDAK, M. I., KOVBASENKO, B. S.

"Accumulating Iterational Process of Solution of Convex Programming Problem"

Vychisl. i Prikl. Mat. Mezhved. Nauch. sb. [Computational and Applied Mathematics Interdepartmental Scientific Collection], No 13, 1971, pp. 84-88, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V685 by the author's).

Translation: A certain iterational process similar to the method of possible directions is presented for the solution of a problem in convex programming. Upper and lower estimates of approximation can be produced at each step. The convergence of the process is proven.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

UDC 533+536.423.1

USSR

ZHALGASOV, A., KOSOV, N. D.

"Mutual Diffusion Coefficients of Certain Pairs of Gases Measured in a Center-of-Mass System"

V sb. Fizika (Physics -- Collection of Works), No. 5, Alma-Ata, 1971, pp 134-136 (from RZh-Fizika, No 1, Jan 73, Abstract No 1Ye51)

Translation: The mutual diffusion coefficients in a center-of-mass system were measured directly (by the stationary method) for the first time for five pairs of gases. The average error of measurement was <2%. There is good agreement between the measured and calculated integral diffusion coefficients. Authors' abstract.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

1/3 029 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--SOME RESULTS OF STUDY OF INHOMOGENETIES IN THE LOWER IONOSPHERE, STUDY OF INHOMOGENEITIES IN LOWER IONOSPHERE -U-

AUTHOR--ZHALKOVSKAYA, L.V.

COUNTRY OF INFO--USSR

SOURCE--INSTITUTE OF GEOLOGY AND GEOPHYSICS SIBERIAN DEPARTMENT ACADEMY OF SCIENCES USSR; MOSCOW, GEOMAGNETIZM I AERONOMIYA, VOL X, NO 2, 1970, PP

DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, NAVIGATION

TOPIC TAGS--IONOSPHERIC INHOMOGENEITY, SIGNAL RECEPTION, IONOSPHERIC DRIFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1666 STEP NO--UR/0203/70/010/002/0354/0355

CIRC ACCESSION NO--AP0109658

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

2/3 029 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109658

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING AUGUST SEPTEMBER 1967 A STUDY WAS MADE OF SMALL SCALE INHOMOGENEITIES AND THEIR MOVEMENTS IN THE LOWER IONOSPHERE BY THE SPACE SEPARATED SIGNAL RECEPTION METHOD USING A MEDIUM WAVE BROADCASTING STATION (IF GAMMA 400 KC-SEC). THE RECEIVING STATION WAS 300 KM FROM THE TRANSMITTER. FRAME ANTENNAS WERE PLACED AT THE CORNERS OF A RIGHT ANGLE EQUILATERAL TRIANGLE WITH A BASE ABOUT 600 M IN LENGTH. MEASUREMENTS WERE MADE ONLY AT NIGHTTIME. THE SIGNAL WAS REGISTERED WITH A FOUR CHANNEL AUTOMATIC RECORDER. IT WAS FOUND THAT THE DIMENSIONS OF INHOMOGENETIES FALL IN THE FOLLOWING RANGES: FOR THE SEMIMAJOR AXIS FROM 600 TO 2,000 M WITH A MEAN VALUE 1,600 M AND FOR THE SEMIMIOR AXIS FROM 300 TO 900 M WITH A MEAN VALUE 550M; E VALUES (ELONGATION) WERE IN THE RANGE 2:1 TO 4:1 WITH A MEAN VALUE 3.25:1. IN MOST CASES THE INHOMOGENEITIES WERE ELONGATED ALONG THE MAGNETIC MERIDIAN. DRIFT VELOCITY VARIED IN A WIDE RANGE FROM 8 TO 120-M SEC, BUT THE MOST PROBABLE VELOCITIES WERE IN THE RANGE 10-30 M-SEC. THE PREDOMINANT DRIFT DIRECTION WAS NW AND SE. DURING THE EVENING AND EARLY IN THE NIGHT A NW DIRECTION PREDOMINATES, BUT SE PREDOMINATES IN THE MORNING. CHANGE OF DIRECTION OCCURS AT ABOUT 0200-0400 HOURS. THIS MAY BE ATTRIBUTABLE TO THE PRESENCE OF A DISCONTINUITY BETWEEN OPPOSITELY DIRECTED AIR FLOWS NEAR THE REFLECTION LEVEL. DURING THE EVENING THE REFLECTION LEVEL IS IN THE REGION OF WESTWARD MOVEMENT AND ONLY TOWARD MORNING IS THE REFLECTION LEVEL OR THE REGION OF AIR CURRENTS ITSELF AT AN ALTITUDE WHERE EASTWARD MOVEMENT IS OBSERVED.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

3/3 029 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109658

ABSTRACT/EXTRACT--THE VELOCITY OF RANDOM VARIABILITY WAS IN THE RANGE 10-70 M-SEC, WITH A MEAN VALUE 43M-DEC. RELAXATION TIME WAS IN THE RANGE 10-40 SEC, WITH A MEAN VALUE 34 SEC. ALL THES DATA APPLY TO INHOMOGENEITIES AT ALYITUDES OF ABOUT 85-87 KM.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

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Aluminum and Its Alloys

UDC 669.71.018.9.4

USSR

GOROKHOV, V. P., GUSEV, A. F., OSADCHIY, V. A., RYZHOV, I. V., and ZHALNIN, I. A.

"Special Machine for Manufacture of Large -Area Power Switchboards With a Considerable Number of Holes"

Rekhnol. legkikh splavov. Nauchno-tekhn. byul. VILSa (Technology of Light Alloys -- Scientific and Technical Bulletin of All-Union Institute of Light Alloys), 1970, No 5, pp 130-131 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3 G166 by G. SVODTSEVA)

Translation: A table-model special machine for the manufacture of perforated power switchboards used in the refining of aluminum alloys by the injection of nitrogen and argon has been manufactured and put into production. The machine makes possible the high-efficiency drilling of holes 0.3 to 0.5 mm in diameter in graphite, steel, and titanium up to 5 mm in thickness.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

Analysis and Testing

USSR UDC 543.7:669.046.52

ZHALYBINA, V. D., YAKOVLEV, P. YA., and KOVALENKO, O. A.

Khimicheskiy analiz metallurgicheskikh flyusov (Chemical Analysis of Metallurgical Fluxing Agents), Moscow, "Metallurgiya," 1973, 176 pp

Translation of Annotation: Practical suggestions are made as to methods for the chemical analysis of the major components and impurities in fluxes used in electric steel smelting and welding. These suggestions are very precise and in practice can be applied to the chemical and physical-chemical methods of determining 26 elements in fluxes; some of these methods were developed, improved, and made more precise by the authors.

This book is designed as a guide for personnel in chemical laboratories of factories, and scientific-technical and educational institutes for the metallurgical and related branches of industry. 8 illustrations, 6 tables, 48 references.

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USSR

ZHALYBINA, V. D., et al., "Metallurgiya," 1973, 176 pp

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ZHALYBINA, V. D., et al., "Metallurgiya," 1973, 176 pp

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ZHALYBINA, V. D., et al., "Metallurgiya," 1973, 176 pp

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USSR

ZHALYBINA, V. D., et al., "Metallurgiya," 1973, 176 pp

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR UDC 621.398

GRABOY, A. G., Engineer, ZHAMAGORTSYAN, K. M., Candidate of Technical Sciences

"Determining the Probability of Message Distortion for a Known Law of Distribution of Error Bursts in Communications Channels"

Moscow, Pribory i Sistemy Upravleniya, No 1, Jan 73, pp 9-12

Abstract: A general formula convenient for engineering calculations is derived for calculating the probability of distortion of a message comprised of n symbols in terms of the mathematical expectations of the length of an error burst and the length of an interval between bursts. The resultant formula is true for any communications channel for which the flow of error bursts may be considered an arbitrary flow of events with limited aftereffect. The formula shows satisfactory agreement with the actual distribution of interference in communications channels.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

AM0001596

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Yagramyan, A. T.; Zhamagortsyants, M. A.

Electrodeposition of Metals and Inhibiting Adsorption (Elektroosazhdeniye metallov i ingibiruyushchaya adsorbtsiya) Moscow, Nauka, 197[illegible] pp , (SL:12[illegible])

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AM0001596

IX Characteristics of Electrodeposition of Rhenium and Its Alloys 137
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The book deals with theoretical principles of electrochemical behavior of various groups of metals... and the effect of inhibiting adsorption on electrode processes...

The book was written for a wide circle of scientists; electrical chemists, and senior students specializing in the field of corrosion, electrodeposition of metals and current sources.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

Corrosion

UDC 620.193.46

USSR

YAVICH, A. A., ZHAMAGORTSYANTS, M. A., and VAGRAMYAN, A. T., Academy of Sciences USSR, Institute of Physical Chemistry

"Effect of Bromine Ions on Electrochemical Behavior of Nickel in $NiSO_4$ Solutions at 25-200°"

Moscow, Zashchita Metallov, Vol 8, No 3, May-Jun 72, pp 270-272

Abstract: The article describes results of a study of the electrochemical behavior of nickel in $NiSO_4$ solutions in the presence of Br^- ions at 25-200°. At low temperatures the bromine ions somewhat accelerate the deposition of nickel, but slow down its dissolution, while at high temperatures the bromine ions have practically no effect on the electrochemical behavior of nickel.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

Television

USSR UDC 621.385.832:621.397.62 (088.8)

ZHAMENSKIY, V.L.

"One-Beam Color Receiving Tube"

USSR Author's Certificate No 322809, filed 18 March 68, published 22 March 72 (from RZh:Elektronika i yeye primeneniye, No 10, Oct 1972, Abstract No 10A204P)

Translation: A color receiving cathode-ray tube is proposed which contains a secondary electron multiplier and a screen of the facsimile [shtrikhovoye] type with synchrobands [sinkhropolos] of a material with a coefficient of secondary emission $\sigma > 2 \div 3$. In order to decrease the variance of the transit time of the electrons from the synchroband to the secondary electron multiplier it is proposed to fulfill the latter in the form of a system of grids of a material with $\sigma > 2 \div 3$ and to arrange it in front of the screen. N.S.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR

UDC: 539.4:669.71 (2)

RYBAL'CHENKO, M. K., ZOLOTAREVSKIY, YU. S., KABICHEV, B. I., USTINOV, L. M., IVANOV, V. V., and ZHAMNOVA, V. I., Moscow

"Some Mechanical Properties of a Fibrous Composite Material Based on an Aluminum Alloy"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 73, pp 117-122

Abstract: The authors produce a series of fibrous composites made from aluminum alloy and wire made from the EP322 grade steel. This was done by the hot rolling method using the scheme for bonding packs. Reinforcing the aluminum alloy with 12.4 volumetric percent wire increases the specific strength of the material from 15.2 to 19.7 km. The best properties are ensured by a bonding scheme which incorporates the simple multi-layer (two-layer) winding of the fibers onto the sheets of the matrix.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

1/2 010 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--VALENCE STATE OF RHENIUM IN A THIOSULFATE COMPLEX -U-

AUTHOR-(02)-BORISOVA, L.V., ZHAMNOVA, V.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 586-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RHENIUM COMPOUND, COMPLEX COMPOUND, CHEMICAL VALENCE, SPECTRUM, THIOSULFATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0001 STEP NO--UR/0075/70/025/003/0586/0588

CIRC ACCESSION NO--AP0132301

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CIRC ACCESSION NO--AP0132301

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RE(V) DOES NOT FORM COLORED COMPLEXES WITH THIOSULFATE AND DOES NOT GIVE CHARACTERISTIC SPECTRA. RE IS IN ITS TETRAVALENT FORM IN THE THIOSULFATE COMPLEX. THE ACTIVE FORM OF RE(IV) CHLORIDE REACTS WITH THIOSULFATE IONS. MAX. ABSORBANCE OF THE COMPLEX IS AT 420 MM; THE MOLAR ABSORPTIVITY IS 1.5 TIMES 10 PRIME4.

FACILITY: INST. GEOCHEM. ANAL. CHEM., MOSCOW, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR UDC 537.533

ZHANABERGENOV, K. ZH., SYTAYA, YE. P.

"Investigation of the Thermoemission Properties of the Faces of a Tungsten Monocrystal by the Methods of Electron and Ion Emission"

Izvestiya Vysshykh Uchebnykh Zavedeniy Fizika, No 6, 1970, pp 7-11

Abstract: The emission properties of a densely packed (110) face and a friable (111) face of a tungsten monocrystal were studied by means of specimens in the form of strips in flat-shaped instruments, with a residual gas pressure of 1×10^{-9} mm Hg. The design of the instrument permitted the simultaneous measurement of the emission currents of two specimens. The orientations of the specimens were determined by means of chemical etching and x-rays. The most probable values of $\varphi(hkl)$ for homogeneous faces (110) and (111) were found by the method of thermoelectronic emission and by positive surface ionization of lithium atoms. For faces (110) this value was 5.30 ± 0.03 electron volts; and for faces (111), 4.20 ± 0.02 electron volts. The maximum for faces (111) observed on a graph of $\lg I^{+} = f(5040/T)$ in the range of temperatures below 1500°K is explained

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ZHANABERGENOV, K. ZH, et al, Izvestiya Vysshykh Uchebnykh Zavedeniy Fizika, No 6, 1970, pp 7-11

according to L. N. Dobretsov by an increase in the work function of this surface for small values of coatings by lithium adatoms.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR

UDC 617.735-073.97:615.849.19

BOGOSLOVSKIY, A. I., UMMAKHER, L. S., VOLKOVA, A. D., ZHDANOV, V. K., and SHAPIRO, Ye. I., Laboratory of Physiological Optics imeni S. V. Kravkov and Moscow Scientific Research Institute of Eye Diseases imeni Helmholtz

"The Laser Electroretinogram"

Moscow, Vestnik Oftal'mologii, No 2, 1973, pp 3-6

Abstract: By applying stimulation of the eye in tolerated doses with radiation at approximately 630nm emitted by a He-Ne laser of type LG-50, pure cone electroretinograms of rabbits and humans were obtained. The output power of the laser was 0.2 mwt and the power at the retina $\leq$ 0.15 mwt. Short stimuli with a duration of 0.02 or 0.4 sec and intervals of 1 min between them were applied. Under conditions of adaptation to a weak source of daylight (illumination at the eye approximately 3 lux), the electroretinograms were due solely to the bioelectric activity of the cones. Under conditions of dark adaptation, the rod apparatus of the retina began to participate in the reaction. Laser electroretinograms of humans were obtained for the first time in the work described. Experiments with ruby and Ar lasers are being conducted at present in an expanded stage of the investigation.

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USSR

UDC 681.327+621.367:61.004.14

ZHANDAROV, M. Ye., and PIVOVAROV, V. T.

"A Method for Decreasing False Information Fed Into a Computer From a Television Transmitting Tube"

Leningrad, Elementy Tsifrovykh Sistem Upravleniya, "Nauka," 1971, pp 44-50

Abstract: Highly sensitive television tubes are in wide usage today for analyzing the light fields carrying information concerning the state of a unit. However, a fluctuating noise also exists at the output of the television transmitting tube in addition to the signals carrying the desired information at low levels of illumination of the unit's light field. This fluctuating noise results in errors in the operation of the registering circuit (the threshold device which reacts to the instantaneous value of the signal). These false signals complicate the processing of the real information and increase the number of computations required. With a low signal-to-noise ratio in the channel for converting the light signal into an electrical signal it is simply impossible to analyze the information with the aid of a digital computer. The authors conclude that the automatic identification of a unit with a television transmitting tube and a computer

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ZHANDAROV, M. Ye., and PIVOVAROV, V. T., Elementy Tsifrovykh Sistem Upravleniya, "Nauka," 1971, pp 44-50

can be done using the method of logical comparison of the data and that the amount of false information created by the fluctuating noise and registered in the memory block of the computer can be substantially reduced. The article contains 3 illustrations and 2 bibliographic entries.

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USSR

ZHANE, L.N., MANEVICH, A.E. and RIVKIN, S.S.

"Ship Gyroscope Errors in Waves"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 2, Mar-Apr 71, pp 142-146

Abstract: Probabilities were defined for characteristics of the orbital motion of the center of gravity of a ship and the necessary transfer functions for computing dynamic errors in gyroscopic devices. Typical wave conditions were used to obtain numerical values for the acceleration spectrum parameters. The wave-to-ship relation was treated as a dynamic statistical random signal moving across a dynamic system. Relations were established for wave spectral density of acceleration, ship transfer function, ordinate dispersion of wave profile, horizontal motion of ship, vertical deviation angle of pendulum, and movement of pendulum support from ship's center of gravity. Computations were made for error caused by horizontal displacement of the ship's center of gravity. The conclusions were that dynamic errors caused by orbital motion and by pitch and roll motions are in the same order of magnitude. Therefore it is necessary to consider the effect not only of ship's pitch and roll motion but also of the orbital motion of ship's center of gravity. This is necessary when calculating errors of gyroscopic devices affected by wave motions.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR

UDC 532.5:621.22

ABDURAMANOV, A. A., ZHANGARIN, A. I.

"Study of the Vacuum Hydrocyclone and Its Hydraulic Calculation"

Tr. Kazakhsk. NII vod. kh-va (Works of Kazakh Scientific Research Institute of the Water Industry), 1971, Vol. 7, pp 560-572 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B769)

Translation: A large quantity of experimental data was analyzed and processed concerning the distributions of radial and axial components of velocity along the radius of a hydrocyclone at different cross sections over the height. Empirical formulas were obtained for calculating these components, which determine the flow of liquid through sand and drainage openings of a hydrocyclone and the height of the intake of the pump for various cases of the location of the cyclone in the intake line of the pump. T. S. Solomakhova.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

1/2 039 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--OPTICAL AND ELECTRON MICROSCOPE STUDIES OF RAT MYOCARDIUM EXPOSED TO PURE OXYGEN AT LOW BAROMETRIC PRESSURE -U-

AUTHOR--ZHAPAROV, B.

Z

COUNTRY OF INFO--USSR

SOURCE--FRUNZE, SOVERSKOYE ZDRAVOOKHRANENIYE KIRGIZII, NO 6, 1970, PP 8-11

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOMEDICAL CHAMBER, ATMOSPHERE COMPOSITION, MYOCARDIUM, RAT, BIOLOGIC STAIN, ELECTRON MICROSCOPY, MITOCHONDRION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0973 STEP NO--UR/9093/70/000/006/0008/0011

CIRC ACCESSION NO--AP0126615

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WISTAR RATS WERE KEPT IN A PRESSURE CHAMBER AT 170 MM HG (CORRESPONDING TO AN ALTITUDE OF 10,500-11,000 M), WHERE THEY WERE EXPOSED FOR 6 HOURS TO A MIXTURE OF GASES CONTAINING 94-96 PERCENT PURE OXYGEN, 0.3-1 PERCENT CARBON DIOXIDE, AND 1-2 PERCENT NITROGEN. MYOCARDIAL SLICES OBTAINED AT VARIOUS INTERVALS AFTER THE EXPERIMENT (DURATION 7 DAYS) WERE STAINED WITH HEMATOXYLINEOSIN AND BY SELYE'S METHOD TO DETECT FUCHSINOPHILIC DEGENERATION. SMALL DEGENERATIVE AREAS WERE NOTED IN THE MYOCARDIUM WITHIN 24 HOURS OF EXPOSURE TO BOTH HYPEROXIA AN DECOMPRESSION. THE AREAS WERE LOCALIZED MAINLY IN THE MIDDLE AND OUTER MUSCULAR LAYERS. ELECTRON MICROSCOPE STUDY OF THE CELLS REVEALED STRUCTURAL CHANGES IN THE MITOCHONDRIA, FRAYING OF THE MYOFIBRILS, AND ENLARGEMENT OF THE ENDOPLASMIC RETICULUM, APPARENTLY THE RESULT OF IMPAIRED ION EXCHANGE AND RELATED TISSUE HYDRATION. THE CHANGES IN THE ORGANELLES OF MYOCARDIAL CELLS WERE PARALLELED BY NUMEROUS HEMORRHAGES AND RUPTURES OF CAPILLARIES. BY DAY 7 THERE WERE SIGNS OF RESTORATION OF THE NORMAL SUBMICROSCOPIC STRUCTURE OF THE MYOCARDIUM AND CAPILLARY WALLS. FACILITY: ELECTRON MICROSCOPY LABORATORY, SCIENTIFIC RESEARCH INSTITUTE OF HUMAN MORPHOLOGY, ACADEMY OF MEDICAL SCIENCES USSR.

UNCLASSIFIED

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CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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CIRC ACCESSION NO--AP0132301

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FACILITY: INST. GEOCHEM. ANAL. CHEM., MOSCOW, USSR.

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BOGOSLOVSKIY, A. I., URMAKHER, L. S., VOLKOVA, A. D., ZHDANOV, V. K., and SHAPIRO, Ye. I., Laboratory of Physiological Optics imeni S. V. Kravkov and Moscow Scientific Research Institute of Eye Diseases imeni Helmholtz

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UDC 681.327+621.367:61.004.14

USSR

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ZHANDAROV, M. Ye., and PIVOVAROV, V. T., Elementy Tsifrovykh Sistem Upravleniya, "Nauka," 1971, pp 44-50

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UDC 532.5:621.22

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1/2 039 UNCLASSIFIED

TITLE—OPTICAL AND ELECTRON MICROSCOPE STUDIES OF RAT MYOCARDIUM EXPOSED TO PURE OXYGEN AT LOW BAROMETRIC PRESSURE -U-

PROCESSING DATE--30OCT70

AUTHOR--ZHAPAROV, B.

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COUNTRY OF INFO—USSR

SOURCE—FRUNZE, SOVERSKOYE ZDRAVOOKHRANENIYE KIRGIZII, NO 6, 1970, PP 8-11

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CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0973

STEP NO--UR/9093/70/000/006/0008/0011

CIRC ACCESSION NO--AP0126615

UNCLASSIFIED

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2/2 039

CIRC ACCESSION NO--AP0126615 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. WISTAR RATS WERE KEPT IN A PRESSURE CHAMBER AT 170 MM HG (CORRESPONDING TO AN ALTITUDE OF 10,500-11,000 M), WHERE THEY WERE EXPOSED FOR 6 HOURS TO A MIXTURE OF GASES CONTAINING 94-96 PERCENT PURE OXYGEN, 0.3-1 PERCENT CARBON DIOXIDE, AND 1-2 PERCENT NITROGEN. MYOCARDIAL SLICES OBTAINED AT VARIOUS INTERVALS AFTER THE EXPERIMENT (DURATION 7 DAYS) WERE STAINED WITH HEMATOXYLINEOSIN AND BY SELYE'S METHOD TO DETECT FUCHSINOPHILIC DEGENERATION. SMALL DEGENERATIVE AREAS WERE NOTED IN THE MYOCARDIUM WITHIN 24 HOUR OF EXPOSURE TO BOTH HYPEROXIA AN DECOMPRESSION. THE AREAS WERE LOCALIZED MAINLY IN THE MIDDLE AND OUTER MUSCULAR LAYERS. ELECTRON MICROSCOPE STUDY OF THE CELLS REVEALED STRUCTURAL CHANGES IN THE MITOCHONDRIA, FRAYING OF THE MYOFIBRILS, AND ENLARGEMENT OF THE ENDOPLASMIC RETICULUM, APPARENTLY THE RESULT OF IMPAIRED ION EXCHANGE AND RELATED TISSUE HYDRATION. THE CHANGES IN THE ORGANELLES OF MYOCARDIAL CELLS WERE PARALLELED BY NUMEROUS HEMORRHAGES AND RUPTURES OF CAPILLARIES. BY DAY 7 THERE WERE SIGNS OF RESTORATION OF THE NORMAL SUBMICROSCOPIC STRUCTURE OF THE MYOCARDIUM AND CAPILLARY WALLS.

FACILITY: ELECTRON MICROSCOPY LABORATORY, SCIENTIFIC RESEARCH INSTITUTE OF HUMAN MORPHOLOGY, ACADEMY OF MEDICAL SCIENCES USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR UDC 612.172

ZHARAROV, B., Electron Microscopy Laboratory, Scientific Research Institute of Human Morphology, Academy of Medical Sciences USSR

"Optical and Electron-Microscope Studies of Rat Myocardium Exposed to Pure Oxygen at Low Barometric Pressure"

Frunze, Soverskoye Zdravookhraneniye Kirgizii, No 6, 1970, pp 8-11

Abstract: Wistar rats were kept in a pressure chamber at 170 mm Hg (corresponding to an altitude of 10,500-11,000 m), where they were exposed for 6 hours to a mixture of gases containing 94-96 percent pure oxygen, 0.3-1 percent carbon dioxide, and 1-2 percent nitrogen. Myocardial slices obtained at various intervals after the experiment (duration 7 days) were stained with hematoxylin-eosin and by Selye's method to detect fuchsinophilic degeneration. Small degenerative areas were noted in the myocardium within 24 hours of exposure to both hyperoxia and decompression. The areas were localized mainly in the middle and outer muscular layers. Electron-microscope study of the cells revealed structural changes in the mitochondria, fraying of the myofibrils, and enlargement of the endoplasmic reticulum, apparently the result of impaired ion exchange and related tissue hydration. The changes in the organelles of myocardial cells were paralleled by numerous hemorrhages and ruptures of capillaries. By day 7 there were signs of restoration of the normal submicroscopic structure of the myocardium and capillary walls.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR UDC 621.43.011:533+621.5:533

YERSHIN, SH. A., ZHAPBASBAYEV, U. K., MOLYUKOV, I. D., and PAK, V. V.

"The Aerodynamics of Supersonic Flows of a Compressible Gas"

Alma-Ata, Matematika i Mekhanika. Tezisy Dokl. 4-oy Kazakhstan. Mezhvuz. Nauch. Konf. po Mat. i Mekh. Ch. 2 (Mathematics and Mechanics. Theses of Lectures of the Fourth Kazakhstan Conference of Schoold of Higher Learning on Mathematics and Mechanics. Part 2), 1971, pp 203-205 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2B392 by A. S. Tikhotskiy)

Translation: The article presents the results of an experimental investigation of a supersonic jet (submerged and with weak cocurrent flow). The installation consisted of two coaxial pipes 200 and 400 mm in diameter; on one end of the pipes were profiled nozzles, one of them with a vent diameter of 5 mm (a Laval nozzle) and the other with a vent dimateter of 100 mm (a Vitoshinskiy nozzle). At the other end of the pipes are fittings for supplying air from a system consisting of high-pressure capacities and a fan. The basic regime parameters of the experiments were within the limits of $2 \leqslant p_0 \leqslant 8$ and $340 \leqslant u_0 \leqslant 600$, where p_0 is the pressure at the Laval-nozzle inlet, u_0 is the discharge velocity from the Laval nozzle.

It is established that the laws governing the development of the jet

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR UDC 547.944/945

ZHABEKEYEV, B. KH., TELEZHENETSKAYA, M. V., and YUNUSOV, S. YU., Red Banner of Labor Institute of Plant Chemistry, Uzbek Academy of Sciences

"A Study of the Alkaloids of Malacocarpus Crithmofolius"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 4, 1971, pp 538-539

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It is concluded that the extracted base is simply the dextrorotatory form of anabasine, extracted for the first time from vegetable material.

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USSR UDC 576.351.49 (Bact. typhi).083.35:663.14:636.087.24

KASHANOVA, N. I., NUSINOV, A. E., BENDAS, L. G., and ZHARKHINA, M. A., Moscow Municipal Sanitary-Epidemiological Station and Moscow Pilot Plant for Enzyme Preparations

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UDC [537.226+537.311.33]:[537+535]

ZHARIKOV, G. P.

"Resonance Acoustoelectric Effect in Selenium Rectifiers"

Uch. zap. Azerb. un-t. Ser. fiz.-mat. n. (Scientific Notes of Azerbaydzhan University: Physicomathematical Sciences Series), 1971, No 1, pp 82-85 (summary in Azerbaydzhani) (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE777 by E. M. EPSHTEYN)

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ZHARIKOV, N. M.

SO: JPRS 53378
16 June 71

UDC: 616.895.8-037

CLINICAL AND OCCUPATIONAL PROGNOSIS OF SCHIZOPHRENIA (ACCORDING TO THE FINDINGS OF AN EPIDEMIOLOGICAL SURVEY)

[Article by N. M. Zharikov, Z.S. Serebryakova, Yu.I. Liberman, Institute of Psychiatry, USSR Academy of Medical Sciences, Moscow; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 5, May 1971, pp 31-34]

There is an enormous quantity of works in the psychiatric literature which deal with clinical and occupational prognosis on schizophrenics. However, as a rule these studies were pursued on the basis of samplings, and those that could be representative do not contain sufficiently differentiated clinical information about the patients and are performed in the statistical aspect. The use of the epidemiological method in psychiatry discloses new prospects in development of problems dealing with clinical and occupational prognosis. However, the existing discrepancies in diagnostic positions among psychiatrists and differences in clinical interpretation of the content of schizophrenia present great difficulties in evaluating the actual significance of epidemiological data. For this reason, specialists of different nations are currently engaged in a persistent attempt to develop methods of evaluating and classifying mental patients without the diagnostic sets of the researcher, and to render the results thus obtained accessible for quantitative evaluation.

In view of the distinctive features of mental diseases, for the purposes of epidemiological studies, of special importance is the development of special scales reflecting psychopathological structure and severity of the different symptoms. In view of the present status of clinical psychiatry, most adequate for a unified evaluation of mental patients should be a scale based on the syndrome levels.

On the basis of many years of clinical investigation of schizophrenia at the Institute of Psychiatry USSR AMS, different syndromes of schizophrenics were isolated and described. Using them it is possible not only to identify any condition of the patients at the time of examination, but also to describe the stage of development of the disease. The practice of using a roster of syndromes to evaluate patients and make diagnoses by representatives of different psychiatric schools has shown that there is sufficient agreement with respect to syndromological (as opposed to diagnostic) evaluation.

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ZHARIKOV, V. A.

UDC: 548/549

EXPERIMENTAL MINERALOGY

[Article by Doctor of Geological and Mineralogical Sciences V. A. Zharikov, Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol 41, No 10, October 1971, pp 38-43]

One of the most important problems of geological science is learning the physicochemical regularities of the formation of minerals, rocks and ore deposits. The urgency of that task is determined not only by the state and direction of the development of the earth sciences but also by direct practical needs: understanding the physicochemical essence of natural processes is very important for the development of criteria in searches for ore deposits, especially those not cropping out. The obvious difficulty in solving the problems arising in that is intensified by the fact that the physicochemical transformations which lead to the formation of minerals, rocks and ore deposits under endogenic (deep) conditions are exceptionally complex. They take hundreds of thousands and millions of years and take place at high temperatures (at 1000 degrees or higher) and pressures (up to tens of thousands of atmospheres) under the conditions of the addition and withdrawal of hundred of thousands to tens of millions of tons of material. Such phenomena have no analogs in any sort of production or technological processes, on the experience of which classical physical chemistry and thermodynamics have grown to a considerable degree. Therefore the initial attempts of geologists to use the achievements of those branches of science, which appeared to be natural, were unproductive and even caused at one time an ideological crisis of the physicochemical direction in geology.

To solve the problem it proved necessary to determine the physicochemical characteristics of natural processes in the earth's crust and on that basis, using the apparatus of physical chemistry and thermodynamics, to develop general methods of investigation. Decisive successes in that area were achieved in the 1940s and 1950s by the Soviet scientist D. S. Korzhinskiy.

JPRS 54678
10 Dec 1971

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UDC 576.8.093

KAUROV, B. S., PLATONENKOVA, L. S., ZHARIKOVA, G. G., and RUBIN, A. B.,
Moscow State University

"Study of Low-Intensity Luminescence of Some Microorganisms"

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Abstract: Luminescence was studied in a wide variety of bacteria: those capable of growing through fermentation or respiration, obligate and facultative aerobes and anaerobes, containing and not containing cytochromes, e.g., Clostridium butyricum, Pseudomonas aeroginosa, Ps. fluorescens, Bacillus subtilis, and others. Spontaneous luminescence was observed only in B. brevis var. G. B. R, S, P^+, and P^- forms, B. subtilis, B. cereus, B. mycoides, B. mesentericus, B. megatherium, and E. coli, i.e., aerobes that contain cytochromes and are ammonifiers. The intensity of luminescence is 110 imp/sec. The luminescence lies in the region of 420 to 520 nit with a peak at 480 nit. The culture fluid (centrifugate) is responsible for the phenomenon rather than the cells.

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YERSHIN, SH. A., ZHAPBASBAYEV, U. K., MOLYUKOV, I. D., and PAK, V. V.

"The Aerodynamics of Supersonic Flows of a Compressible Gas"

Alma-Ata, Matematika i Mekhanika. Tezisy Dokl. 4-oy Kazakhstan. Mezhvuz. Nauch. Konf. po Mat. i Mekh. Ch. 2 (Mathematics and Mechanics. Theses of Lectures of the Fourth Kazakhstan Conference of Schools of Higher Learning on Mathematics and Mechanics. Part 2), 1971, pp 203-205 (from Referat'nyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2B392 by A. S. Tikhotskiy)

Translation: The article presents the results of an experimental investigation of a supersonic jet (submerged and with weak cocurrent flow). The installation consisted of two coaxial pipes 200 and 400 mm in diameter; on one end of the pipes were profiled nozzles, one of them with a vent diameter of 5 mm (a Laval nozzle) and the other with a vent diameter of 100 mm (a Vitoshinskiy nozzle). At the other end of the pipes are fittings for supplying air from a system consisting of high-pressure capacities and a fan. The basic regime parameters of the experiments were within the limits of $2 \leqslant p_0 \leqslant 8$ and $300 \leqslant u_0 \leqslant 600$, where p_0 is the pressure at the Laval-nozzle inlet, u_0 is the discharge velocity from the Laval nozzle.

It is established that the laws governing the development of the jet

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USSR UDC 612.172

ZHADAROV, B., Electron Microscopy Laboratory, Scientific Research Institute of Human Morphology, Academy of Medical Sciences USSR

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

USSR UDC 547.944/945

ZHAREKEYEV, R. KH., TELEZHENETSKAYA, M. V., and YUNUSOV, S. YU., Red Banner of Labor Institute of Plant Chemistry, Uzbek Academy of Sciences

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16 JUNE 71

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[Article by N. M. Zharikov, Z.N. Serebryakova, Yu.I. Liberman, Institute of Psychiatry, USSR Academy of Medical Sciences, Moscow; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 5, May 1971, pp 31-34]

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USSR UDC 543.39

ZHARIKOVA, G. G., MARKELOVA, S. I., BOBKOVA, T. S., LANDAU, N. S., SMOLINA, G. S., and SILAYEV, A. B., Moscow State University imeni M. V. Lomonosov, Moscow

"Destruction of Lacquer and Paint Coatings by Bacteria and Actinomycetes"

Moscow, Prikladnaya Biokhimiya i Mikrobiologiya, Vol 7, No 2, Mar-Apr 71, pp 236-242

Abstract: From the soil of various regions of the USSR, the following strains of bacteria and Actinomycetes were isolated which were found to cause destruction of surface coatings: Bacillus sphaericus var. 2P, Bac. cohaerens var. 4P, Bac. subtilis var. 1B, Flavobacterium acetylicum var. 7P, Mycobacterium sp. var. 1P, Propionibacterium pentosaceum var. 4B, Micrococcus aurantiacus var. 14C, Micrococcus aurantiacus var. 16 C, Actinomyces globisporus var. 9B, Actinomyces globisporus var. 10C, Actinomyces sp. Var. 10B. The cultural, morphological, and biochemical characteristics of the eight bacterial strains were determined. The behavior of surface coatings based on epoxy resin, alkyd resin, teflon, pentaphthalic resin, PVC, and organosilicon resin with respect to the 11 microorganisms isolated was determined in tests in which a sample of the surface coating was kept for 1 yr in contact with

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ZHARIKOVA, G. G., et al., Prikladnaya Biokhimiya i Mikrobiologiya, Vol 7, No 2, Mar-Apr 71, pp 236-242

a culture medium containing (in g/l.) $CaCO_3$ 3, $MgSO_4$ 0.5, KH_2PO_4 1, KCl 0.2, agar 20 (pH 7.0-7.5). The only source of C for the microorganism was the coating. The samples were examined every month. The behavior of alkyd resin, epoxy resin, and teflon coatings with respect to mixtures of some of the microorganisms was determined in similar tests. The results of the tests are tabulated. The bacteria and actinomucetes isolated can be used for determining whether or not a surface coating is resistant to the action of microorganisms.

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1/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF BETA PHENYL BETA ALANINE ON BIOSYNTHESIS OF GRAMICIDIN C BY BACILLUS BREVIS VAR. G. B. -U-

AUTHOR-(03)-VYPIYACH, A.N., YEGOROV, N.S., ZHARIKOVA, G.G.

COUNTRY OF INFO--USSR

SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 5, PP 392-395

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ALANINE, BIOSYNTHESIS, GLUCOSE, CULTURE MEDIUM, AMINO ACID, YEAST, ANTIBIOTIC, PEPTIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1139 STEP NO--UR/0297/70/015/005/0392/0395

CIRC ACCESSION NO--AP0115158

UNCLASSIFIED

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2/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDITION OF BETA PHENYL BETA ALANINE IN AN AMOUNT OF 100-600 MG PER CENT TO SYNTHETIC MEDIA WITH GLUCOSE RESULTED IN COMPLETE INHIBITION OF GRAMICIDIN C BIOSYNTHESIS INDEPENDANT OF THE PRESENCE OR ABSENCE OF THE AMINO ACID IN THE SEED MEDIUM. THE CULTURE GROWTH AND SPORULATION WERE IN BOTH CASES THE SAME. ON CAZEIN YEAST MEDIA COMPLETE INHIBITION OF GRAMICIDIN BIOSYNTHESIS WAS NOT BOSERVED. HOWEVER, THE EFFECT OF THE SEED MATERIAL ON INHIBITION OF GRAMICIDIN C BIOSYNTHESIS IN MEDIA CONTAINING BETA PHENYL BETA ALANINE WAS EVIDENT. CAZEIN YEAST MEDIA RE SUFFICIENTLY RICH IN AMINO ACIDS AND OTHER ORGANIC COMPOUNDS AND THE PRESENCE OF BETA PHENYL BETA ALANINE IN THEM DID NOT IMPAIRE COMPLETELY THE PROCESS OF GRAMICIDIN BIOSYNTHESIS. INHIBITION WAS OBSERVED ONLY AT HIGH CONCENTRATIONS OF THE AMINO ACID. IN SYNTHETIC MEDIA CONTAINING NO SIGNIFICANT AMOUNTS OR NUMBERS OF ORGANIC OCMPOUNDS BETA PHENYL BETA ALANINE ACTIVELY PARTICIPATED IN CELL METABOLISM AND BLOCKED CERTAIN STAGES OF BIOSYNTHESIS OF GRAMICIDIN C POLYPEPTIDE. FACILITY: MOSCOW STATE UNIVERSITY.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--FREE AMINO ACIDS AND GRAMICIDIN S CONTENT DURING SPORE GERMINATION IN THE R VARIANT OF BAC. BREVIS -U-

AUTHOR-(03)-YEGOROV, N.S., VYPIYACH, A.N., ZHARIKOVA, G.G.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 2, PP 331-336

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BACILIUS, AMINO ACID, BACTERIAL SPORE, ANTIBIOTIC/(U)GRAMICIDIN S ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0396 STEP NO--UR/0220/70/039/002/0331/0336

CIRC ACCESSION NO--AP0100882

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

2/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100882

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GRAMICIDIN S, SYNTHETIZED BY THE VEGETATIVE CELLS OF THE R VARIANT OF BAC. BREVIS VAR. G B, WAS TRANSFERRED INTO SPORES DURING SPORE FORMATION. ITS CONCENTRATION DECREASED DURING SPORE GERMINATION AND AGAIN INCREASED WITH THE FORMATION OF THE VEGETATIVE CELLS. THE ANTIBIOTIC WAS SUPPOSED TO PLAY A CERTAIN ROLE IN THE LIFE ACTIVITY OF THE ORGANISM. DURING SPORE GERMINATION GRAMICIDIN S WAS, PROBABLY, DECOMPOSED TO AMINO ACIDS WHICH PARTICIPATED IN THE METABOLISM OF THE CELL. GRAMICIDIN S WAS NOT FOUND IN THE CULTURAL BROTH OF GERMINATING SPORES BY THE BIOLOGICAL METHOD, WHILE ALL 5 AMINO ACIDS COMPOSING THE MOLECULE OF GRAMICIDINE S, WERE REGISTERED THERE IN A FREE STATE.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203810003-2

Acc. Nr: A0034406 Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 2, pp 161-165

BIOSYNTHESIS OF GRAMICIDIN C ON SYNTHETIC MEDIA WITH AMINO ACIDS AS THE ONLY SOURCE OF NITROGEN

G. O. Ekarikova, S. I. Markelova

Moscow State University

The following amino acids as the only source of nitrogen were used in the medium: glycocol, alanin, serin, cystein, threonin, valin, leucin, norleucin, asparaginic acid, lysin, ornithin, β-phenyl-α-alanin, β-phenyl-β-alanin, triptophan and histidin. The effect of the amino acids on growth of 4 variants of Bac. brevis var. G. B., that is R, S, P+ and P− and the antibiotic biosynthesis was investigated. It was found that cells of all the variants of Bac. brevis var. G. B. were capable of using amino acids as the only source of nitrogen, while the rate of their consumption was different. On synthetic media with amino acids (9 out of 15) the cells of variant R synthesized pramicidin C, whereas the cells of variant P+ synthesized gramicidin C only on media with glycocol, serin, norleucin, asparaginic acid, lysin, ornithin histidin. The cells of variant S grown on media with serin, valin and histidin produced only traces of the antibiotic and the cells of variant P− produced no antibiotic. Specific peculiarities of each variant with respect to consumption of amino acids as the only source of nitrogen were shown.

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USSR

UDC: 621.317.8

ZHARINOV, A. A., SOKOLOV, B. A.

"Microminiature Wire-Wound Compensation Resistors"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1, pp 29-35 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V307)

Translation: The authors describe type S5-30 and S5-30T microwire compensation resistors. Operational, thermal and frequency characteristics are given. The effect of the sealing compound on the heating temperature of the coil is considered. The thermal constant of the resistors depends on loading and operating conditions. The frequency dependence of resistance is calculated and experimentally verified. Resumé.

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USSR

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SOKOLOV, B. A., ZHARINOV, A. A., LUKIN, V. S.

"Sorting out Microwire Resistors With Intermittent Failures"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1, pp 41-47 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V306)

Translation: The authors analyze existing methods for sorting out potentially unreliable resistors. A procedure is proposed and devices are developed for sorting out type S5-30 and S5-15 resistors with intermittent failures. It is shown that it is feasible and necessary to introduce this operation into the technological process. Resumé.

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USSR

VLADIMIROV, V. S. and ZHARINOV, V. V., Mathematical Institute imeni V. A. Steklov, Academy of Sciences USSR; Moscow Physical-Technical Institute

"On the Representation of the Jost-Lehmann-Dyson Type

Moscow, Teoreticheskaya i Matematicheskaya Fizika (Theoretical and Mathematical Physics), Vol. 3, No 3, June 1970, pp 305-219.

Abstract: An integral representation is obtained for functions holomorphic in tubular domains over arbitrary acute cones C and -C and in a neighborhood of real n-divided open set O and belonging to algebras H(C) and H(-C). The technique of the boundary values of the holomorphic functions of many complex variables differs considerably from the traditional methods used for obtaining the Jost-Lehman Dyson representation. Use is not made of the representation of the solution to the Cauchy problem for the wave equation. The representation obtained makes it possible to write a new Nakanishi type integral representation for the scattering amplitudes T(s, t) within the framework of the theory of perturbations corresponding to plane converging Feynman diagrams. The authors thank O. I. Sav'yalova for consultation on perturbation theory. Orig. art. has 21 refs.

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USSR

UDC 533.69.01+533.662.013

ZHARIY, Yu. I., KRAVETS, V. N.

"On the Motion of a Solid-Angle Profile Wing With a Variable Distance From a Screen"

V sb. Krayev. zadachi mat. fiziki (Boundary Value Problems of Mathematical Physics -- Collection of Works), Kiev, 1971, pp 264-274 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B295)

Translation: The plane problem of the motion of a solid-angle profile wing in an ideal incompressible fluid with a variable distance from a screen is discussed. Resume.

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USSR UDC 539.3

BEREZOVSKIY, A. A., ZHARIY, Yu. I.

"Nonlinear Boundary Value Problems of the Theory of Flexible Plates and Shallow Shells"

Nelineynyye kraevyye zadachi teorii gibkikh plastin i pologikh obolochek. Tr. Seminara po mat. fiz. In-t mat. AN USSR (cf. English above. Works of the Seminar on Mathematical Physics. Institute of Mathematics of the Academy of Sciences of the Ukrainian SSR), 1970, vyp. 4, 416 pp, ill. (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10Y68)

Translation: Problem formulation is discussed as well as questions of the existence and uniqueness and methods of constructing approximate solutions of nonlinear boundary value problems of the theory of flexible plates and shallow shells.

The first chapter outlines known premises and hypotheses, and presents the derivation of fundamental equations of the theory of flexible plates and shallow shells. Principal attention is given to the energy derivation of the fundamental equations.

The second chapter deals with the reduction of linear and nonlinear

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USSR

BEREZOVSKIY, A. A., ZHARIY, Yu. I., Nelineynyye krayevyye zadachi teorii gibkikh plastin i pologikh obolochek. Tr. Seminara po mat. fiz. In-t mat. AN USSR, 1970, vyp. 4, 416 pp, ill.

problems of the theory of shells to integral equations. Problems of constructing the Green's tensor in a given situation are discussed in detail, as well as questions of the integral representation of an arbitrary vector function and vector potentials. The construction of classical and generalized solutions of the given problem is considered for the case where the right-hand members of the boundary value problems are discontinuous or are generalized vector functions.

The third chapter is devoted to reducing axisymmetric problems of the theory of flexible shallow shells of revolution to integral equations. In particular, an equivalent system of nonlinear integral equations of flexible spherical shells is constructed, and the solvability of this system is discussed.

The next chapter discusses some approximate methods of constructing solutions of nonlinear boundary value problems of the theory of flexible plates and shells. Energy methods are considered as well as methods of approximating the kernels of nonlinear integral equations by degenerate

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BEREZOVSKIY, A. A., ZHARIY, Yu. I., Nelineynyye krayevyye zadachi teorii gibkikh plastin i pologikh obolochek. Tr. Seminara po mat. fiz. In-t mat. AN USSR, 1970, vyp. 4, 416 pp, ill.

kernels. The method of perturbations and the method of successive approximations are discussed briefly. In addition, application of the Riesz-Fisher equations to solution of nonlinear problems of the theory of shells is considered.

The fifth chapter deals with problems of finding approximate solutions for specific cases of bending and stability of thin plates and shallow shells; specifically, large bends of shallow shells are considered where the planform is rectangular and the shell is loaded by moments distributed around the edge, as well as the problem of compression and bending of a shallow cylindrical panel, snapping of shallow spherical and conical shells under the effect of uniform external pressure and concentrated annular loads for various types of fastening, large bends of circular and elliptical plates, and other problems. These problems are solved by the method of approximating the kernels of nonlinear integral equations by degenerate kernels, the solution being limited as a rule to the first approximation.

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BEREZOVSKIY, A. A., ZHARIY, Yu. I., Nelineynyye krayevyye zadachi teorii gibkikh plastin i pologikh obolochek. Tr. Seminara po mat. fiz. In-t mat. AN USSR, 1970, vyp. 4, 416 pp, ill.

In order to evaluate the accuracy of the resultant solutions, some of the problems are solved in addition by the method of perturbations and by the method of successive approximations.

The sixth chapter analyzes the oscillation and dynamic stability of shallow shells of revolution. The behavior of a closed spherical shell is considered for the case where it is subjected to the action of periodically changing normal external pressure, and also the problem of vibration shaking of a spherical shell whose supporting edge moves according to a periodic law.

The last two chapters (the seventh and eighth) discuss problems of the existence and uniqueness of generalized solutions of geometrically nonlinear problems of statics of the theory of plates and shallow shells of revolution, as well as problems of physically nonlinear shallow shells of revolution. Bibliography of 142 titles. V. I. Mamay.

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USSR

ZHARKAYA, A. S.

"The Effect of Protracted Rocking on the Electrocardiogram of Animals"

Moscow, Voprosy Mediko-Biologicheskikh Issledovaniy. Materialy Konferentsii Molodykh Nauchnykh Rabotnikov Mediko-Biologicheskogo Fakul-teta (Aspects of Biomedical Research. Materials of a Conference of Young Scientific Workers of the Biomedical Faculty), Ministerstvo Zdravookhraneniya SSSR, 1970, 93 pp, pp 81-83

Abstract: Rabbits were used in experiments conducted to determine the effect of small statokinetic stimuli on the cardiovascular system, the electrocardiogram in particular. The sensation of rocking was achieved with the use of a special elevator-type device, which imparted a sense of alternating acceleration of about 0.5 g in a vertical direction. Lamellar electrodes were used for electrocardiography. The animals were left in a free and normal position. Prior to the beginning of the experiment, electrocardiograms were obtained from the animals. Subsequent

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USSR

ZHARKAYA, A. S., Voprosy Mediko-Biologicheskikh Issledovaniy. Materialy Konferentsii Molodykh Nauchnykh Rabotnikov Mediko-Biologicheskogo Fakul-teta, 1970, pp 81-83

recordings were obtained 10 minutes after application of the electrodes, five minutes after the beginning of the experiment, and then every 10 minutes during the experiment; also 5, 10, and 20 minutes after the experiment was halted. An analysis of EKG showed the development of tachycardia within 5 minutes of the beginning of rocking, and a diminution of all EKG spikes, particularly the R and P spikes. It was found also that the electrical axis of the heart shifted to the left within 20 minutes of the beginning of the experiment, but reverted to its normal position within 5 minutes after cessation of the experiment. The data obtained were analogous to those obtained in experiments in which animals were subjected to centripetal acceleration in a centrifuge. Similar shifts in the EKG were established also with the use of the vector method of analysis.

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USSR

REMENTSOVA, M. M., and ZHARKINOV, I. ZH., Kazakh Scientific Research Institute of Regional Pathology

"Epidemiology of Brucellosis in Foci of Mixed Type"

Alma-Ata, Zdravookhraneniye Kazakhstana, No 11, 1971, pp 19-21

Abstract: In various regions of Alma-Ata oblast, where livestock farming is the chief occupation, in spite of mixed foci, the epidemic process of brucellosis is different. In regions where most livestock is privately owned, there is a higher incidence of the disease (77% of cases occur in individual owners) than in collective livestock farms, which is attributed to better veterinary care. A greater number of persons who contract brucellosis seem to be infected through contact with cattle than through food. In a region where the terrain does not permit extensive pasturelands, and both large and small livestock come into contact, the predominant strain is Br. melitensis, with a lower incidence of Br. abortus in humans. In regions where cattle do not mix with sheep and goats, however, cultures isolated from cattle produce only Br. Abortus. In regions where brucellosis is endemic, bacteriological studies should be conducted on humans as well as livestock; cultures should be differentiated; and cattle, as well as smaller livestock, should be considered carriers.

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USSR

ZHARKINOV, I. Zh., Brucellosis Department, Kazakh Scientific Research Institute of Regional Pathology

"Indirect Fluorescent Antibody Method in Brucellosis"

Alma-Ata, Zdravookhraneniye Kazakhstana, No 8, 1971, p 40

Abstract: A comparative study of the indirect fluorescent antibody method showed that it is superior in diagnostic value to the Huddleson, Wright, and complement-fixation tests in mass epidemiological screening of the population in both foci of acute brucellosis and epidemic regions. Of 242 sera investigated, the indirect fluorescent antibody method was positive in 36% of cores compared with 30, 17, and 5% in the Huddleson, complement-fixation, and Wright tests, respectively. The large number of antibodies found by the immunofluorescence method in brucellosis patients is attributed to the presence in sera of incomplete antibodies (microglobulins).

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Optical

USSR UDC 621.378.325

ZHARKOV, A. P., KAMACH, YU. E., KOZLOVSKIY, YE. N., LYUBAVSKIY, YU. V., [redacted]NIKOV, V. M.

"The OGM-20 Monopulse Laser"

Leningrad, Optiko-mekhanicheskaya Promyshlennost', No 9, Sep 70, pp 30-34

Abstract: The authors describe the circuits and give the principal characteristics of a ruby monopulse laser in which the Q of the resonator is modulated by use of the linear electrooptic effect in potassium dihydrophosphate crystals. The OGM-20 is the first industrial model of a monopulse laser designed for jobs requiring brief high-power light pulses. The unit can be used to study the interaction between radiation and matter both in microvolumes with the use of special focusing lenses, and on the macroscopic scale in optically transparent media with the use of a telescopic system. An IFP-800 xenon tube is used for pumping. The instrument emits on a wavelength of 649.3 μ with a prf of 1 Hz, pulse emission power is $2 \cdot 10^7$ watts, the duration of a

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USSR

ZHARKOV, A. P., et al, Optiko-mekhanicheskaya Promyshlennost', No 9, Sep 70, pp 30-34

pulse at one-half maximum intensity is $2 \cdot 10^{-8}$ second, the angle of beam divergence at one-half maximum intensity without the telescope is 10', the laser head itself measures 140 x 840 x 440 mm, and the power supply and control unit measures 523 x 530 x 985 mm. The instrument is water-cooled and is designed for operation in a temperature range of 5-35°C at a relative humidity of less than 90 percent.

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USSR UDC 621.9.01.669.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., ZHARKOV, I. G., ZYKIN, A. S., KRAVCHENKO, B. A., LENILIN, V. I., MEDVEDEV, L. P., MITRYAYEV, K. F., URYVSKIY, F. P.

"Cutting of Heat-Resistant, High-Strength Titanium Alloys"

Obrabotka Rezaniyem Zhareprochnykh Vysokoprochnykh i Titanovykh Splavov [English Version Above], Moscow, Mashinostroyeniye Press, 1972, 198 pages.

Translation of Foreword: The Twenty-Fourth CPSU Congress defined the main trends in further development of the socialist economy and indicated the necessity of comprehensive acceleration of scientific and technical progress.

One primary trend in the development of the economy is increasing the effectiveness of production. This means that under today's conditions, ever greater significance is being given to increasing the output of products, improving their quality and technical and economic indicators.

Over the past years, the tool industry has solved important problems related to the creation of new tool designs, the development of the production and improvement of tools, as well as mass production of tools of ever stronger high-speed steels. Broad utilization of automated machine tools, continuous and automatic production lines in large-series and mass production requires an increase in the output of cutting tools of long life and

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USSR UDC 621.9.01.669.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., et. al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniye Press, 1972, 198 pages.

high accuracy, capable of operating under severe cutting conditions for long periods of time without replacement. Tool life can be increased if the tool industry is provided with high quality steels and alloys. Soviet scientists have created alloys with high strength characteristics and high heat resistance. The workability of alloys and steels can be improved by the use of various methods based on ultrasonics, electric contact and induction heating, application of small electric currents to the cutting zone, etc. These methods allow the life of a cutting tool to be increased by 2 to 5 times, increasing the cutting speed and productivity of processing. Part quality can be improved by using tools of natural and synthetic diamonds, as well as elbor.

The present work familiarizes the reader with research conducted into the physics of the cutting process, materials for cutting tools, optimal cutting modes and methods of improving the quality and workability of parts.

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REZNIKOV, N. I., BURMISTROV, Ye. V., et. al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniye Press, 1972, 198 pages.

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REZNIKOV, N. I., BURMISTROV, Ye. V., et. al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniye Press, 1972, 198 pages.

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REZNIKOV, N. I., BURMISTROV, Ye. V., et al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniya Press, 1972, 198 pages.

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REZNIKOV, N. I., BURMISTROV, Ye. V., et al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniya Press, 1972, 198 pages.

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USSR UDC 621.314.14

ZHARKOV, S. A., VASIL'YEV, I. M., PEREPECHAYEV, V. V., SIDORENKO, A. V., and KHOKHLOVA, M. M., Leningrad Institute of Aircraft Instrument Building

"A Wide-Band Instrument for Converting the Current of Semiconductor Nuclear Emission Detectors to a Pulse Train"

Moscow, Pribory i Tekhnika Eksperimenta, No 4, Jul/Aug 71, pp 101-103

Abstract: The authors describe a wide-band circuit for converting the current of semiconductor detectors of nuclear emission to a pulse train. The circuit is based on the equivalent of a four-layer diode. Stabilization of the bias on the control electrode made it possible to extend the dynamic range of data conversion by a factor of approximately 20, as well as to reduce the number of circuit elements and the required electrical energy. The device is simple, low in cost, has small overall dimensions and low weight (volume of no more than 100 cc, weight less than 50 g), and is highly shock resistant. The small number of elements ensures high circuit reliability, and enables accommodation in a hermetically sealed casing along with the power supply. The power for the entire converter can be supplied by low-voltage batteries (12-16 V). A distinguishing feature of the device is that the electrical energy requirement is proportional to the emission dose rate. In the absence

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USSR

ZHARKOV, S. A., et al., Pribory i Tekhnika Eksperimenta, No 4, Jul/Aug 71, pp 101-103

of radiation, the circuit takes practically no electrical energy. At a dose rate of 10^4 r/hr, the power consumption is 0.08 W, while the corresponding figure for 1 r/hr is 0.005 W -- 1.5-2 orders of magnitude less than the most economic conventional pickups. The prf is a nearly linear function of dose rate in the range from 10 to 10^4 r/hr. The circuit has excellent operational stability. Drift of the frequency emitted by the circuit when the detector was replaced by an equivalent resistor at constant temperature was no more than +0.02% in five days of operation.

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UDC 621.039.574.5

USSR

TERENT'YEV, V. P., ZHARKOV, V. A., FRADKIN, G. M., and CHAVY-CHALOVA, T. P.

"Optimal Irradiation Modes in Isotope Production"

Moscow, Atomnaya energiya, Vol 29, No 4, Oct 70, pp 260-264

Abstract: In response to the need for developing economically favorable modes for obtaining radioisotope energy through irradiation, the authors use as the criterion for such modes minimum expense for obtaining the required isotope and the maximum value of energy output. In this process, a fairly stable initial isotope is bombarded by neutrons to form an intermediate isotope, which quickly decays to form the energy-producing result. The authors write an equation for the expense incurred in obtaining one gram-atom of the fuel isotope, and three equations for the irradiation expense which apply in most practically important cases. They also find an equation for determining the required irradiation duration. Curves are plotted for the optimal output of the original and fuel isotopes under neutron irradiation, and a table of various isotopes and corresponding parameters for optimal irradiation modes is reproduced.

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USSR UDC 632.95

ZHARKOV, V. I., STONOV, L. D., and YERMOLAYEVA, A. S.

"Results of a Study of Anti-Wild-Oat Herbicides"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow 1970, pp 241-247 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N530 by T. A. Belyayeva)

Translation: The article describes results of tests of karbin (I), avadex (II), triallate (III), and yalan (IV) an anti-wild-oat herbicides. III and IV in a dose of 1-1.5 kg/ha and 4-6 kg/ha respectively eradicate wild oats and have a favorable effect on wheat and barley yields. III and IV must be incorporated into the soil with a cultivator to a depth of at least 7 cm. I and II eradicate wild oats, but have an adverse effect on wheat and barley. The activity of I declines in drought years.

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AUTHOR-(02)-ZHARKOV, V.N., LYUBIMOV, V.M.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EARLIER STUDIES THE AUTHORS (FIZIKA ZEMLI, NO 2, 1967; DAN, 177, NO 1, 1967) EXAMINED THE ATTENUATION OF TORSIONAL AND RADIAL OSCILLAITONS N THE EARTH. IN THE CASE OF TORSIONAL OSCILLATIONS A COMPARISON BETWEEN EXPERIMENTAL DATA AND THEORY MADE POSSIBLE A ROUGH DETERMINATION OF THE DISTRIBUTION OF THE DISSIPATIVE FUNCTION Q IN THE EARTH'S MANTLE. BY USING THE DETERMINED Q DISTRIBUTION AND FORMULATING A THEORY OF PERTURBATIONS FOR RADIAL OSCILLATIONS OF THE EARTH IT WAS POSSIBLE TO EXPLAIN THE ANOMALOUSLY HIGH Q VALUES FOR RADIAL OSCILLATIONS OBSERVED AFTER THE CHILEAN EARTHQUAKES. ALL DATA INDICATE THAT Q IN THE EARTH'S LIQUID CORE IS AT LEAST AN ORDER OF MAGNITUDE GREATER THAN Q FOR THE MANTLE. IN A LATER STUDY (DAN, 180, NO 2, 1968) THE AUTHORS FORMULATED A THEORY OF PERTURBATIONS FOR SPHEROIDAL OSCILLATIONS OF THE EARTH AND EXAMINED THE ATTENUATION OF SPHEROIDAL OSCILLATIONS WITHIN THE EARTH. THIS PAPER, A LOGICAL CONTINUATION OF THE EARLIER STUDIES, GIVES THE RESULTS OF COMPUTATIONS FOR THE FUNDAMENTAL TONE TO N EQUALS 27 AND THE FIRST FOUR OVERTONES WITH N EQUALS 1-7. THESE OSCILLATIONS ARE INTERESTING BECAUSE THEY ARE ESSENTIALLY DEPENDENT ON THE PROPERTIES OF THE EARTH'S CORE, WHEREAS OSCILLATIONS WITH LARGE N ARE ALREADY EXPELLED FROM THE CORE INTO THE EARTH'S MANTLE. THE GUTENBERG BULLEN MODEL A WAS USED IN THE COMPUTATIONS. IN THE MODEL THE CRUST AND MANTLE ARE BROKEN DOWN INTO 34 LAYERS WITH PIECEWISE CONSTANT PARAMETERS. THE EARTH'S CORE IS ASSUMED TO BE LIQUID.

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ABSTRACT/EXTRACT--THE 34 LAYERS OF THE CRUST AND MANTLE WERE COMBINED INTO FOUR LAYERS: A) UP TO 36 KM; B) 38-300 KM; C) 300-1,000 KM; D) 1,000-2,900 KM (CRUST, SUBCRUSTAL ZONE, TRANSITION LAYER AND LOWER MANTLE RESPECTIVELY). THE RESULTS OF COMPUTATIONS FOR SPHEROIDAL OSCILLATIONS XQ SUBSN ARE TABULATED. THE MOST IMPORTANT RESULTS OF THE COMPUTATIONS IN THIS PAPER IS THE LARGE Q VALUES WHICH WERE OBTAINED FOR SPHEROIDAL OSCILLATIONS WITH SMALL N. THE RESULTS GIVEN IN THE PAPER WILL GUIDE EXPERIMENTERS AS TO THE XO SUBSN VALUES WHICH SHOULD BE EXPECTED FROM OBSERVATIONS.

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AUTHOR-(02)-ZHARKOV, V.P., ORLOV, YU.V.

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