

USSR

UDC 621.385.623.5:621.372.235

DEVYATKOV, M.N., KOSTIYENKO, A.I., PIRCOV, YU. A., ROMANYUK, S.H.

"Investigation Of Reflex Klystrons In Regimes Of Rectification And Bias"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 9, pp 86-90 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A165)

Translation: Reflex klystrons for the 3-cm, 8-mm, and 4-mm band were investigated in regimes of rectification and signal bias. Their sensitivity in a rectification regime is not lower, and in a number of cases is higher, than the sensitivity of crystal rectifiers for corresponding wave bands. Author's Abstract.

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KOSTIYENKO, T. N.

JPRS 55570
N 7 1/20 72

UDC: 378.661(477.62+470.45)

EXPERIENCE OF OFFERING UNDERGRADUATE INTERNSHIPS IN VULNERABLE AND DANGEROUS MEDICAL INSTITUTIONS

Article by G.V. Puzhikov, T.N. Kostiyenko, Central Methodological Office for Higher Medical Education, USSR Ministry of Health, Moscow, Sovetskoye Zdravookhraneniye, Buraim, No 2, 1972, submitted 24 September 1971, pp 42-47

The directives of the 24th Congress of the CPSU pertaining to the five-year plan of development of the national economy (1971-1975) set forth the task of developing higher and secondary special education in accordance with the demands of scientific-technological progress, of improving the quality of training and of political ideological upbringing of future specialists.

As we know the problem of general physicians has been resolved in the USSR. This is the prerequisite for a shift toward training specialists, as dictated by the development of Soviet public health care, and in particular by the distribution of specialized medical services.

One of the means that helps improve the quality of differentiated medical training is introduction of primary specialization: pretransition internships within the medical institute in the 6th year and postgraduate specialization for one year after graduating from the medical institute, when specialization in the main medical specialties is obtained.

The undergraduate specialization, internship, is offered in all medical institutes since the 1957/58 school year. Undergraduate internships were started in therapy, surgery, obstetrics and gynecology in medical institutes since 1964, in the therapeutic faculty, as well as in pediatrics and childhood infectious pathology, and pediatric surgery on the pediatric faculty.

Primary specialization is a very complex organizational problem. Undergraduate specialization in medical institutes has led to a revision of the structure of therapeutic and pediatric faculties with distinct consideration of the number of hours spent in each clinical discipline. Undergraduate internships are rendered more complicated also for the reason that

1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--DISTRIBUTION OF BOUND LIPIDS IN REGENERATING SKELETAL MUSCLE FIBERS
OF RATS -U-
AUTHOR--KOSTKIN, V.B. *K*
COUNTRY OF INFO--USSR
SOURCE--BIOL. NAUKI 1970, (1), 50-3
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MUSCLE TISSUE, TRAUMA, LIPOPROTEIN, HISTOCHEMISTRY, TISSUE
REGENERATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0621 STEP NO--UR/0325/70/000/001/0059/0053
CIRC ACCESSION NO--AP0117847
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117847

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN TRAUMATIZED MUSCLE FIBERS OF RATS A HIGHER ANT. OF LIPOPROTEINS WAS DETECTED HISTOCHEM. THAN IN THE INTACT FIBERS. WITH DEEPENING NECROSIS, THE SUDANOPHILIA OF THE MUSCLE FIBERS INCREASED. DURING THE REGENERATION PROCESS A HIGHER CONTENT OF BOUND LIPIDS WAS OBSD. WITH FURTHER CELL DIFFERENTIATION THE SUDANOPHILIA OF THE REGENERATING MUSCLE FIBERS DECREASED AND LIPOPROTEINS WERE LOCATED MOSTLY IN THE MYOFIBRILLAR APP.
FACILITY: LENINGRAD. MED. INST., LENINGRAD, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--TEMPERATURE FUNCTION OF THE FLUORESCENCE POLARIZATION OF
PHTHALIMIDE SOLUTIONS ACCORDING TO THE ABSORPTION SPECTRUM -U-
AUTHOR-(03)-RUDIK, K.I., PIKULIK, L.G., KOSTKO, M.YA.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(3), 76-81

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--IMIDE, FLUORESCENCE, GLYCEROL, BUTANOL, PROPANOL, ABSORPTION
SPECTRUM, THERMAL EFFECT, EXCITED STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0847

STEP NO--UR/0139/70/013/003/0076/0081

CIRC ACCESSION NO--AP0124512

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--A0124512

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE WAVELENGTH OF THE EXCITATION RADIATION ON THE DEGREE OF POLARIZATION OF THE FLUORESCENCE OF SOLNS. OF 3 AND 4,AMINOPHTHALIMIDE, AND 3,MONOMETHYLAMINO,N,METHYLPHTHALIMIDE IN GLYCEROL, ISO,BOOH, AND PROM WAS STUDIED BY MEASURING ABSORPTION SPECTRA OF THE SOLNS. AT NEGATIVE 80 TO 70DEGREES, VARIOUS CONCNS. OF THE PHTHALIMIDES, AND VARIOUS DURATIONS AND WAVELENGTH OF THE EXCITATION RADIATION. AT HIGH TEMPS. THE EXCITATION RADIATION FREQUENCY DEPENDENCE ON THE DEGREE OF POLARIZATION IS NEGLIGIBLE. IN THE LONGWAVE EXCITATION REGION, THE DEGREE OF POLARIZATION INCREASES WITH DECREASING TEMP. TO A MAX. OF SIMILAR TO 50PERCENT. THE FREQUENCY DEPENDENCE OF THE POLARIZATION IS ALSO DETD. BY THE DURATION OF THE EXCITATION RADIATION. THE RESULTS ARE DISCUSSED IN TERMS OF THE SUPERPOSITION OF THE 1ST AND 2ND BAND IN THE SPECTRUM.

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

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--FLUOROMETRIC ANALYSIS OF VIBRATORY ENERGY TRANSFER DURING MOLECULAR
IMPACTS -U-
AUTHOR--(04)-PIKULIK, L.G., SEVCHENKO, A.N., YAKOVENKO, V.A., KOSTKO, M.YA.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKLAD. SPEKTROSK (USSR), VOL. 12, NO. 4, P. 682-90, APRIL
1970
DATE PUBLISHED----APR 70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--FLUORESCENCE, ABSORPTION SPECTRUM, GAS STATE, MOLECULAR
PHYSICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1114 STEP NO--UR/0368/70/012/004/0682/0690
CIRC ACCESSION NO--AP0136534
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136534

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTRODUCTION OF GASES INTO FLUORESCENT VAPORS AMPLIFIES THE RADIATION DUE TO LOWER PROBABILITY OF NONRADIATIVE TRANSITIONS. THE PHENOMENON IS EXPLAINED BY VIBRATORY ENERGY TRANSFER FROM EXCITED MOLECULES TO THE INTRODUCED GAS PARTICLES. THE INFLUENCE OF THE OUTSIDE GASES UPON THE LIFE OF PHTHALIMIDE VAPOR EXCITED STATE, SPECTRA AND QUANTUM IS DESCRIBED. THE CHARACTERISTICS PERMIT THE EVALUATION OF ENERGY TRANSFER BY DIRECT FLUOROMETRIC MEASUREMENTS TO BE MADE. CONSTANCY OF OUTPUT AND OF DURATION OF FLUORESCENCE WITHIN A BROAD ABSORPTION SPECTRUM POINT TO ESTABLISHMENT OF THERMODYNAMIC BALANCE OF MOLECULE IN THE MEDIUM. STABILIZATION OF FLUORESCENT MOLECULES IS QUITE EFFECTIVE IN BOTH STOKES' AND ANTI STOKES REGIONS OF THE EXCITATION SPECTRUM.

UNCLASSIFIED

1/2 048 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--POSSIBILITY OF STUDYING THE COMPOSITION OF THE UPPER ATMOSPHERE
WITH THE AID OF RESONANCE SCATTERING EFFECTS -U-
AUTHOR-(03)-SHVIDKOVSKIY, YE.G., KOSTKO, O.K., CHAYANOVA, E.A.

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKIE ISSLEDOVANIYA, VOL. 8, MAR.-APR. 1970, P. 310, 311

DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, PHYSICS

TOPIC TAGS--UPPER ATMOSPHERE, RESONANCE SCATTERING, LASER RADIATION,
ATMOSPHERE COMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1761

STEP NO--UR/0293/70/000/000/0310/0311

CIRC ACCESSION NO--AP0115590

UNCLASSIFIED

2/2 048

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0115590

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF THE POSSIBILITY OF USING RESONANCE BACKSCATTERING OF LASER RADIATION PROPAGATING THROUGH THE EARTH'S ATMOSPHERE AS A MEANS OF STUDYING THE COMPOSITION OF THE UPPER ATMOSPHERE. ON THE BASIS OF AN ANALYSIS OF THE RADIATIVE TRANSITIONS CHARACTERISTIC OF CERTAIN STATES OF NITROGEN MOLECULES, IT IS SHOWN THAT THIS BACKSCATTERING EFFECT, ALTHOUGH HARMFUL FOR PURPOSES OF COMMUNICATION AND INFORMATION TRANSMISSION, IS USEFUL FOR STUDYING THE FINE STRUCTURE OF THE COMPOSITION OF THE ATMOSPHERE. AN ESTIMATE IS MADE OF THE EFFECT OF RESONANCE BACKSCATTERING DUE TO ABSORBING NITROGEN MOLECULES AND IONS IN THE EARTH'S ATMOSPHERE ON THE ENERGY ENTERING THE RECEIVER OF AN OPTICAL RADAR.

UNCLASSIFIED

Acc. Nr:

AP0036754

Abstracting Service:
CHEMICAL ABST. 4/70

Ref. Code:

UIC 0068

K

78824c Separation of 2,4-lutidine by an azeotropic rectification method. Gluzman, L. D.; Slachinskii, Yu. A.; Kostuchka, V. P. (USSR). ~~Koks Khim.~~ ~~1970, (1), 42-3~~ ~~Khim. i Tekhn. Org. Sintez~~
Lutidine (I) of 99% purity was sepd. in 79.6% yield by azeotropic distn. of 617.5 g crude I (45.02% I, 26.15% 2,5-lutidine, 1.43% 2,3-lutidine, and α -, β -, and γ -picoline, 2,6-lutidine, and C₄H₇N in lesser amts.) with H₂O to make 3 l. and dehydration of the distillate by azeotropic distn. with C₆H₆. The remaining azeotropes had close b.ps. which rendered sepn. impossible.

Lucile S. Davison

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ALS

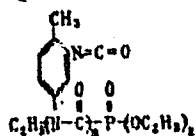
REEL/FRAME

19721667

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USSR

NIKOLAYEV, V. N., et al., Otkrytiya, Izobreneniya, Promyshlennyye Obratzy, Tovarnyye Znaki, No 17, 1971, Author's Certificate No 304260, Division C



where n=7-8. The copolymerization is done in the presence of 2,4-diazo-bicyclo-2,2,2-octane as a catalyst.

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1/2 015

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--MOLECULAR MOTION IN CELLULOSE NITRATES STUDIED BY NUCLEAR MAGNETIC RESONANCE -U-

AUTHOR--(05)--KOSTOCHKO, A.V., CHENBORISOVA, L.YA., MARLAKOV, A.I., MAKOVYEVA, G.N., FUKTISTOVA, D.B.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(1), 72-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CELLULOSE, NITRATE, NUCLEAR MAGNETIC RESONANCE, PLASTICIZER, PHTHALATE, ORGANIC PHOSPHATE, GLUCOSIDE, SPIN RELAXATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0314

STEP NO--UR/0460/70/012/001/0072/0074

CIRC ACCESSION NO--AP0111508

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111508

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOL. MOTION IN CELLULOSE NITRATE (I) PLASTICIZED WITH 35-55PERCENT OF DI-(3D) PHTHALATE, TRICRESYL PHOSPHATE, OR GLYCEROL TRINITRATE WAS INVESTIGATED BY NMR SPECTRA AT MINUS 140 50 MINUS 20DEGREES. A PLOT OF 2ND MOMENT (DELTA H SUB2 PRIME2) VS. TEMP. FOR THE PLASTICIZED I SAMPLES INDICATED THAT DELTA H SUB2 PRIME2 WAS INVERSELY PROPORTIONAL TO TEMP. IN THE RANGE OF MINUS 10 TO PLUS 20DEGREES, PRESUMABLY DUE TO THE FLEXIBILITY OF THE PYRANOSE RING AND HINDERED MOTIONS ABOUT THE GLUCOSIDE BOND C,O,C. THE HIGH MAGNITUDE OF DELTA H SUB2 PRIME2 WAS ACCOUNTED FOR BY A HYPOTHESIS THAT THE CH SUB2 OND SUB2 GROUP REVOLVES ABOUT THE RING AT MINUS 140DEGREES AT A FREQUENCY OF 10 PRIME4, WHICH WAS CONSISTENT WITH THE EXPTL. DATA. INCREASED PLASTICIZER CONTENT CAUSED A CONTRACTION IN THE NMR BAND AND AN INCREASE IN THE SPIN SPIN RELAXATION TIME (CHARACTERISTIC OF MOL. PLASTICIZATION). THE SPIN SPIN RELAXATION TIME FOR I PLASTICIZED WITH EQUAL AMTS. OF EACH OF THE 3 PLASTICIZERS WERE SIMILAR.

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022

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PROCESSING DATE--16OCT70

TITLE--KINETIC ENERGIES AND MASS DISTRIBUTIONS OF FRAGMENTS OF CURIUM-244
SPONTANEOUS FISSION -U-

AUTHOR--(05)-ALKHAZOV, I.D., KOSTOCHKIN, D.I., KOVALENKO, S.S., MALKIN,
L.Z., PETRZHAK, K.A.

COUNTRY OF INFO--USSR

K

SOURCE--YAD. FIZ. 1970, 11(3), 501-7

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CURIUM, ENERGY SPECTRUM, PARTICLE DISTRIBUTION, FISSION
PRODUCT, SEMICONDUCTOR DETECTOR, COINCIDENCE COUNTING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/1057

STEP NO--UR/0367/70/011/003/0501/0507

CIRC ACCESSION NO--AP0110747

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0110747

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SURFACE BARRIER SI DETECTOR SYSTEM OF 4 TIMES 10 PRIME NEGATIVE 7 SEC RESOLN. WAS CALIBRATED BY THE ALPHA LINE OF PRIME 239 PU AND THERMAL N IRRADIATED PRIME 235 U TO MEASURE THE FISSION DATA OF PRIME 244 CM ELECTRODEPOSITED ON 80 MU G=CM PRIME 2 OF AL; SMALLER THAN 1 PERCENT OF THE FISSION EVENTS COINCIDED WITH ALPHA EMISSIONS. THE KINETIC ENERGY AVERAGED 188.6 PLUS OR MINUS 1.6 MEV; THAT OF THE LIGHT WT. FISSION PRODUCTS (AV. MOL. WT. 104.6 PLUS OR MINUS 1.0) 107.5 PLUS OR MINUS 1.2 MEV; THAT OF THE HEAVY FISSION PRODUCTS (AV. MOL. WT. 139.0 PLUS OR MINUS 1.4) 81.1 PLUS OR MINUS 1.0 MEV. THE STD. INCLINATIONS WERE 11.5 MEV AND 5.9 AMU. IN ADDN., STABLE MASSES OF 146, 140, 137, 136, AND 134 AMU WERE ASSOCD. WITH 162-9, 130-3, 196-209, 202-6, AND 208-16 MEV.

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DEC 669.01

SIDORIN, I. I., Doctor of Technical Sciences, Professor; MOLMAKOVA, A. A., Assistant; KURKIN, S. A., Doctor of Technical Sciences, Professor; ~~KOSTOGONOV, V. G.~~, Engineer, Moscow Higher Technical School imeni N. E. Baumann, Central Scientific Research Institute of Ferrous Metallurgy

"On the Effect of Plastic Deformation Under Biaxial Stretching at Liquid Nitrogen Temperatures on the Structure and Properties of 1Kh16N10T Steel"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye, No. 12, 1971, pp 105-109

Abstract: The plastic deformation was determined and the structure and mechanical properties of 1Kh16N10T steel were studied. The steel was intended for the fabrication of vessels and various welded reservoirs operating under conditions of biaxial stretching at low temperatures. It is noted that austenite stainless steels are very important structural materials in cryogenic technology and a basic feature of their behavior under deep cooling is a rise in strength while maintaining sufficient plasticity. Experimental data was available on the mechanical properties of many steels of the austenite class under axial

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- . SIDORIN, I. I., et al, Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye, No. 12, 1971, pp 105-109

stretching at low temperatures, but there has not been data for biaxial stretching and therefore the effect of plastic deformation under conditions of biaxial stretching on the structure and properties of samples of 1Kh18N10T steel were studied at liquid nitrogen temperatures. Comparison of the results obtained under biaxial stretching conditions with published data for uniaxial stretching shows that the martensite is considerably greater than under uniaxial stretching conducted at a temperature of -196°C . This is in good agreement with the results of strength tests showing a considerably greater effect of strengthening under biaxial stretching than under axial stretching. At a temperature of 20°C both biaxial and uniaxial stretching did not lead to a considerable formation of martensite. It is concluded that the transformation of austenite into martensite under biaxial stretching of 1Kh18N10T steel at liquid nitrogen temperatures occurs considerably more intensively than under uniaxial stretching. This is attributed to the greater intensity of strengthening of the steel under biaxial stretching under low temperature conditions than under uniaxial stretching.

Acc. Nr: **AP0041316**

Ref. Code: UR 0422

PRIMARY SOURCE: Standarty i Kachestvo, 1970, Nr 1, pp 21-24

Typization Accelerates Development of Manufacturing Procedures in Tool Production.

Kostolomov, E. F.; Gorbunov, Yu. M.; Lisitsa, Ya. G.

The article describes practical applications of typified manufacturing processes in the operation of a tool shop. Typization is very efficient here, as frequent repetitions of objects, specific for all the tool shops, bring about favourable conditions for introducing the typified manufacturing processes.

MIT

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REEL/FRAME
19751171

18

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UDC 621.039.626

DNESTROVSKIY, Yu. N., and KOSTOMAROV, D. P.

"Energy Balance in 'Tokamak' Plasmas"

Moscow, Atomnaya energiya, Vol 29, No 6, Dec 70, pp 434-438

Abstract: Plasma energy balance in the Tokamak reactor is computed on the assumption that the losses are classical in nature. This paper gives the results of a numerical solution for ion and electron heat conductivity equations and the equations for the magnetic field of the plasma column current with the classical transfer factors taken into account. Through these computations, investigations are made of the ion and electron temperature and energy life-time as functions of the geometric dimensions of the plasma column, the plasma density, the intensity of the longitudinal magnetic field, and the discharge current power. Results of the computations are found to be in good agreement with the available experimental data. In the analysis, it is assumed that for the Tokamak system, the diffusion life time is much larger than the energy life time; as a consequence, the plasma diffusion can be neglected in comparison with the thermal conductivity, and the plasma density can be considered independent of time.

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1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--AUTORADIOGRAPHIC STUDY OF THE SYNTHESIS OF NUCLEAR RNA IN INTACT
EMBRYOS AND ISOLATED CELLS OF MISGURNUS FOSSILIS -U-
AUTHOR--(021)-KOSTOMAROVA, A.A.; KOROBTSOVA, N.S.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSR 1970, 191(2), 493-5

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, METHODS AND EQUIPMENT

TOPIC TAGS--AUTORADIOGRAPHY, RNA, EMBRYOLOGY, NUCLEUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605006/F02 STEP NO--UR/0020/70/191/002/0493/0499

CIRC ACCESSION NO--AT0139814

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0139814

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE TITLE SYSTEMS INCUBATED WITH URIDINE PRIME3 H, ACTIVATION OF NUCLEAR RNA SYNTHESIS APPEARS FROM THE STAGE OF MID BLASTULA ONWARD AND INCREASES IN INTENSITY WITH DEVELOPMENT OF EITHER THE NUCLEI OF ISOLATED CELLS OR INTACT ISOLATES. HOWEVER, INCLUSION OF PRIME3 H IS MORE INTENSE WITH NUCLEI OF ISOLATED CELLS THAN WITH INTACT ISOLATES OF SAME AGE. FACILITY: INST. BIOL. RAZV., MOSCOW, USSR.

UNCLASSIFIED

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UDC: 8.74

SMIRNOVA, T. N., KOSTOMETOVA, Ya. M., RYBAKOVA, Yu. V.

"On Making Calculations in the PRORAB Mode"

Zap. nauch. seminarsov Leningr. otd. Mat. In-ta AN SSSR (Notes of Scientific Seminars of the Leningrad Department of the Mathematics Institute, Academy of Sciences of the USSR), 1971, 23, pp 132-137 (from EZh-Kibernetika, No 5, May 72, Abstract No 5V518)

Translation: A report is made on the results of whole-number computer calculations in the mode of a special program of interpreting type -- PRORAB. For this purpose, the PRORAB library of the M-20 computer is supplemented in the division of programs of polynomial operations by a program of "division" of polynomials which enables transition from polynomial operations to operations with rational functions. When this transition is made, the elimination of all common multiples in the denominator and numerator of each rational function is found to be non-trivial. It is noted that a generalized version of Euclid's algorithm can be realized in the PRORAB mode on the basis of the program of "division" of polynomials. A brief presentation is given of an approach to realization of programs of arithmetic operations on large whole numbers. V. Mikheyev.

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UDC: 681.352.65

USSR

DOLGOPOLOV, V. N., BOVKUNENKO, O. A., KOCHKONOGOV, A. S., ~~POSTORILICHENKO~~
V. F., Taganrog Radio Engineering Institute

"A Device for Stabilizing the Average Frequency in Random Pulse Generators"

USSR Author's Certificate No 291213, filed 22 Sep 69, published 29 Mar 71
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct
71, Abstract No 10B223 F)

Translation: The device can be used for stabilizing the intensity of any random pulse train varying over a wide range. Streams of random pulses with stabilized intensity are used in studying various queuing systems, determining the interference suppression of data transmission systems, and modeling various technical systems. Devices are known for stabilizing the average frequency in random pulse generators. These devices are constructed on the principle of automatic control of the noise discrimination level and contain converters, filters, a comparison circuit, and an amplifier. The purpose of the invention is to simplify the electrical circuit of the stabilization device, to improve its reliability by reducing the number of components.

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DOLGOPOLOV, V. N. et al., Soviet Patent No 291213

parts in the circuit, and to provide stabilization of the average frequency throughout the entire range of variation without additional switching in the feedback circuit, while maintaining effective and simple control of the average frequency of the random pulse generator. In the proposed device, which is constructed on the principle of a closed automatic control system and contains a random pulse generator, a device for converting the average frequency of the random pulses to DC voltage, a DC amplifier, a low-frequency filter and a device for regulating the average frequency, the above-mentioned purpose is achieved by combining the comparison element, DC amplifier, and device for controlling the average frequency of the random pulses into a bridge-type balanced DC amplifier. Two illustrations.

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UDC B.74

USSR

DOLGOPOLOV, V. N., GONDAREV, V. P., PANOVA, D. N., ~~KOSTOMAROVA, Y. G., FEDOR-
ENKO, I. I.~~

"Generator of Normal Discrete Random Processes with a Given Correlation Func-
tion"

V sb. Regional'n. nauch.-tekhn. seminar po stat. analizu, modelir. i avtomatiz.
kontrol'va ob'v'ektov s konstruktivnoslozh. strukturay (Regional Scientific and
Technical Seminar on Statistical Analysis, Simulation and Automation of the
Control of Objects with Structurally Complex Structures -- collection of works),
vyp. 3, Taganrog, 1971, pp 13-21 (from RZh-Kibernetika, No 7, Jul 72, Abstract
No 7V562)

No abstract

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UDC 3.74

USSR

KOSTORNICHENKO, V. G.

"Problem of Generating Random Binary Numbers with Given Probability Distribution Law"

V sb. Regional'n. nauch.-tekhn. seminar po stat. analizu, modelir. i avtomatiz. kontrolya ob'ektov s konstruktivnoslozh. strukturoy (Regional Scientific and Technical Seminar on Statistical Analysis, Simulation and Automation of the Control of Objects with Structurally Complex Structure — collection of works), vyp. 3, Taganrog, 1971, pp 31-34 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V563)

No abstract

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USSR

UDC: 632.951

KOSTORNOY, V. F. Bol'sherechenskiy Seed Testing Laboratory

"Effectiveness of Wheat Grain Treatment Against the Black Gera"

Moscow, Khimiya v Sel'skom Khozyaystve, no 11, Nov 7, pp 35-36

Abstract: Analysis of wheat in the Seed Testing Laboratory area had shown that 1-2% of the grain had been affected by the black gera; a shipment from another area revealed about 10% of diseased grain. A microscopic examination indicated the fungus *Helminthosporium* to be the causative agent. Described here are tests involving the treatment of the affected grain with TMD and cryptodine at 2 kg/ton of grain. The tests have shown that in grain treated with TMD the basic qualitative indices attained their maximum value in about two months following treatment. In grain

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KOSTOMNOY, V. E., Khimiya v Sel'skom Khozyaystve, no 11, Nov 70, pp 35-36

treated with cryptodine the seed vigor and germinating power appeared one month after treatment. At the end of the second month both the seed vigor and germinating power dropped by 6%, suggesting that the treatment be conducted 1-1.5 month after treatment. Production scale tests were also conducted at the Yevshchagin'skiy sovkhos. Wheat in which 10.9% of the grain was affected by the black germ was pretreated with cryptodine. A survey has shown that the field germination rate was high, 400-450 stalk per 1 m². A sampling of grain in ears revealed a maximum of 2-3% affected grain. Some of this infestation was probably due to soil infection.

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UDC 543.77

FEDOROVA, M. N., KRIVODUBSKAYA, K. S., OSOKINA, G. N., and KOSTOUSHOVA, T. I.
Fazovyy Khimicheskiy Analiz Rud Chernykh Metallov i Produktov Ikh Pererabotki
(Phase Chemical Analysis of Ores of Ferrous Metals and Products of Their
Treatment) "Nedra" Publishing House, Moscow, 1972, 160 pp

Translation of Foreword Annotation: The further development of ferrous metallurgy requires an ever increasing amount of high-quality ores. Therefore, the dressing of ores for metallurgical treatment is of great importance. More sophisticated technological schemes of ore beneficiation for assuring complete and complex extraction of valuable ore components should be developed in the coming years.

In order to correctly evaluate the industrial properties of ores being processed, a thorough and detailed study of their compositions is required, especially, a determination of the quantitative ratio of different mineral forms of elements composing them. Phase analysis, which along with other methods has found wide application in various branches of science and technology, is of importance in the compositional study of minerals.

The phase analysis method for non-ferrous and trace elements is the most highly developed (Dolivo-Dobrovolskiy, Klimenko, 1947; Filippova, 1964; Khristoforov, 1964, 1965). The literature regarding the methods of phase analysis of ores of ferrous metals is represented only by a few journal articles and several manuscripts.

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USSR

FEDOROVA, M. N., et al., Fazovyy Khimicheskiy Analiz Rud Chernykh Metallov i Produktov ikh Pererabotki, "Nedra" Publishing House, 1972, 160 pp

The methods of phase analysis for iron, manganese, and chromium ores that are mentioned in the monograph of V. V. Dolivo-Dobrovolskiy and Yu. V. Klimenko have not been developed very far. Presently they do not satisfy the high standards set up by concentration plants with respect to the elemental composition of ferrous ores. It should be noted that neither the domestic nor the foreign literature provides sufficiently complete manuals for the phase analysis of ferrous ores. Thus, it was thought expedient to generalize the works done in this field.

The present work systematizes the experience accumulated by many scientific research institutes (Uralsmekhanobr, Mekhanobr, Mekhanobshermet) and tested at industrial plants in the Ural, Kazakhstan, Central, and Southern regions of the USSR for many years. Most of the methods presented were developed, tested, and perfected by the authors of this book.

The book describes the methods of phase analysis of different types of iron, manganese, titanium, and chromium ores, as well as beneficiation products and pelletized products prepared from iron concentrates. In some cases a detailed description is given of individual methods. This material can be useful for the evaluation of the ore analysis results, and in individual cases,

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USSR

FEDOROVA, M. N., et al., Fazovyy Khimicheskii Analiz Rud Chernykh Metallov i Produktov ikh Pererabotki, "Nedra" Publishing House, 1972, 160 pp

where data are available for comparison, it can be of help in selecting a more rational direction for future studies.

The authors will gratefully accept any comments regarding the application of methods given in this book to various ores, suggestions regarding modifications, improvements, and simplification of these methods, and reports of the development of new methods at various laboratories.

The authors thank Senior Scientist F. K. SOLOMONOVA for valuable comments and for the mineralogical analysis of ores during the development of the phase analysis methods. The authors are also grateful to Candidate of Technical Sciences N. N. MASLENITSKIY, YE. T. KARAPETYAN, Doctor of Technical Sciences V. V. DOLIVO-DOBROVOL'SKIY, Doctor of Chemical Sciences N. A. FILIPPOVA, and senior scientists R. S. MIL'NER, A. G. LYASHENKO, I. G. GULEVITSKAYA and P. YE. MERLINA who gave us much valuable advice in examining the manuscript and gratefully helped us in the preparation of the manuscript for publication.

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FEDOROVA, M. N., et al., Fazovyy Khimicheskiy Analiz Rud Chernykh Metallov i Produktov ikh Pererabotki, "Nedra" Publishing House, 1978, 160 pp

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FEDOROVA, M. N., et al., Fazovyy Khimicheskiy Analiz Rud Chernykh Metallov i Produktov ikh Pererabotki, "Nedra" Publishing House, 1972, 160 pp

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FEDOROVA, M. N., et al., Fazovyy Khimicheskiy Analiz Rud Chernykh Metallov i Produktov ikh Pererabotki, "Nedra" Publishing House, 1972, 160 pp

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KOSTOV, K.L.

Cybernetics

COPIES 50072
23 MAY 73

UDC 62-50

Сукнин

AUTOMATA BEHAVIOR IN RANDOM MEDIA WITH RESTRICTED LENGTH OF INPUT WORDS

Article by E. M. VOLOVA and K. L. KOSTOV; Moscow, Avtomatika i Telemekhanika, No. 2, 1971, pp. 202-204, 20 illustrations.

Continuing through to the end of the first part we look at the deterministic automata which function in a stationary random medium. The correct operation of the automaton (receptivity) also depends on the values of x_0 (initial) and x_1 (final). It is also assumed that the automaton performs activity y_i in the medium (over the input variables for $1 \leq i \leq n$) with the probability P_i and y_i with probability $Q_i = 1 - P_i$. In activity y_i the variables x_i and x_{i+1} are formed with the probabilities P_{ij} and Q_{ij} respectively.

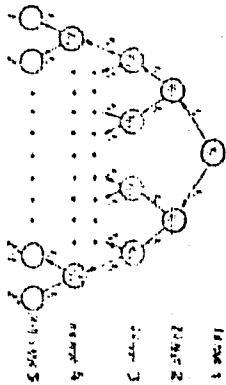


Figure 1

- Key:
- 1. 1st layer
 - 2. 2nd layer
 - 3. 3rd layer
 - 4. nth layer
 - 5. (n + 1)th layer

Hydraulic and Pneumatic

USSR

UDC: 536.24:532.54

KORNIYENKO, T. S., GUBER, Yu. Ye., KOSTOV, P. D.

"Determination of Hydraulic Drag Based on Experimental Data on Mass Transfer at High Schmidt Numbers"

V sb. Teplo- i massopereenos (Heat- and Mass-Transfer--collection of works), T. 1, Minsk, 1972, pp 285-287 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B788)

Translation: In this research the authors determined the hydraulic drag of a rotating cylinder 70 mm high and 100 mm in diameter at Reynolds numbers of 10^4 - $1.2 \cdot 10^6$, and of the central zone in the bottom of a channel of rectangular cross section 80 mm wide and 30 mm high; the Schmidt numbers were $2 \cdot 10^3$ - $1.3 \cdot 10^6$ in the first case, and $5.9 \cdot 10^2$ - 10^5 in the second. In the experiments with the cylinder, the working surface was comprised of rectangular sections of the lateral surface with a height of 20 mm along the generatrix of the cylinder and extending along the circumference 2, 10 and $3\frac{1}{4}$ mm, while in the experiments with the channel the working surface was made up of plates 50 and 20 mm wide and 25, 50, 100 and 200 mm long flush with the bottom of the channel. In the experiments with the cylinder the limiting diffusion currents were measured in

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USSR

KORNIYENKO, T. S. et al., Teplo- i massoperenos, T. 1, Minsk, 1972, pp
285-287

the potassium ferro-ferricyanide redox reaction in aqueous solutions of caustic soda on nickel cathodes. In addition, use was made of the method of dissolving working surfaces made by pressing benzoic acid at a pressure of $2 \cdot 10^8 - 4 \cdot 10^8 \text{ N} \cdot \text{m}^{-2}$ in water and in water-glycerin solutions. Only the dissolution method was used in the experiments with the channel.

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1/2 006 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--REDUCTION IN THE CRITICAL MICELLE CONCENTRATION IN AQUEOUS SOAP
SOLUTIONS UNDER THE INFLUENCE OF DISSOLVED HYDROCARBONS AT VARIOUS
AUTHOR--(03)-MARKINA, Z.N., KOSTOVA, N.Z., REBINDER, P.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 141-3

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SOAP, SOLUBILITY, AQUEOUS SOLUTION, BENZENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1128

STEP NO--UR/0020/70/191/001/0141/0143

CIRC ACCESSION NO--AT0119982

UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0119982

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRIT. CONC. OF MICELLE FORMATION IS REPORTED FOR NA SALTS OF C SUB6-14 ALIPHATIC ACIDS IN SYSTEMS CONTG. C SUB6 H SUB6, PHET, AND C SUB8 H SUB10 BESIDES THE AQ. PHASES. INTRODUCTION OF TRULY DISSOLVED HYDROCARBONS INTO THE AQ. PHASE PROMOTES MICELLE FORMATION AND DECREASES THE CRIT. CONC. THIS EFFECT DECREASES WITH INCREASING CHAIN LENGTH OF THE SOAP USED AND WITH REDN. OF SOLY. OF THE HYDROCARBON IN PURE H SUB2 O AND WITH DECREASING TEMP. THE SIGNIFICANCE OF THESE FACTORS IS DISCUSSED AT LENGTH ON THE BASIS OF THE STATISTICAL THERMODYNAMIC MODEL OF MICELLE FORMATION.
FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 614.777:632.95

KOSTOVETSKIY, Ya. I., TOLSTOPYATOVA, G. V., and CHEQRINETS, G. Ya.,
A. N. Marzeyev Kiev Institute of General and Communal Hygiene

"Pollution of Open Bodies of Water by Pesticides Used in Agriculture"

Moscow, Gigiyena i Sanitariya, No 10, 1973, pp 99-100

Abstract: Of 456 soil samples, 224 water analyses, and 216 determinations of bottom sediments from ponds and small streams and adjacent fields and shelter-belts in different soil and climatic zones of the Ukraine, DDT, dieldrin, metaphos, chlorophos, etc. were detected in 97 (21.3%), 16 (7.1%), and 54 (25%), respectively. Mostly organochlorine pesticides were found in the soil and bottom sediments (in 92.9 and 85.2% of the cases) and organophosphorus compounds in the ponds and streams (in 75% of the cases). The surface runoff from the fields and orchards is a major factor in the pollution of the ponds and streams, for the concentrations of the pesticides are highest after the first rains following spraying.

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- 16 -

70540m water system of power stations for electric power plants). Kostrikin, Ya. M.; Dzysyuk, A. A.; Toboleva, A. D. (Vses. Teploenerget. Inst., Moscow, USSR). *Teploenergetika* 1970, 17(1), 74-5 (Russ). The chem. and spectral anal. of the deposits formed in the flow regions of the turbines was carried out. The main components of the deposits are compdr. of Si, Al, Fe, and to a lesser extent Na and Cu. The content of Fe, Si, and Al oxides is usually tens of percents while Cu occasionally reaches also >10%. The Cu and Zn enter the water system by the corrosion of the low pressure preheater tubes. The Na is probably derived from the aging of the anion-exchanger units. The Fe content is directly assoc. with the no. of on-off switching events. The SiO₂ and Al₂O₃ are transported by the soln. in the high-pressure steam. Preventive means are outlined to minimize the amt. of deposits. M. Shefel -

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UDC 669.15-194.3:621.793:543.422

KRIVCHIKOVA, E. L., VASYUTINSKIY, B. M., and KOSTRITSA, T. V.

"Application of Local Spectral Analysis in Studying Heat-Resistant Coatings on Kh25N20S2 Steel"

Moscow, Zavodskaya Laboratoriya, Vol 36, No 9, 1970, pp 1065-1068

Abstract: A study was made of two types of heat-resistant coatings on type Kh25N20S2 austenitic steel obtained by vacuum-condensation calorizing and chromizing. The distribution of Al, Cr, Ni, Fe, and Si with respect to depth of the calorized layer was investigated by the method of local spectral analysis with the application of a line and point source. A comparative estimate of the two methods on the basis of experimental data showed good agreement. During the process of depositing Al and Cr on Kh25N20S2 steel a significant concentration of these elements are formed in the surface layers, and this promotes an increase in heat resistance of the steel. Comparison of the local spectral analysis data with microstructural and X-ray micrographic studies showed the possibility of discovering the basic structural components in the diffusion zone of the steel.

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USSR

KRIVCHIKOVA, E. L., et al, Zavodskaya Laboratoriya, Vol. 36, No 9, 1970, pp 1065-1068

The advantages of the method of analysis using a line light source are its localization, shallow depth of penetration, and the possibility of determining the concentration by any point; consequently, it reveals a continuous picture of variation of the concentration with respect to depth of the coating. However, the layer method of analysis has greater sensitivity and accuracy, and where it is necessary to analyze small admixtures and high localization is not required (-5-10 microns), it is more expedient to use a point source of excitation of the spectrum.

2/2

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ELECTROCHEMICAL BEHAVIOR OF A VANADIUM ELECTRODE AND OF ITS
POSSIBLE USE IN COULOMETRIC TITRATION -U-
AUTHOR--(03)-KOSTROMIN, A.I., AGASYAN, P.K., BASQV, V.N.
COUNTRY OF INFO--USSR
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 216-19
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--METAL ELECTRODE, VANADIUM, ELECTROCHEMISTRY, TITRATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2178 STEP NO--UR/0075710702570027021670219
CIRC ACCESSION NO--AP0125758

2/2 018

UNCLASSIFIED

PROCESSING DATE--800070

CIRC ACCESSION NO--AP0125758

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANODIC BEHAVIOR OF A V ELECTRODE IN SOLNS. OF VARIOUS ACIDS AND ALKALIES OF DIFFERENT CONCS. WAS STUDIED BY CONSTRUCTING CURVES OF THE DEPENDENCES I EQUALS $F(I)$ AND E EQUALS $F(I)$. THE PRODUCTS OF ANODIC POLARIZATION OF THE V ELECTRODE IN AN ACID MEDIUM ARE V(III) AND V(IV); THEIR FORMATION AND THE EFFICIENCY OF THEIR GENERATION CURRENT ARE A FUNCTION OF THE C.D. AND THE ACIDITY OF THE MEDIUM. AFTER ANODIC DISSOLN. OF V IN ALK. SOLNS., V(V) COMPS. ARE FORMED WITH A 100PERCENT CURRENT EFFICIENCY IN A WIDE RANGE OF ALKY. OF THE MEDIUM AND C.D. OPTIMUM CONDITIONS OF ELECTROGENERATION OF INTERMEDIATE PRODUCTS FROM METALLIC V ARE: V(VI), 0.1N H SUB2 SO SUB4, C.D. SMALLER THAN OR EQUAL TO 15 MA-CM PRIME2; AND V(V), SMALLER THAN OR EQUAL TO 0.1N NaOH, C.D. LARGER THAN OR EQUAL TO 2 MA-CM PRIME2. FACILITY: KAZAN. STATE UNIV., KAZAN, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--COULOMETRIC DETERMINATION OF MANGANESE(II), CERIUM(III), AND
VANADIUM(IV) -U-
AUTHOR--(03)-KOSTROMIN, A. I., AKHMETOV, A.A., ORLOVA, L.N.
COUNTRY OF INFO--USSR
SOURCE--ZH. ANAL. KHIM. 25, 195-6 JAN 1970
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--POTENTIOMETRIC TITRATION, MANGANESE, CERIUM, VANADIUM,
ANALYTIC CHEMISTRY, BRONZE, BRASS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1980/1192 STEP NO--UR/0075769/0257000/0195/0196
CIRC ACCESSION NO--AP0049370
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0049370

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COULOMETRIC TITRATION OF SMALL AMOUNTS OF MANGANESE(II), CERIUM(III), AND VANADIUM(IV) WITH ELECTROGENERATED DICHROMATE HAS BEEN CARRIED OUT IN 12M H SUB3 PG SUB4. THE END POINT OF TITRATION HAS BEEN ESTABLISHED BY VARIOUS METHODS. THE POSSIBILITY OF DETERMINING MANGANESE IN BRASS AND BRONZE IS DISCUSSED.

UNCLASSIFIED

USSR

UDC: 681.325.3

SALIN, O. A., ZHURAVIN, L. G. LITVINOV, V. I., KOSTROMIN, I. A., IL'IN, I. A.

"Variable Voltage Amplitude-Digital Code Converter"

USSR Authors' Certificate No 251957, Filed 5 May 1968, Published 30 January 1970 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B271P, by N. V.)

Translation: The converter suggested contains a null-balance device, one input of which is connected to the signal source, while the other is connected to a digital-analog converter connected to a source of standard voltage; a control circuit; distributor and counter, the output of which is connected to a digital-analog converter; and also an additional counter. The output of this last counter is connected to a digital-analog converter; the input, together with the input of the main counter, is connected through a distributor switched by the control circuit to the output of the null-balance device. This increases the speed of conversion. One illustration.

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KOSTROMIN, L. G.

Кристаллы стали

6

JPRS 60973
14 January 1974

DOC: 011019, 111662, 01278

RADIATION SWELLING OF STEEL OBN10MT

Article by V. M. Rylov, A. G. Yablun, V. N. Smirnov, L. G. Kostromin, A. G. Lashin, V. I. Zhuravsk, Moscow, Atomic Energy Institute, Bulletin, 1973, pp 275-277

Many works pertaining to the investigation of the radiation strength of austenitic steels have been devoted to the investigation of the radiation strength of OBN10MT steel and its stainless steel has been subjected to such thorough investigation. Information on the swelling of OBN10MT steel is limited to data for irradiation temperatures and integral doses [1]. The results of electron-microscopic analysis of the radiation porosity of OBN10MT steel are presented in this article.

Experimental Material and Technique

The specimens for electron-microscopic analysis were discs 3.5 mm in diameter and 0.4 mm thick, cut from various fuel element jackets made of OBN10MT steel and irradiated with integral doses of up to 4.4 x 10²¹ neutrons/cm² in the 430-590°C temperature range. The method of thermal treatment of the specimens in a stream of electrolyte (60% H₂PO₄ + 40% H₂SO₄) is described in [2].

Processing of the results was accomplished directly from the negatives with the aid of an instrumental microscope. The measurement error of cavity diameters was 20 Å. The concentration of the pores in the specimen was determined by measuring at least 600 cavities in a specimen with a thickness of 1.500 Å. The summary error of determination of the swelling of the material was 50%, but the scattering of the values from the arithmetic mean value for several measurements of the same specimen did not exceed 30%.

Investigation of the Swelling of OBN10MT Steel

Electron-microscopic analysis of the specimens revealed pores, homogeneously distributed through the body of the grain, the concentration

USSR

UDC 546.183

NIFANT'YEV, E. Ye., ANDRIANOVA, I. P., KOSTROMIN, N. P., and CHAN DIN' DAT,
Moscow State University imeni M. V. Lomonosov and Moscow Pedagogical
Institute imeni V. I. Lenin

"Acid Phosphites of Methylglucoside and 1,2-Cyclohexylidenoglucose"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1619-1624

Abstract: Phosphorylation of 1,2-cyclohexylideneglucoside and α -methylglucoside by the mono-, dimethyl phosphite and by phosphorous acid occurs principally at the primary alcohol group of the sugar. During the esterification of α -methylglucoside with the phosphorous acid a phosphonite is formed which can be oxidized to the respective phosphonate.

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Pulse Technique

USSR

UDC: 621.375.3.001.5:621.376.5

1K
TSESARUK, N. Ya., KOSTROMIN, V. K., KLYATSKIN, M. G., MALEDOV, V. I.

"A Method of Monitoring the Generation of a Control Command From a Pulse-Duration Modulator by the Armature of an Electromagnetic Drive Which Does not Have its Own Contact Groups"

Moscow, Otkrytiya, Izobrateniya, Promyshlennyye Obrabotki, Izobreteniya, No 21, 1970, Author's Certificate No 274222, filed 20 Jun 69, p 57

Abstract: This author's certificate introduces a method of monitoring the generation of a control command from a pulse-duration modulator by the armature of an electromagnetic drive which does not have its own contact groups. Monitoring is accomplished by forming electrical pulses corresponding to the times when armature motion is completed. As a distinguishing feature of the patent, the reliability of monitoring is assured by using the above-mentioned electric pulses to form a pulse signal corresponding to the generated command, and comparing this signal with the control command signal with respect to phase shift and frequency.

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1/2 022 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--DYNAMICS OF THE LIVER TISSUE PROTEINS IN CONNECTION WITH FORMATION
OF WATER ELECTROLYTIC BILE FRACTION -U-
AUTHOR--(031)-ESIPENKO, B.E., STARUSHENKO, L.I., KOSTROMINA, A.P. *R*
COUNTRY OF INFO--USSR
SOURCE--FIZIOLOGICHNIY ZHURNAL, 1970, VOL 16, NR 3, PP 336-340
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--LIVER, BILE, ELECTROPHORESIS, WATER METABOLISM, POTASSIUM
COMPOUND, SODIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS .
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/1360 STEP NO--UR/0238/70/016/003/0336/0340
CIRC ACCESSION NO--AP0115331
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115331

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONTENTS OF PROTEINS AND ELECTROFORETIC FRACTIONS QUANTITY OF WATER AND ELECTROLYTES WERE STUDIED IN THE LIVER TISSUE AND BILE AT DIFFERENT LEVELS OF BILIFICATION CONDITIONED BY THE STATE OF WATER SALT METABOLISM. A PRONOUNCED DEPENDENCE WAS FOUND OF PROTEIN CONTENT IN THE LIVER TISSUE ON THE STATE OF WATER SALT METABOLISM IN THE ORGANISM. WHEN THE ORGANISM IS OVERSATURATED WITH WATER, THE CONTENT OF TOTAL PROTEIN INCREASE BY 13PERCENT AND THAT OF "B" FRACTIONS OF WATER SOLUBLE PROTEINS IN THE LIVER TISSUE BY 40PERCENT. WITH AN INCREASE OF "B" FRACTION CONTENT IN THE LIVER TISSUE BY 1PERCENT THE AMOUNT OF POTASSIUM IN THE LIVER TISSUE RISES BY 24.6 SODIUM, BY 13.06 MEQ-KG OF RAW TISSUE, THE LEVEL OF BILIATION, BY 2.72 ML-MIN KG, SODIUM IN BILE BY 0.449 MEQ-MIN KG. A MORE CONSIDERABLE EXCRETION OF POTASSIUM WITH BIL CORRESPONDS TO A HIGHER CONTENT OF TOTAL PROTEIN IN THE LIVER TISSUE. THE OBTAINED RESULTS MAKE IT POSSIBLE TO CONSIDER THAT WATER SOLUBLE PROTEINS OF "B" FRACTIONS PLAY AN IMPORTANT ROLE IN THE FORMATION OF WATER ELECTROLYTIC BILE FRACTION. FACILITY: DEPARTMENT OF METABOLISM PHYSIOLOGY, THE A. A. BOGUMOLETZ INSTITUTE OF PHYSIOLOGY, ACADEMY OF SCIENCES, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC: 669.295:628.3

AKIMOVA, N. A., KARVATSKAYA, R. A. and KOSTROMINA, I. A.

"Flow Chart for Recycling the Water Supply at Titanium and Magnesium Plants"

Moscow, Tsvetnyye metally, No 3, Mar 72, pp 46-48

Abstract: Presented are the results of a series of research projects co-sponsored by the Titanium Institute with other titanium and magnesium combines on designing a water recycle flow chart for these combines. The new flow chart includes neutralization and demineralization of titanium and magnesium sewage for the purpose of making the water suitable for processing. The magnesium gas purifier drainage is decontaminated from hypochlorites with hydrochloric acid and phenolic water, while the spent solution is demineralized by distillation to produce commercial calcium chloride meeting GOST 450-58 specifications. All other neutralized and low-contamination drainages are combined at 1:2 ratios, treated with polyacrylamide (to remove oils) and demineralized by electro dialysis. The desalted water has a residual salt content of 0.5-1.0 g/l. The new system

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USSR

AKIMOVA, N. A., et al, Tsvetnyye metally, No 3, Mar 78, pp 46-48

will practically eliminate both the drainage of waste water into the water reservoir and the disposal of salts within the city limits. (1 illustration, 1 table, 4 bibliographic references).

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Automotive and Transportation

USSR

UDC 629.113.002.3

KOSTROV, A. V., Candidate of Engineering Sciences, and YAROV, B. S., Moscow
Automechanics Institute

"Analytical Calculation of the Temperature Field at the Bottom of a Moskvich-412 Automobile Engine Piston"

Moscow, Avtomobil'naya Promyshlennost', No 5, May 73, pp 6-6

Abstract: A method has been developed to calculate the temperature field at the bottom of a piston in a Moskvich-412 engine. Using initial values of coefficient of heat exchange from gases to bottom surface equal to $235 \text{ kcal/m}^2\text{-hr-degree}$, thermal conductivity of piston equal to $150 \text{ kcal/m-degree-cm}$ and gas temperature of 1730 C , as well as the geometric shape of the piston bottom the authors developed the equations to arrive at a final equation for insertion of the initial data and obtain the temperature field which essentially varies from 300 C at the piston bottom center to 270 C along the circumference. 4 figures, 6 bibliographic references.

1/1

USSR

VDC 421.514.61 (088.6)

KOSTROV, M.N., BITYAY, K.G.

"Push-Full Device For Phase Control Of A Thyristorized Converter"

USSR Author's Certificate No 255225, filed 22 July 68, published 26 Mar 70 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 43662P)

Translation: A circuit is proposed for phase control of a thyristorized converter with rectifier and inverter groups of [semiconductor] rectifiers. Two pulse shapers are used in the circuit, operating in antiphase. Each of the shapers contains a charging capacitor, a discharging dynistor, and output pulse transformers, the primary winding of which is connected into the discharge circuit of the capacitors. A special feature of the proposed device is the handling of the charging circuit of the capacitors. The capacitors are charged across two electron tubes connected in the circuit of a balance amplifier. 1 ill. L.R.

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1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THE ROLE OF ENDOCRINE FACTORS IN THE ORIGIN OF DTOSCLEROSIS -U-
AUTHOR--(02)-KOSTROV, N.I., KISELEV, A.S.
COUNTRY OF INFO--USSR
SOURCE--ZH USHN NOS GORL BOLEZ 30(1): 26-31. 1970
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EXCRETION, ACTH, SODIUM, POTASSIUM, ION, ADRENAL CORTEX,
ENDOCRINE SYSTEM, INNER EAR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3009/0184

STEP NO--UR/0593/70/030/001/0026/0031

CIRC ACCESSION NO--A90139047

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0139047
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN WOMEN SUFFERING FROM
OTOSCLEROSIS THERE IS A TENDENCY TO AN INCREASE IN THE EXCRETION OF
17-KETOSTEROIDS AND A RISE IN THE CONCENTRATION OF 17-OXYSTERIODS IN THE
BLOOD. THE EOSINOPENIC REACTION TO THE ADMINISTRATION OF 25 UNITS OF
ACTH IS DISTINCT. THE CONCENTRATION OF NA IONS IS RAISED AND THAT OF K
IONS IS DECREASED. ALL THIS INDICATES ENHANCEMENT OF HORMONAL ACTIVITY
OF THE ADRENAL CORTEX. CLINICAL OBSERVATIONS ARE GIVEN FOR A PATIENT
SUFFERING SIMULTANEOUSLY FROM THE ITSENKO-CUSHING SYNDROME AND
OTOSCLEROSIS, IN WHOM WAS NOTED A SUBSTANTIAL RISE IN THE EXCRETION OF
17-KETOSTEROIDS AND ALTERATION OF THE FUNCTION OF THE SEX GLANDS
(IRREGULAR CYCLE AND DISTURBANCE OF THE NORMAL CORRELATIONS OF VARIOUS
ESTROGEN FRACTIONS). FACILITY: S. M. KIROV MIL.-MED. ACADE.,
LENINGRAD, USSR.

UNCLASSIFIED

1/2 051 UNCLASSIFIED PROCESSING DATE

TITLE--REACTION OF GAS MOLECULES WITH SOLID ADSORBENT SURFACES -U

AUTHOR--(03)-SERBRYAKOV, G.A., POLYAKOV, I.T., ~~KOSTRILOV~~ V.V. **K**

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(3), 435-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ADSORPTION, SURFACE PROPERTY, ACTIVATION ENERGY, HYDROGEN BONDING, COPPER, NICKEL, ALUMINUM, ZINC, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0621

STEP NO--UR/0153/70/013/006/0435/0437

CIRC ACCESSION NO--AT013706

UNCLASSIFIED

2/2 031
CIRC ACCESSION NO--AT0137706
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--0408070

ABSTRACT. THE CALCN. OF THE ACTIVATION ENERGY FOR THE DISSOCN. OF A GAS ON THE SURFACE OF AN ADSORBENT IS PRESENTED. DATA ARE GIVEN FOR THE ENERGIES OF THE METAL H BONDS AND FOR THE ENERGY OF THE GAS MOLS. ON THE SURFACES OF CU, NI, AL, AND ZN. THE ESTD. ACTIVATION TEMPS. FOR H ON THESE METAL SURFACES ARE GIVEN.
FACILITY: IVANOV. KHIM.-TEKHNOL. INST., IVANOVO, USSH.

USSR

K
UDC: 537.56:539.196:51.183:51.125

SEREBRYAKOV, G. A., POLYAKOV, I. T. and KOSTROV, V. V., Ivanovo Chemical Technological Institute, Ivanovo, Ministry of Higher and Secondary Specialized Education RSFSR

"Interaction Between Gas Molecules and the Surface of a Solid Adsorbent"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol XIII, No 3, 1970, pp 435-7

Abstract: On a theoretical basis, the authors show that a solid adsorbent produces excitation of the energy state of the chemo-adsorbed molecule, and that this state can be estimated on the basis of the energy of the molecule - adsorbent bond.

Some suggestions are made for computing the energy of activation and the temperature in the case of dissociation of a gas on the surface of an adsorbent.

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1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--FILTRATION OF A CELLULOSE ACETATE SOLUTION THROUGH A POROUS METAL
-U-
AUTHOR--MAKAROVA, L.B., KOSTROV, YU.A., LAKHTIN, V.P., PAVLOVSKAYA, YE.I.,
GORYACHEVA, Z.V.
COUNTRY OF INFO--USSR
SOURCE--KHIM. VOLOKNA 1970, (1), 35-7
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, CHEMISTRY
TOPIC TAGS--FILTRATION, CELLULOSE RESIN, ACETATE, TITANIUM, HYDRAULIC
PRESS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY PEEL/FRAME--1984/1807 STEP NO--UR/0183/70/000/001/0025/0037
CIRC ACCESSION NO--APO100381
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0100381

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POWD. TI (GRANULES 0.4 MM DIAM.) WAS MIXED WITH A 40PERCENT GLYCEROL SOLN. IN ETOH AND PRESSED UNDER A HYDRAULIC PRESS AT 1000DEGREES UNDER AR (THE GLYCEROL SOLN. HAD BEEN REMOVED AT 400-500DEGREES) TO GIVE A FILTER MATERIAL (AV. POROSITY 115-23 MU) FOR THE FILTRATION OF CELLULOSE ACETATE. A CROSS SECTIONAL DIAGRAM OF THE FILTRATION APP. AND ITS MODE OF OPERATION ARE PRESENTED. THE FILTRATION THROUGH A TI POROUS FILTER WAS RAPID AND EFFECTIVE AND FILTRATION CAPACITY OF THE CLOGGED FILTER WAS RESTORED BY ULTRASONIC WASHINGS WITH ME SUB2. CO.

UNCLASSIFIED

Water Treatment

USSR

UDC: 541.67

YERGIN, YU.V., ~~KOSTROVA~~, L.I., Bashkir State University imeni 40th Anniversary of October, Ufa, Ministry of Higher Education USSR

"Temperature Dependence of Magnetic Susceptibility of Water"

Moscow, Zhurnal Strukturnoy Khimii, Vol 11, No 1, 1970, pp 8-11

Abstract: According to the Van-Fleck theory of diamagnetism of polyatomic system, magnetic susceptibility measured experimentally can be represented in the form of the sum:

$$\chi = \chi_d + \chi_p = - \frac{Ne^2}{6mC^2} \sum_i r_i^2 + \frac{2}{3} N \sum_{l \neq k} \frac{(k/M_B/l)^2}{E_l - E_k}$$

where r_i = distance of the i -th electron from the nucleus, and $k | M_{ij} | l$ = nondiagonal matrical element of the magnetic moment operator in the field direction H relating the ground state k with the excited state l . The member χ_d in this expression is determined by the Larmor precession of the electron shell in the magnetic field. It depends only on "mean dimensions" of the electron cloud of the molecule and is negative in sign ("pure" diamagnetism). To discover the nature of anomalies in the temperature dependence of magnetic susceptibility of water, the curves $\chi(T)$ for water were compared with similar curves for carbon tetrachloride, benzene, and toluene ("normal" liquids). The purity of test liquids was evaluated from the

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YERGIN, YU.V., et al, Zhurnal Strukturnoy Khimii, Vol 11, No 1, 1970, pp 8-11

coincidence of their main physicochemical properties with table data. Water samples had a specific electroconductivity of about 10^{-6} ohm $^{-1}$. cm $^{-1}$. From the experimentally measured value of χ , Larmor diamagnetism, which proved to be practically independent of temperature, and polarization paramagnetism, the value of which is determined by the nature of the interaction between water molecules, were isolated. It was shown that the anomalous pattern of the curve $\chi(T)$ can be associated with structural features of water. This is evidenced on the curve of the temperature dependence of polarization diamagnetism. The percentage of broken hydrogen bonds in water is estimated from the discontinuity of this variable at the melting point. The authors thank Professors O. YA. SAMOYLOV and YA. G. DORFMAN for discussing the results of the work.

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172 013 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SYNTHESIS OF ALIPHATIC AMINO ACIDS FROM THIOPHENE DERIVATIVES. XII.
PREPARATION OF 2,OXOIMIDAZOLIDINE DERIVATIVES FROM DIAMINO MONOCARBOXYLIC
AUTHOR--(04)-FABRICHNYY, B.P., SHALAVINA, I.F., KOSTKOVA, S.M., GOLDFARB,
YA.L.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1091-100
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL SYNTHESIS, AMINO ACID DERIVATIVE, THIOPHENE, LACTAM,
NITRATION, CHLORINATED ORGANIC COMPOUND, UREA, Saponification
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1350 STEP NO--UR/0366/70/006/005/1091/1100
CIRC ACCESSION NO--AP0135024

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135024

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. NITRATION OF 5, (5, CHLORO, 3, AMINO, 2, THIENYL) VALERIC ACID DELTA-LACTAM (I) WITH KNO_3 IN OLEUM NITRATED THE THIOPHENE RING IN THE 4, POSITION; HYDROGENOLYSIS OF THE PRODUCT OVER NI GAVE 7, 8, DIAMINONONANDIC ACID ZETA-LACTAM. SAPON. OF THIS GAVE $MECH(NH\ SUB2\ .HCL)(CH(NH\ SUB2)\ .HCL)(CH\ SUB2)\ SUBS\ CO\ SUB2\ H.$ REACTION OF THIS WITH UREA IN $NA\ SUB2\ CO\ SUB3\ SOLN.$ GAVE 4, (5, METHYLIMIDAZOL, 2, ON, 4, YL) CAPROIC ACID. SIMILARLY, 5, (5, (R-SUBSTITUTED), IMIDAZOL, 2, ON, 4, YL) CAPROIC ACIDS (R IS ME, ET, PR, BU, AMYL, ISOAMYL, OR N-HEPTYL) WERE PREPD. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--QUANTITATIVE STUDY OF CRYSTALLIZATION IN CHLOROPRENE RUBBERS AND
VULCANIZATES -U-
AUTHOR--(03)-~~KOSTRYKINA~~, G.I., ZAKHAROV, N.D., EPSHTEYN, V.G.
COUNTRY OF INFO--USSR
SOURCE--ZAVOD. LAB. 1970, 36(2), 179-80
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--CRYSTALLIZATION, CHLOROPRENE, SYNTHETIC RUBBER, VULCANIZATE,
IR SPECTRUM, ELONGATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1472 STEP NO--UR/0032/70/036/002/0179/0180
CIRC ACCESSION NO--AP0116909
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116909

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRYST. BANDS IN THE IR SPECTRUM AT 955 AND 755 CM PRIME NEGATIVE1 WERE USED TO DET. THE CRYSTALLINITY OF POLYCHLOROPRENE (I) FILMS, AND THE METHOD WAS CHECKED AGAINST THE DILATOMETRIC PROCEDURE AND REPORTED DATA. THE RATE AND MAGNITUDE OF I ELONGATION AFFECT ITS CRYSTALLINITY; E.G., I PREHEATED TO 80DEGREES AND THEN ELONGATED AT ROOM TEMP. AT 1200 MM PER MIN HAD TWICE THE CRYSTALLINITY OF I ELONGATED AT 200 MM PER MIN. FACILITY: YAROSLAV. TEKHNOL. INST., YAROSLAVL, USSR.

UNCLASSIFIED

USSR

KOSTRYUK P. G. UDC: 577.1

"Second All-Union Biochemical Congress"

Moscow, Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp L25-L35

Abstract: The Second All-Union Biochemical Congress was held on 20-25 Oct 69 at Tashkent under the auspices of the Uzbek Department of the All-Union Biochemical Society. Symposia on evolutionary biochemistry, the connection between the structure and functions of proteins, the biosynthesis of proteins, the biochemistry of membranes, biological oxidation, the functional biochemistry of cell structures, the regulation of enzymatic processes, the structure and function of muscles, and other subjects were conducted. The introductory lecture, which dealt with the evolutionary aspects of nucleic acids, was given by A. K. BRONKERSHAY (Moscow). A leading report in the symposium on evolutionary biochemistry was presented by A. I. OPARIN (Moscow), who discussed theories and experimental results pertaining to the origin of life on earth. A report by V. A. STEERANOV (Moscow) dealt with the evolution of protein enzymes. In the symposium on the structure of proteins, A. A. BAYEV (Moscow) reported the results of work on the structure of various t-RNA and the properties of molecular fragments of valine t-RNA. In the course of this work, for which a State Prize was awarded, the succession of nucleotides in the valine t-RNA chain was fully clarified. A paper by L. I. KISELWA

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USSR

Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

(Moscow) dealt with the role of aminoacyl-t-RNA-synthetases in the synthesis of aminoacyl-t-RNA. t-RNA synthetases specific for methionine, formylmethionine, serine, lysine, and phenylalanine have been identified. A report by A. I. SAGLANIK (Novosibirsk) reviewed work on the suppression of the synthesis of virus nucleic acids by nucleases. Animal experiments showed that administration of DNA-ase prevented the death of mice infected with the viruses of tick-born encephalitis, influenza, and foot-and-mouth disease and made guinea pigs insusceptible for a certain length of time to infection with foot-and-mouth disease. The nucleases did not produce any toxic effects. Application of nucleases in the treatment of human virus diseases showed that they were effective in herpetic keratitis, adenovirus conjunctivites, tick-born encephalitides, herpes zoster, and other diseases. At present DNA-ase for the treatment of these diseases is being produced industrially. Its application for 4 yrs at major foci of tick-born encephalitis in Siberia yielded very good results. Research is being continued on the use of nucleases in the treatment of virus diseases of farm animals. In the symposium on the biochemistry of membranes, P. G. KOSTRYUK (Kiev) in a report dealing with the transfer of ions in connection with the generation of excitation potentials by nerve cells expressed the opinion that the action of nerve impulse transmitters

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USSR

Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 125-135

is associated not only with changes in membrane permeability, but also involves a direct effect producing transfer of cations. This was confirmed in a paper by A. A. BOLDYREV (Moscow), who found that acetylcholine inhibited the active transfer of Ca^{++} in a sarcoplasm reticulum fraction. The inhibition was exerted on ATP-ase, which brings about transfer of Ca^{++} , and presumably constituted an effect that makes possible the transfer of Ca^{++} from the reticulum during excitation. Boldyrev pointed out that in view of the localization within muscle cells of the enzymes that regulate acetylcholine metabolism, this effect produced by acetylcholine may be directly related to its functioning as an intracellular regulator of excitation processes. Reports given by members of the Kiev school of biochemists (A. V. PALLADIN, O. V. KIRSENKO, G. I. VAVILOVA, K. N. MEYSHEVA, and others) had a bearing on the functioning of Na-K - activated transport ATP-ases in membranes. I. I. IVANOV (Leningrad) found that ATP gelled sarcoplasm proteins of skeletal muscles, whereas Ca^{++} liquefied the gel that formed. He assumed that a reversible gelation produced in this manner is responsible for the plastic tones of smooth and striated muscles. In a resolution passed by the Congress, progress in biochemical research was reviewed. It was stated that the membership of the Biochemical Society increased from 3500 to 6500 between the First and Second Congress. Institutes of Proteins, Photosynthesis, and Physiology and Biochemistry

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Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

of Microorganisms were organized within the Academy of Sciences USSR. It was pointed out that it is necessary to conduct more intensive research in several fields including the structure of proteins in relation to their functional activity, biochemical genetics, and (in view of the importance of this field from the standpoint of solution of general problems of biochemistry) the biochemistry of microorganisms and viruses.

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USSR

UDC 621.382.3

D'YAKONOV, V.P., BOSYY, V.I., KUZNETSOV, YU.A., KOSTYUKOV, A.S., TSIGAROV, V.A.

"Avalanche Transistor And Its Use In Circuit Technics"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices In The Technics Of Electrical Communication--Collection Of Works), Issue 9, Moscow, "Svyaz'," 1972, pp 159-166 (from RZh:Elektronika i yeye primeneniye, No 5, May 1972, Abstract No 5B187)

Translation: The structure and special features of a Type GT-558 avalanche transistor are described. A number of pulse circuits using avalanche transistors are presented, which provide the possibility of shaping pulses with a rise time less than 1 nanosec and an amplitude up to 10--15 V and higher at a 75-ohm load. Circuits using Type GT-558 avalanche transistors are characterized by high temperature stability. 7 ill. 12 ref. Summary.

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USSR

UDC: 621.382.3

D'YAKONOV, V. P., BOSYY, V. I., ~~KOSTRYUKOV, A. S.~~, and TSIGANOV, V. A.

"Parameters and Characteristics of Special Avalanche Transistors"

Leningrad, Priborostroyeniye, No 6, 1972, pp 5-10

Abstract: The special avalanche transistors discussed in this paper are of the GT338 type, with very high-speed operation, now being mass produced in the Soviet Union. They have already been used in electronic measuring devices such as the stroboscopic oscillographs S1-45 and S1-60, and the block S1-15/8 for use in the oscillograph S1-15. The transistors are germanium diffusion-alloyed mesoepitaxial high-frequency p-n-p-p⁺ devices which, in relaxation circuits, form pulses with a rise time of less than 1 ns and an amplitude of up to 15 volts on a 75-ohm load. They can be used in fast pulse and logic circuits, in rapid-operation computers, in nuclear and quantum electronics, in fast optical-electronic circuits, and the like. Specifications as well as details of the construction of these devices are given together with circuit diagrams indicating possible applications. The authors are associated with the Smolensk Branch of the Moscow Power Institute.

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USSR

UDC: 621.318.56.004.5

KOMKOV, V. A. and KOSTRYUKOV, S. I. [Leningrad Production Combine
"Krasnaya Zarya"]

"Device for Testing Relays in Service"

Avt. sv SSSR, kl H 01 h 47/00, No 331436, zayavl. 7.12.70, opubl.
1.06.72 (Author's Certificate, USSR, class H 01 h 47/00, No 331436,
claimed 7 December 1970, published 1 June 1972) (from RZh--
Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 2, 1973,
Abstract No 2A481P)

Translation: A device is proposed for testing relays while they are
in service, containing a pulse oscillator for switching the relay,
a delay circuit, a power supply, amplifiers connected to the con-
tacts, discriminators, triggers for remembering rejects, indica-
tors, and logic circuits. One illustration

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USSR

UDC 911.3.616.9:597.6(571.18)

KORSH, P. V., RAVDONIKAS, O. V., MAL'KOV, G. B., VORONIN, Yu. K., ZIMKA, V. Ye., KOSTYIKOV, V. P., IVANOV, V. S., FEDOROVA, T. N., YEGOROVA, L. S., RUDAKOV, V. A., CHULOVSKIY, I. K., and SHAYMAN, M. S.

"On Carrier Characteristics and Contacts With Vectors of Viral and Bacterial Infections Among Omskaya Oblast Wild Animals"

V sb. Vopr. infekts. patol. (Problems of Infection Pathology -- collection of works) Vyp. 2, Omsk, 1970, pp 75-78 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.51)

Translation: A table is presented of species composition of oblast wild animals and their relative population by individual landscape subzones in Omskaya oblast (64 species). Transmission of infections with natural foci was established in 27 species for the following diseases: tickborne encephalitis, Omsk hemorrhagic fever, rabies, tickborne scrub fever, Q fever, tularemia, erysipelas, toxoplasmosis, and leptospirosis.

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Thin Films

USSR

UDC 548.526

GERSHINSKIY, A. Ye., and KOSTSOV, E. G., Institute of Mathematics, Siberian Department of the Academy of Sciences USSR

"Electrometric Method of Determining Diffusion Coefficients of Impurities in Thin Metallic Films"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1315-1317

Abstract: A method was proposed for investigating diffusion processes in thin films, based on measuring the amount of electricity consumed in the process of anodic oxidation of films. The diffusion anneal of two contacting layers leads to a change in the kinetics of the anode process and the amount of electricity Q_c consumed in specified time intervals, as a result of which atoms of the counter substance are introduced into each of the layers. The total magnitude of Q_c necessary for anodic oxidation of both layers, is held constant in this case. A similar method, distinguished by high sensitivity, is used in determining the nature and small amount of reaction products (up to 10 \AA) formed on the metal surface.

Samples were made in the course of a single vacuum cycle at a pressure of $1/2$

USSR

GERSHINSKIY, A. Ye., and KOSTSOV, E. G., Fizika Metallov i Metallovedeniye, Vol 30, No 6, Dec 70, pp 1315-1317

5×10^{-8} mm Hg and the upper layer of aluminum with a thickness of 250 \AA was deposited on a titanium film with the substrate at room temperature. After this the samples were annealed at 690° K (in a vacuum) for 20 minutes. From the results of measuring seven samples with aluminum films having a thickness of $225\text{-}250 \text{ \AA}$, the diffusion coefficient for titanium in aluminum was determined and found to be $2.9 \pm 2 \times 10^{-18} \text{ cm}^2/\text{sec}$ at 690° K . After a diffusion anneal at 650 and 740° C the diffusion activation energy and pre-exponential member were found to be, respectively, $1.74 \pm 0.05 \text{ eV}$ and $1.9 \times 10^{-5} \text{ cm}^2/\text{sec}$. The diffusion coefficient can be roughly determined from the formula $Q = \alpha d_{\text{ef}} = \alpha \sqrt{Dt}$, where d_{ef} is the effective thickness of the diffused substance, α is the coefficient of proportionality determined from Faraday's law, and t is the diffusion anneal time.

The described method makes it possible to determine the diffusion coefficient in films with a thickness of $30\text{-}50 \text{ \AA}$ and larger and to span the range of measuring D in the limits of $10^{-13}\text{-}10^{-20} \text{ cm}^2/\text{sec}$.

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1977
30 NOVEMBER 1977

ABSTRACTS OF REPORTS PRESENTED AT THE FIRST ALL-UNION
CONFERENCE ON METAL-DIELECTRIC PHASE TRANSITIONS

Extracts from Russian-language books: *Sbornik statezh konferentsii po temam "Metallo-dielektricheskie perelomnyye sostoyaniya"* (N. B. Brandt, Ye. A. Svetlova), *Uchenye Zapiski Kazanskogo Universiteta. Seriya Fiziko-Matematicheskie Nauki*, 1977, Academy of Sciences of the USSR, Kazan, 1977, 10-12, 13-17, 21-23.

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Metal-Dielectric Phase Transitions of $BzSb$ Alloys in Strong Magnetic Fields (N. B. Brandt, Ye. A. Svetlova).....	1
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On Instability of Two-Zone Model of Metal Relative to Amplitude Scattering (Da Shan Kai, Ye Y. Kopyev).....	5
Light Absorption in V_2O_5 (G. O. Andrianov, et al.).....	7

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(1 - USSR - 2)

MOSTYAL; KH

JPRS 57431
30 NOV. 1972

METAL-DIELECTRIC PHASE TRANSITIONS OF HUSH ALLOYS IN STRONG MAGNETIC FIELDS

Authors: V. N. Zhurav, Ye. A. Svirina, Moscow State University, U.S.S.R.

Presented in this paper are the results of a study of the magnetic resistance of specimens with small controlled overlapping of zones and controlled energy sites, etc. of metallic and semiconductor alloys of bismuth and antimony in which the antimony concentrations vary up to 50%. In pulsed magnetic fields up to 200 kG in the 2-20K temperature range, the purpose of which was to discover effects related to qualitative changes in the energy spectrum of the specimens in the ultraclean region of magnetic fields.

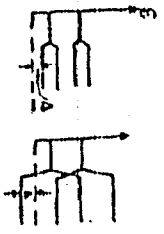


Figure 1.

Quantization of carrier energy and the spin distribution of the energy levels in the magnetic field lead to displacement of the boundaries of the energy zones (Figure 1).

In the ultraclean region the displacement of some boundaries (Δ) reaches a magnitude comparable to or greater than the Fermi energy in the zones of the metals or the energy site in semiconductors. Inter-electron transitions may occur, depending on the ratio of the spin and orbital masses of the carriers.

KOSTYAL, KH.

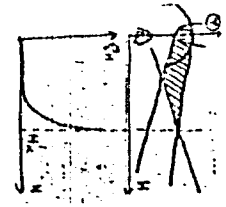


Figure 5.

The exponential increase of magnetic resistance for $H > H_c$.

appearance of semiconductor dependence of electrical resistance on temperature when $H > H_c$, dependence of field H_c on the composition of the alloy (amplitude of zone overlapping when $H = 0$) indicate that some overlapping in the energy spectrum vanishes in field H_c and an energy slit appears when $H > H_c$. This results in the appearance of the semiconductor state.

Also observed in this work is the transition of a semiconductor into the siltless state. This type of transition is a consequence of convergence and subsequent divergence of the L_2 and L_3 extrema, located at the same point of the phase space. If the substance is a semiconductor when $H = 0$, then because of convergence of the extrema the semiconductor goes into a unique siltless state, characterized by an anomalously small energy slit between the zones and by increased conductivity.

More complex transitions, related to the motion of several different extrema, were also observed in the work.

I. M. LIFSHITS' METAL-DIELECTRIC PHASE TRANSITIONS IN $Bi_{1-x}Sb_x$ ALLOYS UNDER THE INFLUENCE OF PRESSURE

[Article by N. B. Brandt, B. Ditsmann, A. Kostin, Ya. G. Pogosyan, S. N. Gudimov, V. A. Isakova, Moscow State University, Physics Department, pp 10-12]

1. The second and fifth order phase transitions predicted by I. M. Lifshits, which occur in $Bi_{1-x}Sb_x$ alloys under the influence of pressure, are analyzed. The Shubnik oscillations of longitudinal and transverse magnetic resistances in fields $0 < H < 70$ kG and the Galvano-magnetic tensor component (for the case $\omega \ll 1$) in the I bar $\ll \mu < 20$ kG pressure range at helium temperatures were measured in monocrystalline specimens of $Bi_{1-x}Sb_x$ alloys.

USSR

UDC 541.124:541.6:547.1'118

KOSTYANOVSKIY, R. G., FOMICHEV, A. A., ZAGURSKAYA, L. M., and ZAKHAROV, K. S.,
Institute of Chemical Physics, Academy of Sciences, USSR

"The Nature of Lowering the Pyramidal Inversion Barrier of Phosphorus
in Acylphosphines"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 73,
pp 1915-1916

Abstract: High sensitivity of the pyramidal inversion to the type of substituent at the acyl group leads to the conclusion that the factor responsible for the lowering of the inversion barrier in acylphosphines is the p- π -conjugation of the unshared electron pair of phosphorus with the carbonyl group. The antiinductive substituents, activating the conjugation of the CO group with the electronic pair of the phosphorus facilitate the inversion, while the mesomeric favoring ones counteract the inversion.

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USSR

UDC 547.834.4:543.51

YERMAKOV, A. I., SHEVNER, Yu. N., MIMILINA, YE. YE., YANINA, A. D.,
YAKHONTOV, L. N., and KOSTYANOVSKIY, R. G., All-Union Scientific Research
Chemico-Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Mass Spectra of Some 3-Substituted Benzo/b/quinuclidinas. III"

Riga, Khimiya Geterotsiklicheskih Soyedineniy, No 6, Jun 72, pp 825-832

Abstract: The mass spectra of 3-methoxycarbonyl-, 3-ethoxycarbonyl-, 3-(2-dimethylaminoethoxy)carbonyl-, 3-amino-, 3-hydroxymethyl-, 3-chloro-3-methoxycarbonyl-, 3-chloro-3-ethoxycarbonyl-, and 3-chloro-3-cyanobenzo-b/quinuclidine were studied. The results indicated that fragmentation of these compounds by electron impact took place over the formation of an open molecular ion that generally resulted upon cleavage of the bridge group containing the substituent or substituents. The C-Cl group had the weakest bond in the molecular ions derived from the disubstituted compounds - hence, C^0 readily split off from the Cl-Ch-X group (X=COOR, CN) with the formation of a =CH - X group.

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USSR

UDC 543.51.547.1'118

KOSTYANOVSKIY, R. G., PLEKHANOV, V. G., IGNATOVA, N. P., BOBKOVA, R. G., and SHVETSOV-SHILOVSKIY, N. I., Institute of Chemical Physics, Academy of Sciences USSR

"Mass Spectra of 1,2,3-Phosphadiazoles"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71, p 2611

Abstract: The authors studied the electron impact-induced decay of a new class of compounds with a 2-coordinate phosphorus atom. Mass spectral data confirm the aromatic character of 1,2,3-phosphadiazoles.

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USSR

UDC 541.63+541.124:547.491

~~KOSTYANCYVSKIY, R. G., EL'NATANOV, YU. I., and PLEKHANOV, V. G., Institute of Chemical Physics, Academy of Sciences USSR~~

"Absence of p- π -Resonance in Cyano- and Acylphosphine Vinylogs"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, P 2355

Abstract: Addition of di-tert-butylphosphine to activated acetylenes gave $(Me_3C)_2PCH_2CHX$ type of compounds, where X = CN (I) or $COCH_3$ (II).

The reaction was highly stereospecific yielding cis-(I) and trans-(II). On the basis of spectral data and because the cis-trans-isomerization did not occur smoothly at 150-200^o, it has been concluded that there is no p- π -resonance in these compounds.

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1/2 018 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--ANTONOTROPIC REARRANGEMENT OF N, (ALPHA ALPHA
DIFLUOROALKYL)ETHYLENIMINES -U-
AUTHOR--KOSTYANOVSKIY, R.G., SAMOYLOVA, Z.YE., PLEKHANOV, V.G.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 201
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--FLUORINATED ORGANIC COMPOUND, ETHYLENE, IMINE, NMR SPECTRUM,
MASS SPECTRUM, INTRAMOLECULAR MECHANICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAFME--1984/1614 STEP NO--UR/0062/70/000/001/0201/0201
CIRC ACCESSION NO--AP0100224
UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--11SEP70
CIRC ACCESSION NO--AP0100224
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROLONGED STORAGE IN GLASS OF I,
OR THE ACTION OF MED PRIMENEGATIVE IONS ON THEM CAUSES RING OPENING AND
MIGRATION OF F ANIONS. THUS, I (R EQUALS CF SUB3 OR F) WERE CONVERTED
RESP. INTO (CF SUB3) SUB2 CHCF:NCH SUB2 CME SUB2 F, B SUB25 44-50DEGREES,
N PRIME25 SUBD 1.3339 (WHICH ON HYDROLYSIS GAVE (CF SUB3) SUB2 CHCONHCH
SUB2 CME SUB2 F, M. 148.5DEGREES); AND MIXED (1:1) CF SUB3 CHFC(OME):
NCH SUB2 CME SUB2 CME AND CF SUB3 CHFC(OME):NCH SUB2 CME SUB2 F, B SUB14
66-9DEGREES. THE PRODUCTS WERE CHARACTERIZED BY NMR AND MASS SPECTRA.

UNCLASSIFIED

USSR

UDC: 681.325.5

PALAMARYUK, G. O., KOSTYASHKIN, I. N., NIKIFOROV, M. B., Ryazan Radio Engineering Institute

"A Pulse-Frequency Multiplier-Divider"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331400, Division G, filed 1 Jul 70, published 7 Feb 72, p 156

Translation: This Author's Certificate introduces a pulse-frequency multiplier-divider which contains a flip-flop, which is connected by its output to one of the coincidence circuits, and a counter whose digital places are connected through code transfer diodes to the input code line. As a distinguishing feature of the patent, the functional possibilities of the device are extended by using a second flip-flop whose set terminal is connected to the output of the first coincidence circuit, while the output of the flip-flop is connected to the pulse inputs of the code carry diodes and to the potential inputs of two other coincidence circuits. The pulse input of one of these coincidence circuits is connected to the set terminal of the second flip-flop, and the output of this coincidence circuit is connected to the

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PALAMARYUK, G. O. et al., USSR Author's Certificate No. 331400

nected to the input of the counter. The outputs of the digital places of the counter are connected through an OR gate to the reset terminal of the first flip-flop.

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USSR

UDC 62-50

KOSTYCHEV, G. I.

"Flight Control With Continuous Input of Data"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 3, 1971, pp 26-30

Abstract: Certain problems of optimal control of an aircraft under time changing conditions, which are reported continuously, are considered. It is assumed that the aircraft behavior is determined only by data, which was received at a given time. Such problems need to be solved in flight under conditions of limited visibility, with a continuous or periodical input of weather forecasts, at unexpected changes in situation (for ex. in combat) or in structure (failure, hole, icing, etc.) Boundary conditions are determined for the problem of pursuit with the aim of hitting a target, whose law of motion is known at a given time. Two examples illustrating the influence of input data on selected decision are presented. It is stated that the method used can be applied to solution of problems, considered in differential games.

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UEC None

USSR

KARMAZINSKIY, A. N., KOROLEV, N. A., ~~KOSTYCHEV, E. I.~~, and SEL'KOV, Ye. S.

"Reliability Research on MOS Transistors"

Moscow, Mikroelektronika, No. 1, 1971, pp 141-154

Abstract: The reliability of integrated circuits using MOS transistors is discussed. Experimental investigation has shown that the practical reliability of such integrated circuits is much less than predicted, and is inferior to that of circuits using bipolar transistors. The purpose of this paper is to find the types of breakdown in these circuits and to determine the qualitative indices of MOS transistor reliability, for transistors made by the planar technique with charge stabilization in the oxide through the use of P_2O_5 . A description of the preparation of the transistors under test is given. The types of test performed were: in the switching state, at an ambient temperature of $100^{\circ}C$; for thermal "fatigue," in which the specimens were tested in the switching state with cyclical electrical loading at an ambient temperature of $20^{\circ}C$; with inverse bias applied to the p-n junctions between the diffusion regions of the drain, the source, and the substrate, and for a grounded gate, with a temperature of $100^{\circ}C$. The results of the tests are given fairly exhaustive statistical

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KARMAZINSKIY, A. N., et al, Mikroelektronika, No. 1, 1971, pp
141-154

treatment, and photographs of transistor breakdowns are shown. The authors concluded that the following must be done to increase the reliability of the transistors: a visual quality check of transistors with oxide and metallization defects; check of transistors whose leakage currents amount to tenths or units of a microampere; preliminary aging. It was also found that the most widespread type of catastrophic breakdown is puncture of the oxide under the gate at the boundary of the drain region.

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USSR

UDC 621.372.824

KOSTYCHEV, YU. G., ZORKIN, A. F.

"Calculation of a Rectangular Coaxial in the Presence of a Longitudinally Magnetized Ferrite"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 38-44 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 48139)

Translation: The effect of the geometry of a coaxial on the propagation and loss constants of quasi-TEM and quasi-LE₀₁-waves is analyzed. There are 5 illustrations and a 4-entry bibliography.

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USSR

UDC 548.55

KOSTYGOV, A. S., TATARCHENKO, V. A., STEPANOV, A. V., Physicotechnical
Institute imeni A. F. Ioffe of the Academy of Sciences USSR

"Convective Cooling of Samples Obtained From a Melt by the Stepanov Method"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 3, 1972,
pp 481-485

Abstract: Convective cooling of aluminum parts of various shapes and sizes obtained from a melt by the Stepanov method is discussed. Cooling parameters on a model applicable to conditions close to crystallization are calculated. Stepanov described the cooling of a crystal seed by a current of cold gas and pointed out the possibility of the formation of new seeds, upon cooling of the melt, which aid in the formation of a polycrystalline structure. Single crystals of aluminum bronze were obtained with the aid of forced convective cooling at rates in order of magnitude higher than in growing single crystals by traditional methods. The requirements imposed on the cooler were to provide a given pulling rate and to distribute the cooled gas over the perimeter of the contour of a transverse cross section of the sample on which the desired form of the crystallization front is achieved. Profiles of complex form are thus obtained. The design of two types of cooler, slit and jet, is described.

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KOSTYGOV, A. S., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
No 3, 1972, pp 481-485

Expressions are derived for the drawing rate of the sample and the gas flow per
unit weight of the sample.

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