

USSR

UDC: 669.721.472(088.8)

MARKOV, G. S., GRIGOR'YEVA, Ye. A., KOSAREV, S. P., MUZHZHAVLEV, K. D.,
ZUYEV, N. M., IVANOV, A. B.

"A Magnesium Electrolyzer"

USSR Author's Certificate Number 350863, Filed 28/12/70, Published 28/09/72
(Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No
8G204P).

Translation: The electrolyzer is equipped with chlorine-removing anodes and diaphragms. In order to reduce the losses of Mg and Cl₂ and improve their separation, a diaphragm is placed horizontally between the anodes of the electrolytic cells, separating the zone of collection of Mg from the zone of collection of Cl₂.

1/1

- 26 -

USSR

UDC 546.791:546.799:546.841.4

NIKOL'SKIY, B. P., MARKOV, G. S., and POSVOL'SKIY, M. V.

"Solubility of Complex Salts of Hexanitratothorates of Quaternary

Ammonium Bases in Nitric Acid Solutions. III. Solubility as Function of Nitric Acid Concentration"

Moscow, Radiokhimiya, Vol. 12, No 2, 1970, pp 272-273

Abstract: A study was made, on the example of the salt $(DMDBA)_2[Th(NO_3)_6]$, where DMDBA = dimethyldibenzylammonium, of the solubility of quaternary ammonium salts of the alkyldimethylbenzylammonia and alkylpyridinium type as a function of nitric acid concentration in the solution. For comparison, solubilities were also determined for several other complex nitrate salts of thorium with organic (trimethylbenzylammonium and dimethylbenzylamine) and inorganic (Cs^+) cations. The nitric acid concentration range was 2-10 M at 25° C. It was established that the appearance of a minimum in the curve of salt solubility was due mainly to the formation in solution of solvated forms of the quaternary base. It was also shown that the nature of the cation in the complex salt of the $R_2[Th(NO_3)_6]$ type affects the position of the minimum in the solubility curve in accordance with the ability of the cation to form solvated forms with nitric acid.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SOLUBILITY OF COMPLEX SALTS OF QUATERNARY AMMONIUM BASE
HEXANITRATOTHRATES IN NITRIC ACID SOLUTIONS. II. SOLUBILITY AS A
AUTHOR-(03)-NIKOLSKIY, B.P., MARKOV, G.S., POSVOLSKIY, M.V.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(2), 272-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THORIUM COMPOUND, COMPLEX COMPOUND, QUATERNARY AMMONIUM
COMPOUND, SOLUBILITY, NITRIC ACID, CESIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/B03 STEP NO--UR/0185/70/012/002/0272/0278

CIRC ACCESSION NO--AP0140239

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140239

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. OF (DMDBA) SUB2(TH(NO
SUB3) SUB6) (I), WHERE DMDBA WAS DIMETHYLDIBENZYLAMMONIUM (II), AS A
FUNCTION OF HNO SUB3 CONC. AT 2-10M HNO SUB3 WAS STUDIED AT 25DEGREES.
TOTAL TH CONC. IN SOLNS. SHOWN ON MICROFICHE. AN APPARENT MIN. ON THE
SOLY. CURVES AT 7.5-8M HNO SUB3 DISAPPEARED AFTER TAKING INTO ACCOUNT
EQUIL. OF II WITH HNO SUB3, E.G. THE FORMATION OF SHOWN ON MICROFICHE.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--QUATERNARY AMMONIUM BASES AS ANALYTICAL REAGENTS. 1. SEPARATION
AND DETERMINATION OF THORIUM USING N BENZYLQUINOLINIUM NITRATE -U-
AUTHOR--(03)--MARKOV, G.S., NIKOLSKIY, B.P., POSVOLSKIY, M.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 277-80

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL ANALYSIS, CHEMICAL SEPARATION, THORIUM, NITRATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1994/1891

STEP NO--UR/0075/70/025/002/0277/0280

CIRC ACCESSION NO--AP0115710

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115710

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR THE QUANT. SEPN. AND DETN. OF TH, BASED ON TH PPTN. FROM 7-8M HNO SUB3 WITH N BENZYLQUINOLINIUM NITRATE (I). TH IS THEN WEIGHED AS (C SUB16 N SUB14 N) SUB2 (THINO SUB3) SUB6). THE EFFECT OF HNO SUB3 CONC. AND I ON THE COMPLETENESS OF TH PPTN. WERE STUDIED, OPTIMUM CONDITIONS FOR ITS QUANT. SEPN. WERE FOUND AND THE COMPLETENESS OF SEPG. RARE EARTHS AND ZR FROM TH WERE EXAMD. TH PPTS. BEST FROM 7-9M HNO SUB3; IS GREATER THAN OR EQUAL TO 99.7PERCENT TH AT A CONC. OF 1-2 G H-L. WERE SEPD. AT A 6 FOLD EXCESS OF I. ADD TO THE SOLN. CONTG. 10-50 MG TH IN 8-15 ML SUCH AN AMT. OF HNO SUB3 TO OBTAIN A SOLN. 7.0-7.5M HNO SUB3; THEN ADD DROPWISE WHILE MIXING 3-4 ML 8PERCENT I IN HNO SUB3. KEEP THE PPT. ON A WATER BATH FOR 20 MIN AT 40DEGREES TO 50DEGREES, COOL, AND AFTER 40 MIN. FILTER ON A GOOCH NO. 3. WASH WITH 3-4 ML HNO SUB3 SOLN. CONTG. 0.5PERCENT I. DRY AT 105-100DEGREES TO A CONST. WT. FACILITY: INST. RADIUM, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.396.677

MARKOV, G. T. and KOVALENKO, A. N.

"Random Excitation of a Metallic Wedge"

Tr. Mosk. in-ta radiotekhn. i avtomatiki (Works of the Moscow Institute of Radio-Engineering, Electronics and Automation), 1972, vyp. 55, pp 108-120 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B8)

Translation: Various representations are obtained for the solution of a problem associated with the excitation of an infinite, ideal, conducting wedge by means of the random distribution of electric and magnetic eddy currents: representation in the form of the sum of the geometroptical and diffraction parts and a representation in the form of a series. An analysis is made as to the possibility of using these representations of the solution for the given problem. Original article: 10 bibliographic entries. V.C.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CANCER OF THE STOMACH IN PATIENTS WITH DIABETES MELLITUS -U-

AUTHOR--MARKOV, I.N.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 5, PP 55-59

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIABETES MELLITUS, CANCER, GASTROINTESTINAL SYSTEM, SURGERY,
STOMACH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/1013

STEP NO--UR/0531/70/000/005/0055/0059

CIRC ACCESSION NO--AP0126651

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0126651
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR'S EXPERIENCE CONCERN 38
PATIENTS SUFFERING FROM GASTRIC CANCER WITH CONCURRENT DIABETES
MELLITUS. DURING THIS PERIOD OF TIME THE ENDOCRINOLOGICAL DEPARTMENT OF
THE HOSPITAL EXAMINED 8,943 PATIENTS WITH DIABETES, OUT OF WHOM CANCER
OF THE STOMACH WAS REVEALED IN 0.4 PER CENT OF CASES. OUT OF 38
PATIENTS OPERATIVE TREATMENT WAS UNDERTAKEN IN 15 PATIENTS,
ESTABLISHMENT OF ANTERIOR GASTROENTEROSTOMY WITH BROWN'S ANASTOMOSIS, IN
5. EXPLORATORY LAPAROTOMY, IN 8. SYMPTOMATIC CONSERVATIVE TREATMENT WAS
CARRIED OUT IN 10 PATIENTS. THE RAPID GROWTH OF GASTRIC CANCER WITH
DISINTEGRATION AND DISSEMINATION OF THE PROCESS REDUCES THE NUMBER OF
RADICAL OPERATIONS IN PATIENTS SUFFERING FROM DIABETES MULLITUS. OUT OF
28 PATIENTS OPERATED 4 DIED IN THE POSTOPERATIVE PERIOD.
FACILITY: 1-YA KAFE RA KHIRURGII TSIU I KHRURGICHESKAYA KLINIKA
BOL'NITSY.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--PANCREATIC CANCER IN PATIENTS WITH DIABETES -U-

AUTHOR--MARKOV, I.N. M

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII INENI I. I. GREKOVA, 1970, VOL 104, NR 4, PP
64-70

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PANCREAS, CANCER, DIABETES MELLITUS, SURGERY, CARBOHYDRATE
METABOLISM, ANESTHESIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0040

STEP NO--UR/0589/70/104/004/0064/0070

CIRC ACCESSION NO--AP0105139

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--18OCT70

CIRC ACCESSION NO--AP0105139

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPERIENCE WITH TREATMENT OF THE PANCREATIC CANCER IS BASED ON 41 OBSERVATIONS CARRIED OUT IN A SURGICAL DEPARTMENT OF THE S. P. BOTKIN HOSPITAL SINCE 1956 TO 1968. IN 25 OF THESE CASES CANCER OF THE PANCREAS DEVELOPED ON THE BACKGROUND OF PRECEDING DIABETES, IN 16 PATIENTS DIABETES WAS INDUCED BY PRIMARY CANCER OF THE PANCREAS. THE DURATION OF DIABETES PRECEDING PANCREATIC CANCER RANGED FROM 2 TO 16 YEARS. THE INTERVAL BETWEEN THE APPEARANCE OF DIABETES AND INITIAL SIGNS OF PANCREATIC CANCER AVERAGED UP TO 3 MONTHS. IN 27 PATIENTS CHOLECYSTO GASTROANASTOMOSIS WAS CONSTRUCTED, IN 10 CHOLECYSTOENTERO WITH ENTERO ENTEROANASTOMOSIS, IN 1 CHOLEDDOCHODUODENANASTOMOSIS, IN 3 PATIENTS THE OPERATION WAS TERMINATED BY TENTATIVE LAPAROTOMY. IT WAS FOUND SURGICALLY THAT ENDOTRACHEAL ANESTHESIA WITH NITROGEN MONOXIDE AND OXYGEN, AS WELL AS RADICULAR KINDS OF ANESTHESIA (PERIDURAL ANESTHESIA WITH A VISCOUS SOLUTION, SPINAL), RENDER THE LEAST EFFECT ON CARBOHYDRATE METABOLISM IN COMPARISON WITH OTHER KINDS OF ANESTHESIA. THERE WERE THREE LETHAL ISSUES AMONG THE OPERATED PATIENTS.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--17JUL70

TITLE--THE FAT CARBOHYDRATE METABOLISM DURING OPERATIONS IN PATIENTS WITH DIABETES MELLITUS -U-

ALTHCR--DAVTYAN, A.K., MARKEV, I.N.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 1, PP 109-114

DATE PUBLISHED-----70

31
5
36

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIABETES MELLITUS, SUGAR METABOLISM, CARBOHYDRATE METABOLISM, BIOLOGIC OPERATION, FATTY TISSUE, INSULIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1977/1705

STEP NO--LR/C531/70/000/001/0109/0114

CIRC ACCESSION NO--AF0044890

UNCLASSIFIED

Acc. Nr: **AP0044850**

Ref. Code: **UR0531**

PRIMARY SOURCE: **Khirurgiya, 1970, Nr 1, pp 109-114**

**THE FAT-CARBOHYDRATE METABOLISM DURING OPERATIONS
IN PATIENTS WITH DIABETES MELLITUS**

N. K. Davtyan, I. N. Markov

Under study was the content of sugar and nonesterified fatty acids (NEFA) of the blood as well as the lipolytic activity of the fatty tissue in diabetic patients subjected to cavitory and minor operations. The control group comprised of patients subjected to the same operation but not suffering from diabetes. It was found that an increased blood sugar level at the beginning of the operation is seen only in diabetic cases. The content of nonesterified fatty acids increases both in diabetic and non-diabetic patients. In patients with diabetes at the end of the operation there is noted an increased of the lipolytic activity of the fatty tissue. To ensure normalization of the fat-carbohydrate metabolism in operations performed in patients with diabetes the authors recommend at the beginning of the operation a $\frac{1}{2}$ morning dose of insulin and one Unit of insulin plus 2 gm of carbohydrates, in conditions of intravenous administration during the operation a 5 per cent glucose solution in a dose of 500-750 ml.

1/1

DI

REEL/F
19771705

02

UNCLASSIFIED

PROCESSING DATE--17JUL70

M

TITLE--THE ACID BASE BALANCE DURING OPERATIVE INTERVENTIONS IN PATIENTS
SUFFERING FROM DIABETES MELLITUS --U--
AUTHOR--MARKOV, I.N., SHCHERBAKOVA, L.S.

*20
3/1
55*

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 1, PP 104-109

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIABETES MELLITUS, ACID BASE EQUILIBRIUM, ACIDOSIS, ALKALOSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1577/1706

STEP NO--UR/C531/70/000/001/0104/0109

CIRC ACCESSION NO--AP0044851

UNCLASSIFIED

Acc. Nr: AP0044851

Ref. Code: UR 0531

PRIMARY SOURCE: Khirurgiya, 1970, Nr 1, pp 104-109

THE ACID-BASE BALANCE DURING OPERATIVE
INTERVENTIONS IN PATIENTS SUFFERING
FROM DIABETES MELLITUS

I. N. Markov, L. S. Shcherbakova

As early as in the postoperative period in patients suffering from diabetes mellitus there may be seen alterations in the acid-base balance, commonly characteristic for metabolic acidosis. It is only natural that in conditions of operative intervention changes of the acid-base balance towards acidosis or alkalosis may be more pronounced. As the result of observations over 40 patients with diabetes mellitus subjected to different operations it was established that commonly metabolic acidosis is noted in patients suffering from acute and chronic diseases of the gallbladder.

An investigation of the acid-base balance during operations was performed on the micro-Astrup apparatus, which enabled rapid determination of the occurring changes. Timely elimination of complications of the acid-base balance is conducive to a more favorable course of the postoperative period.

44

DI

02

REEL/FRAME
19771706

1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--NEUROGENIC MECHANISMS IN THE PATHOGENESIS OF RENAL HYPERTENSION -U-

AUTHOR--MARKOV, KH.M. *m*

COUNTRY OF INFO--USSR

SOURCE--VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR, VOL 25, NO 1, 1970,

PAGES 87-95

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--KIDNEY FUNCTION, HYPERTENSION, PATHOGENESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0950

STEP NO--UR/0248/10/025/001/0087/0095

CIRC ACCESSION NO--AP0130012

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0130012

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNTIL RECENTLY, IN THE PROBLEM OF INTERACTIONS BETWEEN THE NERVOUS SYSTEM AND THE KIDNEYS IN PATHOGENESIS OF HYPERTENSION, ATTENTION WAS CONCENTRATED ALMOST EXCLUSIVELY ON ONE DIRECTION, ON THE STUDY OF INFLUENCES OF THE NERVOUS SYSTEM ON DIFFERENT RENAL FUNCTIONS IN ORDER TO DEMONSTRATE THE NEUROGENIC PATHWAYS OF INVOLVEMENT OF KIDNEYS IN THE PATHOGENESIS OF ESSENTIAL HYPERTENSION. WHEREAS THE HUMORAL NATURE OF RENAL HYPERTENSION ITSELF WAS CONSIDERED GENERALLY RECOGNIZED. AS FOR REVERSE INFLUENCES FROM THE KIDNEYS TO THE NERVOUS SYSTEM UNDER NORMAL CONDITIONS AND IN RENAL HYPERTENSION, THEY DREW LESS ATTENTION AND REMAINED UNCLEAR. IN THE LAST FEW YEARS, THIS GAP WAS SIGNIFICANTLY FILLED BY A SERIES OF NEW AND RATHER INTERESTING DATA AND HYPOTHESES WHICH ARE THE SUBJECT OF THIS ARTICLE.
FACILITY: INSTITUTE OF PEDIATRICS, USSR ACADEMY OF MEDICAL SCIENCES, MOSCOW.

UNCLASSIFIED

USSR

UDC: 539.1.07

MARKOV, K. P., RYABOV, N. V., STAS', K. N.

"Use of Photographic Films for Individual Radiometry of the Daughter Products of Radon"

Tr. Soyuzn. n.-i. in-ta priborostr. (Works of the Union Scientific Research Institute of Instrument Building), 1970, vyp. 12, pp 184-191 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 11, Nov '70, Abstract No 11.32.1471)

Translation: The authors consider the possibility of individual monitoring for the atmospheric content of radon decay products according to the "latent" energy by pumping air through a filtering cloth while simultaneously using a ZnS(Ag) scintillator and a photographic film to register the α -activity of the specimen. The paper gives the results of theoretical and experimental studies on determining the sensitivity of the method and the measurement range.

1/1

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--METRICS OF THE CLOSED FRIEDMAN WORLD PERTURBED BY ELECTRIC CHARGE,
TO THE THEORY OF ELECTROMAGNETIC FRIEDMONS -U-
AUTHOR-(02)-MARKOV, M.A., PROLOV, V.P.

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 1, PP
3-17
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PARTICLE DISTRIBUTION, CHARGE DENSITY, MAXWELL EQUATION,
ELECTRIC FIELD, ELECTRIC POLARIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3003/1010

STEP NO--0A/0646/10/003/001/0003/0017

CIRC ACCESSION NO--AP0130048

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0130048

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GENERALIZATION IS CONSIDERED OF THE WELL KNOWN TOLMAN PROBLEM TO THE CASE OF ELECTRICALLY CHARGED DUST LIKE MATTER OF THE CENTRAL SYMMETRICAL SYSTEM. THE FIRST INTEGRALS OF THE CORRESPONDENT SYSTEM OF THE EINSTEIN MAXWELL EQUATIONS ARE FOUND. THE PROBLEM IS SPECIFICATED IN SUCH A WAY THAT WITH THE FULL CHARGE OF THE SYSTEM GOING TO ZERO, THE METRICS OF THE CLOSED FRIEDMAN WORLD ARISES. SUCH A SYSTEM IS CONSIDERED AT THE INITIAL MOMENT, THAT OF MAXIMAL ENLARGEMENT. WITH ANY NONVANISHING BUT NO MATTER HOW SMALL VALUE OF THE ELECTRIC CHARGE THE METRICS IS UNCLOSED. THE METRICS OF THE ALMOST FRIEDMANIAN PART OF THE WORLD ALLOWS THE CONTINUATION THROUGH THE NARROW MANHOLE (AT THE SMALL CHARGE) AS THE NORDSTROM REISSNER METRICS WITH THE PARAMETERS SQUARE TOOL OF χ SUB0 EQUALS ϵ SUB0. THE EXPRESSION FOR THE ELECTRIC POTENTIAL IN THE MANHOLE Φ SUBH EQUALS $C \sqrt{\epsilon \chi}$ DOES NOT DEPEND UPON THE VALUE OF THE ELECTRIC CHARGE. THE RADIUS OF THE MANHOLE (R SUBH EQUALS $\sqrt{\epsilon \chi}$) INCREASES WITH THE INCREASE OF THE CHARGE. THE STATE OF THE MANHOLE AS GIVEN BY THE CLASSICAL DESCRIPTION APPEARS AS ESSENTIALLY UNSTABLE FROM THE QUANTUM PHYSICS VIEWPOINT. THE PRODUCTION OF VARIOUS PAIRS IN THE ENORMOUS ELECTRIC FIELDS OF THE MANHOLE GIVES RISE TO THE POLARIZATION OF THE LATTER UP TO EFFECTIVE CHARGE λ SMALLER THAN $137e$ IRRESPECTIVE OF THE INITIAL (NO MATTER HOW GREAT) CHARGE OF THE SYSTEM.

FACILITY: OB'YEDINENNYY INSTITUT YADERNYKH ISSLEDOVANIY,

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ELECTRICALLY NEUTRAL FIELDS OF VECTOR MESONS AND THE LIMITING
MATTER DENSITIES IN COLLAPSING SYSTEMS -U-
AUTHOR-(02)-BERESIN, V.A., MARKOV, M.A.
COUNTRY OF INFO--USSR
SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 2. PP
161-165
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--VECTOR MESON, QUANTUM FIELD THEORY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0328 STEP NO--UR/0646/70/003/002/0151/0165
CIRC ACCESSION NO--AP0129560
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129560

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTRICALLY NEUTRAL VECTOR MESON FIELDS (μ IS TO ρ , ρ , ω) CEASE TO CONTRACT THE DIMENSIONS OF COLLAPSING SYSTEMS AT THE RADIUS R IS EQUIVALENT TO $h-m \mu c$. HOWEVER, IF THE DIMENSIONS OF COLLAPSING SYSTEMS ARE VERY SMALL, THE DENSITY OF THE MATTER REMAINS MANY ORDERS LOWER THAN THE SO CALLED QUANTUM DENSITY ρ_0 IS EQUIVALENT TO 10^{93} G-CM 10^{93} , AT WHICH THE CLASSICAL DESCRIPTION OF PHENOMENA LOSES ITS VALIDITY DUE TO QUANTUM EFFECTS. FACILITY: OBYEDINENNYI INSTITUT YADERNYKH ISLEDOVANIY.

UNCLASSIFIED

USSR

BEREZIN, V. A., and MARKOV, M. A. (Lebedev Physics Institute, USSR Academy of Sciences)

"Potentials of the Type a_n/r^n , $n > 1$, in Collapsing Systems of the General Theory of Relativity"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, August 1972, pp 153-163

Abstract: A nonlinear generalization of the Maxwell equations is constructed which leads to static repulsive potentials of the type under consideration. The corresponding analogue of the Nordström-Reissner metric is constructed. Within the framework of classical (non-quantum) physics it is shown that the forces under consideration (a_n/r^{n+1} , $n > 1$) in the general theory of relativity do not lead to divergences of the self-energy of their source.

It is shown that in the case in which a collapsing system goes beyond the gravitational radius ("black hole") the classical forces a_n/r^{n+1} , $n > 1$, as well as the electrostatic and gravitational ones do not disappear in outer space. This result is contrary to the result obtained by Hartle (Preprint, University of California, 1971) for the pair neutrino forces ($\sim r^{-5}$).

The article includes 46 equations and three figures. There are nine bibliographic references.

1/1

- 96 -

M
USSR

MARKOV, M. A., FROLOV, V. P.

"Metric of the Closed Friedman World Perturbed by an Electric Charge (On the Theory of Electromagnetic 'Friedmons')"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, Vol 3, No 1, 1970, pp 3-17

Abstract: This article contains an investigation of a generalization of the known Tolman problem to the case of electrically charged powdered matter of a central-symmetrical system. The first integrals of the corresponding system of Einstein-Maxwell equations are found. Then the problem is specially defined in such a way that when the total charge of the system approaches zero, the closed Friedman world metric occurs. This system is investigated at the initial point in time and at the time of maximum expansion. For any electric charge as small as one might like, the metric turns out to be open. The metric of the almost-Friedman part of the world is continued via a narrow orifice by the Nordstroem-Reissner metric with the parameters $\sqrt{\lambda} m_0 = e_0$. The expression for the electric potential in the orifice $\phi_h = c_2/\sqrt{\lambda}$ does not depend on the value of the electric charge. With an increase in charge, the radius of the orifice ($r_h = e_0 \sqrt{\lambda}/c^2$) increases. The state of the orifice in the case of classical description is

1/2

USSR

MARKOV, M. A., FROLOV, V. P., Teoreticheskaya i Matematicheskaya Fizika, Vol 3
No 1, 1970, pp 3-17

essentially unstable from the point of view of quantum physics. Generation of
any type of pairs in the enormous electric fields of the orifice polarizes it
to an effective charge $Z < 137e$ independently of how large the original charge
of the material system was.

2/2

1/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SOME PROBLEMS OF THE CONTINUAL THEORY OF DISLOCATIONS -U-
AUTHOR--(02)-VAKULENKO, A.A., MARKOV, K.Z.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK LENINGRADSKOGO UNIVERSITETA, NO 7, MATEMATIKA, MEKhanIKA,
ASTRONOMIYA, 1970, NR 2, PP 74-87
DATE PUBLISHED-----70
SUBJECT AREAS--MATHEMATICAL SCIENCES
TOPIC TAGS--ENTROPY, THERMODYNAMICS, TENSOR ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAme--3005/1389 STEP NO--UR/0043/10/000/002/0074/0087
CIRC ACCESSION NO--AP0133341
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0133341

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. MEDIUMS WITH CONTINUOUS FIELDS OF DISLOCATIONS ARE TREATED IN THIS PAPER. SOME DETAILS OF GEOMETRY OF DEFORMATION ARE SPECIFIED HERE. IT IS SHOWN FOR INSTANCE, THAT THE COINCIDENCE OF THE THREE VALENT TENSOR OF DISLOCATION DENSITY AND THE TENSOR OF TORSION (AS KRONER AND OTHER AUTHORS HAVE CLAIMED) IS NOT ABSOLUTELY TRUE. IN FACT, THESE TENSORS COINCIDE ONLY TO WITHIN THE MULTIPLIER, WHICH REPRESENTS THE DERIVATION OF ONE OF THE BASIC DIFFEOMORPHISMS. THE DESCRIPTION OF THE INTERACTION OF DISLOCATIONS IN THE CONTINUAL THEORY OF DISLOCATIONS IS THE MAIN PROBLEM OF THIS PAPER. IT IS PROVED THAT THE SPECIFIC "FAR INFLUENCE" OF DISLOCATIONS LEADS TO THE DEPENDENCE OF THE FIELD OF ENERGY DENSITY ON GRADIENTS OF THE FIELD OF THE TENSOR OF DISLOCATION DENSITY WITHIN THE CONDITION OF LOCAL USE OF THE BASIC NOTIONS OF THERMODYNAMICS. THE CORRESPONDING SPECIFICATION OF LOCAL EQUATIONS OF ENERGY AND ENTROPY BALANCE ARE GIVEN HERE.

UNCLASSIFIED

1/3 046 UNCLASSIFIED PROCESSING DATE--2010V70
TITLE--MECHANISMS OF INFRARED RADIATION OF THE UPPER ATMOSPHERE -U-
AUTHOR--(03)--GORDIYETS, B.F., MARKOV, M.N., SHELEPIN, L.A.
COUNTRY LF INFO--LSSR
SOURCE--MOSCOV, KOSMICHESKIYE ISSLEDOVANIYA, VOL VIII, NO 3, 1970, PP
437-448
DATE PUBLISHED-----70
SUBJECT AREAS--ATMOSPHERIC SCIENCES
TOPIC TAGS--UPPER ATMOSPHERE, IR RADIATION, DIATOMIC MOLECULE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0510 STEP NO--UR/0293/10/008/003/0437/0448
CIRC ACCESSION NO--AP0132712
UNCLASSIFIED

2/3 046

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132712

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE OSCILLATORY RELAXATION OF DIATOMIC MOLECULES IN THE UPPER ATMOSPHERE AND A JOINT ALLOWANCE WAS MADE FOR THE EFFECT OF PHOTOELECTRONS AND ELECTRIC FIELDS ON ELECTRON AND ION TEMPERATURE. A STUDY WAS MADE OF DIFFERENT MECHANISMS (THERMAL, ELECTRON, CHEMICAL) RESPONSIBLE FOR IR RADIATION. IT WAS FOUND THAT IN THE UPPER ATMOSPHERE, WHOSE CHARACTERISTICS ARE DESCRIBED BY AVERAGED, STANDARD PARAMETERS IN THE ABSENCE OF GEOMAGNETIC DISTURBANCES (KP EQUALS 0), THERE ARE EMITTING LAYERS AT SOME ALTITUDES IN THE RANGE 100-500 KM. AN ESTIMATE OF THE THICKNESS AND INTENSITY OF THE EMISSION OF THESE LAYERS SHOWS THAT IN THE CASE OF EXCITATION OF MOLECULES BY ELECTRON IMPACT IN AN ELECTRIC FIELD AND DURING CHEMICAL REACTIONS THE THICKNESS IS ABOUT 10 KM AND THE INTENSITY OF THE EMISSION IN THE REGION OF THE ROTATIONAL VIBRATIONAL BANDS OF THE MOLECULES NO, CO, N PRIME14, N PRIME15 AND OTHERS (3-8 MICRONS) CAN ATTAIN 10^{10} PRIME NEGATIVE 5 - 10^{10} PRIME NEGATIVE 4 ERG-CM PRIME 3 TIMES SEC. THE AGREEMENT OF THESE VALUES WITH THE EXPERIMENTAL DATA OF A NUMBER OF ROCKET AND SATELLITE MEASUREMENTS INDICATES THAT ELECTRIC FIELDS AND CHEMICAL REACTIONS IN THE UPPER ATMOSPHERE ARE THE PRINCIPAL FACTORS WHICH LEAD TO THE GENERATION OF IR RADIATION. IN THE FUTURE IT IS NECESSARY TO STUDY THESE PROCESSES FURTHER AND STUDY SUCH IMPORTANT CASES AS THE BEHAVIOR OF THE UPPER ATMOSPHERE DURING GEOMAGNETIC STORMS WHEN THE OBSERVED EMISSION FLUXES IN LAYERS AT ALTITUDES 300-500 KM ARE CONSIDERABLY ENHANCED IN INTENSITY (UP TO 10^{10} PRIME NEGATIVE 3 ERG-CM PRIME 3 TIMES SEC).

UNCLASSIFIED

3/3 046

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132712

ABSTRACT/EXTRACT--IT WOULD BE INTERESTING TO FORMULATE EXPERIMENTS FOR DETERMINING THE DEPENDENCE OF RADIATION INTENSITY ON THE SPECIFIC STATE OF THE UPPER ATMOSPHERE, ANALYSIS OF THE SPECTRAL COMPOSITION OF THE RADIATION, DETAILED INVESTIGATION OF THE CORRELATION BETWEEN ENERGY FIELDS AND THE INTENSITY IN DIFFERENT SPECTRAL REGIONS, AS WELL AS THE VERTICAL POSITION OF THE EMITTING LAYERS.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--SOME GENERAL REGULARITIES IN THE DEVELOPMENT OF THE MOON'S
STRUCTURES AND PECULIARITIES OF ITS GEOLOGICAL HISTORY -U-
AUTHOR--(02)-MARKOV, M.S., SUKHANOV, A.L.

COUNTRY OF INFO--USSR

SOURCE--PROBLEM GEOLOGII LUNY: AKAD. NAUK SSSR GEOL. INST. TRUDY, NO. 204,
P. 262-273, ILLUS., 1969
DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--LUNAR CRATER, ROCK, LUNAR TOPOGRAPHY, GEOLOGY, TEMPERATURE,
HEAT CONDUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0713

STEP NO--UR/0000/09/000/204/0262/0273

CIRC ACCESSION NO--AT0137788

UNCLASSIFIED

TERRAE IN STRUCTURE, ELEVATION, AND DISTRIBUTION ON THE SURFACE. THE DENSITY OF CRATERS, MEASURED BY THE AID OF AN EQUAL AREA PROJECTION, INCREASES WITH DISTANCE FROM MARIA. TEMPERATURE ANOMALIES, ON THE OTHER HAND, HAVE A TENDENCY TO CONCENTRATION ALONG MARE ZONES; THEY MAY CORRESPOND TO DIFFERENT HEAT FLOW IN THE LUNAR INTERIOR. EVIDENTLY THE GROSS COMPOSITION OF THE ROCKS OF THE TERRAE AND MARIA ARE SOMEWHAT DIFFERENT.

UNCLASSIFIED

EXPLANATORY NOTES FOR THE GEOLOGICAL-HISTORIOLOGICAL CHARTS
OF THE SOUTHERN PART OF MOSE MOUNTAIN, THE CRATER
COPERNICUS AND ITS VICINITY

N. P. V. Pletenskaya

ABSTRACT. The charts for this region are discussed
on the basis of observations made by lunar orbiter
spacecraft and others. The historical development of
this chart is traced back to 1893.

EXPLANATORY NOTES FOR THE GEOLOGICAL-HISTORIOLOGICAL CHART
OF THE NORTHERN PART OF MOSE MOUNTAIN

N. P. V. Pletenskaya

ABSTRACT. A general discussion is given of the lunar
features and geology within this region. The historical
development of these charts is traced. Data from the Ranger
spacecraft are described.

SOME GENERAL FEATURES OF THE DEVELOPMENT OF STRUCTURES
ON THE MOON AND DETAILS OF ITS GEOLOGICAL HISTORY.

M. S. Melnikov
A. L. Shchegolev

ABSTRACT. The processes leading to the formation
of various lunar features are identified. The authors
present a discussion of the development of the large
scale features (continents and seas) on the Moon.

GEOLOGICAL COMPARISON OF THE MOON AND EARTH

V. G. Tikhonov
I. V. Eizenvald

ABSTRACT. The geological processes leading to the
layering on the Moon are discussed and compared with
processes on the Earth. Research conducted by various
Russian and American scientists on volcanic activity is
described.

xiii

1/2 013 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--MASCONS OF DEPRESSIONS IN LUNAR MARIA -U-
AUTHOR--(02)--MARKOV, M.S., SUKHANOV, A.L. *M*
COUNTRY OF INFO--USSR
SOURCE--PRIRODA, NO. 3, 1970, P. 84-87
DATE PUBLISHED--70
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--LUNAR SURFACE, GEOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0874 STEP NO--UR/0026/70/000/003/0084/0087
CIRC ACCESSION NO--AP0110595
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--D90CT70

CIRC ACCESSION NO--AP0110595

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE POSSIBLE NATURE OF LUNAR MASS CONCENTRATIONS (MASCONS) IN THE DEPRESSIONS OF LUNAR MARIA AS OBSERVED BY LUNAR ORBITER V. AN ATTEMPT IS MADE TO EXPLAIN THESE ANOMALIES BY THE DEEP SEATED STRUCTURAL FEATURES OF LUNAR MARIA LINKED WITH THE GEOLOGICAL HISTORY OF THE MOON. A TWO LAYER MODEL OF THE LUNAR CRUST IS PROPOSED TO EXPLAIN THE OCCURRENCE OF MASCONS.
FACILITY: AKADEMIIA NAUK SSSR, GEOLOGICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED
TITLE--MASCONS OF DEPRESSIONS IN LUNAR MARIA -U-

PROCESSING DATE--09OCT70

AUTHOR--(02)--MARKOV, M.S., SUKHANDV, A.L.

COUNTRY OF INFO--USSR

SOURCE--PRIRODA, NO. 3, 1970, P. 84-87

DATE PUBLISHED--70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--LUNAR SURFACE, GEOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/0874

STEP NO--UR/0026/70/000/003/00B4/0087

CIRC ACCESSION NO--AP0110595

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NU--AP0110595

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE POSSIBLE NATURE OF LUNAR MASS CONCENTRATIONS (MASCONS) IN THE DEPRESSIONS OF LUNAR MARIA AS OBSERVED BY LUNAR ORBITER V. AN ATTEMPT IS MADE TO EXPLAIN THESE ANOMALIES BY THE DEEP SEATED STRUCTURAL FEATURES OF LUNAR MARIA LINKED WITH THE GEOLOGICAL HISTORY OF THE MOON. A TWO LAYER MODEL OF THE LUNAR CRUST IS PROPOSED TO EXPLAIN THE OCCURRENCE OF MASCONS.

FACILITY: AKADEMIIA NAUK SSSR, GEOLOGICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

USSR

MARKOV, N. N., Ukr. resp. nauch.-tekhn. konf., posvyashch. 50-letiyu metrol. sluzhby USSR, 1972, 190-191

the error's sign is primarily minus; from 35 to 50 mm it is indeterminate; above 50 mm, it is primarily plus. This is explained by displacement and misalignment of the measuring line. Micrometer adjustment of inside calipers leads to larger errors than the use of end gauges to adjust them. Errors in measuring a geometrical shape are usually of a negative type. Metering heads with different scale divisions make smaller errors when gauging axial play. The choice of the degree of accuracy of end gauges used in production is not always justified. Class 4 and 5 gauges are most frequently used. A comparison of experimental and theoretical measurement errors (the latter were made according to OMTRM 0466-001-65, 66, and 68) shows that they are closely convergent, except for measurements of play caused by axial eccentricity. It is advisable to use the experimental method of determining measurement error in enterprises and branches in order to evaluate the degree of accuracy of the measurements that are taken.

2/2

- 58 -

Materials

USSR

UDC: 621.78

PROKOSHKIN, D. A., VASIL'YEVA, Ye. V., MARKOVA, S. A., CHIZHOV, I. N.

"Influence of Heat Treatment on High-Temperature Strength and Creep of NV10M5TZTs Niobium Alloy"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, No 11, 1972, pp 121-124.

Abstract: An alloy was studied with the following chemical composition (wt. %): 9.4% W, 5.98% Mo, 2.75% Ti, 1.65% Zr, impurity contents 0.05% C, 0.02% N, 0.02% O, 0.001% H. The short-term strength and creep of this alloy were studied at 1100°C. The influence of heat treatment on the characteristics of high temperature strength and heat resistance of the alloy was studied. It was shown that hardening from 1700°C is an effective means of strengthening the alloy at high temperatures. High heat resistance of the alloy is achieved as a result of formation of a multicomponent solid solution with high interatomic bond strength and separation of the dispersed refractory carbide phase during long service at 1100°C.

1/1

USSR

M UDC: 621.372.8:621.385.63

ANDRUSHKO, L. M., MARKOV, S. Ye.

"On the Problem of Calculating Retarding Systems From Predetermined Frequency Responses by the Methods of Circuit Theory"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. 2, pp 53-61 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7B114)

Translation: The method of synthesizing circuits with lumped constants is used to obtain a two-terminal pair network whose SHF equivalent is a retarding system. The elements of the conductivity matrix which determine the circuit of the two-terminal pair network are found from the predetermined frequency responses of the dispersion and coupling impedance. Examples are given showing synthesis of circuits whose SHF realization is retarding systems of the network type coupled by a slot in cylindrical resonators. Three illustrations, bibliography of three titles.
Resumé.

1/1

Fluid Dynamics

USSR

UDC 517.9:532

BORISOV, V. M., MARKOV, V. G., PALILOVA, S. F., Moscow

"On the Steady-State Motion of a Uniformly Dense Suspension in a Tube"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki, No. 3, May/Jun 71, pp 738-745

Abstract: The steady-state one-dimensional motion of uniformly dense suspensions is considered. The suspension is considered as a continuous medium, the state of which at each point under steady-state motion is characterized by three variables: the concentration of particles, the velocity, and the effective viscosity. The effective viscosity is defined as the proportionality coefficient between the amount of energy E dispersed in a unit volume per unit time and the second invariant deformation velocity vector of the medium. The analysis is based on a maximum principle of the dispersed energy in steady-state motion. The assumption is not made that the flow of the suspension satisfies the Navier-Stokes equations with an effective viscosity. The more natural use of a maximum principle for dissipation made it possible to make an analogy with the familiar Helmholtz principle for slow flows of a viscous incompressible fluid. It is shown that layering

1/2

USSR

BORISOV, V. M., et al, Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, No. 3, May/June 71, pp 738-745

of the suspension occurs in all cases. The rate of entrainment of the column of the solid phase formed is obtained for the case of a wall effect. It is pointed out that the model used applies when the flow of the suspension is essentially one-dimensional.

2/2

- 55 -

UDC 669.15.018.44:669.782

USSR

BRATUKHINA, V. A., DYN'KOVA, YU. V., MARKOV, V. G.

"Effect of Silicon on the Properties of Pearlitic Steels Designed for Operation at High Temperatures"

Metallovedeniye -- V sb. (Physical Metallurgy -- collection of works), No 14, Leningrad, Sudostroyeniye Press, 1970, pp 130-139 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 41630)

Translation: A study was made of the effect of Si on the mechanical and corrosion properties of steel 10 (1.16-3.43% Si), 15Kh (1.22-3.24% Si), 15Kh2 (2.25-3.31% Si), 15KhLM (0.74-1.71% Si), 15KhLMF (0.37-1.90% Si), Kh2M (0.25-1.47% Si). It was demonstrated that steel containing up to 1.8% Si has a satisfactory combination of mechanical properties. A higher content of Si in pearlitic class steel is inexpedient as a result of developing brittleness of the material. There are 7 illustrations, 5 tables, and a 9-entry bibliography.

1/1

PROCESSING DATE--13NDV70
HOMOGENEOUS SUSPENSIONS

UNCLASSIFIED

1/2 040

TITLE--PSEUDOTURBULENT DIFFUSION OF PARTICLES IN

-U-
AUTHOR--(02)-BOYEVICH, YU.A., MARKOV, V.G.

M

COUNTRY OF INFO--USSR

SOURCE--NOVOSIBIRSK AKADEMIYA NAUK SSSR, SIBIRSKOYE OTDELENIYE, ZHURNAL
PRIKLAADNOY MEKHANIKI I TEKNICHESKOY FIZIKI, NO 1, JAN.--FEB. 70, PP 67-72
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DIFFUSION COEFFICIENT, CHEMICAL SUSPENSION, TURBULENT FLOW,
PARTICLE DISTRIBUTION, ANISOTROPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/0954

STEP NO--UR/0207/70/000/001/0067/0072

CIRC ACCESSION NO--AP0130014

UNCLASSIFIED

SUB1 AND D SUB2 OF PSEUDOTURBULENT PARTICLE DIFFUSION IN THE LONGITUDINAL AND LATERAL DIRECTIONS. THEY ARE VALID, UNDER CERTAIN ASSUMPTIONS, AT REYNOLDS NUMBER R EQUALS $2 \text{ AU OVER } V \text{ SUB1}$ SMALLER THAN 1. THIS CORRESPONDS TO LOCALLY HOMOGENEOUS SUSPENSION. THE RESULTS OF CALCULATIONS, SUCH AS THE RATIO OF LATERAL AND LONGITUDINAL PSEUDOTURBULENT DIFFUSION COEFFICIENTS AT ALPHA EQUALS 0.60 AND THE DEPENDENCE OF THE LONGITUDINAL DIFFUSION COEFFICIENT $D \text{ SUB1}$ ON DENSITY ARE PRESENTED IN GRAPHS. THE PSEUDOTURBULENT DIFFUSION OF SOLID PARTICLES IS SHOWN TO BE A SHARPLY ANISOTROPIC, AND THE LONGITUDINAL DIFFUSION IS 10 PRIME^3 TO 10 PRIME^4 TIMES MORE INTENSE THAN THE LATERAL DIFFUSION. THE CONCLUSION THAT LONGITUDINAL DIFFUSION IS PREDOMINANT IS CONSISTENT WITH THE OBSERVATIONS OF PARTICLE PULSATIONS IN A RELATIVELY RAREFIED SYSTEM. THE PHYSICAL CAUSE OF THIS PREDOMINANCE IS THOUGHT TO CONSIST NOT ONLY IN THE ANISOTROPY OF PSEUDOTURBULENT PULSATION SPEED, BUT ALSO IN THE ANISOTROPY OF CORRESPONDING MIXING LENGTHS.

UNCLASSIFIED

M

USSR

UDC 617-001.34-057:624.367.7(971.56)

IVANOV, P. I., MARKOV, V. I., and IAKUTEN, P. G., Sakatsk University and Republic Sanitary-Epidemiological Station

"Vibration Disease Among Fluoropite Miners in the Northern Latitudes"

Moscow, Gigiyena Truda i Professional'nyye Znaneniya, No 2, 1970, pp 46-47

Abstract: Fluoropite mica is mined in the Altai region of the Sakatsk ASSR, where the winter lasts 7-8 months and the temperature often drops to -50° C. Extreme dustiness, drafts, low temperatures, and noise are occupational hazards of the miners. Few cases of vibration disease were reported prior to 1969, when the PR-24L drill was introduced, after which the incidence of the disease rapidly increased. Now banned, this high-speed drill (3300 strokes per minute) has to be held close to the chest and abdomen. It has both local and general effects, as shown by the sharp rise in number of cases of hypertension that followed its introduction. In a nearby plant where the workers are also subjected to low ambient temperatures but not to noise, dust, or vibration, the incidence of peripheral nervous disorders is almost the same as in the mica mines, but hypertension is 2.7 times less frequent and heart disease 20 times less frequent.

1/1

2/2 G40

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO. A80130014

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

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002201930001-3"

ABSTRACT: THE EFFECTIVE DIFFUSION

MARKOV, V. S.

Medical Monitoring

COLEB

SO: JPRS 54986
03 NOV 71

UDC 612-08:62-52

USE OF AUTOMATIC VOLUME CONTROL IN SYSTEMS FOR REGISTERING PHYSIOLOGICAL FUNCTIONS

6500826 (Medical Monitoring) 6500661
Avtorka by A. N. Korotkov, V. A. Belikov, V. G. Voloshin, and V. S. Markov; Konstantinovskaya Biologiya i Meditsina, Russian, Vol. 5, No. 4, pp. 76-77, 1971, submitted for publication 29 September 1970

As is well known, there is a considerable change in the amplitude of registered physiological indices during functional loads and some types of occupational activity. We had the opportunity to observe fourfold-fivefold and even tenfold changes in amplitude of the first cardiac tone on a phonocardiogram registered during strong emotional excitation. Similar results are registered during a physical load, with exposure to a high temperature, etc. During the course of the experiment considerable amplitude changes can be observed on the sphygmogram for different arteries, tachocardiogram, phonogram of Korotkov tones, ultrasonic radiogram, and other indices.

Since the recording instrument has a finite dynamic range, with an overloading of the amplification channel there will be considerable nonlinear distortions of the useful signal. The nature of these distortions is determined by dynamically changing changes in physiological processes. It is impossible to foresee the degree of such changes and therefore the use of manual volume control for their compensation is ineffective.

In order to broaden methodological possibilities and increase reliability in registering different physiological indices in a broad range of changes in useful signal level it is necessary to use an automatic volume control system. It is desirable to use an AVC system in registering those signals whose information content consists of changes in time relationships (rate, frequency, phase).

For example, analysis of the tachocardiogram registered by the H. H. Savitskiy method requires primarily a study of the shape of the curve, whereas the amplitude values of these oscillations are analyzed only relative to one another. A considerable strengthening of the registered signal, such as immediately after ending decompression of the lower half of the body, overloading the amplification channel, so distorts the tachocardiogram trace that it cannot be analyzed.

Amplifiers

USSR

UDC 621.375.93.002.2

GERTSENSHIEYN, M. YE., KOSTIN, A. A., MAGNUSHEVSKIY, V. R., ~~MARKOV, V. V.~~
SOBOLEVA, O. A., SOLOVEY, L. G., Active Members of the Society

"Plug-in Module for a Wide Band Parametric Amplifier"

Moscow, Radiotekhnika, No 11, 1971, pp 105-107

Abstract: A description is presented of a miniature modular design of a centimeter-range parametric amplifier with integral structure of the oscillatory systems. The operating principle of the module is discussed, and schematic diagrams of basic elements are presented. The primary oscillatory system comprises a varactor diode and an auxiliary lumped inductance included in series with respect to the signal frequency. The pass band of the module is actually determined by the time constant of the diode and is 8-9% of the operating frequency at a level of 1 decibel with amplification of 10-11 decibels. Further expansion of the pass band to 11-12% of the operating frequency is obtained by using a second corrector. The frequency-amplitude characteristic of the module with the additional corrector is presented. The application of a step structure as the corrector, transformer and rejector of the other frequencies permits optimal coupling of the

1/2

USSR

GERTSENSHTEYN, M. YE., et al, Radiotekhnika, No 11, 1971, pp 105-107

primary oscillatory system to the matching quadripole in the signal circuit and realization of pass bands of the parametric module which are limiting for the diode used. This design is applicable in all cases where the series resonance frequency of the diode is between the signal frequency and the open-circuit frequency.

2/2

Heat, Combustion, Detonation

USSR

UDC 534.222.2

KOROBAYNIKOV, V. P., LEVIN, V. A., MARKOV, V. V.

"Explosion in A Combustible Gas Mixture"

Nauch. Tr In-t. Mekh Mock. Un-ta, [Scientific Works of the Institute of Mechanics], Moscow University, 1971, No 11, pp 83-89, (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1972, Abstract No 1B211 by G. A. Adadurov).

Translation: The problem of the explosion of a quiet, combustible mixture of gases is studied when energy is instantly liberated at a point along a plane or straight line. The gas is considered ideally nonviscous and non-heat-conducting. The process of combustion is calculated using a model which considers the delay time of ignition and subsequent simultaneous occurrence of the forward and reverse reactions. The equations are taken as Arrhenius dependences. The analysis performed shows that the motion of the gas, in which exothermic reactions may occur, can be developed in two stages. The initial stage is when the quantity of energy liberated in the area limited by the flame front is small in comparison to the explosive energy. The course of the process in this stage is described by formulas providing the solution of the problem of a strong point explosion. The chemical reactions occur against the background of this flow. The strongly overcompressed detonation wave which develops with the explosion breaks down to an ordinary compression jump

1/2

1/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--VULCANIZATION OF RUBBERS WITH SORBIC ACID SALTS --U-

AUTHOR--(05)--ZAKHAROVA, YE.S., MIKHLIN, V.E., DONTSOV, A.A., MARKOV, V.V.,
DUGADKIN, B.A.

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA, 1970, 29(3), 46

DATE PUBLISHED-----70

M

SUBJECT AREAS--MATERIALS

TOPIC TAGS--VULCANIZATION, PEROXIDE, ORGANOCALCIUM COMPOUND, ORGANONICKEL
COMPOUND, STYRENE, SYNTHETIC RUBBER, VULCANIZATE/(U)SKS30ARK STYRENE
RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--2000/0833

STEP NO--UR/0138/70/029/003/0046/0046

CIRC ACCESSION NO--AP0124500

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124500

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SKS 30 ARK RUBBER WAS VULCANIZED IN THE PRESENCE OF 10 PARTS (MECH:CHCH:CHCO SUB2) SUB2 CA OR (MECH:CHCH:CHCO SUB2) SUB2 NI AND VARIOUS PEROXIDES. THE VULCANIZATES WITH SUPERIOR PHYSIOMECH. PROPERTIES WERE OBTAINED. FACILITY: MOSK. INST. TONKGI KHIM. TEKHNOI. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ASSOCIATION OF ORGANIC SULFIDES AND 3, METHYLBENZOTHIOPHENE STUDIED
BY A CRYOSCOPIC METHOD -U-
AUTHOR-(03)-MARKOV, YU.A., RUBINSHTEYN, I.A., KREYN, S.E.
COUNTRY OF INFO--USSR M
SOURCE--NEFTEKH(MIYA 1970, 10(1), 123-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--THIOPHENE, SULFIDE, BENZENE DERIVATIVE, STABILITY CONSTANT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/1993 STEP NO--UR/0204/T0/010/001/0123/0125
CIRC ACCESSION NO--AP0112957
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0112957

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLNS. OF SMALLER THAN OR EQUAL TO 0.24 G MOLE OF (N C SUB7 H SUB15) SUB2 S, (N C SUB8 H SUB 17) SUB2 S, ETSCH SUB2 PH, 3,METHYLBENZOITHIOPHENE, PH SUB2 S, AND (PHCH SUB2) SUB2 S IN 1000 G CYCLOHEXANE WERE EXAMD. MEASURABLE ASSOCCN. WAS FOUND ONLY WITH LAST 3 COMPS.,, THE AV. STABILITY CONSTS. OF THE ASSOCS. (NO. OF MDLS. OF SULFIDE IN THE ASSOC. IS 5) OF THE LAST 2 BEING 4.358 AND 7.482, RESP.

UNCLASSIFIED

USSR

UDC 621.378.529

BORISOV, N.A., DAVYDOV, A.A., LAVRUSHIN, B.M., MARROV, YE.V.

"On The Effect Of Cavity Mechanical Treatment On The Parameters Of A Cadmium Sulphide Laser, With Electron Excitation"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 6(12), 1972, pp 115-116

Abstract: The paper studies the laser parameters of bulk single crystals of cadmium sulphide grown by the static sublimation method. The results obtained in the work show that to a considerable degree the low laser parameters realized heretofore with bulk crystals of CdS are caused by mechanical processing of the surface bombarded by electrons. In the case of excitation through the cleaved surface, the values obtained of the laser threshold of generation and efficiency are close to the best results obtained with plate crystals of CdS. 6 ref. Received by editors, 22 May 1972.

1/1

- 76 -

USSR

BUDAK, S. M. and MARKOV, YU. B.

"Some Problems of Optimal Control for Differential Equations with Random Parameters"

Prikl. Mat. i Programmir. [Applied Mathematics and Programming -- Collection of Works], No 9, Kishinev, Shtiintsa Press, 1973, pp 3-20 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V32)

Translation: Certain classes of optimal control problems are studied when there are random perturbations for linear systems of ordinary differential equations. The criterion of replacement of these problems with deterministic problems and sufficient conditions for existence of an optimal control for stochastic problems are found.

1/1

1/2 046 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--PHONON PLASMA INTERACTION AND INTERBAND TRANSITIONS IN MERCURY
TELLURIDE -U-
AUTHOR--(05)-IVANOVOMSKIY, V.I., KOLOMIYETS, B.T., MALKOVA, A.A., MARKOV,
YU.F., MEKHTIYEV, A.SH.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 417-19
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--MERCURY COMPOUND, TELLURIDE, SINGLE CRYSTAL PROPERTY, ELECTRON
MOBILITY, IR REFLECTANCE, PHONON INTERACTION, PLASMA INTERACTION,
CRYOGENIC PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0091 STEP NO--UR/0449/70/004/002/0417/0419
CIRC ACCESSION NO--AP0105177
UNCLASSIFIED

2/2 046

UNCLASSIFIED

PROCESSING DATE--23JCT70

CIRC ACCESSION NO--AP0105177

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR REFLECTANCE WAS MEASURED FOR WAVELENGTHS OF 50-90 MU FROM INTRINSIC HGTE AT 80DEGREESK USING AN OPTICALLY POLISHED SURFACE OF A SINGLE CRYSTAL WITH N EQUALS 1.6 TIMES 10 PRIME15-CM PRIME3 AND AN ELECTRON MOBILITY OF 8 TIMES 10 PRIMES CM PRIME2-V-SEC AT 4.2DEGREESK. EXPRESSIONS ARE GIVEN FOR ACCOUNTING FOR THE PHONON PLASMA INTERACTION, AND A THEORETICAL CURVE WAS SET UP FOR THE REFLECTANCE AT 80DEGREESK. FACILITY: FIL. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

1/2 038 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THE VIBRATIONAL SPECTRUM, THE OPTICAL CONSTANTS, AND THE IONICITY
OF THE BOND OF CDGEAS SUB2 IN CRYSTAL AND AMORPHOUS PHASES BY IR
AUTHOR--(04)-ZLATKIN, L.B., ~~MARKOV, YU.E.~~ STEKHANOV, A.I., SHUR, M.S.

COUNTRY OF INFO--USSR

SOURCE--I. PHYS. CHEM. SOLIDS 1970, 31(3), 567-71

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--VIBRATION SPECTRUM, OPTIC PROPERTY, IR SPECTRUM, CHEMICAL
BONDING, CRYSTAL STRUCTURE, CADMIUM COMPOUND, GERMANIUM COMPOUND,
ARSENIC COMPOUND, CRYSTAL LATTICE STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1396

STEP NO--US/0000/70/031/003/0567/0571

CIRC ACCESSION NO--AP0107869

UNCLASSIFIED

2/2 038

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0107869

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR REFLECTIVITY IS INVESTIGATED IN THE FREQUENCY REGION FROM 2 TO 75 MU FOR T EQUALS 295DEGREESK. CHANGES OF THE VIBRATIONAL SPECTRUM TAKE PLACE IN THE REGION OF THE LATTICE REFLECTION WHILE CLEAR CORRELATION EXISTS IN THE REGIONS OF SMALL (SMALLER THAN 25 MU) AND LARGE (GREATER THAN 60 MU) WAVELENGTHS BETWEEN THE OPTICAL CONSTS. OF CDGEAS SUB2 IN THE CRYSTAL AND AMORPHOUS PHASES. THE DISPERSION OF N AND THE DIELEC. CONST. WERE CALCD. BY KRAMERS KRONIG AND DISPERSION ANAL. AND THE VIBRATIONAL FREQUENCIES DETD. THE QUAL. AND QUANT. PARAMETERS OF THE IONICITY OF THE BOND HAVE BEEN ESTD. THE CHEM. BOND IN CDGEAS SUB2 IS IONIC COVALENT WITH LARGER DEGREE OF COVALENT PART. FACILITY: A. F. IOFFE PHYS. TECH. INST., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 51:621.391

MARKOV, Yu. G.

"A Finite Automaton as a Controlled System"

V sb. Upravlyayemye sistemy (Controlled Systems--collection of works), Vyp. 4-5, Novosibirsk, "Nauka", 1970, pp 30-34 (from RZh-Kibernetika, No 1, Jan 71, Abstract No 1V332)

Translation: The author discusses the problem of finding a word of minimum length which converts the initial state of an automaton to a predetermined state. Consecutive calculation of the matrix $A^l = \|a_{ij}^l\|$ is proposed as a solution, where a_{ij}^l is the set of words of length l which convert the state s_i to the state s_j . Let the number $\phi(b)$ be placed in correspondence to each symbol b . Then corresponding to the output word $b_1 \dots b_k$ is the income $\sum_{j=1}^k \phi(b_j)$. The author considers the problem of finding the word of minimum length on which the income exceeds a given level ϕ_0 . Consecutive calculation of the matrix $B^l = \|b_{ij}^l\|$ is proposed for the solution,

1/2

MARKOV, Yu. G., Unravlyayemye sistemy, vyp. 4-5, Novosibirsk, "Nauka", 1970, pp 30-34

where b_{ij} is the set of incomes for the words of u_{ij} . Calculation of the matrices also gives other analogous characteristics for control of the automaton. G. Blokhina.

USSR

UDC: 621.652:667.018.95(088.8)

ARABEV, B. G., BAULIN, Yu. N., ZVEREV, I. I., ZUKHER, M. S., KOKONIN, S. S.,
MARKOV, Yu. M., PORTNOY, K. I., SKLYAROV, N. M., TYURIN, V. A.

"Metal Ceramic Friction Material"

USSR Author's Certificate Number 3463.5, Filed 15/12/69, Published 18/08/72
(Translated from Referativnyy Zhurnal Metallurgiya, No. 8, 1973, Abstract No
8G422P, by S. Krivosova).

Translation: A metal ceramic friction material, for example for braking devices, is suggested, containing ZrC and B carbide. In order to increase the stability of the coefficient of friction, B nitride and metals of the Fe group are introduced to the composition, taken in any combination with the following ratio of components (in wt. %): B carbide -- 10-50, Fe-group metals, taken in any combination, 3-35, B nitride 1-5, ZrC -- remainder. The material suggested has the following properties: s. g. 5.52 g/cm³; coefficient of friction at braking temperature 600° 0.50-0.55, at 800° 0.45-0.50; stability of coefficient of friction with specific braking energies 450 kgm/cm² 0.75-0.88; at 923 kgm/cm² 0.80-0.95; wear with specific braking energies of 450 and 923 kgm/cm², in μ/tori 2-6 and 6-11 respectively; permissible volumetric

1/2

USSR

Arabey, B. G., Baulin, Yu. N., Zverev, I. I., Zukher, M. S., Kokonin, S. S., Markov, Yu. M., Portnoy, K. I., Sklyarov, N. M., Tyurin, V. A., USSR Author's Certificate Number 346373, Filed 15/12/69, Published 18/08/72.

temperature 800°, heat conductivity factor in t/m.° at 100° 48.1, 200° 44.0, 400° 35.9, 600° 29.5, 800° 27.5, 1000° 26.4; specific heat capacity (in cal/g.°) at 100° 0.134, 200° 0.136, 400° 0.150, 600° 0.161, 800° 0.169, 1000° 0.184; tensile strength at 20° 36 kg/mm²; bending strength at 20° 62 kg/mm²; shear strength at 20° 13.8 kg/mm²; a_H 0.15 kgm/cm².

2/2

- 41 -

USSR

UDC 669.14.018.262

ADAMESKU, R. A., VOSTRIKOV, A. A., GUBCHESKIY, V. P., ~~MARKOM~~, YU. N., and NEMKINA, E. D., Ural Polytechnic Institute and the Magnitogorsk Metallurgical Combine

"Recrystallization Texture of Low-Carbon Steel"

Moscow, Stal', No 7, Jul 73, pp 650-652

Abstract: The recrystallization texture of low-carbon steels 08Yu and 08Fkp in all the investigated deformations (3-90%) was multi-component and can be mainly described by three orientations: (111) $\overline{[112]}$, (211) $\overline{[011]}$, and (100) $\overline{[011]}$. The ratio between components varies with degree of deformation. The main component in the recrystallization texture of low-carbon steels 08Yu and 08Fkp is the orientation (111) $\overline{[112]}$, the intensity of which is increased with rise in the degree of reduction during cold rolling. A low temperature of uncoiling hot-rolled strip for steel 08Yu and high for steel 08Fkp is necessary for producing the strong component (111) $\overline{[112]}$ in the weak component (100) $\overline{[011]}$ with the goal of improving the mechanical properties of low-carbon steel. Here the degree of deformation during cold rolling should be not less than 50%. Two figures, one table, 11 bibliographic references.

1/1

USSR

UDC 621.372.061

MARKOV, Yu. V.

"Problem of Threshold Properties of a Waveguide Communications Channel with PCM7"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 2 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 2), Leningrad, 1970, pp 112-118 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No. 8A167)

Translation: This article is devoted to a study of the effect of the shape of the threshold characteristic of the radio pulse regenerator with additive gaussian noise on the noise immunity of a wave communication channel. The effect of other factors on noise resistance is not considered. It is proposed that the gating method is implemented in regenerators for detection of binary signals.

1/1

USSR

UDC 616-074:681.3

KOBLOV, L. F., KUKUJFUZA, E. N., and MARKOVA, A. M., Laboratory for Clinical Diagnosis, and Scientific Organization Division, Scientific Research Institute of Clinical and Experimental Surgery, Ministry of Health USSR

"Automation of Biochemical Tests and Computer Processing of the Results"

Moscow, Laboratornoye Delo, No 9, 1970, pp 525-529

Abstract: Since 1969 the authors have been studying data obtained by means of a Clinomak, an automated apparatus manufactured in Italy by Polimak. The device comprises a unit for measuring and storing blood, a photolorimeter, and a programming device. The results have been processed on a Soviet Nairi computer. The Clinomak is capable of determining cholesterol, glucose, blood bilirubin, protein fractions, and thymol turbidity. In 86 patients with diseases of the liver and bile duct, seven types of glyceimic curves were distinguished (normal, original hypoglycemic, hepatic, pancreatic, asthenic, diabetic, and adrenal insufficiency). Establishing the type of glyceimic curve for each patient permitted rapid and accurate diagnosis of the disease. Currently under study are 267 patients with surgical diseases of the heart and blood vessels. The hemograms, thromboelastograms, and coagulograms are processed in the same manner as

1/2

USSR

KOBLOV, L. F., et al., Laboratornoye Delo, No 9, 1970, pp 525-529

the glyceimic curves. Efforts are being made to identify five types of hemo-grams (normal, anemic, inflammatory, allergic, and degenerative) and five types of coagulograms and thromboelastograms (normal, hypocoagulating, hypercoagulating, prethrombotic, and acute fibrinolysis).

2/2

USSR

UDC [546.185+546.47]:54-39:621.892.099.6

SHER, V. V., MARKOVA, E. I., KHANAKOVA, L. G., KUZ'NETSA, G. N., SANIN, P. I.,
Institute of Petrochemicals Synthesis imeni A. V. Topchiev, USSR Academy
of Sciences

"Interaction of Zinc Dialkyl Dithiophosphates With Hydroperoxides"

Abstract: Laboratory studies on interaction of Zn dialkyl phosphates with hydroperoxides showed the possibility of two mechanisms: (1) a radical mechanism with formation of bis-(dialkylthiophosphone)-disulfides and basic Zn dialkylphosphates; and (2) an ionic mechanism with formation of dialkylmonothiophosphoric acid salts and products of extensive salt conversion. Bis-(dialkylthiophosphone) disulfide may react with hydroperoxide to form bis-(dialkyl phosphone) disulfide, which is unstable and forms acid in the presence of water by an ionic mechanism. Basic conversion products of Zn dialkyl thiophosphates with antioxidant properties are formed owing to retardation of the oxidation in the presence of dialkyl dithiophosphates. The effectiveness of Zn dialkyldithiophosphates as antioxidants (hydroperoxide decomposition products) decreases with increase in the ionic part of the reaction, i.e., with increase in polarity of the medium and in the presence of water.

1/1

- 42 -

1/2 020 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--POLAROGRAPHY OF HALOORGANIC COMPOUNDS. VIII. REDUCTION OF ISOMERIC
1,2-DIHALOETHYLENES -U-
AUTHOR-(02)-MARKOVA, I.G., FEOKTISTOV, I.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 740-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLAROGRAPHY, HALOGENATED ORGANIC COMPOUND, ETHYLENE, IR
SPECTRUM, ISOMER, BROMINATED ORGANIC COMPOUND, IODINATED ORGANIC
COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3006/0819

STEP NO--UR/0079/70/049/004/0740/0744

CIRC ACCESSION NO--AP0134552

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134552

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING HALF WAVE POTENTIALS ARE REPORTED FOR THE REDN. OF THE INDICATED SUBSTANCES IN 50PERCENT ETOH AND H SUB2 O, RESP., IN NE SUB4 NBR ELECTROLYTES; TRANS-BRCH:CHBR MINUS 1.59 AND MINUS 1.56 V.; CIS-ISOMER MINUS 1.8 AND MINUS 1.75 V. THE FOLLOWING WERE RUN ONLY IN 50PERCENT ETOH: MIXED ISOMERS, 1ST WAVE MINUS 1.57 V AND 2ND WAVE MINUS 1.78 V; TRANS-ICH:CHI MINUS 0.46 V; TRANS-CHCL:CHI MINUS 1.18 V. IR SPECTRA OF THE SUBSTANCES ARE ALSO SHOWN. THE ELECTROREDN. OF GEOM. ISOMERS OF DIHALOETHYLENES IS THE SAME AND THE RATE OF REACTION OF THE TRANS ISOMER IS GREATER THAN THAT OF CIS OWING TO MORE RAPID CLEAVAGE OF THE HALOGEN IN THE TRANS POSITION. REPLACING ONE I ATOM BY CL DOES NOT ALTER THE ELECTRODE PROCESS BUT EVIDENTLY TENDS TO HINDER THE REDN. THE 1,2,CHCL:CHI WITH N PRIME IS SUBD 1.5830, PROBABLY HAS THE TRANS CONFIGURATION, RATHER THAN THE CIS ASSIGNED TO IT, ON THE BASIS OF ITS NMR AND OTHER SPECTRA. FACILITY: VSES. NAUCH.-ISSLED. KHIM.-FARM. INST. IM. ORZHNKIDZE, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 632.95

BLIZNYUK, N. K., KVASHA, Z. N., VARSHAVSKIY, S. L., BARANOV, Yu. I.,
LIBMAN, B. Ya., STREL'TSOV, R. V., PROTASOVA, L. D., MARKOVA, L. I.,
KHOKHLOV, P. S., MADZHARA, G. A., KIRILINA, L. E., All-Union Scientific
Research Institute of Phytopathology

"A Method of Making Thiophosphonyl Dihalides"

USSR Author's Certificate No 337384, filed 31 Oct 69, published 2 Jun 72
(from RZh-Khimiya, No 9, May 73, abstract No 9N500 by T. G. Chekareva)

Translation: Compounds of the general formula $RP(S)X_2$ (I) (R = C₁-C₁₂-alkyl, cycloalkyl, aryl, unsubstituted alkyl or alkyl containing substituents, Cl or Br; X = Cl, Br) are synthesized by reacting $(RS)_3P$ (II) with a 2-10-fold excess of PX_3 with heating to 250-330°C in an autoclave. Example. A mixture of 0.07 mole of II (R = Me) and 0.7 mole of PCl_3 is heated in an autoclave test tube of stainless steel at 290-320°C for 5 hours. The excess PCl_3 is driven off at atmospheric pressure and distillation of the residue in a vacuum gives I (R=Me, X=Cl), boiling point 70-3°/80, n_{20}^D 1.5510, d_4^{20} 1.4421, yield 52%. Similar methods are used to produce other compounds of type I (given are R, X, boiling point in °C/mm, n_{20}^D , d_4^{20} , yield in %): Et, Cl, 64-8/15, 1.5418, 1.3527, 58; Pr, Cl, 85-8/15, 1.5285, 1.2942, 40; iso-Pr, Cl, 72-5/15, 1.5290, 1.3017, 47.5; Bu, Cl, 111-13/25, 1.5269, —, 65;

1/2

(7)

USSR

SUKHOMLINOV, B. P., Vopr. tekhnol. ulavlivaniya i pererab. produktov
koksovaniya, Kharkov, 1972, pp 50-56

sulfur with a sufficient amount of powdered SL. A SN screw mixer is recom-
mended for bringing the components into contact under pressure and pulveriz-
ing them at the same time.

2/2

- 30 -

USSR

UDC 632.95.02

FADEYEV, Yu. N., Doctor of Biological Sciences, UNTERBERGER, V. K., Candidate of Agricultural Sciences, CHEKALINA, V. I., and MARKOVA, L. I., All-Union Scientific Research Institute of Plant Pathology

"The Acaricide Activity of O-Butyl-S-Methylbenzylidithiophosphonate"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 11, No 2, 1973, pp 29-31

Abstract: The active ingredient of the acaricide which is also called 228-F was tested on the common spider mite *Tetranychus urticae*. A natural Moscow region mite was used as the sensitive breed, since it had not previously been treated with pesticides and had been cultivated on bean plants in the laboratory for some time. A resistant breed was acquired in the laboratory by treating sensitive mites with methylethylthiophos. Infested leaves were doused with a water-acetone emulsion containing the preparation and a mortality count was taken 72 hours later. To determine contact, intestinal and ovicide action infested leaves were submerged in the solution for 5 seconds. A mortality count was made in 72 hours and unhatched eggs were counted in 4 days. To determine length of action mites were placed on treated bean leaves 3, 5, and 10 days after treatment, then a mortality count was made 72 hours later. The preparation was also used on broad beans against
1/2

USSR

FADEYEV, Yu. N., et al., Khimiya v Sel'skom Khozyaystve, Vol 11, No 2, 1973, pp 29-31

aphis craccivora Koch, with a mortality count made after 48 hours. 0-butyl-S-methylbenzylidithiophosphonate showed a high contact acaricidity not only with sensitive but also with resistant mites. The acaricide had poor lasting and ovicide results, but did affect the vitality of larvae from treated eggs. Mixture with BI 58 did not lessen toxicity and increased both lasting effects and the time required for the mites to become resistant to the acaricide.

2/2

- 42 -

USSR

UDC 632.95

KHOKHLOV, P. S., MARKOVA, L. L., ZHEMCHUZHIN, S. G.

"Preparation of Dithiophosphonates"

USSR Author's Certificate No 329184, filed 4/08/70, published 30/03/72
(Translated from Referativnyy Zhurnal Khimiya, No 24(II), 1972, Abstract No 24N592, by T. A. Belyayeva)

Translation: Dithiophosphonates of the formula $RP(S)(SR'')OC(Me)=CHCOOR'$ (I) (R=alkyl or aryl; R' and R''= alkyl), which can be used as physiologically active substances, are produced by the reaction of the anhydride of the corresponding dithiophosphonic acid with acetoacetic ester in an inert organic solvent in the presence of a tertiary base with subsequent alkylation of the salt formed with an alkyl halide. Example. Taking a mixture of 0.03 mole benzyldithiophosphonic acid and 0.03 mole Et_3N in 30 ml C_6H_6 , add with mixing at 20-25° a solution of 0.03 mole $AcCH_2COOEt$ in 10 ml C_6H_6 , heat to 70-80° for 15 hours until the precipitate dissolves completely, cool, filter, producing Et_3N -salt I (R=PhCH₂, R'=Et, R''=H) (II), yield 71.8%, m. p. 149-150°. Take 0.02 mole II in 20 ml C_6H_6 , add 0.02 mole HtI , heat 3 hours with agitation at 60-70°, cool, filter, wash the filtrate with water, dry over $MgSO_4$, evaporate, producing I (R=PhCH₂, R'=R''=Et), yield 81.2%, after chromatography
1/2

USSR

KHOKHLOV, P. S., et al., USSR Author's Certificate No 329184, filed 4/08/70, published 30/03/72

on a column with silica gel d_4^{20} 1.1690, n_D^{20} 1.5739. Similarly, I is produced (R'=Et) (given R, R'', yield in percent, d_4^{20} , n_D^{20}): PhCH₂, Me, 78.4, 1.722, 1.5940; PhCH₂, Bu, 69.9, 1.1287, 1.5700; PhCH₂, PhCH₂, 70.2, --, 1.6120; Me, Me, 68, 1.2049, 1.5600, b. p. 146-9°/1.5.

2/2

40

USSR

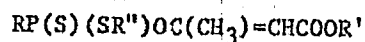
UDC 547.341.26'118.07

KHOKHLOV, P. S., ~~MARKOVA, I. I.~~, and ZHEMCHUZHIN, S. G., All-Union Scientific Research Institute of Phytopathology

"A Method of Making Dithiophosphonates"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrastysy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329184, Division C, filed 4 Aug 70, published 9 Feb 72, p 101

Translation: This Author's Certificate introduces: 1. A method of making dithiophosphonates with the general formula



where R is an alkyl or aryl, and R' and R'' are alkyls. As a distinguishing feature of the patent, the anhydride of the appropriate dithiophosphonic acid reacts with an acetoacetate ester in an inert organic solvent such as benzene, in the presence of a tertiary base such as triethylamine, with subsequent alkylation of the resultant salt with an alkyl halide and isolation of the product by conventional methods. 2. A modification of this method distinguished by the fact that the process is conducted at 0-100°C.
1/1

USSR

BLIZNYUK, N. K., KVASHA, Z. N., MADZHARA, G. A., MAIKOVA, L. I.

"Method of Producing Arylthiophosphonic or Benzylthiophosphonic Acids"

USSR Author's Certificate No 298593, filed 30/03/70, published 4/05/71.
(Translated from Referativnyy Zhurnal Khimiya, No 4, Moscow, 1972, Abstract
No 4N585P by T. A. Belyaeva).

Translation: Substances with the general formula $R_mC_6H_{5-m}(CH_2)_nP(S)Cl_2$ (I) (R=H, alkyl, halide; n=0 or 1; m=1-5), used in the synthesis of pesticides, are produced by reacting PCl_3 with $R_mC_6H_{5-m}(CH_2)_nSH$ in a molar ratio of 3-5:1. $PhCH_2SH$ is added to PCl_3 , mixed 0.5-1 hr at about 20° and boiled 2 hr. The solution is heated 2.5-3 hr in an autoclave of stainless steel at 250-270°, cooled and I is separated (R=H, m=n=1), b. p. 122-5°/2-3, n^{20}_D 1.6140. Also produced were I (presented are R_m , n; yield in %, b. p. in °C, b. p. in °C/mm): H, 0, 90, -, 120-3/5; 2.5- Cl_2 , 0, 72, -, 150-3/2; p-tert-Bu, 0, 80, 39-41, 153-6/2; Cl_5 , 0, 65, 110-4, -.
1/1

UDC 547.341.07

USSR

BLIZNYUK, N. K., KVASHA, Z. N., MADZHARA, G. A., and MAJKOVA, L. I., All-Union Scientific Research Institute of Phytopathology

"A Method of Making Aryl- or Benzylthiophosphonic Acid Dichlorides"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obiaztsy, tovarnyye znaki, No 11, Apr 71, Author's Certificate No 298593, division C, filed 30 Mar 70, published 16 Mar 71, p 88

Translation: This Author's Certificate introduces: 1. A method of making aryl- or benzylthiophosphonic acid dichlorides by treating phosphorus trichloride with an aryl- or benzylthiol in the presence of heat, and isolating the goal product by conventional methods. As a distinguishing feature of the patent, the method is simplified and the yield of the goal product is increased by using an excess of phosphorus trichloride. 2. A modification of this method distinguished by the fact that the thiol and phosphorus trichloride are used in molar ratios of 1:3-5 respectively. 3. A modification of this method distinguished by the fact that the mixture of reagents is preboiled at atmospheric pressure and then heated in an autoclave at 250-320°C for 2-3 hours.

1/1

USSR

UDC 632.95

BLIZNYUK, N. K., KHOKHLOV, P. S., KVASHA, Z. N., MARKOVA, L. I., LEVSKAYA, G. S., PROTASOVA, L. D., SOLNTSEVA, L. M., MATYUKHINA, Ye. N., VARSHAVSKIY, S. A., BARANOV, Yu. I., LIBMAN, B. Ya., ZHEMCHUZHIN, S. G.

"Method of Production of Dichlorides or Dibromides of Thiophosphonic Acids or Their Bis Analog"

USSR Author's Certificate No 332095, filed 19/08/69, published 17/04/72
(Translated from Referativnyy Zhurnal Khimiya, No 24(II), 1972, Abstract No 24N591, by T. A. Belyayeva)

Translation: Compounds of the formula $RP(X)X_2$ (I) (R=alkyl, aryl, aralkyl; X=Cl or Br) and $X_2P(S)A(S)PX_2$ (II) (A=bivalent hydrocarbon radical) were produced by the reaction of mono- or dihalo hydrocarbons with S, P and PX_3 with heating to 250-400° in an autoclave of stainless steel or nickel in the presence of catalytic quantities of I_2 or its compounds. Example. A mixture of 0.24 mole $PhCl$, 0.24 g-atom S, 0.16 g-atom white P, 35 ml PCl_3 and 0.05 g I_2 is heated at 290-330° for seven hours in an autoclave of stainless steel, the PCl_3 is distilled, then vacuum distillation is used to separate I (R=Ph, X=Cl), yield 60%, B. T. 109-112°/3, n^{20}_D 1.6241. Similarly, I were produced (given R, X, yield in %, B. P. in °C/mmHg, n^{20}_D): 4-Clc₆H₄,
1/2

USSR

BLIZNYUK, N. K., et al., USSR Author's Certificate No 332095, filed 10/08/69,
published 17/04/72

Cl, 53.5; 124-3/1.5-2, 1.6229; p-MeC₆H₄, Cl, 54.5, 125-7/1, 1.6120; 4FC₆H₄,
Cl, 72.2, 95-7/0.5, 1.6028; Ph, Br, 61, 127-130/2, 1.6850; 4-FC₆H₄, Br, 55,
135-8/1, 1.6758; PhCH₂, Cl, 76.4, 120-3/2, 1.6150; 3-FC₆H₄, Cl, 108-110/1.5,
1.5908; 4-MeC₆H₄CH₂, Cl, 53.3, 126-9/2, 1.6035; 4-ClC₆H₄CH₂, Cl, 61.6, 129-
133.2, m. p. 74-6°, --; 2-FC₆H₄CH₂, Cl, 61.6, 129-133.2, m. p. 48-9°, --;
2.4-Me₂C₆H₃CH₂, Cl, 47.5, 140-1.6045; 2.4-Cl₂C₆H₃CH₂, Cl, 43.4, 147-9/2,
m. p. 100-1°, --. Also produced were II (X=Cl, A=CH₂CH₂), yield 61.5%,
m. p. 92-3°. I and II are intermediate products for the production of
insecticides, acarocides, fungicides and herbicides.

2/2

- 41 -

MARKOVA, N. A.

SPRS 56, 499
14 July 72

42

UTILIZATION OF THE WASTES IN A BIOENGINEERING COMPLEX
IN A LIFE SUPPORT SYSTEM

Article by T. S. Gulyaeva, N. A. Markova and L. M. Kiselev-
Chenkov, Moscow, Aktualnye Topryk Vosproiskhozhoy Biologii i
Meditsiny (Current Problems in Space Biology and Medicine),
Moscow, 1971, pp 102-103/

1. In those variants of bioengineering life support systems which include a link of higher plants as a source of the vegetable part of the ration and as a regenerator of the atmosphere, the oxygen balance does not make it possible to carry out processes of thermal and liquid-phase mineraliza-
tion of greenhouse wastes.

In these cases for the preparation of nutrient media the plants must use minerals from the reserves.

The wastes of higher plants contain a considerable quantity of mineral elements. A promising method has been developed for returning them without oxygen expenditures.

2. It is known that by the pressing of waste grasses and leaves it is possible to obtain a juice from which by heating it is possible to extract a protein concentrate. The yield of juice from the economically unusable part of the plants is from 62-77% of the weight of the initial product. The extract contains all the principal mineral elements in a quantity up to 30% of the plant requirements.

3. The collected juice was used as the initial nutrient solution for cultivating Chlorella. The results of cultivation of Chlorella revealed the possibility of using the juice for its cultivation.

USSR

UDC 576.851.5:616.006-097

ZATULA, D. G., RYEZNIK, S. R., SLABOSPITS'KA, A. T., and MARKOVA, N. B.,
Institute of Microbiology and Virology, Academy of Sciences USSR

"The Effect of Different Doses of Bacillus subtilis 572 Toxin on Some Immunological Reactions and Tumor Growth in Animals"

Kiev, Mikrobiologicheskii Zhurnal, Vol 33, No 2, Mar/Apr 71, pp 201-205

Abstract: Experimental data are reported from study of the toxic or stimulating effect of the metabolic products of saprophytic bacteria. Toxic metabolites were obtained by growing Bacillus subtilis strain 572 on synthetic Gause medium No 2 for 10 days at 24°C, followed by filtration and lyophilization. Material was stored dry and diluted just before actual use. After the animals were injected, the following parameters were studied: hemagglutinin production in mice, properdin level in rabbits, and the resistance to tumor growth in mice. LD₅₀ was determined and the material was administered in the range of 0.05-1.5 LD₅₀. It was determined that the effect of dry toxic filtrate is dose-dependent: at dose ranges 1/10-1/5 LD₅₀ hemagglutination processes are activated, the properdin level in blood is increased, and the

1/2

USSR

EATULA, D. G., et al., Mikrobiologicheskiy Zhurnal, Vol 33, No 2, Mar/Apr
71, pp 201-205

resistance of an organism to tumor growth is intensified. When the dose is
increased to $.5 LD_{50}$ and higher, the protective forces of the organism are
weakened and tumor growth is intensified.

2/2

- 15 -

USSR

UDC 616.983.75-06:616.981.232-097.5

POKROVSKIY, V. I., SACHEV, V. I., MATVEYEVA, S. M., VENGEROV, Yu. Ya.,
GROMOGLASOVA, Ye, V., and MARKOVA, N. V., Moscow Medical Stomatological Insti-
tute

"Group-Specific Antimeningococcus Antibodies in Various Forms of Meningococcus
Infection in the Presence of Influenza Viruses"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 11, 1972,
pp 115-120

Abstract: Circulating antimeningococcus group-specific antibodies the formation of which was triggered by meningococcus infection were studied. The precipitation method which included the diffusion of antigens, antibodies, and their complexes through a membrane was used. The blood sera of individuals without any contact with meningococcus infection contained in average $370 \mu\text{g}$ antigen-antibody complex/ml, and it increased to $590 \mu\text{g}/\text{ml}$ for the medical personnel who had contact with patients carrying meningococcus infection. The number of antibodies in patients with pure meningitis was 920, 830, and 820 $\mu\text{g}/\text{ml}$ of blood serum during the first day in hospital, in 5-6 days, and at the end of hospitalization, respectively. Patients in whom meningitis was combined with meningococemia carried 730, 623, and 502 μg antibodies/ml of blood serum tested during the same periods. When the meningococemia was prevalent, the

USSR

POKROVSKIY, V. I., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 11, 1972, pp 115-120

number of antibodies was 630, 553, and 510 μ g/ml during respective periods. The serologically detected influenza virus Hong Kong A2 produced the sub-clinical form of the meningococcus infection and increase the number of the infection carriers. Increase in the antibody titer toward influenza A2 viruses in patients with the meningococcus infection was, probably, the additional sensitizing factor which led to hyperergia and meningococcosis. This was accompanied by a decrease in the number of the antimeningococcus antibodies and by titer increases of the antiviral antibodies. The immunological process in the case of meningococcus infection combined with respiratory viral infection produced conditions favorable for anaphylactic reactions.

2/2

USSR

UDC 678.84:678.643'42'5.028

KRUSTALEVA, YE. N., GOLUBKOV, G. YE., ZHINKIN, D. YA., SEMENOVA,
YE. A., MARKOVA, N. V., and LUSHNIKOVA, M. N.

"A New Hardner Which Improves the Thermal Stability of Epoxy Resins"

Moscow, Plasticheskiye Massy, No 1, Jan 70, pp 12-14

Abstract: An investigation was made into the possibility of improving the physicommechanical and dielectric properties of epoxy resins in the high-temperature region by using hexamethylcyclotrisilazane $\text{[(CH}_3\text{)}_2\text{SiNH]}_3$ and polyorganosilazanes containing di- and trifunctional units of the general formula $\text{(R}_2\text{SiNH)}_2\text{-R'Si(NH)}_{1.5}^n$ (R = CH_3 , R' = CH_3 , C_2H_5 , n = 1, 3) as hardeners. Polymers based on ED-6 epoxy resin and MSN-7 resin (polymethylsilazane) were studied. The compositions were hardened at 120°C for 3 hours, and then additionally heat treated at 150-200°C for 24 hours. The resultant polymers have better thermal stability in the high temperature region than those in which endic anhydride is used as the hardner. The weight of the epoxy resin hardened by MSN-7 stabilizes after ten days at 250°C whereas the epoxy resin produced by using endic anhydride as a hardner is destroyed under the same conditions with a sharp increase in weight losses. Not only is the thermal stability of the new product improved,

1/2

USSR

KHRUSTALEVA, YE. N., et al., *Plasticheskiye Massy*, No 1, Jan 70, pp 12-14

but its mechanical strength and dielectric properties as well. Of particular importance is additional heat treatment at 200°C, which increases the maximum tensile strength of the resin at 155°C from 38 kg/cm² (after heat treatment at 150°C) to 152 kg/cm², and reduces the relative longitudinal extension at fracture (155°C) from 4.5% (after heat treatment at 150°C) to 4.0%. The electrical strength of the new resin at 155°C is 9.8×10^{13} kW/mm as compared with 1.3×10^{13} kW/mm for resin hardened by endic anhydride. The corresponding figures for the dielectric dissipation factor at 50 Hz (155°C) are 0.002 and 0.085 respectively. The new resin also has a lower coefficient of linear expansion in both the vitreous and highly elastic states.

2/2

- 74 -

MARKOVA N.V.

Acc. Nr.

AP0045175

Abstracting Service:
CHEMICAL ABST.

5-70

Ref. Code

UR0191

2

91097n New hardener which increases the thermal stability of epoxy resins. ~~Khristaleva, E. N.; Golubkov, G. E.; Zhirkin, D. Ya.; Semegova, E. A.; Markova, N. V.; Lushnikova, M. N.~~ (USSR). *Mast. Masly* 1970, (1), 12-14 (Russ). The thermal stabilities of epoxy resins ED-5 and ED-6 hardened with hexamethylcyclotrisilazane, poly(methylsilazane) (resin MSN-7) (I), and poly(methylphenylsilazane) were detd. Thus, ED-6 was hardened with I (0.8 active H present in I per epoxy equiv. ED-6) at 120° for 3 hr followed by addnl. heating at 150-200° for 2 hr. ED-6 hardened with I had higher tensile strength, impact elasticity, and thermal stability than ED-6 hardened with Endic Anhydride.

CKJR

LD

1

REEL/FRAME

19780075

7

Beryllium

UDC: 620.193.01

USSR

VOL'FSON, A. I., MARKOVA, N. Ye., CHERNYSHEV, V. V., LEBEDEV, V. N., BABA-
KIN, V. V.

"Some Electrophysical Characteristics of Anodic Films on Beryllium"

Moscow, Zashchita Metallov, Vol 9, No 3, May/Jun 73, pp 346-347

Abstract: The electrophysical properties of anodic oxide on beryllium were studied by measuring breakdown voltage and capacitance. Beryllium specimens in the form of discs had threaded holes in the lateral surface for screwing in V95 aluminum alloy conductive rods insulated by a mixture of wax and rosin. Before anodizing, the specimens were degreased and then oxidized in a 20% aqueous solution of CrO_3 . Current density was 20 A/dm^2 , and temperature was 20°C . The resultant films had a thick porous outer layer and a thin barrier on the metal side. Film capacitance was measured in the same solution. A Teflon ring was pressed against the porous surface layer and filled with mercury. High surface tension kept the mercury from filling the pores in the film. In the resultant capacitor, the air in the pores and the film oxide served as the dielectric. The capacitance was determined by the total thickness of the oxide film. The results of these

1/2

USSR

VOL'FSON, A. I. et al., Zashchita Metallov, Vol 9, No 3, May/June 73, pp
346-347

measurements show that film thickness remains essentially constant with
time. Measurements of the critical breakdown voltage of the film con-
firmed the capacitance measurements. Thick films formed over a 3-4 hour
period can withstand voltages up to 1000 V.

2/2

- 0 -

2

USSR

UDC 621.357.8:669.725(088.8)

VOL'FSON, A. I., UMOV, V. S., POLONSKIY, E. L., MARKOVA, N. Ye.,
CHERNYSHOV, V. V., LEBEDEV, V. N.

"Method of Anodization of Beryllium and Its Alloys"

USSR Author's Certificate No 305210, Filed 5/02/70, Published 13/07/71,
(Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No
2 L241 P from the Resume).

Translation: A method of anodization of beryllium and its alloys in an
electrolyte containing H_3BO_3 , differing in that in order to increase the
corrosion resistance of the film, ethylene glycol and ammonia are intro-
duced to the electrolyte in the following relationship (g/l): ethylene
glycol 50-150, H_3BO_3 30-160, 25% ammonia solution, ml 40-100, and the pro-
cess is conducted at 10-40°, D_c 0.2-2 a/dm².

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--PHASE CHANGES IN BARRIER OXIDE FILMS ON ALUMINUM --U-
AUTHOR--(03)-GALKIN, G.I., CHERNYSHEV, V.V., MARKOVA, N.YE.
COUNTRY OF INFO--USSR
SOURCE--ZASHCH. METAL. 1970, 6(2), 209-11
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--OXIDE FILM, ALUMINUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1549 STEP NO--UR/0365/70/005/002/0209/0211
CIRC ACCESSION NO--APC120328
UNCLASSIFIED

2/2 016
CIRC ACCESSION NO--AP0120328

UNCLASSIFIED

PROCESSING DATE--300CY70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PURE AL OXIDIZED AT ROOM TEMP. IN A 4PERCENT AQ. H SUB3 BO SUB3 SOLN. AT PH 5.5. AT 40 V, THE OXIDE FILM OBTAINED WAS 500-600 ANGSTROM THICK. THE FILMS WERE SEPD. FROM THE METAL IN A 10PERCENT MEQH SOLN. OF BR AND HEATED IN VACUO FOR 2 HR AT PREDETD. TEMPS. INSULATED FILMS WERE HEATED TO A MAX. TEMP. OF 1000DEGREES AND THE NONINSULATED UP TO 660DEGREES. FILMS THUS OBTAINED WERE AMORPHOUS. THE FILMS WHICH WERE NOT INSULATED FROM THE AL BASE REMIANED AMORPHOUR AFTER HEATING IN VACUO TO TEMPS. BELOW THE M.P. OF AL. WHEN HEATING AT SIMILAR TO 700DEGREES THE FILMS ACQUIRED A CRYST. STRUCTURE. THE INSULATED FILMS RETAINED THEIR AMORPHOUS STRUCTURE AFTER HEATING AT SIMILAR TO 700DEGREES; HOWEVER, AT 700DEGREES SMALL CRYSTALS APPEARED AND THEIR DIFFRACTION RINGS DID NOT CORRESPOND TO THOSE OF GAMMA AL SUB2 O SUB3. HEATING AT 800DEGREES DIMMED THE APPEARANCE OF THE RINGS AND AT 1000DEGREES THEY COMPLETELY DISAPPEARED.

FACILITY: VORONEZH. GOS. UNIV., VORONEZH, USSR.

UNCLASSIFIED

Acc. Nr: **AP0054656**

Ref. Code: **2R9115**

PRIMARY SOURCE: Ortopediya, *Travmatologiya i Protezirovaniye*,
1970, Nr 2, pp 39-44

**ANTIBIOTICS IN THE PROPHYLAXIS AND TREATMENT OF BACTERIAL
INFECTION IN TRAUMATOLOGIC AND ORTHOPAEDIC PATIENTS**

V. M. Mel'nikova, A. I. Gladshteyn, O. N. Markova, M. I. Malova,
N. P. Ivanova, Z. G. Sviridova and V. V. Klavnenko

Facts on the prophylaxis and treatment with antibiotics of infected wounds in traumatologic and orthopaedic patients based on clinical and laboratory data of CITO are presented in the paper. In primary surgical wound debridement the authors prescribe penicillin with streptomycin or tetracyclin. It is stressed that the use of antibiotics in the so-called "clean" orthopaedic operations should be substantially limited and the demands of surgical aseptic enhanced. In purulent wound infection the staphylococcus and representatives of the intestinal group of microorganisms were the most common bacterial associations cultured. For the last year the appearance of staphylococcus in the monoculture from the infected wounds increased. Various antibiotics, their combinations with each other, sulfanilamides or nitrofuranic preparations, depending on the microflora sensitivity to them and concentration created in the focus of infection, are used in the treatment of purulent infection. The success of antibacterial therapy has been shown to depend on the rational use of antibiotics in complex with other methods of conservative and operative treatment and drugs which stimulate the organism reactivity.

//

REEL/FRAME
19831822

m/z

USSR

UDC: 621.372.81.09

KALMYK, V. A., MARKOVA, S. A., RAYEVSKIY, S. B.

"Results of Numerical Solution of a Complex Dispersion Equation for the HE_{11} Wave in a Two-Layered Circular Waveguide"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1948-1951

Abstract: Research has established the possibility that complex waves may exist in some kinds of waveguide structures, meaning waves which have complex propagation constants in spite of the absence of energy dissipation. In particular it has been found that such waves exist in a two-layered circular waveguide. Analysis of the dispersion properties of complex waves requires simultaneous solution of two complicated transcendental equations derived from the initial complex dispersion equation with a large number of parameters and additional logical conditions. In this paper the authors give the results of a numerical computer solution of the dispersion equation for the HE_{11} wave in a two-layered circular shielded waveguide for the case of complex waves.

1/1

USSR

UDC 669.293.126.153

PROKOSHKIN, D. A., VASIL'YEVA, YE. V., MARKOVA, S. A., and CHIZHOV, I. N.,
Moscow Higher Technical School imeni N. E. Bauman. Department AM-9

"Investigation of the Effect of Carbon and the Properties of NV1OTZTs Alloys"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya,
No 4, 1973, pp 138-143

Abstract: Nb-W-Ti-Zr alloys, with and without additional alloying of carbon were produced by electron-beam melting for the purpose of studying the effect of carbon on these alloys. Chemical composition of the niobium-base alloys was (in wt %):

	W	Ti	Zr	C	O	N	H
NV1OTZTs	9.82	2.80	1.60	0.04	0.004	0.005	0.001
NV1OTZTaU	9.48	3.25	2.05	0.10	0.008	0.004	0.001

Ingots 120 mm in diameter were subjected to a two-step hot pressing processing to produce 16-mm diameter rods which were vacuum annealed at temperatures ranging from 400 to 1800°C for 0.5 hours and then measured for Vickers hardness. Hardness measurements showed that both alloys became softer with annealing, reaching a minimum between 1200 and 1400°C with hardness, then rising. Alloy 1/3