

USSR

UDC: 681.333

MOROZ, I. P., ~~KOBZOVA, V. M.~~, KLOS, V. I., L'vov Affiliate of the Institute of Geophysics, Academy of Sciences of the Ukrainian SSR

"A Device for Modeling Problems of Electromagnetic Induction"

Moscow, Otkrytiya, Izobreteriya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329537, Division G, filed 28 Sep 70, published 9 Feb 72, p 194

Translation: This Author's Certificate introduces a device for modeling problems of electromagnetic induction. The device contains a generator connected to an antenna system, and also includes an electromagnetic field pickup, a heterodyne, and a module for reception and registration. As a distinguishing feature of the patent, in order to eliminate interference and to increase precision and reliability, the device contains a frequency converter connected to an electromagnetic field pickup, and through transformers to the module for reception and registration and to a unit for stabilizing the output voltage level of the heterodyne.

1/1

USSR

UDC 621.317.331

YAREMKEVICH, S. K., SHMORGUN, Ye. I., KOCHAN, V. A., BULYGA, S. G.,
STRUK, R. I.

"Automatic Two-Coordinate Compensator for Resistometric Study of Steels and Special Alloys"

Kontrol'no-izmerit. Tekhnika. Resp. Mezhved. Nauch.-Tekhn. sb. [Testing and Measuring Equipment, Republic Interdepartmental Scientific and Technical Collection], 1971, No 11, pp 136-139, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 7, 1972, Abstract No 7.32.966).

Translation: An automatic two-coordinate compensator of accuracy class 0.05 is described, allowing graphs to be produced of the dependence of resistance of metal specimens on temperature, which is necessary for resistometric study of phase conversions in steels and special alloys. It is demonstrated that the device can measure the emf of thermocouples in the 0-70 mv range and resistances of from 10^{-5} to 25 ohm (with currents passing through the specimen of 1,000 to 0.5 a ac respectively). It is noted that the desired graph sector can be drawn in enlarged scale. 1 figure; 7 Biblio. Refs.

1/1

100 -

UDC 614.72:613.155.3

USSR:

LOYT, A. O., KOCHANOV, M. M., and ZAUGOL'NIKOV, S. D., Institute of Biophysics, Ministry of Health USSR

"Correlation Between the Maximum Permissible Concentrations of Some Chemical Substances in the Air of Industrial Plants and in the Atmosphere of Residential Areas"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 5, 1971
pp 15-17

Abstract: On the assumption of a mathematical relationship between the toxicity and maximum permissible concentrations (MPC) of chemical compounds in the air of industrial plants and in the atmosphere of residential areas, the author worked out the following equations for use in determining the MPC of 40 different substances (hydrocarbons, phenols, ketones, alcohols, etc.):

$$\lg x = 2.32 + 1.16 \lg y \quad r = +0.65$$

$$\lg y = -2.00 + 0.86 \lg x \quad r = +0.65$$

where x is the MPC in the air of an industrial plant, y is the mean daily MPC (in milligrams per m³) in the atmosphere of a residential area, and r is the correlation factor. The following equations were derived from a comparison of the mean daily (x) and maximum single (y) MPC in the atmosphere of a residential area.

USSR:

LOYT, A. O., et al., Gigiyena Truda i Professional'nyye Zabolevaniya, No 5,
1971, pp 15-17

déntial area:

$$\lg x = -0.54 + 1.16 \lg y \quad r = +0.88$$

$$\lg y = 0.47 + 0.84 \lg x \quad r = +0.55$$

The calculated MPC were found to deviate from the experimentally
determined MPC by 2 orders in only 3 substances and by 1 order in all the
others.

2/2

USSR

UDC 614.78

KOCHANOV, M. M., and ZAUGOL'NIKOV, S. D., Moscow

"Hygienic Aspects of the Substantiation and Organization of Sanitary-Protective Zones"

Moscow, Gigiyena i Sanitariya, No 10, Oct 70, pp 62-64

Abstract: A review is presented of studies on the reduction or elimination of contamination from the biosphere, an important problem in planning for improved sanitation facilities. In this connection, the Soviet Union has been divided into the following meteorological zones according to the number of days that stagnant air was observed: 1) a large part of Eastern Siberia, where up to 25 days per winter month are considered to be stagnant or dead periods; 2) the western regions of the European part of the Soviet Union and the western and eastern foothills of the Ural mountains with measurable air pollution; 3) the northeast portion of the European part of the Soviet Union and the forest regions of Western Siberia, where stagnant air is observed in spring or winter, 4) Kazakhstan, the Volga area, the northern part of Western Siberia, and the coastal regions, where practically no polluted air has been observed. Control measures must be

1/2

USSR

KOCHANOV, M. M. and ZAUGOL'NIKOV, S. D., Gigiyena i Sanitariya, No 10,
Oct 70, pp 62-64

taken, particularly in the most critical region (the first one listed).
The cultivation of certain plants (fruits and vegetables, for instance)
which can serve as biological indicators of air pollution will be of great
value. It is noted that deposition of fluorides on the ground in the
vicinity of aluminum plants, for example, may lead to increased fluoride
concentrations in the milk of cows grazing there. Such findings must be
used to establish danger areas and protective zones.

2/2

- 86 -

Marine and Shipbuilding

USSR

UDC 539.4:629.12

KOCHANOV, YU. P.

"A Method of Solving the Boundary Problems of Ship Construction Mechanics"

Sudostr. i morsk. sooruzh. Resp. mezhved. nauchno-tekhn. sb. (Ship Construction and Marine Structures. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 12, pp 76-82 (from RZh-Mekhanika, No 10, Oct 70, Abstract No 10 V771)

Translation: An approximate procedure is proposed for solving inhomogeneous linear differential equations with variable coefficients of the type

$$L(y) = q(x)$$

with the corresponding linear boundary conditions. The essence of this procedure consists in the fact that the solution is found in the form

$$y(x) = y_0(x) + y_1(x)$$

where y_0 is the solution of the inhomogeneous equation with average
1/2

USSR

KOCHANOV, YU. P., Sudostr. i morsk. sooruzh. Resp. mezhved. nauchno-tekh. sb., 1970, Vol 12, pp 76-82

coefficients with respect to length and a right-hand side, and y_1 is found by the Bubnov method from the equation

$$L(y_1) = q(x) - L(y_0(x))$$

The method is illustrated by the example of a beam on a variable elastic base where an accuracy of 1 % is reached. There is no more general method of estimating accuracy in the paper. The bibliography has 9 entries.

2/2

- 50 -

UDC 632.95

USSR

VASHKOV, V. I., DEDOV, V. S., DREMOVA, V. P., ~~SMIRNOVA, S. N.~~ OSIPYAN, V. T.,
MASLIY, L. K., KOCHANOVA, A. P., and MARKINA, V. V.

"Entomological and Toxicological Characteristics of a New Repellent --
Carboxide"

Tr. VNIi dezinfektsii i steriliz. (Works of All-Union Scientific Research
Institute of Disinfection and Sterilization), 1971, vyp. 21, Vol 2, pp 30-37
(from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14N465 by T. A. Belyayeva)

Translation: Carboxide is an effective repellent for mosquitoes, midges, and
some species of horseflies and mites. As creams and ointments are made,
protective film-forming substances must be put in since carboxide is absorb-
able through the skin. Refined carboxide, when used in its various forms
(ointment, cream etc.), causes no lesions on exposed areas of the body and has
no side effect on the human organism. Use of unrefined (industrial) carboxide
to make various forms of the repellent can induce skin irritation.

1/1

UNCLASSIFIED

PROCESSING DATE--30OCT70 /

1/2: 027
TITLE--THERMOPHYSICAL PROPERTIES OF FILLED EBONITE MIXTURES BASED ON
SKMS-50P -U-
AUTHOR--(05)-ZANEMONETS, N.A., YEGOROVA, S.A., NEKRASOVA, E.I., AGAYANTS,
I.M., KOCHANOVA, O.M.
COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA 1970, 29(2), 27-9

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--FILLER, SYNTHETIC RUBBER, HEAT TRANSFER COEFFICIENT, HEAT
CAPACITY, EBONITE, STYRENE/(U)SKMS50P SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0457

STEP NO--UR/0138/70/029/002/0027/0029

CIRC ACCESSION NO--AP0119393
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 027

CIRC ACCESSION NO--AP0119393

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HEAT COND. COEFFS. (λ IN DEGREES M PRIME²-HR),
 KCAL-M-HR-DEGREESC). HEAT TRANSFER COEFFS. (A IN DEGREES M PRIME²-HR),
 AND VOL. HEAT CAPACITIES (C EQUALS λ - A) WERE DETD. FOR EBONITES
 MADE FROM SYNTHETIC RUBBER SKMS-50P FILLED WITH LESS THAN OR EQUAL TO
 300 PARTS OF EBONITE POWDER, KEROGEN, CARBON POWDER, OR KADLIN IN THE
 30-170DEGREES RANGE. THE TEMP. HAD NO EFFECT ON λ AND A . THE
 INCREASE OF THE FILLER AMT. INCREASED λ AND A . TYPICALLY λ
 AND A OF THE UNFILLED EBONITE WERE, RESP., 0.181 AND 3.71 TIMES 10
 NEGATIVE PRIME⁴. λ AND A OF THE EBONITES CONTG. 100 PARTS AND 300
 PARTS CARBON POWDER WERE, RESP., 0.203, 4.24 TIMES 10 NEGATIVE PRIME⁴
 AND 0.244, 4.74 TIMES 10 NEGATIVE PRIME⁴. THESE EBONITES CONFORMED TO
 THE PHONON THEORY OF HEAT TRANSFER AND THE EQUATION λ EQUALS CUL^{-2}
 (U IS THE AV. PHONON VELOCITY APPROXIMATELY EQUAL TO 2.5 TIMES 10 PRIMES
 CM-SEC AND L IS THE AV. FREE PATH OF THE PHONON). FACILITY:
 MOSK. KHIM. TEKHNOL. INST. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--POSSIBLE ABSORPTION OF HYDROGEN SULFIDE, ESCAPING DURING THE
VULCANIZATION OF EBONITE MIXTURES, USING ZEOLITES -U-
AUTHOR--(05)-KOCHANOVA, O.M., BLOKH, G.A., KOKMAN, F.S., STRELOK, I.M.,
LEVINA, S.A.
COUNTRY OF INFO--USSR
SOURCE--KAUCH. REZINA 1970, 29(3), 15-17
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--EBONITE, VULCANIZATION, HYDROGEN SULFIDE, ZEOLITE, SYNTHETIC
RUBBER/(U)SKMS50P SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0543

STEP NO--UR/0138/70/029/003/0015/0017

CIRC ACCESSION NO--AP0119462

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119462

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF 8 WT. PARTS ZEOLITES FENAX 2 OR FENAY 3 TO EBONITE (BASED ON SYNTHETIC RUBBER SKMS 50P 100 AND S 40 PARTS) DECREASED THE EVOLUTION OF H SUB2 S DURING VULCANIZATION AT 170DEGREES BY UP TO 60PERCENT. OTHER COM. ZEOLITES (NACDX, FECAA 3, NAX) HAD CONSIDERABLY LOWER H SUB2 S ABSORPTION ABILITY.
FACILITY: SVERDLOVSK. FILIAL NAUCH.-ISSLED. INST. REZIN. PROM., SVERDLOVSK, USSR.

UNCLASSIFIED

Acc. Nr. **AP0045148** - Abstracting Service:
CHEMICAL ABST.

Ref. Code

UR0138

K

5-70

✓ 91293y Properties of ebonites containing lignin treated by electrohydraulic shock. Kochanova, O. M.; Zhdanova, S. V.; Storozheva, L. N.; Rempel, S. I. Sverdlovsk. Filial Nauch. Issled. Inst. Rezin. Prom. Sverdlovsk (USSR). *Kauch. Rezina* 1970, 29(1), 20-2 (Russ). Lignin (I) was washed with H₂O at 50-2°, acidified to pH 2.5-2.7, filtered, placed in a reactor contg. H₂O, and treated by electrohydraulic shock at a voltage of 45 kV for 8 min at 130 impulses/min. The modified I conferred on ebonite (II) superior elastic, physicomch., and dielec. properties. The physicomch. and dielec. properties of I-filled II were as good as those of II filled with II dust or kerogen-70. The max. vulcanization temp. of I-filled II was 180°. CKJR

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REEL/FRA

19780048

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1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--INVESTIGATION OF IRON SUBLATTICES IN A SINGLE CRYSTAL OF THE
ORTHO-FERRITE TMFEG SUB3 -U-
AUTHOR-(04)-KOCHAROV, A.G., LUSHMANOV, A.A., YAMZIN, I.I., CHERVONENKIS,
A.YA.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 5, PP 1511-1517
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYSTALLOGRAPHY, IRON OXIDE, MAGNETIC STRUCTURE, NEUTRON
SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1930

STEP NO--UR/0056/70/056/005/1511/1517

CIRC ACCESSION NO--AP0125522

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125522

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BEHAVIOR OF THE ANTIFERROMAGNETIC STRUCTURE PRODUCED BY FE PRIME3 POSITIVE ION MOMENTS IN THE ORTHORHOMBIC COMPOUND TmFeD SUB3 IS INVESTIGATED BY THE ELASTIC MAGNETIC NEUTRON (LAMBDA EQUALS 1.07 ANGSTROM) SCATTERING AND TORQUE TECHNIQUES AT TEMPERATURES BETWEEN 78 AND 720DEGREEK. THE NEEL TEMPERATURE OF THE IRON SUBLATTICES DETERMINED ON BASIS OF TEMPERATURE DEPENDENCE OF THE INTEGRAL MAGNETIC REFLECTION INTENSITIES IS 550 PLUS OR MINUS 5DEGREEK. THE EXPERIMENTAL TEMPERATURE DEPENDENCE OF THE INTEGRAL INTENSITIES IS IDENTICAL WITH THE BRILLOUIN FUNCTION FOR THE GROUND SPIN STATE S SUBFIVEHALVES OF THE FE PRIME3 POSITIVE ION. AT 0DEGREEK THE MAGNETIC MOMENT OF IRON IONS IS 4.68 PLUS OR MINUS 0.08 MU SUBB. IT IS SHOWN THAT THE ANOMALY OF THE TORQUES AT TEMPERATURES BETWEEN 103 AND 78DEGREEK IS DUE TO REORIENTATION OF THE EASY MAGNETIZATION VECTOR AWAY FROM THE (001) DIRECTION TO THE (100) DIRECTION; AT 78DEGREEK THIS REORIENTATION DOES NOT TERMINATE. CAUSES OF DISCREPANCIES BETWEEN THE EXPERIMENTAL AND CALCULATED FORM FACTORS FOR THE FE PRIME3 POSITIVE ION AT LARGE SCATTERING ANGLES ARE DISCUSSED. CAUSES OF THE SHIFT OF THE REORIENTATION TEMPERATURE INTERVAL IN MAGNETIC AND NEUTRON DIFFRACTION MEASUREMENTS ARE ALSO DISCUSSED. FACILITY: INSTITUT KRISTALLOGRAFI, AN SSSR.

USSR

UDC 621.35.035.2(088.8)

KOCHAROV, E. A.

"Method of Measuring Variations in the Work Function"

USSR Author's Certificate No 316000, filed 7 Jan 70, published 29 Nov 71 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L340P)

Translation: A procedure has been patented for measuring the variations in the work function under various effects by placing the investigated metal sample in a medium with nonstationary parameters, bringing the sample into contact with a comparison electrode and measuring the potential contact difference. The procedure is distinguished by the fact that a comparison electrode made from the same metal is used in order to decrease the error and simplify the measurement process.

1/1

USSR

UDC: 517.5

DZHRBASHYAN, M. M. and KOCHARYAN, G. S., Institute of Mathematics, Yerevan State University

"Uniqueness Theorems for Several Classes of Analytic Functions"

Moscow, Izvestiya Akademii Nauk SSSR--Seriya Matematicheskaya, No 1, 1973, pp 98-134

Abstract: In an earlier paper of the first of the authors named above (Rasshireniye kvazianaliticheskikh klassov Danzhua-Karlemana -- Broadening the Denjoy-Carleman Quasi-Analytic Classes -- Izv. AN ArmSSR, Matematika, vol 3, No 3(1968), pp 171-248) the concept of alpha quasi-analyticity was introduced. This concept involved Hadamard-Denjoy-Carleman classical quasi-analyticity. The solution to the problem of alpha quasi-analyticity can be solved by reducing it to the Watson problem through the theory of integral transformations of the functions with Mittag-Leffler kernels, a method also developed by the first of the authors named above (see Dzhrbashyan, M. M., Integral'nyye preobrazovaniya i predstavleniya funktsiy v kompleksnoy oblasti -- Integral Transformations and Representation of Functions in the Complex Region -- "Nauka," Moscow, 1966). In the present paper, further applications of this method of integral transformations are given. Through further generalization of the method, uniqueness theorems for some classes of analytic functions are developed.

1/1

KOCHAROV, G. YE.

LUNAR RESEARCH

JPRS 61608
29 March 1974

UDC 523.046+543.422.8:523.10

CHEMICAL COMPOSITION OF THE LUNAR SAMPLE IN THE

"LUNOKhod-2" WORK REGION

Article by G. Ye. Kocharov and S. V. Vilkovoy, Moscow, Doklady Akademii Nauk SSSR, Number, Vol. 216, No. 1, 1974, pp. 71-74, submitted 2 August 1973

This article is devoted to an analysis of the experimental results obtained using the modernized LUNA-X-ray fluorescent spectrometer carried aboard the "Lunokhod-2." In creating the modernized variant of the spectrometer specialists took into account the experience in operating instruments aboard the "Lunokhod-1" (1-3) and the specific nature of the scientific problems to be solved by "Lunokhod-2."

Table 1

(1) Chemical composition of lunar samples (wt. %)

Element	Amount wt. %	Standard error wt. %	Relative error wt. %	Relative error wt. %	Other elements not analyzed
(2)	(3)	(4)	(5)	(6)	(7)
8) Magnesium	8.2	0.75	4.9	5.3	0.07
9) Aluminum	10.1	1.00	11.4	11.0	0.01
10) Potassium	0.95	0.08	10.8	11.4	0.01
11) Silicon	5.37	0.51	5.36	10.0	0.54
					2.88

1) Comparison of Compositions of Some Lunar and Terrestrial Rocks (% by weight): 2) Element; 3) Anorthosite, "Luna-20"; 4) Terrestrial anorthosite; 5) Regolith, "Luna-20"; 6) Regolith, "Luna-16"; 7) Ratio of content of elements in regolith, "Luna-16" to their content in regolith, "Luna-20"; 8) Magnesium; 9) Aluminum; 10) Silicon; 11) Potassium; 12) Calcium; 13) Iron

1/2 015 UNCLASSIFIED
TITLE--THERMONUCLEAR REACTIONS WITHIN THE

PROCESSING DATE--11SEP70

SUN AND SOLAR NEUTRINOS -U-

AUTHOR--KOCHAROV, G.YE.; STARBU NOV, YU.N.

COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(2) 132-5

DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--SUN, THERMONUCLEAR REACTION, NEUTRINO, MODEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0882

STEP NO--UR/0386/70/011/002/0132/0135

CIRC ACCESSION NO--AP0104318

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104318

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASED ON DATA OF G. E. KOCHAROV AND YU. N. STARRUNOV (1969), IN REGIONS THAT ARE REMOTE FROM THE CENTER OF THE SUN, ${}^3\text{He}$ SHOULD BE PRESENT EVEN UP TO THE PRESENT TIME. IF THERE IS CIRCULATION IN THE INTERIOR OF THE SUN, ${}^3\text{He}$ SHOULD PASS FROM THESE REMOTE REGIONS INTO THE CENTER. THUS IN THE REGIONS WHERE THERMONUCLEAR REACTIONS TAKE PLACE, THE ${}^3\text{He}$ CONC. SHOULD BE HIGHER THAN IS USUALLY ASSUMED. THIS DECREASES THE FLUX OF THE HIGH ENERGY SOLAR NU. THE SUN SHOULD BURN 10 ${}^3\text{He}$ ${}^4\text{He}$ NUCLEI PER SEC TO KEEP UP THE PRESENT LIGHT OUTPUT. THE VELOCITY OF ${}^3\text{He}$ FLUX OF 10 ${}^3\text{He}$ ${}^4\text{He}$ MINUS 10 ${}^3\text{He}$ ${}^4\text{He}$ CM-SEC THAT IS REQUIRED IN THIS CASE SHOULD BE EASILY OBTAINED. A SOLAR MODEL IS DEVELOPED IN WHICH THE INTENSITY OF THE GENERATION OF THE SOLAR NU FROM THE REACTIONS: $\text{P} + \text{P}$ YIELDS $\text{D} + \text{E}$ ${}^3\text{He}$ ${}^4\text{He}$ (E SUBNU PRIMEMAX. EQUALS 0.42 MEV) AND $\text{P} + \text{P} + \text{E}$ ${}^3\text{He}$ ${}^4\text{He}$ YIELDS $\text{D} + \text{E}$ (E SUBNU EQUALS 1.44 MEV) IS CONSIDERED. THE NU FLUX OBSD. ON THE SURFACE OF THE EARTH IS A FACTOR OF 60 BELOW THE THEORETICAL LOWER LIMIT OF THE VALUE TO BE EXPECTED FROM THE RATE OF THE REACTION, ${}^3\text{He}$ ${}^4\text{He}$ CL(NU, E ${}^3\text{He}$ ${}^4\text{He}$) ${}^3\text{He}$ ${}^4\text{He}$ AR. A NEW POSSIBILITY OF GENERATION OF ENERGY AND NU IN THE INTERIOR OF THE SUN IS SUGGESTED.

UNCLASSIFIED

1/2 C18 UNCLASSIFIED PROCESSING DATE--11DEC70
 TITLE--THE INTERACTION OF ULTRA HIGH ENERGY COSMIC RAYS WITH PHOTONS AND
 NEUTRINOS IN THE UNIVERSE -U-
 AUTHOR--(C3)-KONSTANTINOV, S.P., KOCHAROV, G.E., STARBUNOV, I.N.
 COUNTRY OF INFO--USSR, HUNGARY
 SOURCE--INTERNATIONAL CONFERENCE ON COSMIC RAYS, 11TH, BUDAPEST, HUNGARY,
 AUGUST 25-SEPTEMBER 4, 1969, PROCEEDINGS, VOLUME 1 ORIGIN AND GALACTIC.
 DATE PUBLISHED-----70

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SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--COSMIC RAY, ENERGY SPECTRUM, PHOTON, NEUTRINO

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605060/F07 STEP NO--HU/2506/70/024/000/0527/0530

CIRC ACCESSION NO--AT0144420

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NU--ATC144420

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBLEM OF THE DISTORTION OF THE ENERGY SPECTRUM OF ULTRA HIGH ENERGY COSMIC RAYS DUE TO THE ISOTROPIC BACKGROUND OF PHOTONS AND NEUTRINOS IS CONSIDERED. IT IS SHOWN THAT THE SHAPE OF THE ENERGY SPECTRUM OF COSMIC RAYS IN THE ULTRA HIGH ENERGY REGION MAY YIELD INFORMATION ON SOME IMPORTANT ASTROPHYSICAL AND NUCLEAR PARAMETERS. FACILITY: AKADEMIIA NAUK SSSR, FIZIKO-TEKHNICHESKII INSTITUT, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.357.7:669.765'75

KOCHEGAROV, V. M., KOLDYNSKAYA, T. M.

"Study of the Possibility of Electrochemical Production of Thin Films Based on Bismuth-Antimony from Perchlorate Fluoride Solutions"

Tr. Ryazansk. radiotekhn. in-ta (Transactions of the Ryazan' Radiotechnical Institute), 1968, vyp. 13, pp 148-152 (from RZh-Khimiya, No 23 (II), 10 Dec 69, Abstract No 23 L320)

Translation: The effect of electrolytic conditions on rate of formation and quality of Bi-Sb films was studied. It was established that a rise in solution temperature reduces the Sb content in the alloy, but a rise in D_{cathode} (D_c) increases it. To obtain high-quality deposits of Bi-Sb alloy, use the following electrolyte (in g/l) is recommended: Bi perchlorate (when recalculated for the metal) 10-11, HClO_4 300, Sb trifluoride (when recalculated for the metal) 53-55, temperature 20° , and D_c 0.25-1 amp/dm². The anodes are of Bi and Sb.

1/1

1/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CODEPOSITION OF BISMUTH AND ANTIMONY FROM PERCHLORATE FLUORIDE
SOLUTIONS -U-
AUTHOR--(02)-KOCHEGAROV, V.M., KOLDYNSKAYA, T.M.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKIMIYA 1970, 6(2), 185-7
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--BISMUTH, ANTIMONY, ELECTRODEPOSITION, CHEMICAL REACTION RATE,
PERCHLORATE, FLUORIDE, METAL ELECTRODE, COPPER

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1149 STEP NO--UR/0364/T0/006/002/0185/0187
CIRC ACCESSION NO--AP0121704
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 029

CIRC ACCESSION NO--AP0121704

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

ABSTRACT. THE CODEPOSITION OF BI AND SB FROM PERCHLORATE FLUORIDE SOLNS. CONTG. 0.1M BI PRIME3 POSITIVE PLUS 0.4M SB PRIME3 POSITIVE WAS STUDIED. FACTORS CONSIDERED WERE THE EFFECTS OF GAS D., TEMP., CONCN. OF SOLN., SHIFT IN COMPN. OF THE ALLOY, AND THE CURRENT EFFICIENCY. A CU CATHODE PT ANODE SYSTEM WAS USED. INCREASING SOLN. TEMP. DECREASES THE SB CONTENT IN THE DEPOSIT OVER A WIDE RANGE OF C. D. INCREASING THE C. D. HAS A FAVORABLE EFFECT ON THE YIELD OF SB IN THE ALLOY, THAT IS, THE RATE OF SB DEPOSITION INCREASES WHILE THAT OF BI REMAINS APPROX. CONST. IN ALLOYS CONTG. LARGE CONTENTS OF SB, WHERE BI IS BEING DEPOSITED AT THE LIMITING CURRENT, THE DEPOSIT WAS OF HIGH QUALITY OVER A WIDE RANGE OF C. D. (0.1-3 A-DM PRIME2) AND TEMP. (20-60DEGREES). THE DEPOSITS WERE COMPACT, DULL BUT EASILY POLISHED, AND STRONGLY ADHERENT TO CU. FACILITY: RYAZAN, RADIOTEKH. INST., RYAZAN, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--EFFECT OF THE RATE OF ANTIMONY AND INDIUM IONS DISCHARGE ON THE
PHASE COMPOSITION OF THE ALLOY -U-
AUTHOR-(03)-BELITSKAYA, T.B., KOCHEGAROV, V.M., CHERNOV, YU.I.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKIMIYA 1970, 6(2), 215-17
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ANTIMONY ALLOY, INDIUM ALLOY, ION, INTERMETALLIC COMPOUND,
COVALENT BONDING, ELECTRODEPOSITION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/0691 STEP NO--UR/0364/70/006/002/0215/0217
CIRC ACCESSION NO--AP0105667
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105667

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CODEPOSITION OF SB AND IN WAS STUDIED FROM 4 GLYCEROL SOLNS. CONTG. A TOTAL METAL ION CONCN. OF 0.4 M WITH IN (AS INCL SUB3) EQUALS 0.35, 0.3, 0.2, AND 0.1 M AND SB AS K(SBO)C SUB4 H SUB4 O SUB6.0.5 MINUS H SUB2 O AS THE REMAINDER AND KOH EQUALS 70 G-1. SOLNS. CONTG. HIGH CONCNS. OF SB GAVE DEPOSITS OF ESSENTIALLY PURE SB. BY LOWERING THE SB ION CONCN. AND INCREASING THE CATHODIC POTENTIAL, THE INDIVIDUAL DISCHARGE CURRENTS WERE APPROX. EQUAL; THUS, THE DEPOSITS CAN BE MADE TO CONTAIN SB-IN ALLOYS. HOWEVER, CHANGING THE DEPOSITION RATE DID NOT PLAY AN IMPORTANT ROLE TOWARD THE FORMATION OF THE INTERMETALLIC INSB COMPD. WITH COVALENT BONDS.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--EFFECT OF CERTAIN ELECTROLYTIC PARAMETERS ON COMPOSITION AND
QUALITY OF INDIUM THALLIUM ALLOY DEPOSITS -U-
AUTHOR-(02)-KOCHEGAROV, V.M., TSAREVA, A.V. *K*
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3) 675-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--INDIUM ALLOY, THALLIUM ALLOY, ELECTROLYSIS, ELECTRODEPOSITION,
PERCHLORATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1949 STEP NO--UR/0080/70/043/003/0675/0677
CIRC ACCESSION NO--AP0118911

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118911

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPOSITION OF IN-TL ALLOYS FROM PERCHLORATE MIXTS. WAS STUDIED AT PH 2.5 AND 20-70DEGREES. THE CONCNS. OF IN(CLO SUB4) SUB3 AND TLCLO SUB4 IN THE 3 MIXTS. WERE 0.35 AND 0.05, 0.30 AND 0.10, AND 0.25 AND 0.15M, RESP. INDIUM DEPOSITION IS ACCOMPANIED BY LARGER POLARIZATION IN PURE SOLN. AND BY DEPOLARIZATION IN THE MIXT. THE DEPOSIT BECOMES BRIGHTER AND DENSER, I.E., THE QUALITY IMPROVES WITH HIGHER TEMPS., HIGHER C.D.S, AND HIGHER RATIO OF IN TO TL. HIGHER TEMPS. DECREASE IN POLARIZATION. THE ALLOY CURRENT EFFICIENCY DECREASES WITH HIGHER TEMPS. AND C.DS. THE FOLLOWING CONDITIONS ARE RECOMMENDED FOR A COMPACT DEPOSIT: IN(CLO SUB4) SUB3 0.35, TLCLO SUB4 0.05M; C.D. 1.0 A-DM PRIME2, PH 2.5, AND INSOL. ANODES. FACILITY: RYAZAN. RADIOTEKH. INST., RYAZAN, USSR.

UNCLASSIFIED

USSR

KOCHELAP, V. A., and SOKOLOV, V. N. (Institute of Semiconductors of the Ukrainian Academy of Sciences, Kiev)

"Theory of Phase Transitions in Multivalley Semiconductors"

Kiev, Ukrainskiy Fizicheskii Zhurnal, February 1974, pp 186-195

Abstract: The authors study the thermodynamic peculiarities in the transition of a cubic, multivalley semiconductor to a new anisotropic state with a changed energy spectrum of carries and deformed lattice; the transition results from deformation electron-phonon interaction. Temperature and carrier density are considered as thermodynamic variables. It is shown that in the case of two-valley states there occurs a second kind of phase transition. The fluctuations of the anisotropic deformation and inter-valley distribution of electrons near the phase transition point are considered. In the case of one-valley states the first kind of transition takes place.

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USSR

UDC: 621.315.592

K
KOCHELAP, V. A. and MITIN, V. V.

"Conductive Anisotropy and Intertrough Redistribution in Doped Semiconductors at Low Temperatures"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol. 4, No. 6, 1970, pp 1051-1058

Abstract: The Sasaki effect, which includes the phenomena of conductive anisotropy and intertrough redistribution, has been theoretically investigated by several authors (the first paper on the effect was apparently published in the J. Phys. Soc. Japan, 11, 1956, p 1202, by W. Sasaki and M. Shinya). The present paper, however, is the first devoted to examination of the Sasaki effect in alloyed semiconductors at low temperatures when the intratrough (per pulse) and intertrough electron dispersions are strongly doped. Moreover, the effect may differ quantitatively as well as qualitatively from other cases under these conditions. The semiconductors considered by the authors are n-type germanium. To obtain the quantitative characteristics of the Sasaki effect, the authors assume that the electron energy relaxes into acoustical phonons, collisions with optical phonons being negligible at low temperatures. Also, under the assumption that the characteristic times of the transitions between troughs are much higher than all other

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USSR

KOCHELAP, V. A., et al, Fizika i Tekhnika Poluprovodnikov, Vol 4, No. 6, 1970,
pp 1051-1058

intratrough relaxation times, the authors take into account the dispersion in the impurities and the lattice in pulse and intertrough relaxation. Then, the electrons in each trough form carrier groups, to a large extent independent, which permits comparing each trough to its distribution function. The authors express their gratitude to Z. S. Gribnikov for his guidance and to I. M. Dykman for his useful comments.

2/2

Acc. Nr: **AP0043761** **KOCHELAP VA** Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 854-864

**THEORY OF STIMULATED RADIATIVE CHEMICAL REACTIONS
IN GASES AND THE POSSIBILITY
OF THEIR APPLICATION IN LASERS**

V. A. Kochelap, S. I. Pekar

The contribution to the complex dielectric permeability of a gas mixture due to a radiative chemical reaction between the gases is calculated. The optical properties of the reacting gas mixture, including the light absorption coefficient or amplification coefficient, the chemiluminescence intensity and their dependence on frequency are determined. The formation of diatomic molecules from atoms is analyzed quantitatively. Self stimulation of the radiative chemical reaction by the light it emits is considered. It is shown that the reaction can be divided into two stages. 1) A relatively long period of

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photon accumulation in a very slow chemical reaction; 2) a subsequent short period during which a very rapid chemical reaction takes place. The possibility of employing a self-stimulated reaction in the chemical laser proposed in ref [8] is considered. Estimates show that in this type of laser with an initial atom concentration of 10^{10} cm^{-3} one should be able to obtain a light amplification coefficient of $1-10 \text{ db}\cdot\text{cm}^{-1}$, pulse reaction time 10^{-9} sec and power per cm^2 of the order of $3 \cdot 10^9 \text{ W}$.

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19770168

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Acc. Nr: AP0043774

K

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 1046-1056

COOLING OF CURRENT CARRIERS SCATTERING THEIR ENERGY ON THE OPTICAL LATTICE VIBRATIONS

Z. S. Gribnikey, V. A. Kochelap

If the mean free time for a current carrier with respect to optical phonon emission in a dielectric or high resistance semiconductor is much smaller than its energy relaxation time involved in quasielastic scattering mechanisms, then in electric fields of intermediate strength the isotropic component $f_0(\epsilon)$ of the quasi-isotropic distribution function becomes independent of the electric field and the carrier mobility in the substance becomes ohmic. This «second» (in distinction to the equilibrium, or «first») ohmic section must necessarily precede the section of drift velocity saturation in the low temperature case ($\hbar\omega_p \gg kT$); however it may also exist when saturation is absent. The shape of function $f_0(\epsilon)$ on the «second» ohmic section is determined by the energy dependence of the mean free path relative to elastic scattering $l(\epsilon)$. If the length is small for $\epsilon \approx 0$ and sufficiently rapidly decreases with $\epsilon \rightarrow 0$ then in the low temperature case the current carrier gas will be cooler than in the equilibrium case.

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19770182

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USSR

AL'TSHULER, S. A., VALISHEV, R. M., KOCHELAYEV, B. I., and KHASANOV, A. KH.,
Kazan State University imeni V. I. Lenin

"Study of a Phonon System by the Mandelstam-Brillouin Light Scattering Method
Under Paramagnetic Resonance Saturation"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 62, No 2, Feb
72, pp 639-651

Abstract: The article gives a detailed account of the results of an experi-
mental and theoretical study of a phonon bottleneck in cerium magnesium
nitrate by the Mandelstam-Brillouin light scattering method. Continuous
paramagnetic resonance saturation of the Ce^{3+} ions was used to study steady-
state "heating" of the phonon system; then measurements were made during
spin system excitation by periodic rectangular pulses, and the steady-state
process was studied together with the transient process occurring at the
moment of inclusion of a saturating field. New peculiarities of the phonon
bottleneck effect were found during saturation at the end of the EPR line: viz.,
saturation on frequencies differing from resonance frequency by approximately
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USSR

AL'TSEVLER, S. A., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 62, No 2, Feb 72, pp 639-651

± 100 Mhz corresponds to the maximum steady-state "heating" of the phonon system. Moreover, during pulsed saturation with detuning, an avalanche-type growth in the number of phonons was observed behind the leading edge of the pulse, followed by a comparatively slow drop and the transition of the process to a steady-state mode. The equilibrium state was reestablished after the end of the saturating pulse. The phonon peak intensity depended on the detuning value and at $\Delta\omega/2\pi \approx \pm 100$ Mhz reached a maximum value of 8000° K. The dependence of characteristic parameters of the observed phenomenon on the detuning value ($\Delta\omega > 0$) was measured in another series of experiments. The avalanche reaches maximum intensity at intermediate detuning values, declines on both sides of the optimal value of ≈ 100 Mhz, and completely disappears at the point $\Delta\omega = 0$. The effective temperature of phonons in the steady-state region changes similarly. The spectral distributions of effective temperatures for "hot" phonons in the avalanche peak and in the steady-state region were found for $\Delta\omega/2\pi = 100$ Mhz. An important peculiarity is the fact that the maximums of the phonon spectral distributions fail to coincide with the frequency ω_0 or the frequency ω_1 and are displaced from the saturation point even further along the end of the EPR line. In addition, the "hot"

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USSR

AL'TSHULER, S. A., et al, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 62, No 2, Feb 72, pp 639-651

phonon band is significantly narrower than the EPR line width. Phonons in the frequency band below 30 Mhz take part in the avalanche. The frequency scale of the entire pattern is reduced almost in half by dilution of the crystal.

Kinetic equations are derived to describe EPR saturation in the general case when all three coupled subsystems -- Zeeman, spin-spin interaction, and phonon -- are in a nonequilibrium state. It is shown that in particular cases the equations coincide with those of B. I. PROVOTOROV and the phonon bottleneck theory. Steady-state EPR line saturation is considered first, then transient processes arising in the phonon subsystem after inclusion of a saturating variable field. It is shown that the character of the time variation of the state of the system depends essentially on the saturating power level. The experimental results obtained are considered in terms of the developed theory.

3/3

Acc. Nr. AP0037014

Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskiy Zhurnal SSSR, 1970, Vol 56, Nr 2, pp 246-254

ELECTRICAL AND MECHANICAL ACTIVITY OF THE STOMACH SMOOTH MUSCLES IN CAT

By N. G. Kochemasova, M. F. Shuba, K. K. Boyev

From the A. A. Bogomoletz Institute of Physiology, Ukr. SSR Ac. Sci., Kiev and Institute of Physiology Bulgaria Acad. Sci., Sofia

The electrical and mechanical activity of the isolated circular smooth muscles of the cat antrum has been investigated by means of «sucrose gap». Three main types of the spontaneous action potential are observed at normal conditions: a) simple action potential without plateau, b) action potential with plateau, c) action potential with plateau and additional spikes on it.

The simple spontaneous action potentials of the circular smooth muscles in the cat antrum does not produce marked contraction in the muscle. The spontaneous action potentials which have plateau are accompanied by pronounced phase muscle contraction. Strength and duration of the muscle contraction depends on the rise speed and size of the initial depolarisation phase of action potential and size of the plateau and presence of additional spikes on it.

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19721949

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Contraction in muscle cells begins when the depolarisation phase of action potential reaches its peak.
Adrenaline produced hyperpolarization, decrease both in the initial spike part and in the plateau of action potential and depression of contraction. The acetylcholine influence is accompanied by opposite changes in spontaneous activity.

D.N.

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19721950

USSR

UDC 576.852.211.094

MEN'SHIKOV, D. D., DYKHNO, M. M., KOCHEMASOVA, Z. N., BYKOV, A. S., and TYURIN, V. S., Chair of Microbiology, First Moscow Medical Institute imeni I. M. Sechenov

"Ultrastructure of Drug-Sensitive and Drug-Resistant Mycobacterium Tuberculosis"

Moscow, Problemy Tuberkuleza, No 5, 1971, pp 64-68

Abstract: Electron-microscope study was conducted of five M. tuberculosis strains differing in resistance to such drugs as streptomycin, PAS, cycloserine, etc., to determine whether ultrastructural characteristics are related to drug sensitivity. The strains used were the stock strain 1646 and Nos 686, 946, 827, and 551 isolated from tuberculosis patients treated with tuberculostatic agents. While the strains differed from one another in electron density, thickness of the cell wall, presence of extracellular granules, and number of vacuoles, no correlation could be detected between any of these morphological features and sensitivity or resistance to drugs. For example, heavily vacuolated cells were found in both the sensitive strain 686 and in strain 551, which is particularly resistant to PAS and isoniazid.

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Inorganic Compounds

USSR

UDC 551.464.679.1

BATURIN, G. N., and KOCHENOV, A. V., Institute of Oceanology, Academy of Sciences USSR, Moscow

"Uranium in the Interstitial waters of Marine and Oceanic Sediments"

Moscow, Geokhimiya, No 10, Oct 73, pp 1529-1536

Abstract: Data obtained in the investigations of samples collected by USSR oceanographic and marine study vessels in the Atlantic Ocean, Pacific Ocean, and the Black Sea indicated that the content of U in the interstitial waters of the bottom sediments varied in the range from 1.3×10^{-6} to 650×10^{-6} g/l. Among factors which determined the content of U in the interstitial waters were the pH, the Eh, the content of U and the concentration C_{org} of organic substances in the sediments, and the content of organic substances and of CO_2 in the interstitial waters. The existence of a correlation between the content of U in the interstitial waters and C_{org} made it possible to assume that a part of the dissolved U was present in the form of organometallic complexes. Presumably U was bound to dissolved or colloiddally dispersed organic compounds of the fulvenic acid type.

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USSR

Cytology

K

KOCHEREZHKIN, V.G.

"The Problem of Permeability of Biological Membranes"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 3, May/June
70, pp 472-575

Abstract: Membrane biology began with the discovery, 17 years ago by G.K. Frank, of a laminated membrane of a nerve sheath. At a meeting of the Academy it was stressed that all the vital functions of the cell rest in the membrane. Intracellular membranes govern the synthetic functions. Absorption, excretion ion exchange, and all possible vital reactions depend on the membrane, basically a lipoprotein layer which regulates ion transfer and the rate of enzymatic reactions. The rate of permeability of non-electrolytes is within the hydrophobic and hydrophilic parameters of the molecules and the membranes. The law of Michaelis-Menten governs penetration of sugar into the muscle cell. Insulin merely facilitates the rate of transport, which may be inhibited by fluorine derivatives. It has been shown that the phospholipid membranes of mitochondria and chromatophores possess directional properties, sending anions in one direction and cations in the other. Ion transfer through the mitochondrial membrane against the concentration gradient is the result of potential changes in the membrane. Chemical energy liberated in oxidation and in

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USSR

KOCHEREZHKIN, V.G., Izvestiya Akademii Nauk SSR, Seriya Biologicheskaya, No 3, May/June 70, pp 472-575

hydrolysis of ATP can be transformed into electrical energy on the membranes of mitochondria and chromatophores. The concluding speaker at the meeting proposed further study of the cooperative properties of membranes with electron cofactors, ions, metals, and enzymes.

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- 13 -

1/2 053

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--CERTAIN THERMAL AND ELECTRICAL CHARACTERISTICS OF A LIQUID FUEL
DIFFUSION FLAME -U-

AUTHOR--(03)-TOLUBINSKIY, V.I., KOCHEREZHKO, A.N., CHARUKHA, L.G.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZIKA I TEPLOTEKNIKA, VOL. 16, 1970, P. 21-25

DATE PUBLISHED-----70

SUBJECT AREAS--PROPULSION AND FUELS

TOPIC TAGS--THERMAL DECOMPOSITION, ELECTRIC PROPERTY, LIQUID FUEL, ETHYL
ALCOHOL, COMBUSTION R AND D, PYROLYSIS, ELECTRON DENSITY, LOW
TEMPERATURE EFFECT, PHYSICAL DIFFUSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605024/E05 STEP NO--UR/0651/70/016/000/0021/0025

CIRC ACCESSION NO--AP0141364

UNCLASSIFIED

2/2 053

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0141364

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL STUDY OF THE DISTRIBUTION OF THE LOCAL TEMPERATURE CHARACTERISTICS OF THERMAL DECOMPOSITION PYROLYSIS PROCESSES IN AN ETHYL ALCOHOL DIFFUSION FLAME. THE FREE ELECTRON CONCENTRATION DISTRIBUTION IS ALSO DETERMINED. IT IS SHOWN THAT ELECTRICAL PHENOMENA IN THE FLAME MAY HAVE A CONSIDERABLE EFFECT ON THE MASS TRANSFER PROCESSES OCCURRING DURING COMBUSTION.

FACILITY: AKADEMIJA NAUK UKRAINSKOI SSR, INSTITUT TEHNICHESKOI TEPLOFIZIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 612.281.223.11

KOCHERGA, D. O. and ZHYGAYLO, T. L., Laboratory of Respiratory Regulation,
Institute of Physiology imeni O. O. Bogomolets, Academy of Sciences, Ukrainian
SSR, Kiev

"Effect of Hypercapnia on Electrical Discharges of the Bulbar Respiratory
Neurons and Neuromotor Units of the Respiratory Muscles"

Kiev, Fiziologicheskii Zhurnal, No 5, 1972, pp 636-643

Abstract: Changes in impulse activity of both inspiratory and expiratory neuron populations and of neuromotor units of the respiratory muscles were studied in anesthetized cats breathing a gaseous mixture containing 6% carbon dioxide. Respiration was intensified at the level of the bulbar respiratory center because of the increase in frequency and number of impulses in volleys of both inspiratory and expiratory neurons. At the level of the efferent link, the respiratory muscles, respiration was intensified mainly by the mobilization of previously inactive neuromotor units and, to some extent, by a slight increase in the frequency of discharge of the functioning neuromotor units. A comparison of the responses of the bulbar respiratory neurons with the neuromotor units of the respiratory muscles during hypercapnia indicates that an increase in frequency of neuron discharges is essential for activating new functional units.

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- 44 -

USSR

UDC 577.1:615.5:612.8.015

PARKHOMETS', P. K., PALLADIN, A. V., and KOCHERGA, V. Y., Institute of Biochemistry, Academy of Sciences Ukrainian SSR, Kiev

"Effect of Melipramine on Serotonin Uptake by Animal Brain Tissue"

Kiev, Ukrayins'kyy Biokhimichnyy Zhurnal, Vol 42, No 6, 1970, pp 687-691

Abstract: The effect of melipramine on serotonin uptake by rat and rabbit brain tissue was studied in vivo and in vitro. Male albino rats weighing 180-200 g and rabbits weighing 1-1.5 kg were used. The rabbits were given an intraperitoneal injection of 50 mg/kg of melipramine, as well as an intracisternal injection of 100 mcg/kg of serotonin 4 hours 30 minutes before sacrifice. The rats were given 50 mg/kg of melipramine 4 hours before sacrifice and 20 mg/kg of serotonin 30, 60 and 90 minutes afterwards by intraperitoneal administration. The results of the in vitro studies indicate that melipramine inhibits the uptake of exogenous serotonin by the fraction of nerve endings and

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USSR

PARKHOMETS', P. K., et al., Ukrayins'kyy Biokhimichnyy Zhurnal, Vol 42, No 6, 1970, pp 687-691

synaptic vesicles, as well inhibiting the liberation of serotonin from the fraction of nerve endings during incubation of the latter in a physiological medium. The results of the in vivo studies also indicate the possible inhibitory effect of melipramine on exogenous serotonin uptake by brain tissue. It is suggested that melipramine may inhibit the penetration of the nerve ending membranes by serotonin.

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USSR

UDC 517.946

KOCHERGIN, A. V.

"Goursat Problem for Equations of the Hyperbolic Type"

V sb. Materialy Itog. nauchn. konferentsii. Kuybyshev. gos. ped. in-t, 1970. Vyssh. matematika (Papers. Summation of Scientific Conference. Kuybyshev State Pedagogical Institute, 1970. Higher Mathematics -- Collection of Works), Kuybyshev, 1970, pp 32-34 (from RZh-Matematika, No 4, Apr 71, Abstract No 4B384)

Translation: Let the numbers $\alpha, \beta > 0$ be given and D be a region of the plane Oxy bounded by the lines $y = 0$, $\Gamma_1: x + y = 0$, and $\Gamma_2: \sqrt{x} + \sqrt{-y} = 1$. The function $u(x, y) \in C^2(D) \cap C(\bar{D})$ is sought satisfying the equation

$$xu_{xx} + yu_{yy} - \alpha u_x - \beta u_y = 0$$

in D and the boundary conditions

$$u|_{\Gamma_1} = \psi_1, \quad u|_{\Gamma_2} = \psi_2 \quad (\psi_{1,2} \in C^2).$$

The solution of the problem is obtained in explicit form. N. Flaysher.

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Powder Metallurgy

UDC 621.762.224

USSR

NICHIPORENKO, O. S., NAYDA, Yu. I., and KOCHERGIN, A. V., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Production of Nickel Powder by Spraying"

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 70, pp 1-4

Abstract: A study was made of the possibilities for producing nickel powder with predetermined form and particle size by spraying. Powders with both spherical and nonspherical particles were produced experimentally. The technological and physical properties of powders of both types were analyzed. The required powder form was produced by adjusting the relationship between spheroidization time and cooling time, with spherical particles resulting when the spheroidization time was less than the cooling time. In the experimental portion of the study, the metal was sprayed through a circular slit 0.8 mm in width at a pressure of 2.5 atm. The resulting nickel powder had a spherical particle form when sprayed without additives, and a non-spherical form when 0.05 wt % aluminum was added. Particle diameters for both types of particles averaged 250-350 microns.

KOCHERGIN

I. G.

REPAIR OF DAMAGED AORTIC WALL BY INTRALUMINAL SEAMLESS INSERTION OF A STRAIGHT, LAVSAN-LINED PARTIAL PLATE
Article by G.A. ANOZAD, I.G. Kochergin, Second Moscow Medical Institute (mexi), N.I. Pirogov Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 2, 1972, pp 69-72

REF: 616.112-001-089, 8-41613.462

SPRS 55569
319 MAR 72

We conducted experiments on 12 dogs, involving correction of the diameter of the abdominal aorta in a circumferential aneurysm or partial defects, using an intraluminal seamless double-styrcetyl plate. In all cases in this series of chronic experiments, we observed complete resumption of blood flow, normal function of the aorta and underlying parts of the blood system for a period of up to 20 months.

The experiment was conducted as follows. The aorta was exposed for no more than 30-40 mm above the bifurcation. The lateral branches in this section were ligated and cut. The anterior wall of the aorta was cut lengthwise between two clamps (Figure 1, a), the margins of the walls were picked up with hooks or eye forceps and spread out (Figure 1, b). The partial double-layer lavsan plate was inserted in the opening thus formed in such a manner as to have the margins of the sutured wall between the two rims of the plate and in its groove. The incision was deliberately made 0.5-1 cm shorter than the longitudinal section of the plate so that the margins of the vessel would fit rather tightly over the plate and after immobilization with a ligature would provide a hermetic joint. After the plate was inserted (Figure 1, c), this provided close contact between the lower surface of the plate and the vascular wall and ruled out the possibility of a fissure forming between the margin of the lower surface and the intima. The clamps were then rapidly removed and circulation restored (Figure 1, d).

The technology of manufacturing intraluminal partial plates to repair the damaged wall of a vessel consisted of the following: A 60-70 mm piece is cut off a woven corrugated lavsan (synthetic polyester resin comparable to dacton) prosthesis, 8 mm in diameter. Then the wall of this piece is cut lengthwise, straightened and smoothed. The smooth tape thus obtained is cut into two rectangular pieces, each 20 mm long, and styrcetyl paste

MEDICINE

KOCHERGIN, I. G.

COLEMAN

SO: SPRS 54153
29 SEP 71
UDC: 616.33+616.342-005.1.089.811

SURGICAL TACTICS IN GASTRODUODENAL HEMORRHAGES
Article by Yu.Ye. Berezov, I.G. Kochergin, A.S. Yermolov, M.D. Lepin, Second Moscow Medical Institute; Moscow, Vestnik Akademii Medicinskikh Nauk SSSR, Bulleten, No 7, 1971, pp 55-59]

For more than 100 years there has been a scientific debate as to method of choice for the treatment of patients with hemorrhaging in the digestive tract. This debate is particularly heated with respect to gastroduodenal bleeding since this is encountered the most often and its causes are very diverse.

The difficulty of determining the causes and sometimes the location of such hemorrhages, the serious condition of the patient because of the blood lost compel us to consider the development of standard tactics for the entire group of gastroduodenal hemorrhages directed toward stopping the bleeding and stabilizing hemodynamic indices. The solution to this problem depends, in essence, the medical tactics.

The seeming simplicity of the solution (any hemorrhage is the prerogative of a surgeon and requires surgery) encounters specific conditions in each concrete case and contradictions between what is necessary and what is impossible (little justified or unjustified risk). Such conditions and contradictions include: the serious condition of the patient who has lost much blood and extremely critical surgical intervention in this situation; the inability to stop bleeding by virtue of the particular nature of the causes that caused it (nonresectable tumor of the stomach, pancreas, etc); unreliability of surgical methods of arresting bleeding in the presence of some forms of pathology (erosive gastritis, atresia of varicose esophageal veins) and, finally, bleeding that does not respond to surgical management (hemorrhagic diathesis, hemophilia, and others).

In spite of this, we must agree with Yu.Yu. Dzhanelidze, that "all patients with gastroduodenal bleeding should be referred to the surgical department and they should be considered as subjects whose life is in immediate danger." S.I. Spasokukotskiy believed that all patients with

Yu.Yu. Dzhanelidze, Sovetskaya Khirurgiya (Soviet Surgery), No 5, 1933, p 268.

USSR

UDC 621.373.531(088.8)

KOCHERGIN, O. K., KABLOV, G. P.

"Kipp Relay"

USSR Author's Certificate No 262159, Filed 5 Aug 68, Published 3 Jun 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G214P)

Translation: A kipp relay is proposed in which a pulse transformer is installed to decrease the recovery time. The primary winding of the transformer is included between the timing capacitor and the collector of the normally closed semiconductor triode, and the secondary winding shunted by the semiconductor diode is connected to the base-emitter junction of the auxiliary semiconductor triode.

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- 55 -

Oscillators and Modulators

USSR

UDC 621.373.431.2(088.8)

KABLOV, G. P., KOCHERGIN, O. K., SHCHERBINA, V. P.

"Blocking Generator"

USSR Author's Certificate No 272355, Filed 15 Apr 68, Published 9 Sep 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G229P)

Translation: A transistorized blocking generator is proposed, which contains a pulse bridge element to one arm of which the transformer winding of the blocking generator is connected. In order to regulate the pulse repetition period within broad limits, the bridge element is connected via a separating capacitor to the collector of the transistor and via a resistor, to the control voltage source.

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USSR

UDC: 621.373.531(088.8)

KOCHERGIN, O. K., Novosibirsk Electrical Engineering Institute

"Transistorized Pulse Oscillator"

USSR Author's Certificate No 270791, filed 28 Apr 69, published 26 Aug 70
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2G243 P)

Translation: This Author's Certificate introduces a pulse generator which contains a four-leg bridge whose legs are made up of resistors and capacitors, while the diagonal is comprised of a semiconductor diode and the primary winding of a pulse transformer connected in series, the secondary of the transformer being connected in the base circuit of a transistor. To improve the stability of the prf when there is a change in the ambient temperature or supply voltage, the bridge is connected to the collector of the transistor through a resistor, and also connected directly to the source of control pulses.

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USSR

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KOCHERGIN, O. K.

UDC 621.373.431

"Transistorized Pulse Generator"

Moscow, Otkrytiya, Izobrenteniya, Promyshlennvye Obratzsy, Tovarnvye Znaki,
No 17, 12 May 79, p 35, Patent No 270791, Filed 28 Apr 69

Translation: This Author's Certificate introduces a transistorized pulse generator containing a four-arm bridge the arms of which are made up of resistors and capacitors and a diagonal made of a series-connected diode and the primary winding of a pulse transformer the secondary winding of which is connected to the base circuit of the transistor. The generator is distinguished by the fact that in order to increase the stability of the average pulse repetition rate on variation of the ambient temperature and power supply voltage, the bridge is connected to the collector of the transistor via a resistor and directly to the control pulse source.

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UDC 547.789.6*781

USSR

GRIN', N. P., KRASOVSKIY, A. N., KOCHERGIN, P. M., Zaporozh'ye State Medical Institute, All-Union Scientific Research ~~Chemico-Pharmaceutical~~ Institute imeni S. Ordzhonididze, Moscow

"Studies in the Imidazole Series, LXXVIII. Reaction of 2-aminobenzothiazoles with α -haloketones"

Riga, Khimlay, Geterotsiklicheskikh Soyedineniy, No 9, 1972, pp 1271-1274

Abstract: A detailed study was made of the reaction of 2-aminobenzothiazole and its 6-substituted derivatives with α -bromomethyl alkyl(aryl, heteryl) ketones. Under mild conditions (in acetone at 15-20°), 3-acylmethyl-2-aminobenzothiazolines were formed. Their structure was established by qualitative reactions to the carbonyl group and infrared spectra in which there are clear absorption bands of the CO and NH groups in the 1,680-1,707 cm^{-1} and 3,320-3,345 cm^{-1} regions, respectively. The properties of the compounds were investigated, and the conditions of ring formation to obtain derivatives of imidazo[2,1-b]benzothiazole are discussed.

1/1

UDC 615.22:547.785.5

USSR

KOCHERGIN, P. M., LINENKO, V. I., TYACHENKO, A. A., SAMURA, B. A.,
POVSTYANOY, M. V.: All-Union Scientific-Research Economico-
Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow, and
Zaporozh'ye Medical Institute

"Studies of the Imidazole Series. LIII. Synthesis and Pharma-
cological Action of Derivatives of Imidazo(1,2-f)Xanthine"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, No 2, Feb 71, Vol 5,
pp 22-26

Abstract: Certain 7-acylmethyl-8-chloro(bromo)theophyllenes react
with primary and secondary amines to form 7-acylmethyl-8-alkylamino
(arylamino, dialkylamino)theophyllenes; the corresponding hydra-
zones were obtained from the latter, they are of interest because
of their tuberculostatic properties. Also synthesized were a
series of 7-acylalkyl-8-bromotheophyllines not previously described
in the literature, and various derivatives of 1 H-imidazo(1,2-f)
xanthine. Fifty-five compounds were studied.

The derivatives of 1 H-imidazo(1,2-f)xanthine were found to affect
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USSR

KOCHERGIN, P. M., et al, Khimiko-Farmatsevticheskiy Zhurnal,
No 2, Feb 71, Vol 5, pp 22-26

the cardiovascular system (Preparation 3 depresses heart action
in frogs, rabbits and cats; Preparations 1 and 2 increased con-
traction amplitude in excized frog hearts). Preparations 1 and
2 increased arterial pressure in rabbits, among other effects.

2/2

- 78 -

USSR

UDC 547.285.5.07

PRIYMENKO, B. A., and KOCHERGIN, P. M., Zaporozhe State Medical Institute, All-Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Studies in the Imidazole Series. LXIII. Synthesis of Imidazo-[1,2-a]Imidazole Derivatives Based on 2-Aminoimidazoles"

Riga, Khimiya Geterotsiklicheskikh Soedineniy, No 12, Dec 71, pp 1692-1694

Abstract: A series of imidazo[1,2-a]imidazole derivatives was synthesized by the reaction of 1-methyl-2-aminoimidazole (I) with α -bromoketones (II). To a solution of 0.02 mole of (I) in 20 ml acetone, 0.02 mole of phenacyl bromide was added, the mixture was refluxed for 30 min, cooled, filtered, yielding the desired 1-methyl-3-acylmethyl-2-iminoimidazolines, which were then converted to hydrobromides and picrates. In the IR spectra of these compounds strong bands are observed in the region of 1670-1715 and 3120-3260 cm^{-1} (the CO and NH absorption regions). These hydrobromides are unstable and on heating in lower alcohols or water they can be easily converted to respective imidazo[1,2-a]imidazole derivatives. This type of cyclization occurs even easier in organic, hydrochloric, or hydrobromic acid; in H_2SO_4 , H_3PO_4 , and POCl_3 this cyclization occurs even in cold.

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- 60 -

USSR

UDC 547.785.5.07

PRIYMENKO, B. A., KOCHERGIN, P. M., Zaporozh'ye State Medical Institute, All-Union Scientific Research Institute of Pharmaceutical Chemistry imeni S. Ordzhonikidze, Moscow

"Studies in the Imidazole Series. LXVI. Synthesis of Derivatives of 2,3-Dihydroimidazo [1,2-a] imidazole"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 71, pp 1252-1254

Abstract: The authors studied two methods for the synthesis of new derivatives of 2,3-dihydroimidazo [1,2-a] imidazole. The treatment of previously synthesized 1-(β -hydroxyethyl)-2-amino (alkylamino, arylamino)-4,5-diphenylimidazoles with thionyl chloride or phosphorus oxychloride and subsequent cyclization of the intermediate 1-(β -chloroethyl)-2-amino(arylamino)-4,5-diphenylimidazoles with NaOH in ethanol gives such products. A simpler method is the reaction of 2-bromo-4,5-diphenylimidazole with 1,2-dichloro(dibromo)ethanes in aqueous DMF in the presence of NaOH or

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- 35 -

USSR

PRIYMENKO, B. A., et al, Khimiya Geterotsiklicheskikh
Soyedineniy, No 9, Sep 71, pp 1252-1254

treatment of 1- β -hydroxyethyl)-2-bromo-4,5-diphenylimidazole
with thionyl chloride or phosphorus tribromide to give 1-(β -
-haloethyl)-2-bromo-4,5-diphenylimidazoles and the subsequent
reaction of the latter with ammonia or primary amines.

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USSR

UDC 547.781:542.944.1'958.3

PRIYMENKO, B. A., ~~KOCHEGIN, P. M.~~, Zaporozh'ye State Medical Institute, All-Union Scientific Research Institute of Pharmaceutical Chemistry imeni S. Ordzhonikidze, Moscow

"Studies in the Imidazole Series. LXV. Synthesis of 2-Aminoimidazole Derivatives From 2-Haloimidazoles"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 71, pp 1248-1251

Abstract: The authors studied the bromination of 1-methyl (β -hydroxyethyl, β -hydroxypropyl)-4,5-diphenylimidazoles with bromine and alkylation of 2-bromo-4,5-diphenylimidazole with alkyl halides, β -haloalcohols and alkene oxides. The corresponding 1-alkyl(β -hydroxyalkyl, β -hydroxyaralkyl)-2-bromo-4,5-diphenylimidazoles were obtained in the process. The structure of the resultant compounds was confirmed by IR spectra and parallel synthesis. The authors studied the reaction of these compounds with ammonia, primary and secondary amines. It was found that
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- 36 -

USSR

PRIYMENKO, B. A., et al, Khimiya Geterotsiklicheskikh Soyedineniy,
No 9, Sep 71, pp 1248-1251

this reaction does not take place at 66-120° (boiling in methanol, ethanol or butanol), but at 155-185° (boiling in DMF, or excess high-boiling amine or heating in a low-boiling solvent in an autoclave) there is nucleophilic displacement of the bromine atom by an amino(alkylamino, arylamino, cycloalkylamino) group to give the corresponding 1-alkyl(β -hydroxyalkyl, β -hydroxyaralkyl)-2-amino(alkylamino, arylamino, cycloalkylamino)-4,5-diphenylimidazoles, whose structure was confirmed by IR spectral data. Thus, the study resulted in the comparatively simple synthesis of substituted derivatives of 2-aminoimidazole from 2-haloimidazoles, particularly 2-bromoimidazoles.

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USSR

UDC 547.785.5:867.4.07

PRIYMENKO, B. A., KOCHERGIN, P. M., Zaporozh'ye State Medical Institute, All-Union Scientific Research Institute of Pharmaceutical Chemistry imeni S. Ordzhonikidze, Moscow

"Studies in the Imidazole Series. LXIV. Synthesis of Imidazo $\overline{1,2-a}$ Imidazole Derivatives From 2-Haloimidazoles"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 71, pp 1243-1247

Abstract: The authors studied the synthesis of imidazo $\overline{1,2-a}$ imidazole derivatives based on 2-haloimidazoles, particularly 4,5-diphenyl-2-bromoimidazole. The reaction of the latter with α -bromoketones gives 1-acetyl-2-bromo-4,5-diphenylimidazole and 1-phenacyl-2-bromo-4,5-diphenylimidazoles. Such compounds can also be synthesized by the reaction of 4,5-diphenylimidazole with α -bromoketones and subsequent bromination of 1-acetylmethyl-4,5-diphenylimidazoles. The authors then studied the reaction of 1-acetyl-2-bromo-4,5-diphenylimidazole and 1-phenacyl-2-bromo-4,5-diphenylimidazoles with ammonia, primary amines of the aliphatic, alicyclic, aliphatic-aromatic and aromatic series, including amino

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- 37 -

USSR

PRIYEMKO, B. A., et al, Khimiya Geterotsiklicheskih Soyedineniy,
No 9, Sep 71, pp 1243-1247

alcohols (aminoethanol, 2-amino-1-pentanol) and dialkylamino-alkylamines (diethylaminoethylamine), as well as with secondary amines (morpholine). It was found that nucleophilic replacement of bromine by the amino group does not take place during boiling of the components in alcohols (methanol, ethanol, butanol) or in dimethylformamide. But on heating with ammonia and amines in lower alcohols (methanol, ethanol) at 165-190° (in a sealed tube or autoclave) there is not only replacement of the bromine atom by the amine group, but also simultaneous dehydration of the intermediate 1-acylmethyl-2-amino(alkylamino, arylamino)-4,5-diphenylimidazoles. The corresponding derivatives of imidazo-/1,2-a/ imidazole are formed in the process. This reaction takes place boiling in excess high-boiling amines. The reaction of 1-acylmethyl-2-haloimidazoles with secondary amines stops at the replacement of the halogen by the amine group.

2/2

USSR

UDC 547.785.5'741

KOCHERGIN, P. M., SHEYNKER, YU. N., DRUZHININA, A. A., PALEY, P. M. and
ALEKSEYEVA, L. M., All Union Scientific Chemical-Pharmaceutical Institute
Imeni S. ORDZHONIKIDZE, Moscow

"Studies in the Imidazole Series. LVIII. Debenzylation of N-Benzyl-substituted
1H-Pyrrolo [1,2-a]imidazole and 4H-Pyrrolo [1,2-a]benzimidazole"

Riga, Khimiya Geterotsiklicheskikh Soyadineniy, No 6, Jun 71, pp 826-830

Abstract: Debenzylation of N-benzylsubstituted 1H-pyrrolo-[1,2-a] imidazole
and 4H-pyrrolo [1,2-a]benzimidazole by the action of sodium in liquid ammonia
was studied. Using IR and NMR spectral analysis it was shown that the products
are derivatives of 7H-pyrrolo-[1,2-a]imidazole and 3H-pyrrolo[1,2-a]benzimidazole.
Debenzylation of 2,3-diphenyl-4-benzylpyrrolo[1,2-a]benzimidazole takes place
with concurrent reduction of the pyrrole ring forming 1H-2,3-dihydro-2,3-
diphenylpyrrolo[1,2-a]benzimidazole, m.p. 193-194°.

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UDC 547.789.6'785.5.07

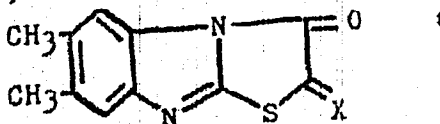
USSR

KRASOVSKIY, A. N., KOCHEGIN, P. M., and ROMAN, A. B., Zaporozhe Medical Institute, All Union Scientific Chemical-Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Studies in the Imidazole Series. LVII. Synthesis of 6,7-Dimethylbenzimidazo [2,1-b]thiazolidone-3 and Its Derivatives at the Methylene Group"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 822-825

Abstract: Synthesis of 6,7-dimethylbenzimidazo [2,1-b] thiazolidone-3 (I) was developed. Refluxing 5,6-dimethylbenzimidazolyl-2-mercaptoacetic acid in acetic anhydride leads to the formation of (I); when α -[5,6-dimethylbenzimidazolyl-2]mercaptopropionic acid is used -- the product is 2,6,7-trimethylbenzimidazo[2,1-b]thiazolidone-3, which in spite of the presence of a methylene group does not react with aryldiazonium borofluoride. (I) reacts with aldehydes, isatine, nitro compounds, and with aryldiazonium salts producing derivatives of the methylene group



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- 17 -

USSR

KRASOVSKIY, A. N., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 6,
Jun 71, pp 822-825

X, m.p. reported: C_6H_5CH , 254-255°; p- $CH_3OC_6H_4CH$, 238-239°; p- $(CH_3)_2CHC_6H_4CH$,
225-226°; o- $O_2NC_6H_4CH$, 246-247°; m- $O_2NC_6H_4CH$, 259-260°; p- $O_2NC_6H_4CH$, 318-319°;
2-furfurylidene, 260-261°; 5-nitro-2-furfurylidene, 274-276°; 3-isatinilidene,
344-345°; p- $(CH_3)_2NC_6H_4N$, 300-302°; p- $CH_3OC_6H_4NHN$, 228-229; p- BrC_6H_4NHN , 262-
263°.

2/2

USSR

UDC 615.31:547.718.1].012.1

KOCHERGIN, P. M., KOMISSAROV, I. V., TKACHENKO, A. A., and VLASOV, V. V.,
All Union Scientific Chemical-Pharmaceutical Research Institute imeni S.
Ordzhonikidze, Moscow, Zaporozhe Medical Institute, Donetsk Medical Institute

"Studies in the Imidazole Series. LII. Synthesis and Pharmacological
Properties of the Derivatives of Imidazolino(1,2-f)xanthene"

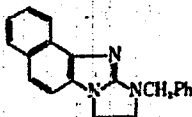
Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 4, No 12, Dec 70, pp 14-18

Abstract: Starting from 8-bromo-, 8-amino-, and 8-methylmercaptotheophyllines a series of imidazolino(1,2-f)xanthene derivatives was synthesized. Their pharmacological action was investigated. The products exhibited a positive inotropic action on frog's heart, comparable to that of theophylline; they lowered the blood pressure and affected directly smooth vascular muscles. They shortened the latent period of conditional reflexes slowing down their extinction; they increased the 'spontaneous' motor activity, but counteracted the stimulating effect of theophylline on the motor activity of animals. The compounds showed no effect on the convulsive activity of corasol, hexenal, or chloral hydrate. Several among them stimulated breathing, but were not capable of counteracting the breathing inhibitory action of morphine or hexenal.

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Acc. Nr: **AP0045143** Abstracting Service: **4170** Ref. Code: **UR0409**
CHEMICAL ABST.

90370j Synthesis of 2,3-dihydro derivatives of imidazo[1,2-a]imidazole systems. Kochergin, P. M.; Poystyanov, M. V.; Priimenko, B. A.; Poromat, V. S. (Vses. Nauch.-Issled. Khim.-Farm. Inst. im. Ordzhonikidze, Moscow, USSR). *Khim. Geterotsykl. Soedin.* 1970, (1), 129 (Russ). Reaction of 2-haloimidazoles with halogenated alcs., olefin oxides, and 1,2-dihaloalkanes in an alk. medium gave the following: 1-(2-hydroxyethyl)-2-bromo-4,5-diphenylimidazole m. 165-6°; 2-chloro analog, m. 138-9°; 2-chloro-3-(2-hydroxyethyl)naphth[1,2-d]imidazole m. 186-7°. These heated with NH₃ or RNH₂ gave: 1-(2-hydroxyethyl)-2-phenylamino-4,5-diphenylimidazole, m. 219-20°; 2-benzylamino-3-(2-hydroxyethyl)naphth[1,2-d]imidazole, m. 173-5°, which with SOCl₂ gave: 1,5,5-triphenyl-2,3-dihydroimidazo[1,2-a]imidazole m. 199-200°; 2,3-dihydroim-



idazo[1,2-a]benzimidazole (picrate, m. 180-2°); 1-benzyl-2,3-dihydroimidazo[3,2-b]naphth[1,2-d]imidazole. m. 186-7° (I). Similarly were prepd. 1-(2-bromoethyl)-2-bromo-4,5-diphenylimidazole, m. 147-8°; and 2-chloro-3-(2-bromoethyl)naphth[1,2-d]imidazole, m. 106-7°.
 G. M. Kosolapoff

REEL/FRAME
19780043

USSR

UDC 547.785.5

POVSTYANOV, M. V., and KOCHERGIN, P. M., Zaporozh'ye Medical Institute; All-Union Scientific Research Chemico-Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Studies in the Imidazole Series. LXXV. Synthesis of 2-Methylmercapto-3-acylmethyl(beta-hydroxyalkyl)naphtho/1,2-d/imidazoles and Their Transformations into Derivatives of Naphtho/1,2-d/imidazo/3,2-b/imidazole and Naphtho/1,2-d/imidazo/3,2-b/imidazoline"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 72, pp 816-819

Abstract: In order to obtain physiologically active compounds 2-methylmercapto-naphtho/1,2-d/imidazole (I) was reacted with α -bromomethyl aryl ketones, ethylene chloro(bromo)hydrins, and ethylene, styrene, or p-nitrostyrene oxide to prepare derivatives of I substituted in the 3-position with $\text{CH}_2\text{C}(\text{R})=\text{O}$, where R is Ph, p-MeC₆H₄, p-MeOC₆H₄, p-ClC₆H₄, or p-BrC₆H₄ (IV, V, VI, VII, and VIII, respectively) or with R, where R is HOCH₂CH₂, PhCH(OH)CH₂, or p-NO₂C₆H₄CH(OH)CH₂ (IX, X, and XI, respectively). 2-Mercapto-3-phenacyl- (II) and 2-mercapto-3-(beta-hydroxyphenethyl)naphtho/1,2-d/imidazole (III) yielded IV and X, respectively, on being methylated with MeI. II and III were synthesized by reacting the corresponding 2-chloro compounds with thiourea. Heating of IV-VI 1/2

USSR

POVSTYANOV, M. V. and KOCHERGIN, P. M., Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 72, pp 816-819

and VIII with amines NH_2R ($\text{R} = \text{Ph}$, $p\text{-MeC}_6\text{H}_4$, $p\text{-MeOC}_6\text{H}_4$, $p\text{-ClC}_6\text{H}_4$, $m\text{-MeC}_6\text{H}_4$, $m\text{-ClC}_6\text{H}_4$, $p\text{-EtOC}_6\text{H}_4$, CH_2Ph) in MeOH at $170\text{-}5^\circ$ in an autoclave resulted in substitution of the SMe group with NHR and also dehydration of the intermediate 2-arylamino(benzylamino)-3-acylmethylnaphtho/1,2-d/imidazoles with the formation of naphtho/1,2-d/imidazo/3,2-b/imidazole derivatives XV-XXX (table). The reaction of IX or X with arylamines under the same conditions stopped upon formation of 2-arylamino-3-(beta-hydroxyalkyl)naphtho/1,2-d/imidazoles, of which three (XII-XIV) were synthesized by reacting IX with $m\text{-MeOC}_6\text{H}_4\text{NH}_2$ or $3,4\text{-Me}_2\text{C}_6\text{H}_3\text{NH}_2$ and X with PhNH_2 . Under the action of SOCl_2 , XII-XIV underwent cyclization with the formation of the respective naphtho/1,2-d/imidazo/3,2-b/imidazoline derivatives.

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USSR

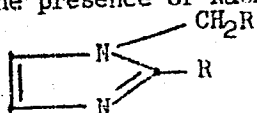
UDC 547.781.1.4:542.944.7

KOCHERGIN, E. M., KLYKOV, M. A., and MIKHAYLOVA, I. S., All-Union Scientific Research Chemico-Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Studies in the Imidazole Series. LXXVI. Catalytic Dechlorination of Chloro Derivatives of Imidazole."

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jan 72, pp 820-822

Abstract: 5-Chloroimidazole and 1,2-disubstituted 5-chloroimidazoles were subjected to catalytic hydrogenation with Raney Ni to eliminate the Cl atom. By carrying out the reaction at 40-100° and an H₂ pressure of 50-100 atm. in the presence of NaOH in alcohol or of Na alkoxide, compounds



with R = H, Me, Et, Pr, Bu, i-Bu were prepared.

Hydrogenation of 1-benzyl-2-phenyl-5-chloroimidazole under the same conditions at elevated temperatures led to the formation of 2-cyclohexylimidazole; to obtain 1-benzyl-2-phenylimidazole, the reaction had to be carried out at a temperature $\leq 20-25^\circ$.

1/1

USSR

UDC 543.422.25:546.740:785.5

ALEKSEYEVA, L. M., DVORYANTSEVA, G. G., PERSIANOVA, I. V., SHEYNER, YU. N.,
PALEY, R. M., and KOCHERGIN, P. M., All Union Scientific Chemical-Pharma-
ceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Protonization of the Derivatives of Pyrrolo[1,2-a]benzimidazole"

Riga, Khimiya Geterotsiklicheskih Soyedineniy, No 8, AUG 72, pp 1132-1137

Abstract: Protonization of a series of pyrrolo[1,2-a]benzimidazole derivatives in trifluoroacetic acid has been studied by PMR method. The 1,3-unsubstituted compounds protonize exclusively on the C₁ atom. Pyrrolobenzimidazoles with a methyl substituent on position 1 form a mixture of two protonized forms under identical conditions, corresponding to the addition of a proton to C₁ and C₃ respectively. Relative content of the C₃ protonized form decreases gradually from 81% to 18% going from a compound unsubstituted in position 3 to the respective 3-phenyl- and 3-methyl derivatives. Basicity constants of pyrrolobenzimidazoles decrease synbatically with the increase of the relative content of this form. Relative proton acceptor capability of indoline, pyrrolo[1,2-a]imidazole and pyrrolo[1,2-a]benzimidazole has been calculated from the protonization data and from indexes of reactivity.

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USSR

UDC 541.62:547.785.5*789.61*854.4:543.422.
25.4

ALEKSEYEVA, L. M., PERESLENT, YE. M., SHEYNKER, YU. N., KOCHERGIN, P. M.,
KRASOVSKIY, A. N., and KURMAZ, B. V., All Union Scientific Chemical-
Pharmaceutical Research Institute imeni S. Ordzhonikidze, Moscow

"Ring-Chain Tautomerism of S-Acylalkyl Substituted Imidazoles and Annelated
Imidazole Systems"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 8, Aug 72, pp 1125-1131

Abstract: The ring-chain tautomerism of S-acylalkyl substituted 2-mercapto-
4,5-diphenylimidazole, 2-mercaptobenzimidazole, 2-mercaptonapht[1,2-d]
imidazole, 8-mercaptapurine, 8-mercaptotheophylline, and 2-mercaptoimidazoline
has been studied by PMR and IR spectroscopy. Depending on the structure of
aldehyde or ketone radical, or on the type of heterocycle condensed with the
imidazole nucleus, depending on the state of the aggregate and on the type
of solvent used, these compounds can exist as open heterylmercaptoaldehydes
(ketones), as cyclic 3-hydroxy derivatives of imidazothiazoline systems or
as mixed tautomeric forms. When a substituent exists on position 2 of the
thiazoline ring, the cyclic compounds exist as a mixture of two diastereois-
meric forms,

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AAO 043499

KOCHERGIN

S.I.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

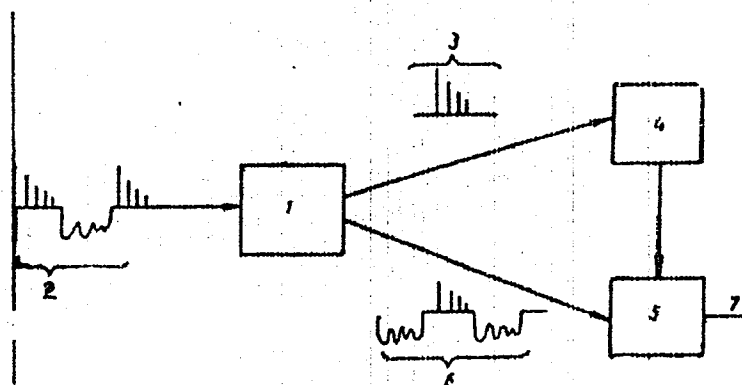
242959 FILTRATION OF INTERFERING SIGNALS, where
 a selector 1 directs interfering pulses 3
 to the memory system 4, while distorted signal 6
 is passed to the compensating system 5 which is
 controlled by memory device 4. At the output 7
 appears a clear signal. 31.5.56. as 461281/26-S
S.I.KOCHERGIN. (17.9.49.) Bul.16/5.5.69. Class
 21a. Int.Cl. HD3b.

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Acc. Nr:

AP 0036759

Abstracting Service:
CHEMICAL ABST. 4-70

Ref. Code:

UR 0068

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78550k Preparation of m-xylene and durene by the isomerization and disproportionation of pseudocumene. Kolyandr, L. Ya.; Privaiov, V. E.; Fomenko, G. M.; Nikitina, A. I.; Lokshina, L. S.; Kochegom, V. A.; Khvatkov, N. M.; Krish-topa, A. P.; Bilym, L. M.; Grebinnik, Z. G. (Kadiev, Koksotopkhim. Zavod, Kadievka, USSR). *Koks Khim.* 1970, (1), 33-40 (Russ). 1,2,4-Me₃C₆H₃ (I) of 90-5% purity was prepd. by rectifying coke chem. solvents (20-35 and 10-20% Me₂C₆H₄, 4-6 and 3-5% m + p-EtC₆H₄Me, 15-17 and 10-12% 1,3,5-Me₃C₆H₃ (II), 1-1.2 and 0.7-0.9% o-EtC₆H₄Me, 16-18 and 12-14% I, 1-2 and 2-3% 1,2,3-Me₃C₆H₃, 2-6 and 1-3% satd. hydrocarbons, and 0 and 2-3% unsatd. compds.) on columns having 50 theoretical plates at a reflux no. of 60-100. Isomerization and disproportionation in the presence of 30% of an AlCl₃-I complex at 127° for 3 hr in exptl. app. yielded 4.00% C₆H₆-PhMe-satd. compds., 17.27% Me₂C₆H₄, 17.02% II, 35.09% I, and 10.71% durene (III). Yields in plant runs were similar. Rectification of the II fraction on a lab. column having 75 theoretical plates at a reflux no. of 80-100 yielded II of 97.5% purity in 30.24% yield. After rectification to increase III concn. to 45.94% in the III fraction, recrystn. at 5 to -18° yielded III of ~82% purity and further recrystn. with 35% PhMe gave III of ~97% purity in ~85% yield (17% selectivity from I and 1.6% from the coke chem. solvent). Lucile S. Davison

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19721671

1/2 005 UNCLASSIFIED PROCESSING DATE--20NOV70
 TITLE--NUMERICAL METHOD FOR THE SOLUTION OF SOME PROBLEMS ON OCEAN
 CIRCULATION -U-
 AUTHOR--KCCHERGIN, V.P. *K*
 COUNTRY OF INFO--USSR
 SOURCE--METEOROLOGGIYA I GIDROLOGIYA, 1970, NR 5, PP 67-75
 DATE PUBLISHED-----70
 SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
 TOPIC TAGS--OCEAN DYNAMICS, OCEAN CIRCULATION
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3005/0089 STEP NO--UR/0050/70/000/005/0067/0075
 CIRC ACCESSION NO--AP0132382
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 005

CIRC ACCESSION NO--AP0132382
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A METHOD OF NUMERICAL CONVERSION OF APPROPRIATE OPERATOR IS SUGGESTED FOR THE SOLUTION OF A PROBLEM ON OCEAN DYNAMICS. AS DISTINCT FROM PAPERS (1, 6, 8), AND IN CONNECTION WITH THE ABOVE THE DEPENDENCE OF COEFFICIENT OF TURBULENCE DIFFUSION ON THE DEPTH IS EASILY ACCOUNTED. COMPARISON OF NUMERICAL AND ANALYTICAL METHODS IS GIVEN.

FACILITY: VYCHISLITEL'NIY TSENTR SIBIRSKOGO

OTD. AN SSSR.

UNCLASSIFIED

USSR

UDC: 620.193.43

K
KOCHERGIN, V. P., BOCHKAREVA, N. N., and YARYSHEVA, I. A., Ural State
University imeni A. M. Gor'kiy

"Corrosion and Stationary Potentials of Carbon Steel in Molten Sodium,
Potassium, and Calcium Chlorides"

Moscow, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 457-459

Abstract: Molten sodium, potassium, and calcium chlorides are widely used on heat treating lines for steel parts; however the data on carbon steel corrosion in these media are far from adequate. The effect of the carbon content in the steel on corrosion rate has so far been studied only in aqueous solutions, and sometimes with conflicting conclusions. A curve reflecting the relationship between the stationary potential and the mean corrosion rate of U7 steel in molten KCl at 850°C shows that a higher carbon content shifts the stationary potential first to negative and then

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KOCHERGIN, V. P., et al, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70, pp 457-459

to positive values with the mean corrosion rate passing through the maximum. A corresponding curve for the eutectic mixture CaCl_2 -NaCl at 575°C is the exact opposite. In both cases an increase in the mean corrosion rate corresponds to the shift of the stationary potential to negative values. The above effect of carbon is related to changes in the structure of the steel. At 850°C with up to 0.2% C, the steel comprises ferrite and austenite; within 0.7--1.2% C, -- austenite and secondary cementite. Carbon steels containing austenite feature a lower corrosion resistance in molten KCl at 850°C . Addition of more than 0.2% NaOH to molten KCl moves the stationary potential to positive values even more intensively. The opposite change in the potential is observed by adding KCl to the eutectic mixture CaCl_2 -NaCl at 575°C . The obtained data on the effect of NaCl, KCl, and CaCl_2 on the stationary potential of U7 steel agree well with those obtained by other researchers in determining the potentials of beryllium, zirconium, and titanium in molten halides of alkali and alkali-earth metals.

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- 18 -

Acc. Nr.: AP0044049

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Ref. Code: UR0387
JPRS 52052

Nature of the East Kurile Magnetic Anomaly

(Abstract: "Nature of the East Kurile Magnetic Anomaly," by I. K. Tuyezev, M. L. Krasnyy, O. A. Solov'yev and Ye. V. Kochergin, Sakhalin Multi-Discipline Scientific Research Institute; MOSCOW, Izvestiya Akademii Nauk SSSR, Fizika Zemli, No. 1, 1970, pp. 90-93)

The east Kurile regional anomaly stands out clearly in the regional field obtained by analytical continuation of the anomalies of the Okhotsk-Kurile region into the upper half-space at the levels 12.5, 25 and 40 km. This anomaly extends for more than 1,500 km along the Kurile-Kamchatkan island arc and for a distance of 50-100 km to the east of it. Its axis is situated between the island arc and the abyssal trench. The northern part of the observed anomaly is about 300 km wide at an altitude of 12.5 km; in the south it is about 150 km wide. On the west it joins the anomalies of the Sea of Okhotsk and on the east it adjoins the sign-variable field of the Pacific Ocean. A comparison of the map of regional magnetic anomalies with seismic deep seismic sounding cross sections shows a rather good correlation between the intensity of the regional magnetic anomaly and the thickness of the basalt layer. In the Kurile-Kamchatkan island

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arc the thickness of the granite layer is generally insignificant and therefore it is entirely natural to assume that the regional magnetic anomaly is caused by the behavior of the upper and lower boundaries of the basalt layer. Computations were made for determining the quantitative relationships between deep seismic sounding cross sections and magnetic anomalies scaled to an altitude of 25 km. The computations revealed a good agreement between the computed T values from the basalt layer and the regional anomaly. The computations prove that the regional east Kurile magnetic anomaly is caused for the most part by the magnetic properties, thickness and depth of the basalt layer.

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UDC 539.3:534.1

KOCHERGIN, Yu. G., FAKEYEV, N. P., ALESHIN, N. N.

"Experimental Study of Vibrations of Foundations Joined by a Reinforced Concrete Plate"

V sb. Issled. po stroit. konstruktsiyam (Studies in Structural Designs -- Collection of Works), Tomsk, Tomsk University, 1972, pp 66-77 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V238)

Translation: The results of experimental studies on vibrations of foundations of pillars after their ends are joined by reinforced concrete plates are discussed. The reason for initiating the study was to determine the extreme vibrations of foundations of pillars and building structures. The reason for these vibrations was irrigation of the area which brought on a drop in the rigidity of the foundation. It is noted that the joining of the pillar foundations by reinforced concrete plates did not give the expected results. The experimental data obtained require careful processing. O. V. Luzhin.

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USSR

UDC 620.193:[669.14:66.062.722.8]

KOCHERGINA, D. G., Candidate of Technical Sciences

"Corrosion of St. 3 Steel in Diethylene Glycol Solutions"

Moscow, Khimicheskoye i Neftyanoye Mashinostroyeniye, No 11, Nov 70,
pages 28-29

Abstract: The State Scientific Research and Planning Institute for Petroleum Machine Building has performed studies of the influence of concentration, temperature, and pH of diethylene glycol solutions on the corrosion of St. 3 steel. The tests were performed in thermostats at various temperatures (from 20°C to the boiling point). The tests lasted 96-100 hours. The values of effective activation energy were calculated. It was determined that if conditions are present in installations using diethylene glycol favoring acidification of the solution as a result of oxidation or decomposition of the diethylene glycol, increased corrosion of the equipment will result. Introduction of 0.3 g/l monoethanolamine sharply reduced corrosion in the vapor and liquid phases of a 90% solution of diethylene glycol and the liquid phase of a 60% solution of diethylene glycol.

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UDC 621.352.035.4

YUSHINA, L. D., KARPACHEV, S. V., and KOCHERGINA, I. V.


"Galvanic Elements with a Lithium Anode and Solid Electrolyte"

Sverdlovsk, In-t elektrokhemii UNTs AN SSSR (Sverdlovsk, Institute of Electrochemistry, Ural Scientific Center of the Academy of Sciences USSR), 1972, 5 pp

Manuscript at All-Union Institute of Scientific and Technical Information, No 4608-72 Dep, Jul 72 (from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom, No 23(II), 1972, Abstract No 23L187 Dep)

Translation: Halides of metals were used as cathodes in low-temperature galvanic cell with Li anode and solid electrolyte. The emf of such cells varied from 2.09 to 3.654 at 20[±] 2°C. Among all studied cathode materials the most promising were CuCl₂·2H₂O and WCl₆. The cell with WCl₆ cathode worked continuously for 336 hr, with an output of 15.5 μA/cm². The short-circuit current of this element was 32 μA/cm².

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1/2 018 UNCLASSIFIED PROCESSING DATE--300CT70
TITLE--CAPILLARY PERMEABILITY IN PATINETS WITH ATHEROSCLEROSIS AND
HYPERTENSIVE DISEASE -U-
AUTHOR-(02)-DZIZINSKIY, A.A., KCCHERGINA, T.K. 
CCOUNTRY OF INFO--USSR
SCURCE--VRACHEBNOYE DELG, 1970, NR 6, PP 15-18
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CAPILLARY, PERMEABILITY MEASUREMENT, ATHEROSCLEROSIS,
HYPERTENSION

CCNTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1906 STEP NO--UR/0475/70/000/006/0015/0018
CIRC ACCESSION NO--AP0129255
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129255

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW TEST IS PROPOSED ENABLING TO DETECT DECREASED PERMEABILITY OF BLOOD CAPILLARIES. PATIENTS WITH ATHEROSCLEROSIS AND HYPERTENSIVE DISEASE SHOW ALREADY AT EARLY STAGES OF THE DISEASE A DECREASE OF THE ADAPTIVE POSSIBILITIES OF THE BLOOD CAPILLARIES. DISORDERS OF CAPILLARY PERMEABILITY ARE OF MAJOR SIGNIFICANCE IN THE PATHOGENESIS AND CLINICS OF THE ABOVE DISEASES AND THEREFORE A SEARCH FOR EFFICIENT METHODS OF THEIR TREATMENT IS NECESSARY. FACILITY: KAFEDRA FAKUL'TETSKOY TERAPII LECHEBNOGO I PEDIATRICHESKOGO FAKUL'TETOV NOVOSIBIRSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

UDC 621.352.1.035.151(088.8) |

PEVZNER, M. G., GRIGOR'YEV, V. V., LEONOV, O. V., KOCHERGINSKIY, M. D., CHUVPILO, A. V.

"[Small Battery]. Galvanic Battery"

USSR Author's Certificate No 276191, filed 16 Dec 66, published 29 Sep 70 (from RZh-Elektrotehnika i Energetika, No 5, May 1971, Abstract No 5A251P)

Translation: In order to simplify the assembly and improve the voltage of a small battery one end of the case, for example, the bottom is made concave and is supported on the open surface of the electrode with the current tap of the outside element. There is 1 illustration.

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- 129 -

USSR

UDC: 621.374.33(088.8)

KOCHERKEVICH, S. S.

"A Switching Device"

USSR Author's Certificate No 263673, filed 30 Sep 68, published 1 Jul 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G265 P)

Translation: This Author's Certificate introduces a switching device which contains an amplifier based on two transistors connected in a circuit with common emitter and common base, a stage based on a transistor operating in the switching mode, and a semiconductor diode. To increase the attenuation factor in the switched-off state, the amplifier output is connected to the cathode of the semiconductor diode and to the collector of the transistor operating in the switching mode, the bases of this transistor and that in the common emitter circuit being connected through resistors to the controlling input.

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1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--INTERFACIAL PHENOMENA ON A SILVER BROMIDE SURFACE AND THE PROCESS
OF PHOTOGRAPHIC DEVELOPMENT -U-
AUTHOR--KUCHEROV, N.P.
COUNTRY OF INFO--USSR *K*
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1136-9 (PHYS CHEM)
DATE PUBLISHED-----70
SUBJECT AREAS--METHODS AND EQUIPMENT
TOPIC TAGS--SILVER COMPOUND, BROMIDE, PHOTOGRAPHY, CHARGE EXCHANGE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--300 1/0544 STEP NO--UR/0020/70/190/005/1136/1139
CIRC ACCESSION NO--AT0126291
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0126291

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELEMENTARY PROCESSES OF CHARGE EXCHANGE TAKING PLACE AT THE INTERFACE OF AGBR AND DEVELOPING SOLNS. DEPEND ON THE LOCATION OF THE ELECTRON LEVELS OF BOTH OXIDIZED AND REDUCED FORMS OF AN OXIDN. REDN. SYSTEM WHICH HAD BEEN INCORPORATED IN THE DEVELOPING SOLN. THE CORRELATION OF THE NO. OF ELECTRON TRANSITIONS TO VACANT LEVELS AND INTO THE CONDUCTION BAND WAS DETD. UNDER CERTAIN CONDITIONS, SEVERAL ELECTROCHEM. REACTIONS TAKE PLACE AT THE SAME TIME ON AG PARTICLES. THESE COMBINE TO PRODUCE THE TOTAL POTENTIAL ON THE AG PARTICLE. FACILITY: RADIEVYI INST. IM. KHLOPINA, LENINGRAD, USSR.

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UDC 621.357.7:669.387:669.3-416

USSR

GOLOVINA, YE. S., KOGHEROVA, A. V., KOROTKOVA, T. S., BUVHINSKAYA, A. V.,
BONDAREV, V. V., and MALININA, I. G., State Scientific Studies and Design
Institute for Alloys and the Processing of Light Metals

"Electrochemical Process for the Treatment of the Surface a Copper Foil"

Author's Certificate No 338558, filed 16 Jul 70, published 9 Jun 72 (from
Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L299P)

Translation: An electrochemical process is patented for the treatment of the
surface of copper foil during the preparation of foil-containing dielectrics.
This includes the galvanic deposition on the surface of a layer of copper-
cuprous oxide from a copper plating electrode. It is improved in that in
order to increase the strength of the bond between the foil and the dielectric,
the surface is additionally treated cathodically in a solution containing
10-70 g/liter of an alkali metal dichromate. For example, on the surface of
a copper foil a microbuffing layer of copper oxide is deposited galvanically
from a solution containing in g/liter: $\text{CuSO}_4, 100$; $\text{H}_2\text{SO}_4, 75$; $\text{NaCl}, 0.058$; and
gelatin; 0.050 -1.000. The process is performed using a D_x of 8 -10 amps/dm²,
a temperature of 20 - 23°C for 0.5 -1.0 minutes. The anode is lead. After
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GOLOVINA, YE. S., et al., Author's Certificate No 338558, filed 16 Jul 70,
published 9 Jun 72

rinsing with running the surface of the foil is supplementarily treated
cathodically in a 7% solution of potassium dichromate at a D_k of 1 - 2 amps/dm²
and a temperature of 20° for 30 seconds. Then the foil is washed in running
water and dried carefully, either by hot air or in a thermostat of 60 - 70°.

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- 19 -

Acc. Nr:

AP0052506

Abstracting Service:

CHEMICAL ABST. 5-70

Ref. Code:

UR 0460

V.V. KOCHERVINSKIY

101319c Empirical principles of thermal molecular motion in polymers. Roshchupkin, V. P.; Kochervinskii, V. V. (Filial Inst. Khim Fiz., Chernogolovka, USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(1), 41-3 (Russ). The thermal coeff. (ν_0) and the activation energy (E) of thermal mol. motion were detd. for a no. of polymers [(e.g., poly(alkylene oxides), natural rubber, and polyethylene) by dielec. relaxation and NMR to be $\log \nu_0 = 4.7 + 0.94 E$. When $E = 0$, i.e., thermal motion having no activation energy had $\leq 10^8$ Hz frequency and consisted of phonons. The linearity of the equation was due to the additivity of entropy and the heat of activation of groups of atoms. The difference between the relative positions of the polymer in the equation $\log \nu_0 = A + BE$ gave a qual. indication of the degree of cooperation of mol. motion. A and B were coeffs. detd. for each polymer. CKJR

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GINZBURG, I. P., KOCHERYZHENKOV, G. V., MATVEYEV, S. K.

"Semi-empirical Methods of Calculating Turbulent Boundary Layers"

Teplo. i Massoperenos. T. 1. [Heat and Mass Transfer, Vol 1 -- Collection of Works], Minsk, 1972, pp 65-74, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 B730, by P. P. Vorotnikov).

Translation: Results are analyzed of numerical calculations of a turbulent boundary layer, in which various rules of change of path length of displacement across the boundary layer were tested. According to these calculations, the velocity profiles in the boundary layer constructed in coordinates u/u_* , yv/γ_* are independent of the Reynolds number near the wall and in the buffer area. In the outer portion of the boundary layer, the velocity profiles do not depend on the Reynolds number if constructed in coordinates y/δ , $(u - u_e)/v_*$. In the last case, the form of the theoretical curve is determined to a great extent by the hypothesis used for the length of the displacement path. A curve calculated using the following formula for displacement path length agrees best with experimental results:

$$\frac{l}{\delta} = \begin{cases} k \frac{y}{\delta}, & \text{if } y_a < y < \frac{\lambda\delta}{k} \\ \lambda, & \text{if } \frac{\lambda\delta}{k} < y < \delta \end{cases}$$

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