

USSR

PRINTSIY I OSTROYNIYA I IROYETIROVANIYA SAMONASTRAIVANUSHCHENSKAYA SISTEM  
UPRAVLENIYA (Principles of Building and Planning Adaptive Control Systems),  
Petrov, Rutkovskiy, Krutova and Zemlyakov, Moscow, 1972, 260 IF

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UDC: None

KOBZEV, A. P., MIKHAIYAK, S., RUTKOVSKI, Ye., and FRANK, I. M.  
"Optical Radiation Excited by Nonrelativistic, Charged Particles  
on Metal Surfaces"

Moscow, Yadernaya Fizika, vol 15, No 2, 1972, pp 326-333

Abstract: The phenomenon of radiation in the visible and ultra-violet ranges of the spectrum from metal surfaces excited by charged particles has been observed in experiments in which silver, gold, and aluminum targets were bombarded by protons with energies of up to 4.5 Mev, with the radiation observed at an angle of 86° with the normal to the target surface. These results were found to be in agreement with the theory of transitional radiation. The purpose of the present article is to obtain additional arguments for the detection of transitional radiation by comparing measurements made in bombarding the same targets with protons and electrons. The measurements were made using protons at an energy level of 1.5-4.5 Mev, and electrons with levels of 0.5-15 kev. A description of the equipment is

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KOBZEV, A. P., et al., Yadernaya Fizika, Vol 15, No 2, 1972, pp 326-333

given together with an explanatory diagram, and the method of measurement is explained. The authors conclude that their experiments provide additional proof of the usefulness of the transitional radiation theory.

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1/2 011

TITLE--RESISTANCE OF GROG, DINAS. AND SILICEOUS REFRACTORIES TO THE ACTION  
OF BASIC OPEN HEARTH SLAGS -U-  
AUTHOR--(03)--FLYAGIN, V.G., RUTMAN, D.S., PEREPELTSYN, V.A.

UNCLASSIFIED

PROCESSING DATE--16OCT70

COUNTRY OF INFO--USSR

SOURCE--OGNEUPORY 1970, 35(3), 32-7

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--OPEN HEARTH FURNACE, SLAG, REFRACTORY MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0871

STEP NO--UR/0131/70/035/003/0032/0037

CIRC ACCESSION NO--AP0118044

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118044

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESISTANCE OF DIFFERENT REFRACTORIES TO THE ACTION OF THE BASIC SLAG (SiO<sub>2</sub> 17.58, Al<sub>2</sub>O<sub>3</sub> 4.80, FeO 10.50, CaO 46.12, MgO 15.60, AND MnO 5.38PERCENT) WAS STUDIED. THE CONTENT OF 2CaO.SiO<sub>2</sub> DETD. BY PETROGRAPHIC ANAL. WAS 50PERCENT. THE SLAG RESISTANCES WERE EVALUATED ACCORDING TO THERMODYNAMIC CONSTS. OF INTERACTIONS OF REFRACTORIES WITH SLAGS AND ACCORDING TO SOLY. OF REFRACTORIES IN THE SLAG. THE SLAG RESISTIVITY OF SiO<sub>2</sub> AND MULLITE AS MAIN PHASES OF SILICEOUS AND Grog REFRACTORIES TO THE ACTION OF 2CaO.SiO<sub>2</sub> WAS CONSIDERED. THE CALCN. OF THE ISOBARIC POTENTIAL AND EQUIL. CONST. W/T WAS CARRIED OUT FOR VARIOUS REACTIONS AT 1400, 1500, AND 1600DEGREE. THE EQUIL. CONST. K WAS CALCD. ACCORDING TO THE FORMULA  $\log K = \frac{\Delta F}{RT}$  (DELTA F T DEGREES-4.575T), WHERE DELTA F DEGREES IS THE ISOBARIC ISOTHERMAL POTENTIAL, AND T IS TEMP. OF REACTION. FOR THE REACTION CORRESPONDING TO FORMATION OF ANORTHITE AND CORUNDUM THE MAX. DELTA F DEGREES WAS FOUND. THEREFORE, ACCORDING TO THERMODYNAMIC CALCNS., SiO<sub>2</sub> IS MORE STABLE THAN MULLITE TO THE ACTION OF BASIC SLAGS. EXPTL. THE SLAG RESISTANCE OF THE DINAS, SILICEOUS, AND Grog REFRACTORIES WAS DETD. BY THE CRUCIBLE METHOD (D. N. POLUBOYARINOV, 1952). CRUCIBLES WERE HEATED TO 1500DEGREES WITH TEMP. INCREASE 250DEGREES-HR. THE DEGREE OF SOLY. OF CRUCIBLES IN THE SLAG WAS DETD. CHEM. THE Grog REFRACTORIES SHOW A LOW SLAG RESISTANCE. A HIGHRESISTANCE OF SILICEOUS REFRACTORIES IS CONDITIONED BY THE PRESENCE OF CRISTOBALITE IN THE PHASE COMPH. FACILITY: VOST. INST. OGNEUPOR., SVERDLOVSK, USSR.

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R  
FLYAGIN, V. G., RUTMAN, D. S., PEREPELTSYN, V. A.

"Stability of Chamotte, Dinas, and Silica Refractories to the Action of Basic Open-Hearth Slags"

Moscow, Ogneupory, No 3, Mar 70, pp 32-37

Abstract: On the basis of the positive experience of the usage of semiacid bucket brick and silica rammed lining masses, the authors studied the slag resistance of chamotte, dinas, and silica refractories when exposed to basic open-hearth slag of the composition: 17.58% SiO<sub>2</sub>, 4.80% Al<sub>2</sub>O<sub>3</sub>, 10.50% FeO, 46.12% CaO, 15.5% MgO, and 5.38% MnO. The thermodynamic parameters of the reaction between the refractory and the slag were calculated. Thermodynamic calculations showed that silica is apparently more resistant than mullite to the influence of basic slags rich in calcium silicate. The slag resistance of dinas, silica, and chamotte refractories was determined by measuring the concentration of the refractory in the slag melt by the crucible method. The zones of contact of slag and crucible were also studied microscopically. It was concluded that the increase slag resistance

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G., et al., Ogneupory, No 3, Mar 70, pp 32-37

of silica refractories in comparison with chamotte refractories is not only a result of the nature of the material, but also its capability for disintegration, related to the polymorphic conversions of quartz upon heating. Lower disintegration of products and higher slag resistance can be achieved by using roasted quartzite. However, this approach is not technologically suitable. Disintegration can be greatly decreased if the refractory contains 3-7% aluminophosphate binder, giving the product high density and strength.

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UDC 621.777.07.001.5

GUN, G. Ya., POLUKHIN, P. I., RUTMAN, G. G., SKUGAREV, V. I., and KOSYREV, V. K.

"An Experimental Investigation of the Speeds of Effusion During Pressing in Two-Channel Dies"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 208-211

Translation: While developing the optimal design of pressing dies, it was necessary to make a series of experiments to analyze the kinematic conditions of the process. In this work, the influence of the ratio of the areas and shape of orifices in a flat two-channel die on the exit speed of sections being pressed is studied. A method is developed for measuring the speeds of metal effusion. The results obtained are evidence of the slight influence of section shapes on the nature of change in the speed as a function of the ratio of their section areas. A significant difference in metal effusion manifests itself where the ratio of areas is greater than two. Four figures and one bibliographic entry.

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USSR

UDC 621.314.58

KROGERIS, A.F., RUTMANIS, L.A., DREYMANIS, YA. P.

"Determination Of The Number Of Switchings Of Power Elements Of A Converter With Various Methods Of Frequency Conversion"

V sb. Poluprovodniki i ikh primeneniye v elektrotekhn. (Semiconductors And Their Application In Electrical Engineering--Collection Of Works), No 4, Riga, "Zinatne," 1970, pp 187-202 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B454)

Translation: A method is given for determining by analytical and graphic means the number of switchings of power elements with various methods of frequency conversion; the method is characterized by a composite function for determination of the moments of commutation. The possibility is shown of decreasing the number of switchings in the event of the use of any existing instantaneous values of the input voltages for formation of the output voltage of the converter. 5 ill. 1 tab. 3 ref. I.R.

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USSR

RUTMAN, I. M.

"One-Dimensional Search for Certain Nonunimodal Functions"

Zavodsk. laboratoriya [Plant Laboratory], 1973, 39, No 3, pp 315-317  
(Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V255 by the author)

Translation: The search for the optimum for functions of one variable consisting of a monotonic sector and a constant sector is studied, the optimum being considered the point of separation of the sectors. An a priori criterion for evaluation of search effectiveness is selected, optimal strategies are presented for passive and sequential search. The possibility is shown of accelerating sequential search for certain functions.

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Acc. Nr:

AP0052077

Ref. Code: UR0475

PRIMARY SOURCE: Vrachebnoye Delo, '1970, Nr 2, pp 101-104

STATE OF THE DIGESTIVE ORGANS IN WORKERS OF THE PHENOPLAST AND AMINOPLAST PRESSPOWDER PRODUCTION

A. I. Kleyner, L. P. Rutshteyn, M. B. Poretskaya, S. S. Kangelari

Results indicate that persons working in the production of phenoplast and amino-plast presspowders and articles made of them show a more frequent incidence of chronic gastritis with preserved secretion, mainly functional disorders of external secretion of the pancreas and liver.

Hygienic measures are suggested.

REEL/FRA  
ME 19820615

USSR,

UDC 535.376

REBANE, K. -S. K., RUPTAS, V. I.

"Thermally Stimulated Luminescence and Stimulation of Infrared by the Light of ZnS-CI Phosphores"

Minsk, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 15, No 4, Oct 71, pp 647-652

Abstract: A study is made of the effect of the quantity of NaCl in a sample and the effect of preliminary heating of ZnS powder in hydrogen. With increase in NaCl content, the fundamental thermally stimulated luminescence (TSL) bands at 160°K are broadened and shifted toward lower temperatures. New peaks are also seen. In the region of 100 to 150°K the TSL intensity increases by one order (max) when the NaCl content is raised from 1 to 5%. New bands appear in the TSL curve with prior heating of the ZnS powder in hydrogen.

Spectra were taken of ir-stimulated luminescence at liquid nitrogen temperature. The concentration of NaCl does not essentially

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REBANE, K. -S. K. et al, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 15, No 4, Oct 71, pp. 647-652

alter the shape of the curve but does affect the excitation of the bands. Intense blue and green emission bands are seen in the hydrogen-treated samples.

A series of phosphore samples were heated in hydrogen at 100° intervals from 400 to 1100°C. The intensity of stationary luminescence and the coefficient of ir extinction in the 800° sample was 4 to 5 times greater than for the other samples. The best ZnS-NaCl sample at 77°K near the 1-ev band is about 2 orders more effective than ZnS-CuCl or SnS-CeSm. It is suggested that the bands at 1.1 and 1.4 ev are due to the escape of electrons from centers consisting of various associations of different lattice defects.

Orig. art. has 6 figs. and 15 refs.

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1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--DETERMINATION OF THE QUANTITY OF MECHANICAL IMPURITIES IN ADDITIVES  
AND OILS -U-  
AUTHOR-(03)-BLAGOVIDOV, I.F., VSELYUBSKIY, S.B., RUTTER, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (3), 10-12  
DATE PUBLISHED-----70

R

SUBJECT AREAS--CHEMISTRY, MATERIALS, PROPULSION AND FUELS

TOPIC TAGS--GASOLINE, TECHNICAL STANDARD, TEST METHOD, QUANTITATIVE  
ANALYSIS, LUBRICATING OIL, LUBRICANT ADDITIVE, FILTRATION/(U)GOST 637059  
LUBRICANT STANDARD, (U)GOST 1227566 LUBRICANT STANDARD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1515

STEP NO--UR/0318/70/000/003/0010/0012

CIRC ACCESSION NO--AP0118502

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118502

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETN. BY GOST 12275-66 OF MECH. IMPURITIES IN OILS CONTG. AND LACKING ADDITIVES WAS ACCURATE ACCORDING TO ELECTRON MICROGRAPHS OF THE PPTS. AND EVAPD. FILTRATES WHEN THE OIL AND ADDITIVE WERE REMOVED FROM THE RESIDUE ON THE NO. 4 NITROCELLULOSE MEMBRANE FILTER (PORE SIZE 0.9 MU) BY WASHING IT 3 TIMES WITH 30 ML PORTIONS OF KALOSH GASOLINE. DETNS. BY GOST 6370-59 WERE INACCURATE.

UNCLASSIFIED

172 018 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--PREPARATION OF AGGREGATE FROM A METALLURGICAL SLAG -U-  
AUTHOR--(04)-YAKUNIN, O.A., LAPINA, V., RUTUS, M.V., LIKHTERMAN, YA.N.  
COUNTRY OF INFO--USSR R  
SOURCE--U.S.S.R. 267,438  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--01APR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METALLURGIC SLAG, METAL CRYSTALLIZATION, METAL INCLUSION,  
METAL COOLING, METAL INGOT, METALLURGIC PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3003/1072

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130107

UNCLASSIFIED



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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0130107

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AGGREGATE WAS OBTAINED FROM METALLURGICAL SLAG BY CRYSTG. THE SLAG MELT AND COOLING THE HARDENED SLAG WITH WATER. TO GUARANTEE THE INCREASED RECOVERY OF METALLIC INCLUSIONS FROM THE SLAG, SOLIDIFICATION OF THE SLAG MELT TOOK PLACE IN BULK AND THE HARDENED INGOT WAS SUBMERGED IN WATER TO BE COOLED, PRIOR TO BREAKUP INTO AGGREGATE. FACILITY: STATE ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF HIGHWAYS.

UNCLASSIFIED

AA0040723 - Rutus, m.v.

UR 0482

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

242339 MOLTEN METAL VESSEL WEIGHER where the vessel (1) is on hydraulic rams (2) coupled to a portioner (4) and rod (5), the line between this and the ram (6) including the weigher pickup (7). With the ram (6) on power it moves the rod (5) to a fixed end position. Medium from the portioner floods along the lines (3) to the lifting rams (2) which raise the vessel and contents into the weighing position. Force equal to the weight of the vessel and metal is transmitted via the rams, lines and medium and the rod onto the power ram (6): this holds the vessel and is fixed by the pick up which indicates the weight.

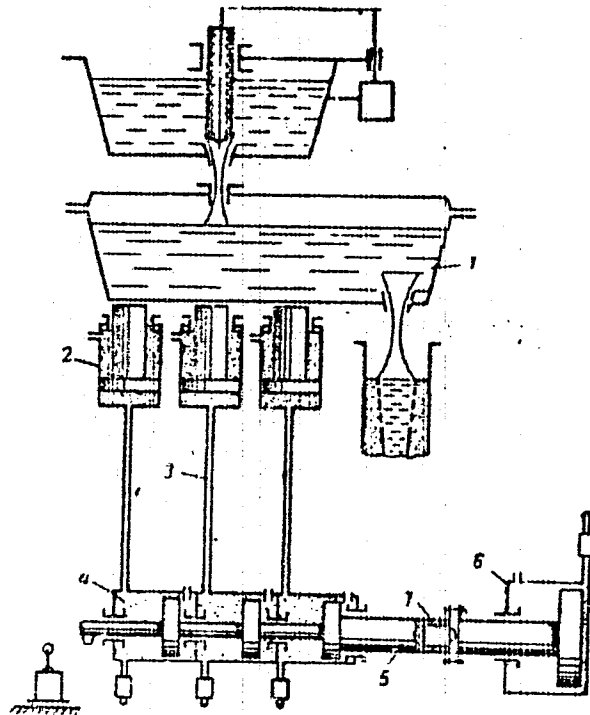
9.6.66 as 1081433/22-2. ZHIDOVINOV, V.A. et al. METAL PLANT PLANNING INST. (8.9.69) Bul 15/25.4.69. Class 31b2r. Int.Cl.B 22d.

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19750368

AA0040723



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D

AA0040723

AUTHORS: Zhidovinov, V. A.; Likhterman, Ya. N.; Margolin, Sh. M.;  
and Rutus, M. V.

Gosudarstvennyy Soyuznyy Institut po Proyektirovaniyu  
Metallurgicheskikh Zavodov

19750370

USSR

UDC 612.314.58(088.8)

IVANCHUK, B. N., KOLOSKOV, I. I., and RUVINOV, B. Ya.

"D-C Voltage Regulation"

USSR Author's Certificate No 274215, filed 18 June 69, published 29 Sep 70  
(from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No  
5B444P)

Translation: A voltage regulator contains a principal thyristor and a linear reactor with a tap, connected in series with the power supply into the load circuit. A commutating capacitor is connected between the midpoint of the linear reactor and the other terminal of the power supply. A capacitor is shunted by a semiconductor diode connected opposite to the effective polarity. It is proposed to connect an auxiliary thyristor parallel to the load, during operation of which the load circuit is short circuited and during which the capacitor discharge current flowing across the linear reactor produces a voltage locking the principal thyristor. 1 ill. A.S.

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USSR

UDC 539.374

CHIKIDOVSKIY, V. P., RUVINSKAYA, L. L.

"Study of Factors Effecting the Deformation of a Membrane"

V sb. Inzh. metody rascheta plastich. obrabotki met. (Engineering Methods for Calculating the Plastic Working of Metals -- Collection of Works), Tallin, 1971, pp 241-251 (from RZh-Mekhanika, No 12, Dec 71, Abstract No 12V620)

Translation: The effect of the mechanical properties of a material, the deformation conditions, and the structure of the material on the deformation of sheet blanks subjected to biaxial stretching is studied. The mechanical properties were determined from tests on the uniaxial stretching of membranes of L62 brass and 1Kh18N9T steel. The nature of the distribution of the intensity of deformations along the generating line of the membrane was investigated upon the deformation of membranes of these materials; also investigated was the effect of load conditions on the intensity of the deformed state and breakdown. The experimental results under static and pulsed loads are compared. The behavior of the dies of steel in the limiting case is identical both under static and under pulsed load and the behavior of brass membranes was different.

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USSR

CHIKIDOVSKIY, V. P., RUVINSKAYA, L. L., Inzh. metody rascheta plastich. obrabotki met., Tallin, 1971, pp 241-251

Values are given for the limiting values of the deformation obtained under various stress states and rates of deformation on an Erickson instrument. Approximating relationships are constructed which give good agreement with experiment. Structural changes in the material occurring in the deformation process are studied. K. Soonets.

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USSR

UDC 654.924.5

BARANOV, S. I., MROZOV, B. V., and RUVINSKIY, B. I.

"An Integrated MDS Microcircuit"

Moscow, Otkrytiya, izobreteniya, promyshlennyye ohratzsy, tovarnyye znaki, No 22, Aug 71, Author's Certificate No 369459, Division H, filed 1 Jun 70, published 9 Jul 71, p 215

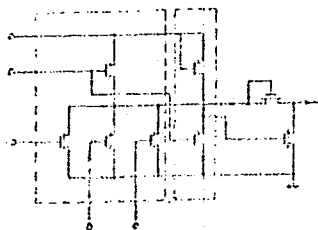
Translation: This Author's Certificate introduces an integrated MDS microcircuit which contains an input element and an inverter. As a distinguishing feature of the patent, functional possibilities are extended without increasing the number of external leads by incorporating into the microcircuit an additional stage based on two MDS transistors in which the source and gate of one transistor are connected to the output of the input element, the gate of the other transistor is connected through the inverter to the input of the input element, and the source is grounded. The sinks of both transistors are connected to the output of the input element.

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BARANOV, S. I., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 22, Aug 71, Author's Certificate No 309459, Division H, filed 1 Jun 70, published 9 Jul 71, p 215.



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USSR

UDC 621.351.035.2(088.8)

KREYNIN, M. N., RUVINSKIY, L. G., ADAMYAN, R. G.

"Device for Manufacture of Electrodes of Chemical Current Sources"

USSR Author's Certificate No 298975, Filed 18/12/69, Published 3/05/71,  
(Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No  
3 L248 P by V. S. Levinson).

Translation: As a supplement to USSR Author's Certificate No 204404 (see  
RZhKhim, 1970, 23L231), tableting and pressing units, devices for the manu-  
facture of electrodes are equipped with nonmoving rollers installed on  
sliders, connected by rubber compensators, while rubber balloons filled with  
oil under pressure are placed in the end cavities of the nuts. This in-  
creases the productivity and improves the reliability of the device.

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Acc. Nr: **AA0108725**

Abstracting Service: *R*

Ref. Code:

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3/70

242991 MACHINE FOR FIXING SEPARATING MATERIAL TO ELECTRODES of chemical cells has each welding unit in the machine fitted with an electrical cutter at the sides of which are spring-loaded catches which press the separating material (in tape form) to the edges of a longitudinal slot - in a supporting plate. The feed-in mechanism for the separation material takes the form of a shaped template for tensioning the welded butt joint of two strips of separation material. In slots of this template operate, with reciprocating motion, the shaped clamps of the transporter which transfers the electrodes and separation material to the welding unit. 15.3.68. as 1225550/24-7, RUVINSKII, L.G. KREININ, M.N. POLYANIN, V. Ya. et al (25.9.69) Bul. 16/5.5.69. Class 21b, Int. Cl. H 01m. )

AUTHORS: Ruvinskiy, L. G.; Kreyenin, M. N.; Polyanin, V. Ya.;  
Adamyari, R. G.; Manukhin, S. V.; Gurushkin, V. V.

REEL/FRAME

19900504

18 *BS*

RUVINSKIY, M.A.

SPRS  
1968  
6-72

III-10. PROCEDURE FOR OBTAINING AND PHOTOELECTRIC PROPERTIES OF SOLID SOLUTIONS OF ZN-CdTe

Article by G. M. Gilegorovich, M. A. Ruvinskii, Ivanov-Frankovsk, Drogobychi  
Kosovskii, III Sbornik po Fotoelektr. i opt. Poluprovodnikovyi  
Katalizator, Kievsk. 12-17 June, 1972, p 31

Solid solutions of Zn-CdTe were grown by two different methods — the Bridgman method and the vapor-gas phase method. The p-type single crystals obtained had high photoconductivity. The subsequent heat treatment in Zn and Cd vapor had a significant effect on the electrical conductivity of the specimens. In the highly resistant crystals of Zn<sub>0.99</sub>Cd<sub>0.01</sub>Te (x = 0.99, 0.99, 0.99 and 0.99), the negative photoconductivity was detected at room temperatures. The special procedure was developed for obtaining specimens with negative photoconductivity. Studies were made of the stationary and the kinetic characteristics of the positive and negative photoconductivity. The variation in photoelectric properties was investigated as a function of the crystal composition and the method of obtaining them.

The interpretation of the negative photoconductivity is based on the mechanism of decreasing the mobility in the simple-recombination model of the p-type crystal with two effective deep levels of adhesion for the electrons and holes respectively. The nature of these levels was discussed. It is proposed that they are connected with the natural structural defects of the crystals.

USSR

UDC 621.315.592

GRIGOROVICH, G. M., RUVINSKIY, M. A.

"Electrical Instability in Negative Photoconductivity"

Tomsk, Izvestiya VUZ -- Fizika, No 1, 1972, pp 137-138

Abstract: Negative conductivity, in this brief communication, is defined as the condition in photoconductivity in which the current when the photoconductive device is illuminated is less than the current flowing when the device is in darkness. This communication shows that under this condition, in the natural excitation of the photoconductive crystal, an instability may appear which is closely connected to the mechanism of stationary negative conductivity and which disappears when the transition to positive photoconductivity is made. The authors, connected with the I. Franko Pedagogical Institute of Drogobych, find that it is possible to have unattenuated photocurrent oscillations when some threshold value of the field and of the light intensity is reached, and they assert that it has actually been observed in high-resistance p-type ZnTe-CdTe crystals in negative photoconductivity situations.

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1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--NEGATIVE PHOTOCONDUCTIVITY DURING THE INTRINSIC AND IMPURITY  
EXCITATION OF ZINC TELLURIDE CADMIUM TELLURIDE -U-  
AUTHOR--(02)-GRIGOROVICH, G.M., RUVINSKIY, M.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 355-6

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PHOTOCONDUCTIVITY, SINGLE CRYSTAL PROPERTY, CADMIUM TELLURIDE,  
ZINC TELLURIDE, SEMICONDUCTOR BAND STRUCTURE, LIGHT EXCITATION,  
RADIATION INTENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0096

STEP NO--UR/0449/70/004/002/0355/0356

CIRC ACCESSION NO--AP0105182

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105182

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHOTOCOND., SIGMA SUBPH, IN IN P TYPE ZNTE-CDTE SINGLE CRYSTALS CONTG. 47PERCENT ZNTE WAS STUDIED AT ROOM TEMP. THE POSITIONS OF PEAKS AND EDGES ON THE SPECTRAL CHARACTERISTICS OF NEG. AND POS. SIGMA SUBPH COINCIDE WITH ONE ANOTHER IN INTRINSIC AND ALSO IN IMPURITY REGIONS. THE M LEVEL, SIMILAR TO 1.08 EV FROM THE VALENCE BAND TOP, PLAYS AN IMPORTANT ROLE IN ORIGIN OF THE NEG. SIGMA SUBPH AS WELL AS IN IR QUENCHING OF THE INTRINSIC POS. AND NEG. SIGMA SUBPH. THE IR QUENCHING OF SIGMA SUBPH IS CONNECTED WITH OPTICAL EXCITATION OF ELECTRONS FROM M CENTERS. THE DEPENDENCES OF PHOTOCURRENT ON LIGHT INTENSITY FOR PEAKS OF NEG. SIGMA SUBPH DURING THE INTRINSIC AND IMPURITY EXCITATION ARE NONLINEAR AND HAVE ANALOGOUS CHARACTER. THIS ANALOGY IS POSSIBLE ONLY BY SUPPOSING M LEVELS TO BE SINGLE TRAPPING LEVELS. FACILITY: DROGOBYCH. PEDAGOG. INST. IN. FRANKO, DROGOBYCH, USSR.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EXCITON ATTENUATION OF HYPERSOUND IN A STRONG MAGNETIC FIELD -U-

AUTHOR--(02)--RUVINSKIY, M.A., GLAUBERMAN, A.E.

COUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 37, NR 1, PP 95-99

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EXCITON, STRONG MAGNETIC FIELD, ULTRASONIC ABSORPTION,  
ACOUSTIC WAVE, PIEZOELECTRIC MATERIAL, SEMICONDUCTOR PROPERTY, ELECTRON  
PHONON INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1989/1083

STEP NO--GE/0030/70/037/001/0095/0099

CIRC ACCESSION NO--AP0107592

UNCLASSIFIED



2/2 031

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0107592

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN INVESTIGATION IS MADE OF THE ATTENUATION OF HYPERSOUND BY WANNIER-MOTT EXCITONS IN A STRONG MAGNETIC FIELD WHEN THE DISTANCE BETWEEN THE LANDAU ZONES EXCEEDS THE CHARACTERISTIC COULOMB ENERGY AND THE HYPERSONIC WAVE PROPAGATES PERPENDICULARLY TO THE MAGNETIC FIELD DIRECTION IN SEMICONDUCTORS WITH PIEZOELECTRIC AND DEFORMATIONAL ELECTRON PHONON INTERACTIONS. IT IS ALSO COMPARED WITH THE ATTENUATION OF HYPERSOUND BY THE FREE ELECTRONS AND HOLES IN THE STRONG MAGNETIC FIELD. FACILITY: PHYSICS RESEARCH INSTITUTE, ODESSA STATE UNIVERSITY.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--INTENSITY OF SPREADING OF DIPHTHERIAL BACTERIOCARRIER IN RELATION  
TO CONDITIONS AND DURATION OF POPULATION COMMUNICATION -U-  
AUTHOR--(03)--KHISAMUTDINOV, A.G., RUZAL, G.I., MUKHUTDINOV, I.A.

COUNTRY OF INFO--USSR

SOURCE--KAZAN MED ZH 1. 52-53. 1970

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIPHTHERIA, DISEASE INCIDENCE, DISEASE CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605014/C07 STEP NO--UR/0392/70/001/000/0052/0053

CIRC ACCESSION NO--APC140477

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11DEC70

2/2 017

CIRC ACCESSION NO--AP0140477

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

ABSTRACT, SPREADING DIPHTHERIA BACILLI AMONG STUDENTS OF BOARDING AND REGULAR SCHOOLS WAS STUDIED. CONDITIONS AND DURATION OF COMMUNICATION OF THE POPULATION, DETERMINED BY THE TYPE OF SCHOOL, SHOWED DIRECT EFFECT ON SPREAD INTENSITY OF THE DIPHTHERIA PATHOGEN. DIPHTHERIA CIRCULATION WAS HIGHER AMONG THE STUDENTS OF BOARDING SCHOOLS, IN WHICH CLOSE AND PROLONGED CONTACT AND A COMMON DIET EXISTED.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--DEPENDENCE OF THE DURATION OF DIPHTHERIA CARRIER STATE UPON THE  
LEVEL OF ANTITOXIC IMMUNITY -U-  
AUTHOR-(02)-KHISAMUTDINOV, A.G., RUZAL, G.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5,  
PP 103-105  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--DIPHTHERIA, ANTITOXIN, IMMUNOLOGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1994/0162 STEP NO--UR/0016/70/000/005/0103/0105  
CIRC ACCESSION NO--AP0114558  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114558

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATIONSHIP OF THE DURATION OF DIPHTHERIA CARRIER STATE TO THE LEVEL OF ANTITOXIC IMMUNITY WAS STUDIED. THE DURATION OF THE CARRIER STATE PROVED TO BE IN REVERSE RELATIONSHIP TO THE IMMUNITY LEVEL, AND THE ACCEPTED "PROTECTIVE" TITRE HAD NO SIGNIFICANT EFFECT ON REDUCTION OF THE PERIODS OF CARRIER STATE. IT IS RECOMMENDED TO REVISE THE "PROTECTIVE" TITRE IN THE DIRECTION OF ITS INCREASE. FACILITY: KAZAN INSTITUT EPIDEMIOLOGII I MIKROBIOLOGII.

UNCLASSIFIED

USSR.

UDC 539.374

KOROTKIKH, YU. G., RUZANOV, A. I.

"Study of the Reaction of a Spherical Shell to Force and Thermal Shock"

Uch. zap. Gor'kov. un-t (Scientific Notes. Gor'kiy University), 1971, No. 134, pp 91-102 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V562)

Translation: Processes occurring in a spherical aluminum shell under a force impulse and thermal effects are investigated. An impulse external load of triangular shape distributed over the generatrix according to a cosine law is applied to the shell. The phenomenon of dynamic splitting off under the reflection of the compression shock wave from the inner surface was studied for this form of load. The potential strain energy of distortion was applied as a strength criterion. Two possible types of breakdown are indicated by the authors: splitting off caused by strong tensile stresses and a shift in the plane of maximum tangential stresses with subsequent plastic deformation. The direction of the crack arising for the first type of breakdown is determined and the behavior of the material with the crack is described in detail. Graphs are given showing the change in stresses in the meridional cross section in terms of angle and time. Next investigated was the stress-deformation state of a spherical shell caused by the action of a thermal shock

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USSR

KOROTKIKH, YU. G., RUZANOV, A. I., Uch. zap. Gor'kov. un-t, 1971, No. 134, pp 91-102

$$T = (T_0 + T_1 \cos \varphi) \left( 1 - e^{-\frac{t}{T_0 k}} \right)$$

where  $T_0$  and  $T_1$  are constants,  $t$  is the time in  $\mu$ /sec,  $T_0$  is the period of the natural frequencies of the shell;  $k$  is a constant characterizing the rates of heating;  $\varphi$  is the angular coordinate. The elastic-plastic model of the material was used for the calculations. The mechanical properties are shown graphically as functions of temperature. The distribution of stresses and plastic deformations in the cross sections  $\varphi = 0$  and  $\varphi = \pi/2$  is shown. The change in stresses and plastic deformations under rapid heating without a temperature drop over the thickness is of a clearly cyclic nature. 7 ref. A. V. Borodin.

2/2

- 83 -

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--DETERMINATION OF GAS MOISTURE -U-

AUTHOR--(05)--DEMYANOV, YU.A., KOMISSAROV, N.M., BAKULIN, A.I., OXHIGIN,  
V.S., RUZAVIN, YE.I.  
COUNTRY OF INFO--USSR

SOURCE--J.S.S.R. 261,740  
REFERENCE--GTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 74(5)  
DATE PUBLISHED--13JAN70

SUBJECT AREAS--METHODS AND EQUIPMENT, MATERIALS

TOPIC TAGS--SPECTROSCOPIC ANALYSIS, MOISTURE MEASUREMENT, CHEMICAL PATENT,  
GAS ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3005/0878

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132968

UNCLASSIFIED



272 010

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0132968

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GAS MOISTURE IS DETD. IN A WIDE PRESSURE RANGE BY 1ST HEATING THE GAS IN A HERMETIC CELL BY USING SHOCK WAVES AND THEN DETG. THE AMT. OF OH PRIME NEGATIVE, FORMED FROM DISSOCCN. OF H SUB2 O VAPOR, BY ABSORPTION SPECTROSCOPY.

UNCLASSIFIED

1/2 009

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--FORMATION OF NEODYMIUM, EUROPIUM, AND YTTERBIUM CARBONATES AND  
THEIR BEHAVIOR IN AQUEOUS POTASSIUM CARBONATE SOLUTIONS -U-

AUTHOR--(02)-SKLYARENKO, YU.S., RUZAYKINA, L.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 778-84

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RARE EARTH COMPOUND, NEODYMIUM COMPOUND, YTTERBIUM COMPOUND,  
CARBONATE COMPOUND, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0453

STEP NO--UR/0078/70/015/003/0778/0784

CIRC ACCESSION NO--AP0126205

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126205

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SYSTEMS OF MCL SUB3 K SUB2 CO SUB3 PRIME NEGATIVE H SUB2 O (M EQUALS NO, EU, YB) WERE STUDIED AT 30DEGREES BY POTENTIOMETRY AND BY CHEM. AND ELEMENTAL ANAL. NORMAL CARBONATES M SUB2 (CO SUB3) SUB3 (I) (M EQUALS NO, EU) AND BASIC CARBONATE YB(OH)CO SUB3 FORM AT N EQUALS 1.5 (N EQUALS CO SUB3 PRIME2 NEGATIVE:M PRIME3 POSITIVE). IN THE PRESENCE OF AN EXCESS OF K SUB2 CO SUB3, THE NORMAL CARBONATE CONVERTED TO THE CORRESPONDING BASIC CARBONATES, NO AT N LARGER THAN 4.0 AND EU AT N EQUALS 1.5-20. SOLY. OF I(M EQUALS NO), I(M EQUALS EU), AND YB(OH)CO SUB3 IN WATER IS 1.11 TIMES 10 PRIME NEGATIVE6, 1.94 TIMES 10 PRIME NEGATIVE6, AND 5.54.10 PRIME NEGATIVE6 MOLE-L., RESP. FACILITY: INST. GEOKHIM. ANAL. KHIM. IM. VERNADSKOGO, MOSCOW, USSR.

UNCLASSIFIED



USSR  
LABUSHKIN, V. G., POPOV, V. I., RUZER, L. S.

UDC 543.275:539.1.07.082

"Spectrometric Method of Measurement of Concentrations of Natural Radioactive Aerosols"

Tr. In-t Eksperim. Meteorol. Gl. upr. Gidrometeorol. Sluzhby pri Sov. Min. SSSR [Works of Institute of Experimental Meteorology, Main Administration of Hydrometeorological Service, Counsel of Ministers, USSR], 1972, No 25, pp 121-135, (Translated from Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No 7, 1972, Abstract No 7.32.903).

Translation: A study is made of a spectrometric method for determination of the concentrations of natural radioactive aerosols in the air, formed as the daughter products of radon and thoron decay. The  $\alpha$  and  $\beta$  activity of the dispersed phase of aerosols precipitated on a fine-fiber type LFS-1 (AFA-RSP-10, 20), are measured simultaneously using scintillation spectrometric detection units. It is shown that the use of spectrometric methods to measure the concentration of daughter products of radon and thoron decreases the error and allows the self-absorption of  $\alpha$  radiation in the aerosol specimen and dust in the air to be determined at the same time. An apparatus used for measurement of the concentration of natural radioactive aerosols by spectrometric methods is described. 5 Figures; 2 Tables; 27 Biblio. Refs.

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USSR

UDC: 8.74

RUZHANSKIY, V. I., FRADKOV, A. L.

"On an Algorithm for Self-Instruction of Recognition Systems"

V sb. Vychisl. tekhn. i voopr. kibernet. (Computer Technology and Problems of Cybernetics--collection of works), vyp. 6, Leningrad, Leningrad University, 1971, pp 88-98 (from EZh-Kibernetika, No 1, Jan 72, Abstract No 1V1075)

Translation: The paper presents the results of experiments on distinguishing different kinds of ground fleas conducted with an algorithm of self-instruction without reward. A supplement to the algorithm is proposed which enables extension of its field of application. It is noted that in many instances it is advisable to index part of the training sequence with the exception of points which do not belong to even one of the given classes (interference points). A. Doroshenko.

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USSR

RUZHENTSEV, A. S.

"Organization of Batches of Programs for Small Computers"

Izv. Vyssh. Ucheb. Zavedeniy. Elektromekhanika [News of Higher Educational Institutions. Electromechanics], 1973, No. 2, pp 144-149 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V706, by the author).

Translation: The question of the possibility and method of increasing productivity and utilization factor of a small machine central processor by denser packing of control information in machine memory is studied. It is shown that this compacting is possible by organization of batches of programs and attachment of general program sections included in the batches. A method is suggested for formal attachment of algorithms at the flow-chart level, based on the use of a graph-algorithmic language.

1/1

1/2 011

UNCLASSIFIED

PROCESSING DATE--11DEC70

TITLE--DETERMINATION OF THE QUANTIZATION OF ELECTRICAL CONDUCTIVITY CURVES DURING TRANSESTERIFICATION -U-

AUTHOR--(04)-DCNDE, G.D., KULAKOV, M.V., SEMENDUYEV, V.YE., FUZHENTSEVA, *Z.A.*

COUNTRY OF INFO--USSR

SOURCE--LAKKRASOCH. MATER. IKH PRIMEN. 1970, (2), 67-70

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ESTERIFICATION, ALKYD RESIN, ELECTRIC CONDUCTIVITY, CHEMICAL PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/807 STEP NO--UR/0303/70/000/001/0067/0070

CIRC ACCESSION NO--AP0140247

UNCLASSIFIED



2/2 011  
CIRC ACCESSION NO--AP0140247 UNCLASSIFIED PROCESSING DATE--11DEC70  
ABSTRACT/EXTRACT--(U) GP-3- ABSTRACT. THE TERMINATION OF THE  
TRANSESTERIFICATION STEP IN THE MANUF. OF ALKYD RESINS IS INDICATED BY  
THE APPEARANCE OF A MIN. ON THE PLOTS OF THE REACTION MIXT. ELEC.  
RESISTANCE (R) VS. TIME. R WAS EXPRESSED AS A SERIES AND THE CONDITIONS  
WERE DETD. THEORETICALLY, WHICH DET. UNIQUELY AT THE END OF THE  
TRANSESTERIFICATION WHEN  $DR \text{ OVER } DT \text{ EQUALS } 0$ .

UNCLASSIFIED

USSR

UDC 577.1:615.7/9

RUZHNIKOVA, T. N.

"Evaluation of Toxicity of Monoethanolamides"

V sb. Gidrokhim. issledovaniya (Research in Chemical Hydrology -- collection of works), Makhachkala, 1972, pp 92-94 (from RZh-Khimiya, No 20, 25 Oct 72, Abstract No 20F2061 by D. H. GLUKHAREV)

Translation: Using rats, guinea pigs and rabbits, the author established that monoethanolamides of synthetic fatty acids of C<sub>10</sub>-C<sub>16</sub> fractions possess no toxic action (3.5 and 5 g/kg, by stomach), nor any skin-resorptive or bactericidal action.

1/1

USSR

UDC 621.762.2:669.296

KOZLOV, A. N., DUBININ, G. N., ALEKSANDROVA, I. F., KRAVETSKIY, G. A., RUZINOV,  
L. P., SLOBODCHIKOVA, R. I.

"Optimization of the Processes of Obtaining Spherical Zirconium Powder by Plasma  
Atomization of Wire using Mathematical Statistics"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 1971, vyp. 228,  
pp 130-138 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 46401)

Translation: The optimal conditions of plasma atomization of Zr-wire to obtain  
spherical powder with a particle size of 400-800 microns sufficiently pure with  
respect to  $N_2$  and  $O_2$  (with a granule microhardness  $\leq 300-500$  kg/mm<sup>2</sup>) are defined.  
When processing the experimental data, the ranging method was used. A vacuum  
plasma atomization device was designed and manufactured for obtaining spherical  
powders of chemically active refractory metals. The optimal conditions of the  
Zr atomization process are as follows: current  $500 \pm 60$  amps, argon flow rate  
 $3.2$  m<sup>3</sup>/hour, rarefaction in the chamber 400 mm Hg, spacing between the wire and  
the nozzle section 0.5 mm. The yield of the Zr powder fraction 400-800 microns  
in size is 60%. 5 illustrations, 3 tables, and a 13-entry bibliography.

1/1

USSR

RATNER, A. I., RUZINOV, L. P., LAYNER, L. V.

"Search for Optimal Mixtures on Composition-Property Diagrams with Limitations"

Voprosy Kibernetiki. Nekotoryye Voprosy Planirovaniya Eksperimenta [Problems of Cybernetics. Certain Problems of Experimental Planning], Moscow, 1972, pp 91-96 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V296, by the authors).

Translation: In the performance of studies, it is frequently necessary to determine the singular points of a composition-property diagram. Usually, this is performed using approximation of the desired dependence by polynomials and analysis of the models produced. In this work, it is suggested that the optimal mixtures be sought using a gradient method, allowing the extremes or areas close to them to be found without preliminary adequate description of the entire response surface.

1/1

- 35 -

I/2 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--ZONE MELTING OF GALLIUM STUDIED WITH A MATHEMATICAL STATISTICAL  
METHOD -U-  
AUTHOR--(05)-IVANOVA, R.V., BELSKIY, A.A., RUZINOV, L.P., SLOBODCHIKOVA,  
R.I., NOVIKOV, N.A.  
COUNTRY OF INFO--USSR

R

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 43-7

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ZONE MELTING, GALLIUM, ZINC, METAL EXTRACTING, STATISTIC  
PROCESS, THERMODYNAMICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1984/0171

STEP NO--UR/0370/70/000/001/0043/0047

CIRC ACCESSION NO--AP0054967

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054967

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SEPN. OF GA FROM ZN BY ZONE MELTING WAS STUDIED WITH APPLICATION OF STATISTICAL METHODS FOR EXPTL. PLANNING. FOR THE ESTN. OF THE EFFECTIVENESS OF THE PROCESS THERMODYNAMIC, MATERIAL, ECONOMIC, AND TECHNOLOGICAL APPROACHES HAVE BEEN CONSIDERED. THE FINAL MATH. MODEL CORRESPONDS TO A SATISFACTORY DEGREE TO THE PROCESS OF ZONE MELTING OF GA. OPTIMAL VALUES OF EFFECTIVITY CRITERIONS AND THEIR CONNECTION WITH INDIVIDUAL FACTORS CONCERNED HAVE BEEN FOUND.

UNCLASSIFIED

1/2 029

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--REACTION OF MOLTEN GALLIUM WITH COPPER -U-

AUTHOR--TIKHOMIROVA, O.I., PIKUNOV, M.V., RUZINOV, I.P., MARCHUKOVA, I.D.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKH. MATER. 1970, 5(6), 699-703

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER ALLOY, GALLIUM ALLOY, LIQUID METAL, INTERMETALLIC  
COMPOUND, CHEMICAL REACTION, COPPER POWDER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0624

STEP NO--UR/0369/70/005/006/0699/0703

CIRC ACCESSION NO--AP0105603

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105603

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

ABSTRACT. THE MECHANISM OF THE REACTION OF LIQ. GA WITH POWD. CU AT 100DEGREES IS STUDIED. ON THE BASIS OF THE INVESTIGATION OF THE CHARACTERISTICS OF THE GROWTH OF THE THETA PHASE (CUGA SUB2) THE METHOD OF CALCN. OF THE AV. EFFECTIVE THICKNESS OF THE LAYER OF THE INTERMETALLIC PHASE IS WORKED OUT. IT IS ESTABLISHED THAT THE GROWTH OF THE THETA PHASE, ARISING AS THE RESULT OF THE REACTION OF LIQ. GA WITH POWD. CU CONFORMS TO A PARABOLIC RELATION.

UNCLASSIFIED



USSR

UDC 614.2

SIDOROVA, L. N., RUZIYEV, Kh. R., NOVOKRESHCHENOVA, F. A., and AYDARALIYEV, K. A., Ministry of Health Kirgiz SSR

"From the Fight Against Malaria and Steps Taken to Prevent the Disease From Entering Kirgizia"

Frunze, Sovetskoye Zdravookhraneniye Kirgizii, No 6, 1972, pp 29-32

Abstract: The Soviet Central Asian republic of Kirgizia had long been an endemic focus of malaria. In 1933, for example, it accounted for 30% of all cases of infectious diseases with a morbidity rate of 1,000 per 10,000 population. The rate began to decline after World War Two because of systematic efforts to eradicate the disease and by 1959 not a single local case was recorded throughout the republic. To prevent the importation of malaria, all persons arriving from parts of the Soviet Union where it is still prevalent as well as visitors from Africa and Asia are registered and carefully examined. All persons with a history of the disease are checked from time to time. Other steps include the drainage of swamps within a radius of 3 to 5 km from inhabited localities, introduction of gambusia and grass carp into bodies of water infested with mosquito larvae, and continuous monitoring of changes in the mosquito population to determine whether active control measures may be required.

1/1

1/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--RADICAL EMULSION POLYMERIZATION IN THE PRESENCE OF A BENZOYL PEROXIDE AMINATED POLYSTYRENE BINARY INITIATING SYSTEM IN AN ALKALINE

AUTHOR--(03)-TRUBITSYNA, S.N., RUZMETOVA, KH.K., ASKAROV, M.A.

COUNTRY OF INFO--USSR

SOURCE--UZB. KHIM. ZH. 1970, 14(2), 67-70

DATE PUBLISHED-----70

*R*

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--EMULSION POLYMERIZATION, BENZOYL PEROXIDE, POLYSTYRENE RESIN, METHYL METHACRYLATE, POLYMETHYLMETHACRYLATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3008/0922

STEP NO--UR/0291/70/014/002/0067/0070

CIRC ACCESSION NO--AP0137950

UNCLASSIFIED

2/2. 014

CIRC ACCESSION NO--AP0137950  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. POLYSTYRENE (I) OF MOL. WT. 14.5  
TIMES 10 RPIME3 AMINATED WITH PYRIDINE WAS USED AS AN EMULSIFIER IN THE  
POLYMN., IN AN ALK. MEDIUM; OF ME METHACRYLATE AT 20DEGREES IN THE  
PRESENCE OF BZ SUB2 O SUB2. THE SYSTEM BZ SUB2 O SUB2 AMINATED I WAS AN  
ACTIVE INITIATOR; IN THE ALK. MEDIUM THE CARBINOL BASE OF AMINATED I WAS  
FORMED WHICH REACTED WITH BZ AUB2 O SUB2 GIVING BENZOATE RADICALS  
INITIATING THE POLYMN. SYNDIOTACTIC STRUCTURE OF OBTAINED POLY(ME  
METHACRYLATE) WAS CONFIRMED BY IR ANAL.; ITS GLASS TRANSITION TEM. WAS  
120DEGREES AND M.P. 240DEGREES.  
INST., TASHKENT, USSR. FACILITY: TASHKENT. POLITEKH.

UNCLASSIFIED

USSR

Epidemiology

UDC 616.936(575.2)091)

RUZTSEV, KH. KH., Kirgiz Republic Sanitary Epidemiological Station, Frunze

"History of the Eradication of Malaria in Kirgizia"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolazni, Vol 40, No 3,  
May/June 71, pp 363-364

Translation: In prerevolutionary Kirgizia, practically nobody studied the state of the population's health affected by infectious diseases. Only isolated research was done. For instance, the physician Konstantinov (according to N. Dzhumaliyev, 1967)\* established the presence of icteric malarial hemoglobinuria. Several clinical studies of malaria were published by A. D. Grekov, A. Pevnitsko, V. A. Dobrokhotov, and others. Also, the entomological studies of the biologist and traveler A. P. Fedchenko and the researcher V. I. Kushchelevskiy are well-known.

From 1891-1897 in the Semirechinsk region, in the northern part of Kirgizia, 11,958 malaria cases were recorded from largely incomplete data. According to corresponding data of the Sanitary Service of the Turkestan Military Establishment, the disease incidence of malaria in the army was in

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N. Dzhumaliyev, Byt i zdorovye v Sovyetskom Kirgizstane [Being and Health in Soviet Kirgizia], Frunze, 1967 1/7

USSR

RUZITSEV, KH. KH., Meditsinskaya Parazitologiya i Farazitarnyye Bolezni, Vol 40, No 3, May/Jun 71, pp 363-364

1890 some 982 to 1,000 men. In several military posts infection of livestock with malaria was reported (according to M. Dzhumaliyev).

As far as the death rate from malaria is concerned, it was in those years 193 per 1,000 inhabitants, all over Kirgizia Malaria was then in fact a dreadful plague for the peoples of Central Asia and brought with it serious damage to the economy of the country.

Only the Great October Revolution opened up a new era: the era of socialism and communism, as well as the Soviet system of government control, which was set up by V. I. Lenin, a national party politics which guaranteed extensive possibilities of developing measures designed to preserve the health of the workers.

In 1926, after transformation of the Kirgiz Autonomous Region into the Kirgiz ASSR, the public health authorities of the republic took up active control of malaria. The first antimalaria station was organized in Frunze, headed by physician A. F. Yakolev. Nevertheless, this station could not guarantee the carrying out of the entire complex of measures; rather, it was devoted only to patient care.

2/7

USSR

RUZTSEV, KH. KH., Meditsinskaya Parazitologiya i Parazitaznyye Bolezni, Vol 40, No 3, May/Jun 71, pp 363-364

The first organizers of the fight against malaria in Kirgizia were Commissars S. K. Lobantsev, I. K. Akhumbayev, F. N. Nurgazieva, scientific workers K. G. Naumov, A. F. Yakovlev, I. A. Gontar-Tarvit, A. I. Lobantseva, general practitioners and intermediate medical personal A. YA. Polyakov, A. I. Antonova, N. P. Talalova, O. V. Lireyeva, V. A. Petronsyants, S. D. Rafibekov, P. S. Zarovniy, Yu. Sh. Ibraginov, R. G. Urmanova, N. P. Roshkov, A. E. Kazmirovskaya, active participation in the elimination of malaria included also L. N. Sidorova, Z. A. Rudakova, E. K. Razmanova, A. V. Alekseyev, L. A. Shepoleva, A. M. Sedoikin, M. V. Nikitenko, R. A. Bairit, and others. The disease incidence of malaria increased from year to year. The highest wave was observed in 1933 when 120 thousand patients were recorded in the republic and the intensity index per 10 thousand persons was 1,090, that is, 11% of the population was sick with malaria. In the same year, the losses in days of work capacity, as a result of malaria, were 170,971. The national-economic plan was destroyed since 35-55% of the miners in the coal mines of the southern Kirgiz SSR did not report for work as a result of malaria.

For further development of antimalaria measures in the country and particularly in the Central Asian republics which suffered most from malaria

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USSR

RUZTSEV, KH. KH., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 3, May/Jun 71, pp 363-364

infection, among them Kirgizia, establishment of the Council of People's Commissars since 20 May 1934 was of extreme importance, together with the "Measures for the control of Malaria" and establishment of the 16th All-Russian Meeting of Soviets in 1935. Afterwards, the network of antimalaria institutions increased: there were 8 malaria station (there had been 5) and 42 malaria check points (there had been 9). The plan for measures to control malaria was each year reconfirmed by the Chairman of the Council of People's Commissars of the Kirgiz SSR. In 1935, eight physicians were withdrawn from Tashkent University and sent to Kirgizia and the author of this paper was named head of the malaria group of Narkomsdrav.

In 1935 alone, 1 ton and 200 kg quinine, 200 kg plasmocide, 25 kg acridin were used in the cure and chemoprophylactic treatment of malaria, not counting other medicaments. Some 87,412 persons were examined for malaria to detect parasite carriers. An air-chemical method was applied to 17,874 hectares of land for the control of larvae of the malaria fly and 2,268 hectares were treated by the manual (conventional) method.

In 1940, there were 38 antimalaria stations in the republic, 70 anti-

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RUZITSEV, KH. KH., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 3, May/June 71, pp 363-364.

malaria [check] points, on which worked 830 specialists in the fight against malaria, among them 62 physician-malariologists and 108 malariologist assistants. Moreover, every enterprise, kolkhoz, sovkhos was supplied with palliatives and quinine preparations for the fight against malaria. From 1940 on, 10,549 hectare of stagnant lands were drained and assimilated.

The following advances made in the control of malaria can be cited. Malaria as a mass infection was eliminated in 1951 in the Talasska valley, in 1952 in Chuiska valley, in 1953 in the Dzhahalal-Abadska region, in 1955 in the Omsk region and in the entire republic. Local infections of malaria ceased in 1956 in all regions of northern Kirgizia, and in 1959 in the Omsk region (see Figure).

Figure. Course of the reduction in disease incidence of malaria in Kirgizia per 10,000 persons. Abscissa: dates.

The success in the control of malaria was brought about by the correct solution of organizational problems and, in turn, by the work done in the preparation of qualified malaria personnel. Of utmost importance were course work given by doctors conducting training at the Institute of Medicinal

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RUZITSEV, KH. KH., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 3, May/Jun 71, pp 363-364

Parasitology imeni Ye. I. Martinovskiy involving the training of associate and junior workers in the antimalaria service in the republic. Annually there were conferences on problems in the control of malaria at which were presented accounts on the fulfillment of the malaria control plan.

In the strengthening of the antimalaria service, the establishment of the Council of People's Commissars USSR on 20 May 1934 was of utmost importance for controlling turnover in personnel. On the basis of this set-up, three years of work in the antimalaria service were counted as five years. Workers of the antimalaria service were entitled to supplementary vacations, yearly a malaria fund was set up for execution of anti-epidemiological measures. The People's Commissar of the Public Health Service in Kirgizia also had a malaria fund which was used for honoring, on request by local authorities, personnel who had distinguished themselves in the control of malaria (from 25-50% of the basic pay).

For banning of the [disease] carriers and spreading of the infection, arrivals from malaria locations were checked in the republic, the number of disease carriers was observed, and health and sanitary-epidemiological measures were taken.

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RUZTSEV, KH. KH., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 3, May/June 71, pp 363-364

The taking up of health and sanitary-epidemiological measures, the draining and cultivation of marshlands played an important role in the eradication of malaria.

Although malaria has been eradicated in the republic, it is impossible to exclude the potential possibility for an outbreak of this disease since from time to time cases of the disease carried in from other countries are recorded.

In connection with the construction of hydrotechnical installations, conditions may be created for the breeding of malaria flies, and this presents a new problem for the public health authorities. It is necessary to reinforce, under the guidance of the parasitological service, antimalaria prophylactic measures, particularly in those regions in which the necessity for this arises.

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RVACHEV, L. A.

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PROBLEMS OF PROGNOSIS IN EPIDEMIOLOGY

JPRS 54562 -  
26 November 1971

Translation of Russian-language monograph by Genes Vagarshtakovich  
Baroyan; Problemy prognozirovaniya v epidemiologii  
V. Zhurav, Nauka i Tekhnika, Seriya Meditsina, No 9, 1971, Znaniye,  
Moscow, pp 3-48

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- a -  
(I - USSR - C)

SO: SPR 5462  
AC NOV. 1971

MATHEMATICAL METHODS IN EPIDEMIOLOGICAL PROGNOSIS

This chapter was written in collaboration with the head of the Laboratory of Epidemiological Cybernetics of the Division of General Epidemiology of the Institute of Epidemiology and Microbiology Imeni N. P. Gamaieva of the USSR Academy of Medical Science L. A. Rvachev.

Since the necessity emerged of giving quantitative characteristics in biological investigations (not only observing biological processes, but also measuring them), mathematical approaches have become a component of the complex of investigations on the objective knowledge of the living world.

Of course, this is evidence of the great progress in biology and medicine, since any scientific theory can embark upon a quantitative investigation of observable phenomena, using mathematical methods and electronic computing machines, only at a high degree of its qualitative development.

It is precisely this level that modern epidemiology has reached. This also explains the attention that is being paid throughout the world to problems of the mathematical rendering of epidemiology. The development of this line will be a deciding factor for scientifically substantiated epidemiological prognosis, as well.

It is quite clear that the establishment of a relationship between the spread of one mass disease or another in society, on the one hand, and the aggregate of social and natural conditions of life of humans, on the other, requires the processing of an enormous mass of information.

At the present time, comparatively extensive experience in the use of various mathematical methods and approaches to the solution of many epidemiological problems (including the model study and prediction of epidemics) has already been accumulated.

Concluding this aspect in its historical development it is easy to detect three basic periods.

RVACHEV, L. A.

Biology

№ JBPS 56179  
St. Petersburg

JBPS 56179  
6 June 1972

№ JBPS 56179

INSTITUTE OF MEDICAL AND BIOLOGICAL PROBLEMS IN SOVIET UNION  
AS A SECTION OF THE DEPARTMENT OF GOVERNMENT AFFAIRS

Article by L. A. Rvachev, Institute of Epidemiology and Microbiology, Soviet  
N. S. Gromov, USSR Academy of Medical Sciences, Moscow, U.S.S.R. (Received 1972)  
Bull. USSR, Russian, Vol 201, No 1, 1972, translated 1 June 1972, 22 pages.

In theoretical physics (hydrodynamics, quantum mechanics), the method  
of modeling of actual processes known as the mechanics of continuous  
media is used [1]. In the present work, we suggest that this method be  
used for investigation of the medical-biological structure of large masses  
of our population (or other populations).

Suppose a biological process occurs in each individual of the given  
population, which process is measured using the quantities  $\phi_1, \phi_2, \dots, \phi_n$ .  
Their set  $\phi$  is called the condition of the individual. Suppose the process  
is deterministic on the average, that is each subsequent state of the  
individual is determined by the preceding state:

$$\phi_i(t) = f(\phi_i(t-1), t) \quad (1)$$

By the medical-biological structure of a population, we mean the  
distribution  $x(t, \phi)$  at moment  $t$  with respect to space  $\phi$  of possible states  
of individuals of the population, that is  $x(t, \phi)$  interpretation in the terms  
of dynamic systems means that each individual is identified with  $\phi$   
particle continuously moving in phase space  $\phi$ . In this sense [2] gives us  
the equation of motion of an individual particle, while vector  $F = (F_1, F_2, \dots, F_n)$ ,  
defined by the right parts of system (1) as a function of  
independent variable  $\phi$ , gives us the stationary field of velocities in  
space  $\phi$  for the entire stream of particles.

In most problems, the population must be divided into  $p$  populations  
(for example, age groups, different cities, peculiarities of the organisms

KVACHEV, L. A.

Epidemiology / Microbiology

JPRS-53461  
15 JUL 1971

EXPERIMENT ON COMPUTER PROGRAMMING OF INFLUENZA EPIDEMIC

UDC 519.2:61

Article by L. A. Kvachev, Institute of Epidemiology and Microbiology (Leningrad), M. F. Gamaleya, Academy of Medical Science USSR; Moscow, Doklady Akademiya Nauk SSSR, Russian, Vol 190, No 1, 1971, submitted 19 October 1970, pp 68-70

A model of the spreading of an epidemic over a vast territory is given in [1]:

$$\frac{dq_i}{dt} = \sum_{j=1}^n \left( \frac{q_j}{t_j} q_i - \frac{q_i}{t_i} q_j \right),$$

$$\frac{dq_i}{dt} = \sum_{j=1}^n \left( \frac{q_j}{t_j} x_j - \frac{q_i}{t_i} x_j \right) - g_i(t, t_i),$$

$$g_i(t, t_i) = \sum_{j=1}^n g_j(t, t_j - t) g(t, t_i), \quad i = 1, 2, \dots, n,$$

where  $q_i$  is the population of city  $i$ ;  $q_{ij}$  is the number of persons that moved from city  $i$  to city  $j$  per unit of time;  $q_i(t, t_j)$  is the number of persons in city  $i$  at moment  $t$ , infected at the earliest moment  $t_j$ ; the number of the number of nonimmunized persons in city  $i$  at moment  $t$ ;  $x_i(t)$  is the frequency of intracity transmission of the infection;  $t_i$  is the average duration of the illness;  $g(t)$  is the probability of remaining ill for time  $t$  after the onset of the disease.

When data concerning the sick rate with flu in Leningrad in early January 1965 was incorporated in this model (a zero initial state was given for the other cities of the country), then for Moscow at the end of January-February 1965, the computer produced an epidemic wave that coincided satisfactorily with the actual epidemic in Moscow during that period. (The methods of determining the parameters required for the calculation are presented in [1]). Leningrad, however, was selected because it was from precisely that city that the great flu epidemic of 1965 spread throughout

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UDC 517.946.9+519.8

GANZHELA, N. F. and RVACHEV, V. L.

"A Method of Reducing Boundary Value Problems in Physics to the Problem of Mathematical Programming"

Minsk, *Differentsial'nyye Uravneniya*, No 12, 1973, pp 2202-2206

Abstract: The authors pose the problem of an  $r$ th-order differential equation  $Lu(P) = f(P)$  with  $P \in Q$ , under the boundary conditions  $\sum_{j=1}^l u_j(P) = \psi_j(P)$  with  $P \in \Gamma$  ( $j = 1, \dots, l$ ): where  $P = P(x_1, x_2, \dots, x_n)$  is a point in  $n$ -dimensional space  $E$ ,  $\Omega$  is a limited region with the boundaries  $\Gamma = \Gamma_1 \cup \Gamma_2 \cup \dots \cup \Gamma_l$ , and  $\bar{\Omega} = \Omega \cup \Gamma$ . The functions  $f(P)$  and  $\psi_j(P)$  ( $j = 1, \dots, l$ ) are given and are continuous, along with their derivatives to the  $k$ -th order inclusive, in the closed region  $\bar{\Omega}$ . An approximate solution is sought in the form of

$$u_n(P) = \sum_{i=0}^n c_i \phi_i(P),$$

where the  $c_i$  are coefficients to be determined and  $\phi_i(P)$  are known structures ( $k$ -times continuously differentiable in  $\bar{\Omega}$  and satisfying the boundary

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GANZHELA, N. F. and RVACHEV, V. L., *Differentsial'nyye Uravneniya*, No 12, 1973, pp 2202-2206

conditions stated above. It is shown that this problem is reducible to the problem of the Chebyshev approximation of a finite system of non-simultaneous algebraic equations that can be solved by linear programming.

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USSR

UDC 517.514+517.946.9

RVACHOV, V. L., Corresponding Member of the Academy of Sciences of the Ukrainian SSR, KALINICHENKO, B. I.

"Construction of nth-Order Normalized Functions"

Kiev, *Dopovidi Akademii Nauk Ukrain's'koi RSR*, No 7, 1973, pp 614-616

Abstract: Let in the domain  $\Omega$  the positive function  $\omega = \omega(x, y)$  belong to the class  $C^{10}$ . If the conditions  $\omega = 0, \frac{\partial \omega}{\partial \nu} = 1, \dots, \frac{\partial^k \omega}{\partial \nu^k} = 0$  ( $k = 2, \dots, n$ ) (differentiated with respect to the normal) are satisfied on the boundary of  $\Omega$ , then  $\omega$  is said to be nth-order normalized. Such functions are encountered in the construction theory of functions and also when solving boundary value problems. A simple method of constructing such functions is proposed.

USSR

UDC 536.2

RYACHOV, V. L., Corresponding Member of the Academy of Sciences Ukrainian SSR,  
and SLESARENKO, A. P., Khar'kov Polytechnic Institute, Khar'kov Scientific  
Research Institute of Metrology

"ON Obtaining the Solution for the Nonlinear Boundary-Value Problem of a  
Heat-Radiating Body of Complex Shape"

Kiev, Dopovidi Akademii Nauk Ukrainiskoi, RSR, Seriya -- Fizyko-Tekhnichni ta  
Matematychni Nauki, No 1, 1973, pp 77-80

Abstract: The article obtains the solution for the nonlinear boundary-  
value problem of a multiply connected body:

$$\Delta u = -F; \tag{1}$$

$$u|_{S_1} = f; \quad \frac{\partial u}{\partial \nu_i} \Big|_{S_1} = q_i; \quad \left( \frac{\partial u}{\partial \nu_k} + h_k u^4 \right) \Big|_{S_k} = \delta_k. \tag{2}$$

The solution for problem (1), (2) takes the form

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RVACHOV, V. L., and SLESARENKO, A. P., *Dopovidi Akademii Nauk Ukrainiskoi, RSR, Seriya, Fizyko-Tekhnichni ta Matematychni Nauki, No 1, 1973, pp 77-80*

$$u = \frac{\sum_{i=1}^{m_1} f_i \tau_i}{\sum_{i=1}^{m_1} \tau_i + \sum_{j=1}^{m_2} \tau_j^2 + \sum_{k=1}^{m_3} \tau_k^2} + \frac{\sum_{i=1}^{m_1} q_i \tau_i + \sum_{k=1}^{m_3} \delta_k \tau_k}{\sum_{i=1}^{m_1} \tau_i + \sum_{j=1}^{m_2} \tau_j^2 + \sum_{k=1}^{m_3} \tau_k^2} +$$

$$+ \frac{\Phi \sum_{k=1}^{m_3} \tau_k + \sum_{j=1}^{m_2} D_1^{(j)} \Phi_3 \tau_j + \sum_{k=1}^{m_3} (\Phi^4 h_k + D_1^{(k)} \Phi_3) \tau_k}{\sum_{i=1}^{m_1} \tau_i + \sum_{j=1}^{m_2} \tau_j^2 + \sum_{k=1}^{m_3} \tau_k^2}$$

This solution satisfies all boundary conditions (2) with arbitrary continuous differentiation in  $\Omega + S$  irrespective of the shape of the given body.

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USSR

UDC 517.946

RVACHEV, V. L., SLESARENKO, A. P., Khar'kov Polytechnical Institute imeni V. I. Lenin, Khar'kov State Scientific Research Institute of Metrology  
"Concerning the Solution of Some Nonlinear Boundary Value Problems for Regions of Complex Shape by a Structural Method"

Minsk, *Differentsial'nyye Uravneniya*, Vol 9, No 4, Apr 73, pp 771-773

Abstract: The authors synthesize the structure of the solution of a nonlinear boundary value problem for the multiply connected region

$$\Delta u = -F,$$

$$u|_{\Gamma_i} = f_i; \left[ \frac{\partial u}{\partial \nu_j} + \beta_j(u) \frac{du}{dt_j} + \delta_j(u) \right]_{\Gamma_j} = 0;$$

where  $i = 1, 2, \dots, m_1, j = m_1 + 1, \dots, m_2$ ;  $\Gamma_i, \Gamma_j$  are parts of the boundary  $\Gamma = \bigcup_{i=1}^{m_2} \Gamma_i$  of the considered region  $\Omega$ ;  $\nu_j$  and  $t_j$  are the directions of the internal normal to the tangent to the boundary  $\Gamma_j$ ;  $F$  is a continuous function given in  $\Omega \cup \Gamma$  which has piecewise-continuous first derivatives;  $f_i, \delta_j(u), \beta_j(u)$  are some continuous functions given on sections  $\Gamma_i$  and  $\Gamma_j$  of boundary  $\Gamma$ .

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USSR

UDC: 621.396.6.017.7

RVACHEV, V. L., SLESARENKO, A. P., KRAVCHENKO, V. F.

"On Calculating Heat Fields of Radio Electronic Devices by the Method of R-Functions. Part 1"

Fribory i sistemy avtomatiki. Resp. mezhved. nauch.-tekhn. sb. (Devices and Systems for Automation. Republic Interdepartmental Scientific and Technical Collection), 1971, vyp. 15, pp 44-49 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V290)

Translation: It is shown that R-functions can be used for calculating the heat fields of radio electronic equipment comprised of separate components arbitrarily located in space, where the profiles of these components can be represented by piecewise-smooth sections of known surfaces.  
Resumé.

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USSR

UDC: 621.396.6.017.7

RVACHEV, V. L., SLESARENKO, A. P., KRAVCHENKO, V. F., LYSOV, V. P.

"On the Theory of Automating the Calculation of Heat Fields in Designing Radio Electronic Devices"

Pribory i sisteny avtomatiki. Resp. mezhved. nauch.-tekhn. sb. (Devices and Systems for Automation. Republic Interdepartmental Scientific and Technical Collection), 1971, vyp. 18, pp 102-106 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V291)

Translation: A number of relationships are derived which can be used as convenient algorithms in calculating the heat fields of radio electronic equipment on computers. Consideration is given to the possibility of automatic computer design of radio electronic equipment since computers are a component part of the fundamental equipment for electronic design. Bibliography of two titles. Resumé.

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TITLE--CALCULATION OF THE NORMAL MODES AND FREQUENCIES OF THE TRANSVERSE OSCILLATIONS OF A PLATE OF COMPLEX SHAPE -U-  
AUTHOR--(02)-RVACHEV, V.L., RAKOVA, L.V.

UNCLASSIFIED  
PROCESSING DATE--27NOV70

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, APR. 1970, P. 80-85  
DATE PUBLISHED-----70

R

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS  
TOPIC TAGS--OSCILLATION, METALLURGIC RESEARCH FACILITY, THIN PLATE, FLAT PLATE, VIBRATION FREQUENCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1654

STEP NO--UR/0198/70/006/000/0080/0085

CIRC ACCESSION NO--AP0125276

UNCLASSIFIED

2/2 028

CIRC ACCESSION NO--AP0125276

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF THE RITZ METHOD TO THE DETERMINATION OF THE FREQUENCIES AND NORMAL MODES OF THE FREE TRANSVERSE OSCILLATIONS OF FREELY SUPPORTED PLATES OF POLYGONAL PLANFORM AND OF PLATES OF ARBITRARY PLANFORM RIGIDLY CLAMPED AT THE EDGES. THE SYSTEM OF COORDINATE FUNCTIONS THAT SATISFY THE BOUNDARY CONDITIONS IS OBTAINED WITH THE AID OF R-FUNCTIONS. THE RESULTS ARE APPLIED TO SEVERAL EXAMPLES.

FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT MEKHANIKI, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED



UNCLASSIFIED  
TITLE--EN. A FORMATION METHOD OF AN APPROXIMATE SOLUTION FOR A MIXED  
AXISYMMETRIC PROBLEM OF THE THEORY OF ELASTICITY --U-  
AUTHOR--(02)--PROTSENKO, V.S., RVACHEV, V.L.

*R*

PROCESSING DATE--11DEC70

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIKLADNAYA MATEMATIKA I MEKHANIKA, NO 2, 70, PP 360-365

DATE PUBLISHED-----70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--ELASTICITY THEORY, APPROXIMATE SOLUTION, DIFFERENTIAL EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO-----FD70/605041/C04 STEP NO--UR/0040/70/000/002/0360/0365

CIRC ACCESSION NO--AP0142726

UNCLASSIFIED

2/2 019

CIRC ACCESSION NO--AP0142726  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--11DEC 70

ABSTRACT. GENERAL CONSIDERATIONS CONCERNING THE FORMATION OF AN APPROXIMATE SOLUTION OF MIXED SPATIAL PROBLEMS IN THE THEORY OF ELASTICITY ARE PRESENTED ON THE BASIS OF AN EXAMPLE OF AN AXISYMMETRIC CASE. A SYSTEM IS SUGGESTED FOR THE SOLUTION OF THE PROBLEM BY USE OF WHICH MIXED BOUNDARY CONDITIONS OF A CERTAIN TYPE MAY BE SATISFIED. THE SYSTEM ALSO CONTAINS A SERIES OF ARBITRARY FUNCTIONS FROM WHICH THOSE FUNCTIONS WHICH THE BEST SATISFY A SYSTEM OF DIFFERENTIAL EQUATIONS OF THE EQUILIBRIUM OF AN ELASTIC BODY CAN BE SELECTED. SINCE THE INVESTIGATIONS ARE BASED ON THE UTILIZATION OF R FUNCTIONS, THEY MAY BE USEFUL IN DISCUSSING PROBLEMS FOR ANY THREE DIMENSIONAL BODY. A FINAL NOTE DEMONSTRATES THE POSSIBILITY TO SIMPLIFY AN APPROXIMATE SOLUTION BY INCLUDING CERTAIN ESSENTIAL FEATURES OF THE EXACT SOLUTION.

UNCLASSIFIED

USSR

RVACHEV, V. L., *Differentsial'nyye Uravneniya*, June, 1970, pp 1034-1047  
generalization of the well-known Taylor formula, is derived, making possible the expansion of the functions in the neighborhood of curves on which the values of the functions considered and their normal derivatives up to and including a given order are known.

The article includes 109 equations. There are 8 references, all Soviet

USSR

RVACHEV, V. L. (Khar'kov Branch of the Institute of Mechanics, Ukrainian Academy of Sciences)

"The Problem of Obtaining Coordinate Sequences"  
Minsk, *Differentsial'nyye Uravneniya*; June, 1970, pp 1034-1047

**Abstract:** In obtaining coordinate sequences by means of so-called "R-functions" (discussed by the author in his article entitled "Geometric Applications of the Algebra of Logic," Kiev, "Tekhnika," 1967) it is necessary to obtain also such differential or functional relationships, containing the desired functions, which are valid everywhere in the region considered and are transformed under prescribed boundary conditions on its boundary.

In obtaining such relationships it appears expedient to make use of certain linear differential operators with variable coefficients which depend on the form of the region (or on the form of sections of the boundary which depend on the mixed conditions). In this article the author considers certain properties of the above-mentioned operators and presents examples of their use when one wishes to obtain coordinate sequences. An equation presenting, in a certain sense, a

USSR

RVACHEV, V. P., DOVZHENKO, F. P., VASILEVSKIY, L. S.

"Brightness Distribution in Atmosphere Model with Continuous and Broken Cloudiness"

Tomsk, Izvestiya VUZ -- Fizika, No 1, 1972, pp 34-42

Abstract: The study of angular and depth distribution of brightness in light-scattering media is important in atmospherical and marine optics, synoptics, and the spectroscopy of light-scattering media. The present article describes experiments performed to determine an adequate model for such a study and a physical model of the field of radiation inside the light-dispersing medium at an arbitrary optical depth, with minimal distortion introduced by the measuring equipment. The authors find that their modeling method can be used for creating experimental situations required for the solution of a broad range of optical and spectroscopic problems in this area. Through it, horizontal nonuniformities and vertically stratified media can be modeled, an achievement not hitherto attained. The authors are associated with the Odessa Engineering-Construction Institute.

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UDC 621.396.6:536.1.001.2

USSR

KRAVCHENKO, V. P., SLESARENKO, A. P., and RVACHOV, V. L.,  
Khar'kov Polytechnic Institute

"On the Theory of Calculating Thermal Fields of Complexly Shaped  
Electronic Equipment"

Kiev, Dopovidi Akademii Nauk Ukrain's'koi RSR, Seriya A --  
Fizyko-Tekhnichni ta Matematychni Nauky, No 12, Dec 70, pp 1116-  
1119

Abstract: Generally the calculation of the thermal fields of  
electronic equipment reduces to the solution of boundary-value  
problems with combined boundary conditions, which include con-  
ditions of the first, second, third kind and mixed boundary  
conditions for equipment parts arbitrarily located in the equip-  
ment module. The article proposes a method for the solution of  
this class of boundary-value problems. Through the use of R-  
functions the profiles of the parts can be given by piecewise  
smooth sectors of known surfaces. The relation

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USSR

KRAVCHENKO, V. P., et al., *Dopovidi Akademii Nauk Ukrain's'koi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky*, No 12, Dec 70, pp 1116-1119

$$u = \Phi_0 + \left[ \frac{\sum_{i=1}^m (\Psi_{3i-1} \tau_{3i-1} + (\Psi_{3i-2} - \delta_{3i-2} \Phi) \cdot \tau_{3i-2})}{\sum_{i=1}^m (\tau_{3i-1} + \tau_{3i-2})} - D_1 \Phi_0 \right] \cdot \omega$$

is given, which can be used as a convenient algorithm for the computer-aided solution of such problems (the authors used a Minsk-22).

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UDC 532.595

USSR

RVALOV, R. V. (Moscow)

"A Boundary-Value Problem of the Free Oscillations of a Rotating Ideal Liquid"  
Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 4, 1973,  
pp 81-88

Abstract: In a linear presentation, the article deals with a problem of the free oscillations of an incompressible fluid which partially or completely fills a rigid cavity that is rotating in a field of mass forces. Rotation of the fluid-cavity system, with a constant angular velocity as that of a solid, is assumed to constitute undisturbed motion.

The problem of finding the oscillation-frequency spectrum is reduced to the solution, either analytically or numerically, of a boundary-value problem for its eigenvalues. Consideration is given to particular cavity shapes and rotation regimes, for which exact and approximate solutions of the boundary-value problem are obtained. Results of the numerical calculations are presented. 5 figures. 13 references.

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UDC 531.01

USSR

RVALOV, R.V., and ROGOVOY, V. M., Moscow

"On Rotations of a Body With a Hollow Containing Liquid"

Moscow, Izvestiya Akademii Nauk, Mekhanika Tverdogo Tela, No 3, May-Jun 72,  
pp 15-20

Abstract: The Cauchy problem is investigated for the motion of a solid body disturbed with regard to a uniform rotation. The body has a hollow wholly filled up with an ideal incompressible liquid. Contrary to studies of other authors of harmonic oscillations for particular forms of hollows or for constrained motion of the liquid, assuming its proper motions in the hollow of the rotation body being attenuated, no restrictions are posed on the shape of the hollow and the character of the disturbed motion. The problem reduced to the solving of eigenvalues of a certain problem the solution of which depends only on the geometry of the hollow, and to the subsequent integration of a system of ordinary differential equations. The problem is demonstrated that the motion of a body with a hollow of similar type is affected only by a partial motion of the liquid. For the particular case of an ellipsoidal hollow, the results coincide with data obtained by other



USSR

RVALOV, R.V., et al., Moscow, Izvestiya Akademii Nauk, Mekhanika Tverdogo Tela, No 3, May-Jun 72, pp 15-20

authors (Sobolev, S. L., and Ishlinskiy A. Yu., Applied Mechanics and Technical Physics, 1960, No 3, and Chernous'ko, F.L., Applied Mechanics and Technical Physics, 1967, Vol 31, No 3). One illustr., twenty three formulas, four biblio. refs.

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1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--MECHANISM OF THE TWO PHOTON SENSITIZATION OF BOND BREAKING IN  
ORGANIC MOLECULES AT 77DEGREESK. II. ASSOCIATED INTERMOLECULAR  
AUTHOR--(02)-RVLKOV, V.V., KHOLMOGDROV, V.YE.  
COUNTRY OF INFO--USSR *R*  
SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 119-25  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--LUMINESCENCE SPECTRUM, EPR, SPECTROPHOTOMETRIC ANALYSIS,  
PHOTOEFFECT, HALIDE, NAPHTHALENE, INTRAMOLECULAR MECHANICS, PHOTON,  
PHOTOSENSITIVITY, PHOTOLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/0742

STEP NO--UR/0456/70/004/002/0119/0125

CIRC ACCESSION NO--AP0119649

UNCLASSIFIED

PROCESSING DATE--30OCT70

UNCLASSIFIED

2/2 030

CIRC ACCESSION NO--AP0119649  
 ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. LUMINESCENCE SPECTROSCOPY, EPR,  
 AND LOW TEMP. SPECTROPHOTOMETRY WERE USED IN THE STUDY OF THE  
 PHOTODECOMP. OF THE MOLS. OF ETX, X BEING CL, BR, OR I. THE  
 LUMINESCENCE SPECTRA DID NOT INDICATE ANY STRONG DONOR ACCEPTOR  
 INTERACTION BETWEEN ETX AND NAPHTHALENE. THE EPR MEASUREMENTS SHOWED  
 THAT THE RELATIVE STATIONARY CONCNS. OF TRIPLET NAPHTHALENE MOLS. IN THE  
 SOLNS. IN ETOH WITHOUT ETX, WITH ETCL, WITH ETBR, AND WITH ETI (ALWAYS  
 2M CONCNS.) ARE 1, 0.69, 0.48, AND 0.12, RESP. CATIONIC RADICALS OF PH  
 SUB2 NH AND PH SUB3 N WERE FOUND WHEN USING THESE COMPS. AS  
 PHOTSENSITIZERS. THE EFFECT OF THE X ON INTRAMOL. PROCESSES IN THE  
 SENSITIZER MOLS. AND THE FORMATION OF WEAK CHARGE TRANSFER COMPLEXES DO  
 NOT AFFECT DIRECTLY AND SIGNIFICANTLY THE DECOMP. OF ETX TO FREE  
 RADICALS. THE 2 CONCURRING PROCESSES ARE IMPORTANT FOR THE ETX  
 DECOMP.: (1) AN EXCHANGE RESONANCE INTERACTION, IN WHICH ENERGY IS  
 TRANSFERRED FROM A HIGHLY EXCITED TRIPLET LEVEL OF THE SENSITIZER MOL.  
 TO THE TRIPLET LEVEL OF THE ETX MOL.; (2) 2-PHOTON IONIZATION OF THE  
 SENSITIZER WITH THE SUBSEQUENT ADDN. OF 1 ELECTRON TO THE ETX MOL.  
 REACTION (2) BECOMES PREDOMINANT IN REACHING THE IONIZATION LEVEL OF THE  
 SENSITIZER MOL. IN THE PRESENCE OF ETX.

UNCLASSIFIED

Composite Materials

UDC 620.18

USSR

RYBAL'CHENKO, M. K. (deceased), USTINOV, L. M., and BAKARINOVA, V. I.

"Physico-Chemical Reactions at Interfaces in Metal-Base Fibrous Composites

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 120-127

Abstract: The mechanical, physical, and chemical bonds between fibers and matrices are reviewed. Chemical bonds are the most prevalent among metal-base fibrous composites, and most of them are of an atomic nature. Physical bonds are characterized by gravitational and magnetic interactions between individual components of composite materials. Strong chemical bonds are formed by atomic bonds between fibers and matrices across the interface, excluding in many cases the interface diffusion. Three types of chemical reactions play a decisive role in the formation of chemical bonds in composite materials of practical importance. A mutual diffusion of elements present in matrix and fibers is the best known type of chemical reactions which leads to the formation of intermediate phase layers (intermetallides, carbides, and others). Compatibility between fibers and matrix is the first requirement for producing high-quality composite materials. The chemical compatibility includes thermodynamic and kinetic compatibility. Thermodynamic compatibility is found very rarely. However, if kinetic compatibility is present, the problem of chemical compatibility

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USSR

RYBAL'CHENKO, M. K. (deceased), et al., Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 120-127

can be considered to be solved. Thermodynamic compatibility exists among very few materials, such as Cu/W, Cu/Mo, Ag/W, while the majority of materials are thermodynamically incompatible. Chemical compatibility can be achieved by developing new alloys compatible with a given hardening agent, finding new hardening agents that would be thermodynamically stable with respect to a given matrix, producing coatings on hardening agent for securing its compatibility with the matrix, and developing natural coatings by the in situ method. The most reliable of these ways are the first two.

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UDC 621.371.029.5

USSR

RYBACHEK, S. T.

"Regions of the Lower Ionosphere Important in Ultra-Long Wave Propagation"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 203-207 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A322)

Translation: It is shown that, in computing ultra-long wave fields for an ionosphere which is nonuniform along the radial coordinate, the region whose thickness is a function of the accuracy of determination of the characteristic frequencies and of the electron concentration profile,  $W$  and  $\nu_{ef}$ , has an important effect. The obtained results can be used for determining  $H$  from the known characteristic values. Two illustrations, two tables, bibliography of four. A. L.

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UDC 621.315.592:546.289

USSR

NEKRASOV, M. M., RYABCHENKO, G. V.

"Production of Profile Single Crystals of Germanium by the Vertical Zone Leveling Method"

V sb. Vopr. mikroelektroniki (Problems of Microelectronics -- Collection of Works), Kiev, "Nauk. dumka," 1971, pp 143-146 (from RZh--Elektronika i yeye primeniye, No 10, October 1971, Abstract No 10B93)

Translation: Homogeneous single crystals of germanium of any profile were grown by the vertical zone leveling method. The principal scheme of the equipment is given. The following characteristics were studied of the ingots obtained: 1) inhomogeneity of resistivity; 2) integral density of dislocations; 3) magnitude of residual stress; and 4) diffusion length of carriers. 3 ref. I. V.

1/1

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1/2 026

UNCLASSIFIED

PROCESSING DATE--30UCT70

TITLE--DECREASE IN THE YIELD OF DNA DURING THE DEPROTEINIZATION OF  
ULTRAVIOLET OR GAMMA IRRADIATED SOLUTIONS OF DEOXYRIBONUCLEOPROTEIN. I.  
AUTHOR--(02)-SKLOBOVSKAYA, M.V., RYABCHENKO, N.I.

R

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA 1970, 10(1), 14-18

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--UV IRRADIATION, GAMMA RADIATION, RADIATION BIOLOGIC EFFECT,  
NUCLEOPROTEIN, RNA, DNA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1998/0484

STEP NO--UR/0205/70/010/001/0014/0018

CIRC ACCESSION NO--AP0121158

UNCLASSIFIED



PROCESSING DATE--30OCT70

UNCLASSIFIED

2/2 026

CIRC ACCESSION NO--AP0121158  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A DECREASED YIELD OF DNA WAS OBTAINED DURING THE DEPROTEINIZATION OF DEOXYRIBONUCLEOPROTEIN SOLNS. UV IRRADIATED BY DOSES OF 10 PRIME5-10 PRIME6 ERGS-MM PRIME2 OR GAMMA IRRADIATED BY DOSES OF 50-350 KR (PRIME6 CO, DOSE RATE 45 KR-SEC). THIS EFFECT DEPENDED ON THE IRRADN. DOSE AND VANISHED AFTER TREATMENT OF THE IRRADIATED DEOXYRIBONUCLEOPROTEIN SOLN. WITH TRYPSIN. THE SIZE OF THIS EFFECT DEPENDED ON THE COMPLETENESS OF THE COMPLEXING OF DNA WITH PROTEIN. EXPTS. WITH ARTIFICIAL COMPLEXES OF DNA WITH HISTONE, BLOOD SERUM ALBUMIN, OR DENATURED RNASE REVEALED THAT THE WEAKENING OF DNA PROTEIN COMPLEX (HIGHER IONIC STRENGTH OF THE SOLN., HIGHER PH, PRESENCE OF A SUBSTANCE LABILIZING THE DNA PROTEIN BUND DUE TO INTERACTION WITH ONE OF THE COMPONENTS) RESULTED IN A LESS INTENSIVE EFFECT (LOSS OF DNA) OR IN ITS DISAPPEARANCE.

FACILITY: INST. MED. RADIOD., OBNINSK, USSR.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--23OCT70

1/3 . 016

TITLE--TEMPERATURE DEPENDENCE OF THE EPR SPECTRUM IN NICKEL CHLORIDE -II-

AUTHOR--(02)-LOZENKO, A.F., RYABCHENKO, S.M.

R

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 807-13

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--EPR SPECTRUM, NICKEL COMPOUND, CHLORIDE, THERMAL EFFECT, SPIN LATTICE RELAXATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1453

STEP NO--UR/0181/70/012/003/0807/0813

CIRC ACCESSION NO--AP0120241

UNCLASSIFIED

PROCESSING DATE--23OCT70

UNCLASSIFIED

2/3 . 016

CIRC ACCESSION NO--AP0120241

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEMP. DEPENDENCE WAS INVESTIGATED OF THE EPR SPECTRUM OF SINGLE CRYSTAL NiCl SUB2 AT 49-460DEGREEK AND 9360-12980 MHZ. IN THE ENTIRE TEMP. RANGE, THE EPR LINE HAS A LORENTZIAN SHAPE. THE LINEWIDTH IS INDEPENDENT OF THE FREQUENCY OF THE MEASUREMENT. AT 200-460DEGREEK, THE WIDTH INCREASES WITH TEMP. AS DELTAETA SUBTAU EQUALS DELTA SUB1 PLUS ALPHATAU PRIME2, WHERE DELTA SUB1 EQUALS 48 PLUS OR MINUS 5 OE, ALPHA EQUALS (6.35 PLUS OR MINUS 0.14) TIMES 10 PRIME NEGATIVE3 OE-DEGREE PRIME2. AT 77-200DEGREEK THE DEPENDENCE OF LINEWIDTH ON TEMP. IS GREATER. THE TEMP. DEPENDENCE IS TREATED AS BROADENING DUE TO SPIN LATTICE RELAXATION. THE DELTA SUB1 GIVES THE SPIN WIDTH OF THE EXCHANGE NARROWED EPR LINE, AND ALPHATAU PRIME2 EQUALS H-GBETATAU SUB1, WHERE TAU SUB1 IS THE TEMP. DEPENDENT COMPONENT OF THE SPIN LATTICE RELAXATION TIME. THIS RELAXATION IS RELATED TO THE 2 PHONON PROCESS OF TRANSFER OF ENERGY DIRECTLY FROM THE ZEEMAN SYSTEM TO THE LATTICE. THE MAGNITUDE OF ALPHA AGREES WITH THE KRONING-VAN FLECK MECHANISM. AS THE TEMP. APPROACHES THE PHASE TRANSITION POINT, THE LINEWIDTH INCREASES SHARPLY AS DELTAETA SUBTAU EQUALS DELTAETAINFINITY (TAU MINUS TAU SUBN-TAU) PRIME NEGATIVE, WHERE DELTAETAINFINITY PARALLEL TO EQUALS 43.6 PLUS OR MINUS 1.6 OE, DELTAETA INFINITY PERPENDICULAR TO EQUALS 36.3 PLUS OR MINUS 1.3 OE, N PARALLEL TO EQUALS 0.49 PLUS OR MINUS 0.03, N PERPENDICULAR TO EQUALS 0.62 PLUS OR MINUS 0.03 (INDICES PARALLEL TO AND PERPENDICULAR REFER TO THE ORIENTATION OF THE C SUB3 AXIS OF THE CRYSTAL RELATIVE TO THE EXTERNAL MAGNETIC FIELD).

UNCLASSIFIED

3/3 016 UNCLASSIFIED PROCESSING DATE--23OCT70  
CIRC ACCESSION NO--AP0120241  
ABSTRACT/EXTRACT--SUCH BEHAVIOR AGREES WITH THE THEORY WHICH TAKES INTO  
ACCOUNT FLUCTUATIONS OF THE SHORT RANGE ORDER OF THE SPIN CLOSE TO THE  
ANTIFERROMAGNETIC TRANSITION. EPR WAS ALSO INVESTIGATED OF THE CLUSTERS  
OF NI PRIME<sup>2</sup> POSITIVE IN CdCl<sub>2</sub> ISOMORPHOUS TO NiCl<sub>2</sub> SUB<sub>2</sub>.  
FACILITY: INST. FIZ., KIEV, USSR.

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