1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--BORON ACETATES -U-

AUTHOR-(02)-RYSS, I.G., PLAKHOTNIK, V.N.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(5), 423-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOBORON COMPOUND, ACETATE, MELTING POINT, THERMAL DECOMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605019/B12 STEP NO--UR/0073/70/036/005/0423/0426

CIRC ACCESSION NO--AP0140912

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140912

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SLOW ADDN. OF 0.443 MOLE H SUB3 BO SUB3 TO 14 MG ZNCL SUB2 IN 1.33 MOLES AC SUB2 O AT TEMPS. AT 45DEGREES AND 55-60DEGREES GAVE 94PERCENT B(OAC) SUB3, M. 122-4DEGREES. RAPID ADDN. OF H SUB3 BO SUB3 TO AC SUB2 O, ALLOWING THE TEMP. TO RISE ABOVE 100DEGREES, GAVE 90PERCENT B SUB2 O(OAC) SUB4, M. 150-2DEGREES. B(OAC) SUB3 WAS HEATED SEVERAL HR AT 110DEGREES WITHOUT DECOMPN., BUT ABOVE ITS M.P. IT DECOMPD. TO B SUB2 O(OAC) SUB4. FACILITY: DNEPROPETROVSK. INST. INZH. ZHELEZNODOROZH. TRANSP., DNEPROPETROVSK, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--PROPERTIES OF PYRIDINIUM TETRACHLOROBORATE AND HYDROCHLORIDES -U-

AUTHOR-(02)-RYSS, I.G., MAKHONIN, V.D.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 366-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BORON COMPOUND, CHLORIDE, HYDROLYSIS, PYRIDINE, COMPLEX COMPOUND, THERMAL DECOMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1149 STEP NO--UR/0078/70/015/002/0366/0368

CIRC ACCESSION NO--AP0136569

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0136569
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATE OF BASIC HYDROLYSIS OF (BCL SUB4 PRIME NEGATIVE) ANION IN PYRIDINIUM TETRACHLORDBORATES (PYHBCL SUB4) (I) (PY EQUALS PYRIDINE) IS VERY HIGH AND IS LIMITED ONLY BY THE RATE OF I SOLY. AT 20-100DEGREES, THERMAL DECOMPN. OF I GIVES PYBCL SUB3 AND HCL AS THE ONLY PRODUCTS. AT 20DEGREES AND 1 ATM. HCL, PY POLYHYDROCHLORIDES IN CHCL SUB3 SOLN. FORM 2 PHASES: THE UPPER PHASE HAVING 1,37-3.75 AND THE LOWER PHASE HAVING 1.90-47 MOLE RATIO OF HCL-PYH PRIME POSITIVE-CHCL SUB3-PYH PRIME POSITIVE. FACILITY: DNEPROPETROVSK. INST. INZH. ZHELEZNODOROZH. TRANSP., DNEPROPETROVSK, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--REDUCTION OF MAGNESIUM, CALCIUM, STRONTIUM AND BARIUM WITH SILICON AND ALUMINUM FOR THE PRODUCTION OF COMPLEX MODIFIERS -U-
AUTHOR-(05)-GOLEV, A.K., ZAYKO, V.P., RYSS, M., VOLOSHCHENKO, M.V., KOMPANICHENKO, V.M.
COUNTRY OF INFO--USSR

SOURCE--V SB. TEZISY DOKL. VIII KONFERENTSII PO TEORII I PRAKT. PROIZ-VA
REFERENCE--RZH-TEKHNOLOGIYA MASHINOSTROYENIYA, NO 3, MAR 70, ABSTRACT E
DATE PUBLISHED--------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--METAL REDUCTION, MAGNESIUM, CALCIUM, STRONTIUM, BARIUM, SILICON, ALUMINUM, SMELTING FURNACE, NODULAR IRON, CAST IRON, METALLURGIC CONFERENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1662 STEP NO--UR/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AR0127136
UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AR0127136

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS NOTED THAT DURING REDUCTION OF MG FROM MG OXIDE BY 75PERCENT FERROSILICON WITH THE USE OF FLUX (FLUORITE), IT IS POSSIBLE TO OBTAINE 3-4PERCENT MG IN ALLOY. WITH REDUCTION IN THE PRESENCE OF CA OXIDE IT IS POSSIBLE TO OBTAIN UP TO 5-6PERCENT MG IN THE ALLOY. CA WAS REDUCED BY 75PERCENT FERROSILICON UP TO 22-24PERCENT OF ITS CONTENT IN ALLOY. USE OF CALCIUM IN INDUSTRIAL SMELTING IS AS HIGH AS 25-35PERCENT IN THE ABSENCE OF OTHER OXIDES IN CHARGE. COMBINED REDUCTION OF CA, AL AND SI ALLOWS TO BRING RECOVERY OF CA FROM OXIDES UP TO 40PERCENT AND ITS CONCENTRATION IN ALLOY UP TO 24-26PERCENT. REDUCTIONOF SR WAS MOST DIFFICULT OF THE ALKALINE EARTH METALS, ITS CONCENTRATION DURING COMPLEX SILICON CALCIUM ALUMINOTHERMIC PROCESS DID NOT EXCEED 15PERCENT. BARIUM WAS MOST EASILY REDUCED. DURING REDUCTION OF BA BY 75PERCENT FERROSILICON, ITS CONCENTRATION REACHED 35PERCENT AND ITS SHIFT TO ALLOY 45PERCENT. DURING COMPLEX CALCIUM SILICON ALUMINOTHERMIC PROCESS THE AMOUNTS WERE 45 AND 80PERCENT RESPECTIVELY.

UNCLASSIFIED

USSR

UDC 669.891.782.018.9

RYSS, M. A., ZAYKO, V. P

"Calcium-Containing Alloys Produced by the Metallothermal Method"

Metalloterm.Protsessy v Khimii i Metallurgii, [Metallothermal Processes in Chemistry and Metallurgy -- Collection of Works], Novosibirsk, Nauka Press, 1971, p 73-77. (Translated from Referativnyy Zhurnal Metallurgiya,No 3, 1972, Abstract No 3G146 by the authors).

Translation: The Chelyabinsk Electrometallurgical Combine was the first to use a technology for the production of an alloy of Fe with Si and Ca by silicothermal processing from AcO, FeSi,and CaF_2. The basic technological parameters of the process are presented. As the alloy is produced, it is refined by the highly basic slag, removing P, S, C,and Al. The introduction of dolomite to the composition of the charge allows a Ca-containing modifier to be produced with a content of 2-5% Mg, while the introduction of $BaSO_4$ produces a complex modifier containing 5.1-5.7% Ba. When the complex modifier is produced with high Mg content, it is expedient to melt the modifier with the Mg in the ladle. 1 table.

1/1

USSR

UDC 669.893.018.9(088.8)

GOLEV, A. K., DELYAYEV, G. S., ZAYKO, V. P., RYSS, M. A.

"Method of Smelting Barium Alloys"

USSR Author's Certificate No. 277001, Filed 9/07/68, Published 20/10/70. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G178P by G.Svodtseva).

Translation: In producing Ba alloy by the silicothermal method, the reduction process is performed with expenditure of quartzite in a quantity of 10-50% of the weight of the $BaSO_4$ in the charge. In order to assure complete separation of metal from slag, CaC_2 is introduced to the slag in a quantity of 20-40% of the slag weight. The method provides for production of an alloy of the following composition (in percent): Ba 3-50, Ca 1-20, Si 40-70, Fe 15-30, S up to 0.080.

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- END -

6022
CSO: 1842-W

USSR UDC 669.782.018.9(088.8)

GUSAROV, V. N., MIKULINSKIY, A. S., RYSS, M. A., GETMANCHUK, V. M. PIGASOV, S. Ye., BELYAYEV, G. S., BEDOV, I. S., and POMOVGAYEV, V. N.

"Method of Melting Calcium-Silicon"

USSR Author's Certificate No. 26515, Filed 22/04/67, Published 17/06/70, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No.1 G164 P).

Translation: A method is suggested for producing Ca-Si in an electric arc furnace by reducing CaO with Si-containing material in the presence of CaF_2 with creation of a reducing atmosphere in the furnace by adding a C-containing material to the fused charge during the period of Ca reduction. The charge is fused in the presence of the C-containing material in order to increase the content of Ca in the melt, while the Si-containing reducer is introduced after melting.

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1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV

TITLE--RESTORATION OF THE ROOF OF THE ELECTRIC FURNACE USED FOR MELTING SILICON CONTAINING FERROALLOYS -U-

AUTHOR--(04)-KYSS, M.A., GETMANCHUK, V.P., BEDOV, I.S., POMOGAYEV, V.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,638

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(8)

DATE PUBLISHED--10FE870

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--CHEMICAL PATENT, ELECTRIC FURNACE, SILICON ALLOY, IRON ALLOY, REFRACTORY MATERIAL, MAGNESIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1820 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132085

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AA0132065
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELEC. FURNACE CROWN IS REDUCED BY APPLYING MG CONTG. MATERIALS TO THE MOLDING SURFACE OF THE CROWN. THE CROWN IS THEN TREATED WITH THE MG VAPORS THAT RESULT FROM REDN. OF THE MG RAW MATERIAL. THE VAPORS ARE INTRODUCED IN A QUANTITY DEPENDING ON THE WEAR AND TEAR OF THE CROWN. FACILITY: CHELYABINSKIY ELEKTROMETELLURGICHESKIY KOMBINAT.

UNCLASSIFIED

Acc. Nr. AA0108167 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code UR 0482

134782b Briquets for silicocalcium production. Kozhevnikov, G. N.; Nefedov, P. Ya.; Vorob'ev, V. P.; Ryss, M. A.; Getmanchuk, V. M.; Zaiko, V. P.; Belyaev, G. S.; Mikulinskii, A. S. (Ural Institute of Metallurgy, Academy of Sciences, U.S.S.R.) U.S.S.R. 260,653 (Cl. C 21c), 06 Jan 1970, Appl. 25 Feb 1969; From *Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki* 1970, 47(4), 26. Briquets for silicocalcium production were made from lime 60–70 and a carboniferous reducing agent 30–40 wt. % to reduce the losses of Si and the consumption of charge materials. MSCL

REEL/FRAME

19891833

USSR

UDC 550.837

RYSS, YU. S.

"Procedure for Geophysical Exploration of Ore Deposits"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 16, 8 May 70, p 60, Patent No 270120, Filed 18 Jul 66

Translation: This Author's Certificate introduces a procedure for geophysical exploration of ore deposits based on excitation of electrochemical reactions at the mineralization boundaries by an electric current of variable strength and subsequent recording of the polarization curves. The procedure is distinguished by the fact that in order to detect mineralization and establish the size and position of the ore body along with the mineral composition, the aggregate cathode-anode polarization potentials of the mineralization are measured at various points of the enclosing rock with forward and return directions of the polarizing current. The apparent and true reaction potentials are determined by these values.

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USSR

UDC 669.295.015.3:543.42

GRIKIT, I. A., RUMYANTSEVA, T. I., and RYS'YEVA, Yu. I.

"On the Dependency of the Erosion of Titanium-Nickel Alloys and the Intensity of the Arc and Spark Spectrums on the Nature of Interatomic Links"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 149-154

Translation: A study is made of erosion and spectrum intensity in binary alloys with certain structural states (hard solutions, eutectics, and intermetallides). Manufactured alloys were studied in the arc and spark modes with coal and copper antielectrodes. A certain dependency was established between the intensity of the spectrum and the phase diagram, solid substance-liquid. In the arc discharge, the erosion mechanism has a warming nature. In the high-voltage spark discharge, erosion also occurs due to mechanical destruction of structural components. It is demonstrated that erosion is determined by the stability of structural components, which are characterized by heat features which depend on interatomic links in the crystalline lattice. Three illustrations, one table, and 30 bibliographic entries.
1/1

USSR

UDC 621.762:669.127.44

BULANOV, V. Ya., MIKHAYLICHENKO, A. V., MOSHKANTSEV, G. A., RYSYKOV, N. Ya., and SEDACH, Yu. A., Orsk-Khalilovev Metallurgical Combine

"Cermet Materials Based on Iron Powders from the Rolling Scale of 17GS and 10KhSND Steels"

Kiev, Poroshkovaya Metallurgiya, No 7, Jul 70, pp 57-61

Abstract: Iron powders from the rolling scale of 17GS and 10KhSND naturally alloyed steels were produced by combined reduction. These powders were used to produce cermet test materials both with additions of carbon, in the form of S-d graphite, and without it. The principal properties of the powders are cited for comparison with the properties of PZh2M iron powder of the same granulometric composition produced by the same method. A table in the original article shows the density of the specimens as a function of full compacting pressure. The shrinkage was studied in the process of sintering at 1000 and 1250° C in a dried hydrogen atmosphere for 2 hours. The results show that an increase in porosity is followed by an increase in shrinkage for all specimens regardless of composition and processing conditions. The tests for uniaxial compression, tension, bending and shear indicate that the tensile strength of materials based on

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USSR

BULANOV, V. Ya., et al, Poroshkovaya Metallurgiya, No 7, Jul 76, pp 57-61

alloyed iron powders is higher than the same properties of materials based on unalloyed iron powders. It was found (by metallography) that alloyed powders with zero graphite content consist of alloyed ferrite with a microhardness higher than that in the ferrite of PZh2M; an increase in the graphite content in the initial mixture raises the amount of pearlite. Additions of graphite above 2% result in cementite.

2/2

USSR

4

UDC 616.9-036.21]:681.3(476)

KARDASH, I. B., KLIMENKO, Ye. P., DROSDOVA-TIKHOMIROVA, A. A., POLIVODA, Z. M., RUBANOVA, F. G., LEPESHINSKAYA, I. V., RYTIK, P. G., and KNYSH, I. N., Ministry of Health Belorussian SSR, Central Institute of Epidemiology of the Ministry of Health USSR, Belorussian Institute of Epidemiology and Microbiology, and Belorussian Republic Sanitary Epidemiological Station

"Experience Gained in the Belorussian SSR During Introduction of a New Epidemiological Investigation Card Adapted for Processing on IBM Computer Minsk-22"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, pp 124-128

Abstract: A new IBM card with a detachable statistical stub, developed for epidemiological investigations at the Central Institute of Epidemiology, was tested in 1968-1970 in a feasibility study conducted throughout the Belorussian Republic. The project was a success not only because the IBM card is useful and convenient but also because the personnel at district and municipal epidemiological stations had received through advance training in how to fill in the cards and code the stubs. A control staff routinely examined the cards and corrected errors detected in a total of 3.1% of the stubs. Procedural improvements were introduced throughout the 3 year period as dictated by expediency. After each quarter-year, the stubs were checked at the local

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USSR

KARDASH, I. B., et al., Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 12, 1972, pp 124-128

stations and submitted to the municipal or oblast stations where they were recorded and checked again. Next, they were sent to the Belorrusian Institute of Epidemiology and Microbiology for the third check, and from there to the Computer Center of Belorussia's Central Statistical Administration where the data were transferred on perforated tapes and processed on the computer. The method yielded statistical charts with more accurate and detailed information than was ever available in the past. The method was approved by the Ministry of Health USSR and, in 1970, it was introduced on a permanent basis in epidemiological stations throughout the Belorussian SSR.

Vector Studies

USSR

VOTYAKOV, V. I., GRIBOV, V. A., RYTIK, P. G., and BOYKO, V. I., Belorussian Scientific Research Institute of Epidemiology and Microbiology, Minsk

"Device for Feeding and Natural Infection of Insects"

Moscow, Otkrytiya, Izokreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, 1973, p 102

Translation: The device for feeding and natural infection of insects, consisting of two chambers (one of them open, the other one closed) divided by a membrane and having an opening for supplying the donor's blood, differs in that there is a bolt (for instance a ball valve) installed in the channel for serving blood and that the open chamber is provided with a netted ring, which is fixed by a clamping mount, in order to increase the safety of serving donor's blood and to prevent dissemination of the insects used in the experiment.

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UNCLASSIFIED

TITLE--CALCULATION OF PLASTIC ZONE TEMPERATURE DURING EXTRUSION -U-

AUTHOR--RYTIKOV, A.M.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 197 43(1), 64-8

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--THERMODYNAMIC CALCULATION, TEMPERATURE DISTRIBUTION, METAL EXTRUSION, THERMAL CONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0760 STEP NO--UR/0136/70/043/001/0064/0068

CIRC ACCESSION NO--AP0102725

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0102725

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KNOWING THE TEMP. RATE CONDITIONS OF PRESSING IS OF PRINCIPAL SIGNIFICANCE, INASMUCH AS IT MAKES IT POSSIBLE TO CAREFULLY CALC. THE FORCE PARAMETERS OF THE PROCESS AND THUS DISCOVER NEW WAYS FOR BRINGING ABOUT ISOTHERMAL PRESSING, GUARANTEEING CONST. PHYS. MECH. PROPERTIES OF THE PRESSED ARTICLES ALONG THEIR LENGTH. HARD NONFERROUS METALS ARE PRESSED FROM CONTAINERS THE TEMP. OF WHICH IS SIGNIFICANTLY LESS THAN THE TEMP. OF THE ROD. EXPTL. TEMP. OF THE PLASTIC ZONE WAS DETD. BY A PREVIOUSLY DESCRIBED TECHNIQUE. A CAREFUL ANAL. OF THE EXPTL. DATA WAS MADE. IN ALL CASES THERE IS A SHARP INCREASE IN THE TEMP. OF THE PLASTIC ZONE AT THE START OF THE PROCESS, CAUSED BY THE CHANGE IN THE HEAT BALANCE, AND DIRECTLY PROPORTIONAL TO THE DEFORMATION WORK. AS THE PRESSING OF THE ROD CONTINUES, A DROP IN THE TEMP. OF THE PLASTIC ZONE IS OBSD. THIS IS ASSOCD. WITH INCREASED COOLING OF THE ROD. THE INTENSITY OF THE TEMP. DROP OF THE PLASTIC ZONE DURING PRESSING IS EQUAL TO THE INTENSITY OF THE CHANGE IN THE TEMP. OF THE METAL OF THE REMAINING PART OF THE ROD. THE DECREASE IN THE HEAT COND. OF THE METAL RESULTS IN AN INCREASE OF ITS HEAT INERTIA.

UNCLASSIFIED

USSR

UDC 538.566

BARABANENKOV, Yu. N., KRAVTSOV, Yu. A., RYTOV, S. M., and TATARSKIY, V. I., Radio Engineering Institute and Institute of Atmospheric Physics, both of the USSR Academy of Sciences, and the All-Union Scientific Research Institute of Physical-Optical Measurements

"Status of the Theory of Wave Propagation in a Randomly-Inhomogeneous Medium"

Moscow, Uspekhi Fizicheskikh Nauk, Vol 102, No 1, 1970, pp 1-42

Abstract: Existing methods of calculation in the theory of wave propagation in randomly-inhomogeneous media and the limits to their applicability, along with recently introduced methods of examining the multiple scattering of waves, such as the Markovian approximation and the parabolic equation method, or the use of procedures first developed in quantum electrodynamics and now used to sum up series in perturbation theory are surveyed in this review of 542 literature references. Due to the scope of this field of investigation, only problems of bulk scattering in continuous media for free propagation are examined. The omitted areas thus include: reflection at randomly-uneven surfaces; scattering at discrete disseminates, such as artificial scattering materials, aerosols, raindrops, and snow in the atmosphere, or bubbles and fishes in the water; and the propagation of waves in randomly-inhomogeneous feeder cables. 1/1

UNCLASSIFIED

TITLE--RELAXATION THEORY OF RAYLEIGH SCATTERING -U-

PROCESSING DATE--20NOV70

AUTHOR--RYTOV, S.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 6, PP 2154-2170

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RALEIGH SCATTERING, RELAXATION PROCESS, TENSOR, HEAT DISSIPATION, LIGHT SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1690

STEP NO--UR/0056/70/058/006/2154/2170

CIRC ACCESSION NO--AP0120402

UNCLASSIFIED

2/2 018 UNCLASSIFIED

CIRC ACCESSION NO--AP0120402 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A THEORY IS DEVELOPED OF EQUILIBRIUM THERMAL FLUCTUATIONS IN AN ISOTROPIC CONTINUOUS MEDIUM IN WHICH THE STATE OF INCOMPLETE EQUILIBRIUM IS DESCRIBED BY DEFORMATIONS, A TEMPERATURE AND AN ARBITRARY NUMBER OF SCALAR AND SYMMETRIC TENSOR RELAXING PARAMETERS, SPECTRAL DENSITIES OF THE VARIABLES WHICH DEPEND ON THE COMPLE ELASTIC AND THERMAL MODULII WITH DEFINITE DISPERSION LAWS ARE FOUND BY MEANS OF THE FLUCTUATION, DISSIPATION THEOREM. FORMULAS FOR THE SPECTRAL AND INTEGRAL INTENSITIES OF LIGHT SCATTERED BY THE MEDIUM ARE DERIVED IN THE GENERAL CASE WHEN FLUCTUATIONS OF THE DIELECTRIC PERMEABILITY DEPEND ON ALL THE PARAMETERS MENTIONED ABOVE. IT IS SHOWN THAT THE FORMULAS INCLUDE AS PARTICULAR CASES THE RESULTS OF A NUMBER OF OTHER RELAXATION THEORIES OF RAYLEIGH SCATTERING (PRIME9-13). THE INCORRECTNESS OF STATEMENT OF THE PROBLEM AND METHOD OF SOLUTION GIVEN IN THE PREVICUS PAPERS OF THE AUTHOR (PRIME2-4), POINTED OUT IN REF. (PRIME1), ARE ANALYZED IN THE PRESENT PAPER. THE ANALYSIS SHOWS THAT THE AUTHORS CRITICAL REMARKS (PRIME7) REGARDING MOUNTAIN'S THEORY (PRIME11, 12) ARE INVALID. FACILITY: RADIOTEKHNICHESKIY INSTITUT AN SSSR.

UNCLASSIFIED

RYTOV, V.I.

Min. of Fisheries

P/S

FISHERIES AND MARINE RESOURCES

FISHERIES OFFICIAL QUESTIONED ON MARKETING

[Interview with V. I. Rytov, USSR Deputy Minister of Fisheries, by B. Kostin: "From the Ocean to the Shop Counter"; Moscow, Komsomol'skaya Pravda, Russian, 22 October 1971, p 2]

The vessels of the Soviet fishing fleet ply all latitudes, along the home shores and thousands of kilometers away from their bases.

In 1940, the total catch was 13.88 million quintals, and in 1970, 77 million quintals. Fisheries are to continue to develop so rapidly. The directives of the 24th CPSU Congress envisage that during the new five-year plan "there will be a significant increase in the production and delivery to trade organizations of live and refrigerated fish, fish fillet and semifinished products, cured fillet, smoked and dried fish."

I took with me letters from readers of Komsomol'skaya Pravda to the office of the USSR Deputy Minister of Fisheries, Vladimir Il'ich Rytov, as well as a desire to find out about the plans of the sector for the next few years. And our chat began with a question which many readers had asked in their letters:

Question: How can one explain that the fishermen have been lucky at sea, the catches have been growing, but at the same time, there is not enough fresh, frozen and canned fish on the store shelves...

How has this happened?

Answer: I will show you today's summary, said V. I. Rytov, and placed a document on his desk. On the day of our chat, more than 40 unloaded vessels stood idle in the ports of the nation. The trade organizations were holding up the dispatch of almost 100,000 tons of fish products, by not giving orders to Dal'ryba [Far Eastern Fisheries Administration].

JPRS 55155 #241 Jan 28, 72

UNCLASSIFIED

TITLE--COMPENSATION OF DONORS IN A GAAS SUBO TIMES2 P SUBO TIMES8 SOLID SOLUTION -U-

PROCESSING DATE--18SEP70

AUTHOR-(04)-IGLITSYN, M.I., KISTOVA, YE.M., RYTOVA, N.S., YUROVA, YE.S.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1) 230

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SOLID SOLUTION, ACTIVATION ENERGY, CRYSTAL LATTICE VACANCY, ZINC, TELLURIUM, SELENIUM, PHOSPHORUS, GALLIUM ARSENIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0579

STEP NO--UR/0449/70/004/001/0230/0230

CIRC ACCESSION NO--AP0105562

UNCLASSIFIED

2/2 028 UNCLASSIFIED

CIRC ACCESSION NO--AP0105562 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEGREE OF COMPENSATION OF A DONOR IMPURITY (K EQUALS N SUBA-N SUBD) IN N-TYPE GAAS SUB1 NEGATIVEX P SUBX SOLID SOLNS. IS CONST. FOR X EQUALS 0.7-0.9 AND N SUBD EQUALS 10 PRIME17 MINUS 10 PRIME19-CM PRIME3 AND DOES NOT DEPEND ON POSSIBLE SMALL SCALE DOPING BY TE, SE, (TE PLUS ZN), OR (SE PLUS ZN). THE COMPENSATING CENTERS ARE SUPPOSED TO BE SINGLY CHARGED LATTICE DEFECTS. THE ANNEALING OF BOTH N TYPE AND P TYPE SAMPLES AT VARIOUS TEMPS. AND AT VARIOUS PARTIAL PRESSURES OF AS SHOWED THAT THE CONCN. OF THESE DEFECTS DEPENDS EXPONENTIALLY ON TEMP. WITH AN ACTIVATION ENERGY OF 1.5 PLUS OR MINUS 0.3 EV AND THAT IT DECREASES WITH INCREASING AS PARTIAL PRESSURE. THE COMPENSATING CENTERS ARE PROBABLY ASSOCD. WITH AS VACANCIES.

UNCLASSIFIED

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Miscellaneous

USSR

UDC 539.376:620.18:669.872'233

RYIVIN, Ye. I., and MEDOVYY, L. A.

"High-Temperature Strength and Structure of the PlRd7 Alloy as a Function of Preliminary Deformation"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, Nov 70, pp 53-55

Abstract: An investigation was made of the dependence of the creep rate of a platinum alloy with 7% Rh (PlRd7) at 0.7-0.8 temperature of melting on the conditions of preliminary deformation by drawing. The effect of the degree of deformation on the structure of the sheet material is also shown. At 1200° C the creep rate decreases with the increase in the rate of preliminary deformation from 8 to 20%; an increase in the deformation rate has no effect on the creep rate. The creep rate of specimens at 1400° C increases sharply with an increase in the degree of preliminary deformation from 8 to 15%, and then decreases, and with an increase of the degree of area reduction of over 40% remains almost unchanged. Thus, the minimum creep strength of the PlRd7 alloy at 1400° C corresponds to a deformation of 15%; minimum creep strength at 1200° C corresponds to a deformation of 8%.

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1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DEFORMATION OF OXIDE FILMS ON STEEL 16GNM -U-

AUTHOR-(02)-RYTVINSKIY, A.I., GUGELEV, B.M.

COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(1), 108-9

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--LOW ALLOY STEEL, ALLOY DESIGNATION, METAL OXIDE, OXIDE FILM, PITTING CORROSION/(U)16GNM LOW ALLOY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1550 STEP NO--UR/0365/70/006/001/0108/0109

CIRC ACCESSION NO--AP0120329

UNCLASSIFIED

2/2 023 UNCLASSIFIED

CIRC ACCESSION NO--AP0120329 PROCESSING DATE--23OCT7(

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS INVESTIGATION BEARS DIRECTLY ON THE PITTING CORROSION AND SUBSEQUENT CRACKING OF BOILER DRUMS RESULTING FROM THE DIFFERENCES IN EXPANSION AND CONTRACTION OF OXIDE FILMS ON STEEL. THE BEHAVIOR OF THE OXIDE FILMS WERE STUDIED UNDER THE FOLLOWING CONDITIONS: (1) STEAM AT 500DEGREES FOR 100-300 HR, (2) BOILER WATER AT 350DEGREES FOR 100-1000 HR, (3) AIR AT 650DEGREES FOR 5 HR, (4) AIR AT 650DEGREES FOR 5 HR, FOLLOWED BY AIR AT 20DEGREES FOR 3500 HR, (5) AIR AT 650DEGREES FOR 5 HR, FOLLOWED BY AIR AT 20DEGREES FOR 3500 HR FOLLOWED BY STEAM AT 500DEGREES FOR 100-200 HR. THE SCALE FORMED UNDER THESE 5 CONDITIONS WAS CAREFULLY ANALYZED AND TESTED FOR EXPANSION AND CONTRACTION.

UNCLASSIFIED

USSR

UDC 628.165.04

SOBOLEV, Y. A., RYUCHIN, S. V., GOLUB, S. I., and PODBEREZNYY, V. L.

"Ten-Unit Experimental Industrial Desalination Apparatus"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 7, 1973, pp 30-32

Abstract: For the first time on a world-wide scale a 10 unit desalination apparatus has been built and successfully operated. This complex is based on the principle of evaporation with seeding; it consists of evaporation units with forced circulation of the brine. The average productivity of such units is 640-650 m^3/hr. The distillate obtained is suitable for the use as drinking water as well as for feeding high pressure boilers.

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AP0037716

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PRIMARY SOURCE: FBIS Daily Report, Soviet Union, 6 March 1970, Vol III, Nr 45, p D 1

USSR

MODEL OF UNSTABLE PLASMA--Moscow March 3 TASS--Discoveries by Soviet scientists Yuri Ivanov, Boris Kadomtsev, Arthur Nedospasov, and Solomon Mrykin make it possible to simulate and study unstable plasma of thermonuclear processes. Today, the Soviet Committee for Inventions and Discoveries entered this discovery in its register.' Experimenting with samples of germanium semiconductor, the authors discovered a phenomenon called screw-type plasma instability and explained it. A possibility appeared to substitute huge and very expensive installations, simulating plasma of thermonuclear synthesis by simple samples of the semiconductor and to test on them different methods of dampening of plasma instability. The discovery also made it possible to design a series of original instruments in which the instability is used for the generation and intensification of electric oscillations. (Moscow TASS International English 2135 GMT 3 Mar 70 L)

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1/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--REACTIONS OF 4,TRIFLUOROMETHYLAZO,4 PRIME,AMINOBIPHENYL -U-

AUTHOR-(05)-ZIMIN, V.I., RYULINA, A.I., SULTANBEKOV, D.A., BARYSHEVA, L.I., STUDNEV, YU.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 812-15

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--FLUORINATED ORGANIC COMPOUND, BENZENE DERIVATIVE, ORGANIC AZO COMPOUND, DYE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1276 STEP NO--UR/0366/70/006/004/0812/0815

CIRC ACCESSION NO--AP0134059

UNCLASSIFIED

2/2 015 UNCLASSIFIED

CIRC ACCESSION NO--AP0134950 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COUPLING DIAZOTIZED P,F SUB3 CN:NC SUB6 H SUB4 C SUB6 NH SUB2 (I) WITH 2,C SUB10 H SUB7 NH SUB2, M,C SUB6 H SUB4 (NH SUB2) SUB2, M,C SUB6 H SUB4 (OH) SUB2, 2,C SUB10 H SUB7 OH, 1,3,INDANDIONE, AZOTOL A, OR AZOTOL IIA, GAVE A SERIES OF LIGHT FAST DYES. SIMILARLY I WAS CONDENSED WITH O,HOC SUB6 H SUB4 CHO, P,ME SUB2 NC SUB6 H SUB4 CHO, 5,2,CL(HO)C SUB6 H SUB3 CHO, 5,2,O SUB2 N(HO)C SUB6 H SUB3 CHO, 3,4,O SUB2 N(ME SUB2N)C SUB6 H SUB3 CHO, 2,1,HOC SUB10 H SUB6 CHO, OR 4,2,PHN:N, (HO)C SUB6 H SUB3 CHO TO GIVE AZOMETHINES.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--CHROMIUM AND SILICON WELDING ELECTRODES 110 -U-

AUTHOR-(03)-PETRICHENKO, A.M., VERETNIK, L.D., RYUMIN, G.V.

COUNTRY OF INFO--USSR

SOURCE--SVAR. PROIZVOD. 1970, (1), 43

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--WELDING ELECTRODE, WEAR RESISTANT FERROUS ALLOY, HIGH CARBON STEEL, ALLOY STEEL, FERROUS WELD HEAT TREATMENT, CHROMIUM STEEL, SILICON STEEL/(U)110 WELDING ELECTRODE

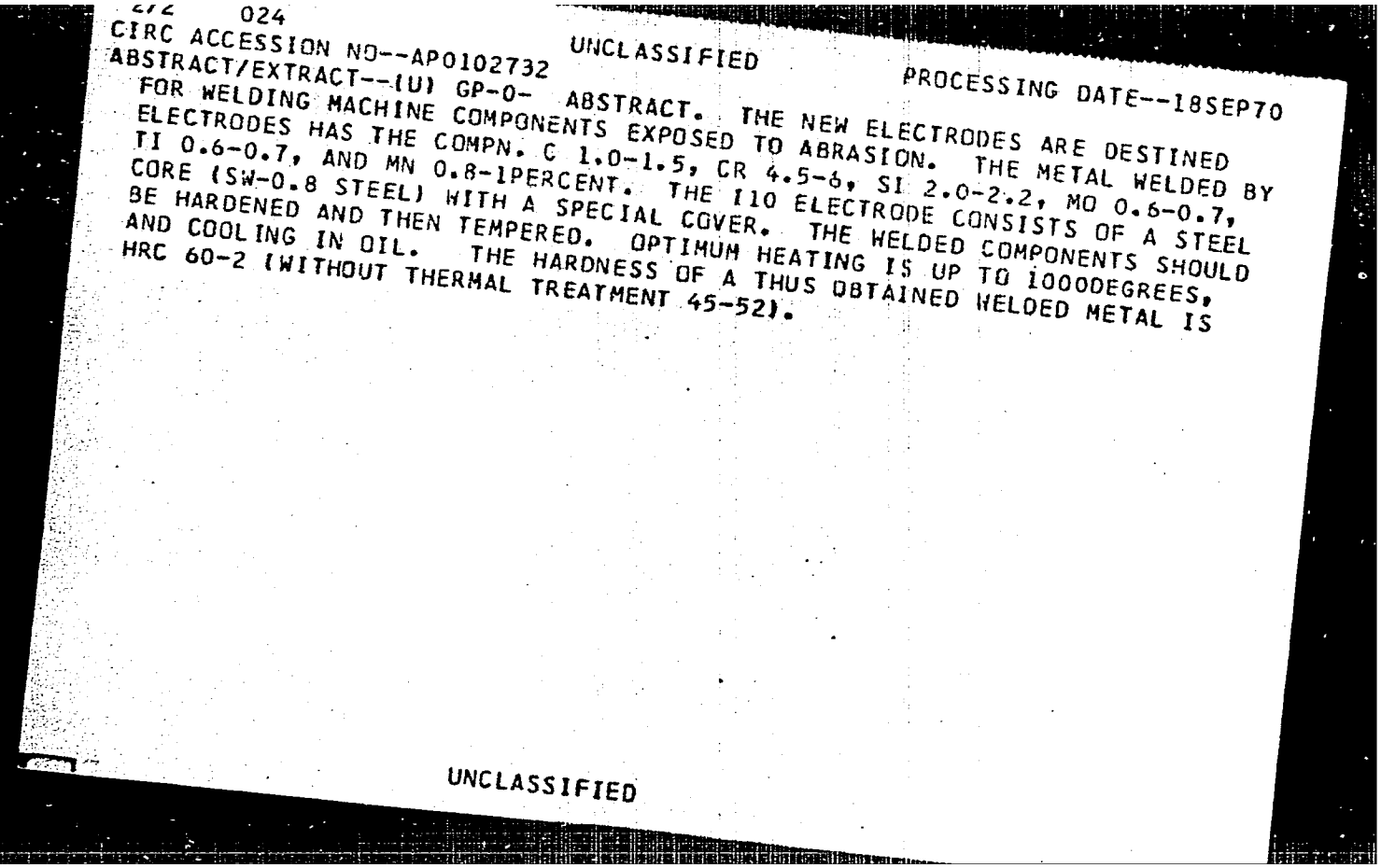
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0769 STEP NO--UR/0135/70/000/001/0043/0043

CIRC ACCESSION NO--AP0102732

UNCLASSIFIED



272 024
UNCLASSIFIED
CIRC ACCESSION NO--AP0102732 PROCESSING DATE--18SEP70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NEW ELECTRODES ARE DESTINED FOR WELDING MACHINE COMPONENTS EXPOSED TO ABRASION. THE METAL WELDED BY ELECTRODES HAS THE COMPN. C 1.0-1.5, CR 4.5-6, SI 2.0-2.2, MO 0.6-0.7, TI 0.6-0.7, AND MN 0.8-1PERCENT. THE I10 ELECTRODE CONSISTS OF A STEEL CORE (SW-0.8 STEEL) WITH A SPECIAL COVER. THE WELDED COMPONENTS SHOULD BE HARDENED AND THEN TEMPERED. OPTIMUM HEATING IS UP TO 1000DEGREES, AND COOLING IN OIL. THE HARDNESS OF A THUS OBTAINED WELDED METAL IS HRC 60-2 (WITHOUT THERMAL TREATMENT 45-52).
UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202720017-8"

USSR

KIRILYUK, L.V., RYUMIN, V.P. UDC 621.315.592

"Forming Of Semiconductor Layers Of SnO_2 Produced By The Aerosol Method On K8 Glass"

Dielektriki. Mezhved. nauch.sb. (Dielectrics. Interdepartmental Scientific Collection), 1972, Issue 2, pp 115-119 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B127)

Translation: The paper considers the conditions of forming a thin-layered covering on the surface of K8 glass, and the effect of the temperature of the glass substrate, the dimensions of the aerosol particles of stannic chloride [khlornoye olovo], and the concentration of the doping admixture NH_4F on the structurization of the covering. It is established that in order to procure SnO_2 layers with a transparency of 79-88 percent, the temperature of the K8 glass must not exceed 530° C, and the dimensions of the aerosol particles of stannic chloride 0.04--0.15 micron, and the concentration of NH_4F, 1--2 percent. Summary.

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1/2 027 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EFFECT OF RHEOPOLYGLUCIN ON METABOLIC PROCESSES IN THE ORGANISM -U-

AUTHOR-(05)-STEPANYAN, YE.P., POSPELOVA, YE.P., YARLYKOVA, YE.I., SHURKALINA, T.KH., RYUMINA, YE.N.

COUNTRY OF INFO--USSR

SOURCE--EKSP. KHIR. ANESTEZIOL. 1970, 15(1), 40-4

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DEXTRAN, MOLECULAR WEIGHT, BLOOD PLASMA, BLOOD CHEMISTRY, PROTEIN, FIBRINOGEN, CALCIUM COMPOUND, BLOOD VOLUME, MYOCARDIUM, ENZYME ACTIVITY

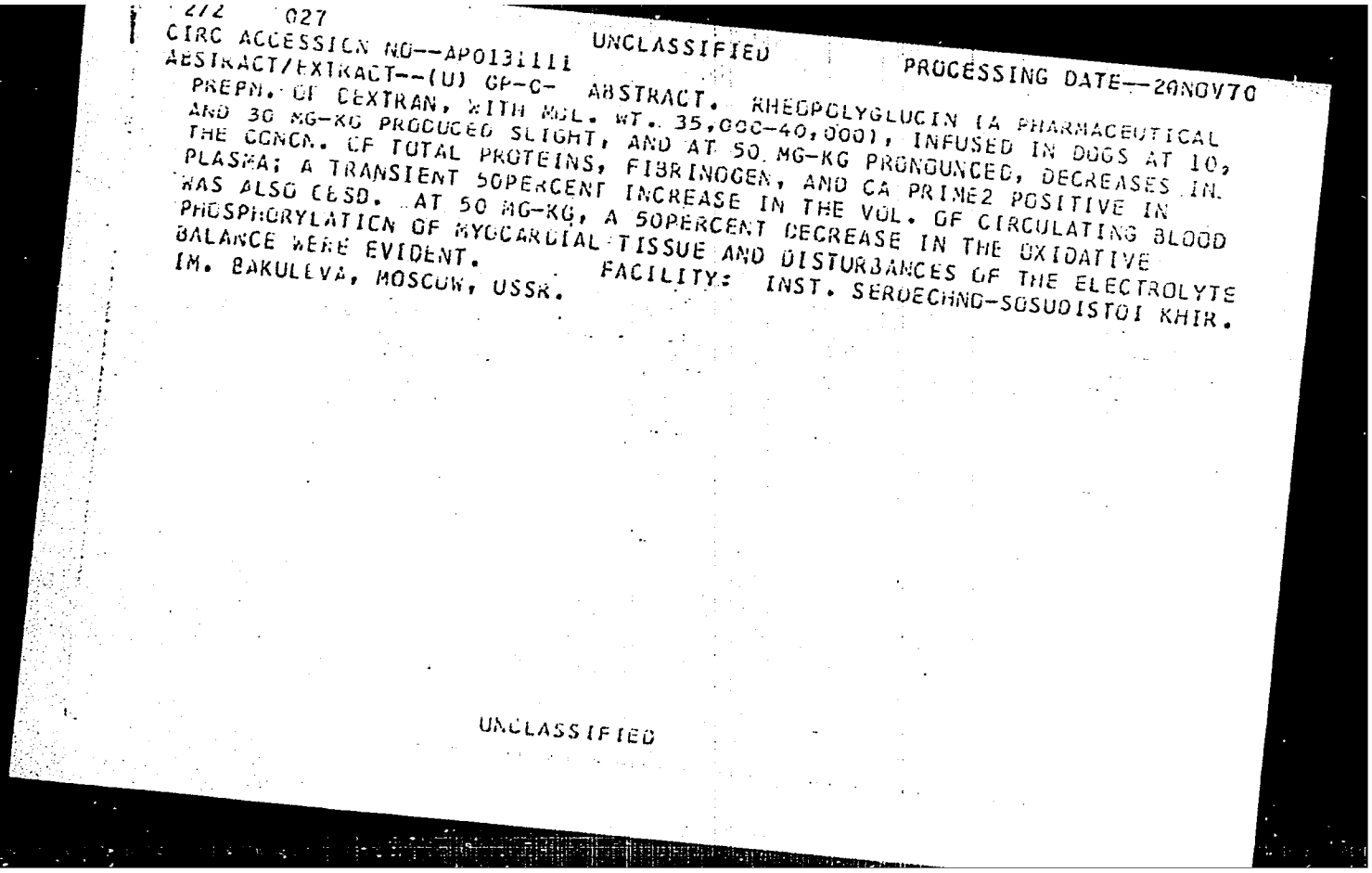
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0474 STEP NO--UR/0481/70/015/001/0040/0044

CIRC ACCESSION NO--AP0131111

UNCLASSIFIED



2/2 027 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0131111
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RHEOPOLYGLUCIN (A PHARMACEUTICAL PREPN. OF DEXTRAN, WITH MOL. WT. 35,000-40,000), INFUSED IN DOGS AT 10, AND 30 MG-KG PRODUCED SLIGHT, AND AT 50 MG-KG PRONOUNCED, DECREASES IN THE CONCN. OF TOTAL PROTEINS, FIBRINOGEN, AND CA PRIME2 POSITIVE IN PLASMA; A TRANSIENT 50PERCENT INCREASE IN THE VOL. OF CIRCULATING BLOOD WAS ALSO OBSD. AT 50 MG-KG, A 50PERCENT DECREASE IN THE OXIDATIVE PHOSPHORYLATION OF MYOCARDIAL TISSUE AND DISTURBANCES OF THE ELECTROLYTE BALANCE WERE EVIDENT. FACILITY: INST. SERDECHNO-SOSUDISTOI KHIR. IM. BAKULEVA, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: AP0034717

Ref. Code: UR 0241

PRIMARY SOURCE: Meditsinskaya Radiologiya, 1970, Vol 15, Nr 2, pp 34-40

RADIOCARDIOGRAPHY IN INVESTIGATING HEMODYNAMICS IN PATIENTS WITH CONGENITAL HEART FAILURES

Ryumina, Ye. N.

Summary

Data on the potentialities of radiocardiography in the clinical study of congenital heart failures are offered. The radiocardiogram was found to reflect the state of hemodynamics in such patients. Synchronous recording of the isotope dilution curves on the peripheral vessels gives an idea as to the direction of the intracardiac dumping of the blood. The use of radiography after radical operations makes it possible to judge about the elimination of the intracardiac dumping of the blood and also to make a quantitative evaluation of the central hemodynamics.

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19711423

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026 UNCLASSIFIED

TITLE--SURFACE PHENOMENA IN THE CRYSTALLIZATION OF SOLDERED JOINTS -U-

PROCESSING DATE--04DEC70

AUTHOR--RYUMSHIN, V.M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SVAROCHNOYE PROIZVODSTVO, NO 1, JAN 70, PP 8-9

DATE PUBLISHED----JAN70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--METAL CRYSTALLIZATION, SOLDERING, IRON ALLOY, COPPER ALLOY, SILVER ALLOY, NUCLEATION, COPPER SOLDERING, SOLDER, METAL JOINING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1631

STEP NO--UR/0135/70/000/001/0008/0009

CIRC ACCESSION NO--AP0136901

UNCLASSIFIED

2/2 026 UNCLASSIFIED

CIRC ACCESSION NO--AP0136901 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR ANALYZES SEVERAL EQUATIONS OF THE ENERGY CONDITIONS IN THE CRYSTALLIZATION OF SOLDER ALLOYS AND CONCLUDES THAT IN MOST OF THE CASES THE PARENT METAL HAS AN ORIENTING EFFECT ON THE NUCLEATION AND GROWTH OF SOLDER ALLOY CRYSTALS. THE MOST PRONOUNCED ORIENTING EFFECT OF THE PARENT METAL ON THE CRYSTALLIZATION OF SOLDER ALLOY OCCURS WHEN DISSOLUTION AND DIFFUSION TAKE PLACE, DURING THE INTERACTION BETWEEN THE BASE METAL AND SOLDER ALLOY, WITHOUT FORMATION OF INTERMEDIATE LAYERS OF CHEMICAL COMPOUNDS. THIS WAS DEMONSTRATED, IN EARLIER WORKS, ON IRON COPPER AND COPPER SILVER SYSTEMS, WHERE THE BASIC METAL PLAYED THE ROLE OF THE ORIENTING SUBSTRATE. IF THE REACTION BETWEEN THE SOLDER ALLOY AND PARENT METAL FORMS CHEMICAL COMPOUNDS, THE ORIENTING EFFECT OF THE PARENT METAL ON THE CRYSTALLIZATION OF SOLDER ALLOY IS CONSIDERABLY WEAKENED. HOWEVER, IN THIS CASE, THE PARENT METAL MAY CONSIDERABLY AFFECT THE STRUCTURE OF THE SOLDERED JOINT.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202720017-8"

USSR

UDC 621.791.3.05.001.5

RYUMSHIN, V. M., Candidate of Technical Sciences

"Surface Phenomena in the Crystallization of Soldered Joints"

Moscow, Svarochnoye Proizvodstvo, No 1, Jan 70, pp 8-9

Abstract: The author analyzes several equations of the energy conditions in the crystallization of solder alloys and concludes that in most of the cases the parent metal has an orienting effect on the nucleation and growth of solder alloy crystals. The most pronounced orienting effect of the parent metal on the crystallization of solder alloy occurs when dissolution and diffusion take place, during the interaction between the base metal and solder alloy, without formation of intermediate layers of chemical compounds. This was demonstrated, in earlier works, on iron-copper and copper-silver systems, where the basic metal played the role of the orienting substrate. If the reaction between the solder alloy and parent metal forms chemical compounds, the orienting effect of the parent metal on the crystallization of solder alloy is considerably weakened. However, in this case, the parent metal 1/1 may considerably affect the structure of the soldered joint.

USSR

UDC 548.0:532.783

RYUMTSEV, Ye. I., KOVSHIK, A. P., KOLOMIYETS, I. P., TSVETKOV, V. N., Physics Institute, Leningrad State University

"Anisotropy of Molar Refraction of Liquid-Crystal Alkoxybenzoic Acids"

Moscow, Kristallografiya, Vol 18, No 6, Nov/Dec 73, pp 1246-1249

Abstract: The prism refractor method is used to measure the indices of refraction of nematic and amorphic liquids of a homologous series of alkoxybenzoic acids. The values of molar refraction and its anisotropy are calculated for each homolog in the entire region of existence of the nematic phase. The resultant relations for refraction anisotropy as a function of the structure of the molecules are explained by the effect of flexibility -- a phenomenon which is well known for chain molecules.

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USSR

UDC 532.783

TSVETKOV, V. N., Corresponding Member of the USSR Academy of Sciences, RYUMTSEV, Ye. I., KOLOMIYETS, I. P., KOVSHIK, A. P., Leningrad State University imeni A. A. Zhdanov

"Concerning the Macroscopic Equivalence and Difference of Molecular Mechanisms of the Orienting Action of Electric and Magnetic Fields on Nematic Liquid Crystals"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 4, 1 Aug 73, pp 821-824

Abstract: The electric-to-magnetic susceptibility anisotropy ratios were measured by the crossed-field method on a frequency of $\nu = 7 \cdot 10^5$ for several liquid crystals, and the permittivities parallel and perpendicular to the axis of nematic order were determined by the method of capacitance on the same frequency. In addition, the diamagnetic anisotropy was measured on the same substances. The resultant experimental data show that anisotropy of retardation of molecular rotation reduces the dielectric anisotropy of positively anisotropic liquid crystals and increases the anisotropy of negatively anisotropic crystals. When the dipole moment is fairly high, dispersion may change the sign of electric susceptibility anisotropy in a crystal with positive dielectric anisotropy.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202720017-8"

USSR

TsVETKOV, V. N. Corresponding Member of the Academy of Sciences of the USSR, KOLOMIYeTs, I. P., RYuMTsEV, Ye. I., and ALIYeV, S. M.

"A Rotating Magnetic Field as a Method of Determining the Diamagnetic Anisotropy of Nematic Liquid Crystals"

Moscow, Doklady Akademii Nauk SSSR, Vol 109, No 5, 11 Apr 73, pp 1074 - 1077

Abstract: A liquid crystal subjected to a rotating magnetic field which is sufficiently strong and not rotating too rapidly experiences mechanical forces due to the rotation of the axis of nematic order in step with the magnetic field but lagging at some angle. Under ideal conditions it would be possible to determine the diamagnetic anisotropy by knowing the moment of mechanical rotation and the lag angle for a single value of magnetic field rotational speed. Attempts have been made to do this with a torsion balance, based on the fact that the mechanical moment reaches its maximum when the lag angle is equal to $\frac{\pi}{4}$. This procedure is subject to errors because the macroscopic uniformity of the substance breaks down before the lag angle reaches this value. The authors have supplemented the procedure by observing the liquid crystal with polarized light. At extremely slow rotations the polarization is established so that the crystal is dark. As the lag angle increases, the light is permitted to pass; it is

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TsVETKOV, V. N., et al., Moscow, Doklady Akademii Nauk SSSR, Vol 109, No 5, 11 Apr 73, pp 1074 - 1077

extinguished by rotating the polarizing filters.

Both mechanical and optical measurements indicate that reliable values of lag can be determined only when the rotational speed is relatively low, before vortex effects become significant. With this restriction, the simultaneous measurement of torque moment and phase lag provides a relable method of determining diamagnetic anisotropy.

UNCLASSIFIED

TITLE--OHMIC RESISTANCE OF AN INHOMOGENEOUS PLASMA -U-

AUTHOR-(03)-BREYZMAN, B.N., MIRNOV, V.V., RYUTOV, D.D.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 5, PP 1770-1783

DATE PUBLISHED-------70

PROCESSING DATE--27NOV70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRIC RESISTANCE, ELECTRIC CURRENT, PLASMA DYNAMICS, FREE PATH, ELECTRON, ELECTRON CAPTURE, ELECTRIC CONDUCTIVITY, ELECTRON COLLISION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/2230

CIRC ACCESSION NO--AP0127592

STEP NO--UR/0056/70/058/005/1770/1783

UNCLASSIFIED

2/2 028 UNCLASSIFIED

CIRC ACCESSION NO--AP0127592 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FLOW OF A CURRENT THROUGH AN INHOMOGENEOUS PLASMA IS CONSIDERED UNDER CONDITIONS WHEN THE ELECTRON MEAN FREE PATH CONSIDERABLY EXCEEDS THE CHARACTERISTIC INHOMOGENEITY DIMENSIONS. IT IS SHOWN THAT THE PRESENCE OF A LARGE NUMBER OF CAPTURED ELECTRONS LEADS TO A STRONG INCREASE OF THE OHMIC RESISTANCE COMPARED TO THE CASE OF A HOMOGENEOUS PLASMA. THE EFFECTIVE CONDUCTIVITY IS CALCULATED BY SIMULTANEOUSLY TAKING INTO ACCOUNT ELECTRON ELECTRON AND ELECTRON HOLE COLLISIONS. THE SPATIAL DISTRIBUTION OF THE ELECTRIC FIELD APPLIED TO THE PLASMA IS FOUND. INSTITUT YADERNOY FIZIKI, SIBIRSKOGO OTDELENIYA, AKADEMII NAUK SSSR.

UNCLASSIFIED

USSR

VEKSHTEYN, G. YA., RYUTOV, D. D., and SAGDEYEV, R. Z.

"Asymptotic Solution in the Problem of Anomalous Resistance of Plasma Without Collisions"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 60, No 6, Jun 71, pp 2142-2154

Abstract: The authors examine the problem of the time evolution of distribution functions of charged particles in a homogeneous plasma placed into an external electric field E. They showed that in the range $t \to \infty$ the distribution functions vary self-similarly and all velocities increase with time.

The authors established that in the case when the current is parallel to the external magnetic field, the directional velocity of the electrons v varies essentially the same as by free acceleration: $v = \alpha (eE/m)t$, where α is a numerical coefficient which is less than, but on the order of, unity.

If the current is perpendicular to the external magnetic field, then the "escape" phenomenon disappears and the ratio of the directional velocity of electrons to their thermal velocity becomes much less than unity.

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Acc. Nr: AP0043798

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 739-746

QUASIGASODYNAMIC DESCRIPTION OF A CLOUD OF HOT ELECTRONS IN A COLD PLASMA

D. D. Ryutov, R. Z. Sagdeyev

The one-dimensional problem of expansion of a rarefied hot electron cloud through a cold plasma is investigated. It is shown that expansion is accompanied by excitation of Langmuir oscillations. The counter action of the latter on the hot electron distribution can be taken into account in the quasilinear approximation. «Quasigasodynamics» equations describing the expansion process are derived by a method similar to the Chapman — Enskog method. Analytic solutions of the equations are obtained for various initial conditions.

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19770207

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USSR

KARTASHEV, K. B., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 15, No. 1, 5 Jan 72, pp 7-9

charges. Upon injection of the plasmoid into the magnetic field there was recorded x-radiation with an energy of the order of the energy of the incident protons. The radiation was recorded by a scintillation detector from the central region of the trap. Oscillograms of the x-radiation are shown for different magnetic field strengths. The intensity of the radiation increased with an increase in the field strength from 1 to 2.5 koe. In the absence of a magnetic field the radiation was never observed. A first narrow radiation peak on the time scale corresponds to the time of input of the plasmoid into the magnetic field. A second, wider peak arises simultaneously with the beginning of radiation of the spectral line of copper CuI,-- i.e., at the time of entry of the plasmoid into the trap from the plasma gun -- for a plasmoid moving with a velocity of $3 \cdot 10^6$ cm/sec and containing a large number of impurities. Electromagnetic radiation in the range 4.6-0.8 cm was recorded simultaneously with the x-radiation; as in the case of radiation, it was never observed in the absence of a transverse magnetic field;and its intensity increased with an increase in the field strength. The intensive radiation in the range of characteristic plasma frequencies and their harmonics indicates

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USSR

KARTASHEV, K. B., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 15, No 1, 5 Jan 72, pp 7-9

the existence of a plasma with a high level of oscillations in the trap. A second pulse of x-radiation indicates the presence of high-energy electrons held in the trap. The study indicates that a considerable number of electrons acquire energy and are captured in the trap upon the entry of a fast plasmoid into a transverse magnetic field. The authors conclude that it remains unclear as to what serves as the target for the slowing down of fast electrons responsible for the appearance of the first x-radiation peak and that the experimental results cannot be fully explained within the framework of the aforementioned one-dimensional model.

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UNCLASSIFIED PROCESSING DATE--03JUL70

TITLE--INVESTIGATION OF THE ANOMALOUS RESISTANCE OF A PLASMA DURING TURBULENT HEATING -U-

AUTHOR--KALININ, YU.G., KINGSEP, A.S., LIN, C.N., RYUTOV, YU.A., SKORYUPIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKIY FIZIKI, 1970, VOL 58, NR 1, PP 68-75

DATE PUBLISHED-------70

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5
31

SUBJECT AREAS--PHYSICS

TOPIC TAGS--TURBULENT HEATING, PLASMA PHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1973/1070 STEP NO--UR/0054/70/058/001/0069/0075

CIRC ACCESSION NO--AP0038029

UNCLASSIFIED

Acc. Nr: AP0038029 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 68-75

INVESTIGATION OF THE ANOMALOUS RESISTANCE OF A PLASMA DURING TURBULENT HEATING

Yu. G. Kalinin, A. S. Kingsep, D. N. Lin, V. D. Ryutov, V. A. Skoryupin

The dependence of plasma resistance on initial conditions of the experiment during turbulent heating by a current is investigated. The plasma resistance decreases approximately as $n^{-1/2}$ with variation of the concentration between 10^{12} cm^{-3} and 10^{14} cm^{-3}. The resistance does not depend on the magnitude of the confining magnetic field when the strength of the latter varies between 5 and 21 kOe. The ratio of the current velocity to the ion beam velocity is calculated on basis of the experimental results. It changes from 1.5 to 10 on variation of the concentration from 10^{14} cm^{-3} to $5\cdot10^{11}$ cm^{-3}. The dependences obtained and turbulent heating are explained by assuming excitation of ion-acoustic instability in the plasma by a current.

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REEL/FRAME
19731070

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USSR

UDC 621.355.8.035.2

SOROKINA, M. N., and RYVHKOV, YE. M.

"Chemical Method for Determining the Phase Composition of Metallo-Ceramic Nickel Electrodes"

Sb. rabot no khim. istochmikam toka. Vses n.-n akkumulyator. in-t (Collection of Works on the Chemical Source of Current. All-Union Scientific Study Institute for Storage Batteries) Vyp 7, 1972, pp 129-133 (from Referativnyy Zhurnal -- Khimiya No 8(II) 1973, Abstract No 8L236 by V. S. Levinson)

Translation: The results of studies on the examination of the possibility of applying the chromate method to determine the degree of oxidation of the active part of a metallo-ceramic nickel electrode in an alkali battery were examined. In constrast to the iodometric method, the chromate method gives very satisfactory results for an error in determining the degree of oxidation of the active area to less than or equal to 3% and the amount of oxidized nickel to less than or equal to 1%. A system was developed for the phase analysis of the metallo-ceramic electrode from one aliquot.

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USSR UDC 911.3:616-02:613.11(470.23)

VITELS', L. A., and RYVKIN, B. A.

"Meteorological-Heliobiological Analysis of the Incidence of Myocardial Infarct"

Tr. Gl. geofiz. observ (Works of the Main Geophysical Observatory), No 258, 1970, pp 142-154 (from RZh-Meditsinskaya Geografiya, No 2, Feb 71, Abstract No 2.36.33 by V. Zhadovskaya)

Translation: Data on the relationship between the frequency of myocardial infarct in Leningrad in 1967-1968 and sun activity and meteorological factors (temperature, atmospheric pressure, among other factors) are presented. A five-day period in which myocardial infarct cases were recorded (28 January-1 February 1968) is discussed. The increase in disease incidence of myocardial infarct against a cyclic activity involving higher atmospheric temperatures and increased solar activity is discussed. It was found that there is a close link between the number of myocardial infarct cases and the position of the basic group of sunspots on the sun and solar radiation at frequencies of 100 and 200 megacycles. A high frequency of myocardial infarct was discovered from the 12th to the 13th day of the 27-day solar calendar. A unique change was observed in 90% of cases for 15 solar rotations.

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USSR UDC: 681.2.088

NEUYMIN, Ya. G., POPOVA, I. A., RYVKIN, B. L., SHKOL'NIK, B. A.

"Estimates of the Dynamic Error of Measurements"

Moscow, Metrologiya, No 1, 1973, pp 33-44.

Abstract: Standard and minimized estimates are produced for the dispersion of dynamic measurements based on the unevenness of the amplitude-frequency characteristics of a device and the moments of its weight function. The estimates are useful under conditions of incomplete information on the dynamic properties of measurement equipment both in the stage of planning and in its operation.

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UDC 621.315.592

AGAFONOV, B. G., VALOV, P. M., RYVKIN, B. S., YAROSHETSKIY, I. D., Physico-technical Institute imeni A. S. Ioffe of the USSR Academy of Sciences, Leningrad

"Photon Drag of Electrons in the Presence of Intraband Light Absorption by Free Current Carriers in $A^{III}B^{V}$ Semiconductors"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 5, 1972, pp 909-914

Abstract: A study was previously made of the drag effect as applied to IV type semiconductors where the scattering of the carriers is determined by acoustic, nonpolar optical phonons and ionized impurity centers [A. M. Danishevskiy, et al., ZhETF, No 58, 544, 1970; A. A. Grinberg, ZhETF, No 58, 909, 1970]. Now an experimental and theoretical study has been made of the photon drag of electrons in $A^{III}B^{V}$ semiconductors where the scattering of the carriers on the polar optical phonons is the defining factor. The effect was recorded by means of a CO_2 laser (λ = 10.6 microns) using n-type InAs of various concentrations. A drag current caused by intraband transitions was detected experimentally. In accordance with the theoretical analysis, the electrons were dragged by the light. The corresponding temperature functions are presented for an electron concentration of $n = 1.6 \cdot 10^{16} cm^{-3}$ with consideration of three currents:

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UDC 621.315.592

AGAFONOV, B. G., et al., Fizika i Teknika Poluprovodnikov, Vol 6, No 5, 1972, pp 909-914

a) the current connected with absorption with the participation of polar optical phonons, b) the current connected with absorption in the presence of acoustic phonons and c) the current connected with absorption in the presence of admixture centers. The current connected with light absorption in the optical phonon section is predominate in the sample with the concentration $n = 1.6 \cdot 10^{16} cm^{-3}$. The theoretical and experimental curves (considering absorption) are also presented for a concentration of $1.8 \cdot 10^{17} cm^{-3}$. In this case the "cold" electron current can be neglected and the absorption coefficient with the participation of charged impurities can be considered independent of temperature. For this concentration the "admixture" drag current must become comparable with the "optical" current, and the rise of the theoretical curves with a decrease in temperature is connected with both of these currents.

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VALOV, P.M., DANISHEVSKIY, A.M., KASTAL'SKIY, A.A., RYVKIN, B.S., RYVKIN, S.M., YAROSHETSKIY, I.D., Physicotechnical Institute imeni A.F. Ioffe, Academy of Sciences, USSR; Institute of Semiconductors, Academy of Sciences, USSR

"Photon Drag of Electrons During Intraband Light Absorption by Free Current Carriers in Semiconductors"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 12, 1970, pp 1919-1925

Abstract: Photon drag of electrons during indirect intraband absorption of light in semiconductors has been detected experimentally. This effect is due to an asymmetry of the distribution function originating as a result of the momentum of the incident photon flux. The effect was recorded during the absorption of radiation from a CO_2 laser in electronic germanium. The experimental results are in satisfactory agreement with the theory developed in a cited source. 2 figures, 9 bibliographic entries.

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1/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--TRANSCORTIN BINDING PROPERTIES AT HYPERTENSION IN THE GENEALOGICAL ASPECT AND TWINS STUDIES -U-

AUTHOR-(04)-GERASIMOVA, YE.N., IGNATOVA, L.N., RYVKIN, I.A., RYABTSEVA, S.V.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 3, PP 296-300

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HYPERTENSION, HEREDITARY DISEASE, HUMAN GENETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0145 STEP NO--UR/0301/70/016/003/0296/0300

CIRC ACCESSION NO--AP0120845

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--230CT70

CIRC ACCESSION NO--AP0120845

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BINDING PROPERTIES OF TRANSCORTIN IN PATIENTS WITH HYPERTENSION ARE DECREASED. THE ANALOGOUS PICTURE WAS SHOWN IN MEN WITH NORMAL BLOOD TENSION WHOSE PARETNS WERE SUFFERED WITH HYPERTENSION. IN ONE EGG TWINS THE PRONOUNCED CONCORDANCE IN THIS FEATURE WAS DEMONSTRATED. THIC CONCORDANCE WAS WELL CORRELATED WITH THE ARTERIAL TENSION LEVEL. THE DATA PRESENTED POINT TO THE INVOLVEMESNT OF HEREDITAL FACTORS, REALIZING IN THE COURSE OF HYPERTENSION DEVELOPMENT, IN THE DETERMINATION OF TRANSCORTIN BINDING LEVEL. IT MAY BE SUPPOSED THAT THIS ONE OF THE POSSIBLE MECHANISMUS OF TRANSMISSION OF HEREDITAL PREDISPOSITION TO HYPERTENSION.

FACILITY: THE DEPARTMENT OF BIOCHEMISTRY I ST MEDICAL INSTITUTE AND A. L. MYASNICOV CARDIOLOGY INSTITUTE USSR ACADEMY OF MEDICAL SCIENCES, MOSCOW.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202720017-8"

USSR

UDC: 621.315.592

PARITSKIY, L. G., RYVKIN, S. M., and YARZHEMBITSKIY, V. B., A. F. Ioffe Physico-Technical Institute

"Obtaining Photographic Images on the Surface of a Class of Semiconductors With an Active Gaseous Medium"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1400-1401

Abstract: Because research in electronic phenomena of adsorption and catalysis in semiconductors offers opportunities for exploration of gas-adsorption photographic processes, the authors present their ideas on the subject in this brief communication, and consider a type of semiconductor reaction with the molecules of an adsorbent reagent controlled by active radiation. In this type, the reagent is reduced, or oxidized, at the semiconductor surface with the participation of unbalanced electrons, or holes, and the interactions of the products of this reaction with the semiconductor material. The image is then formed by local action at the surface when the reaction products leave the surface or through color-insoluble products of the reaction adsorbed on the surface. It is noted that a photographic effect was also detected cn

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PARITSKIY, L. G., et al, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1400-1401

photosensitive PbS surfaces in mixed saline and acetic acid vapors.

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UDC 621.315.592

GORLIN, G. B., PARITSKIY, L. G., RYVKIN, S. M., BAGDANAVICHUS, A. A.

"Possibility of Using the Electrophotographic Semiconductor-Dielectric System in Long Wave Semiconductor Photography"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 427-428

Abstract: Photography in the long wave range is possible on the basis of the principle of controllable sensitivity [L. G. Paritskiy, et al., Zh. nauch. i prikl. fotog. i kinematogr., No 15, 185, 1970; L. G. Paritskiy, et al., FTP, No 4, 764, 1970]. The implementation of this principle requires a device in which the photographic sensitivity is switched on electrically or otherwise only at the time of exposure to avoid fogging of the photographic film by the equilibrium background radiation. These requirements are satisfied by the electrographic semiconductor-dielectric system [S. G. Grenishin, Elektrofotograficheskiy protsess, Nauka Press, Moscow, 1970; R. Shaffert, Elektrofotografiya, Mir Press, Moscow, 1968] investigated in this article. A layer of semiinsulating GaAs alloyed with zinc 1,000 microns thick with a specific resistance of 10^8 ohm-cms was used as the photosemiconductor. The dielectric layer was a polyethylene film 10 microns thick with a conducting coating. The light source had a light flux power to $3 \cdot 10^{-2}$ watts/cm^2. It was assumed that the charge

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GORLIN, G. B., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 427-428

transfer could occur through a gap filled with liquid nitrogen. The semiconducting layer and the dielectric layer were clamped between conducting electrodes and the device was charged with liquid nitrogen to complete cooling. Then simultaneously with illumination, a voltage pulse lasting 80 milliseconds was applied to the conducting electrodes. Even with a voltage pulse of 8 kilovolts, the charge transfer did not take place until experiments were performed in which the system cooled by submerging completely in liquid nitrogen was partially extracted to the level at which the semiconductor contact with the dielectric was above the nitrogen surface. Charge transfer took place after removal of the nitrogen in the gap for an 80 millisecond, 3 kilovolt pulse.

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UDC 621.315.592

PARITSKIY, L. G., and RYVKIN, S. M.

"Using Semiconductors for a Photographic Process in the Long-Wave Spectral Region"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 764-771

Abstract: This is the continuation of an earlier article by the same authors concerning the extension of infrared photography beyond the limits imposed by conventional photographic methods into the middle and longer wave infrared regions, and the improvement of photographic sensitivity to shorter wavelength infrared radiation. The present article discusses several ideas for semiconductor photographic processes providing a theoretical possibility of obtaining images in a broad region of the long-wave part of the spectrum. One of the impediments to progress in sensitivity to infrared radiation is fogging of the photographic plate due to background thermal activity. The authors propose and explain their principle of controlled sensitivity, which consists in giving the photographic material its sensitivity only during the exposure interval, and offer preliminary results of its practical realization in photographic systems using semiconductor materials. Drawings are given
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PARITSKIY, L. G., and RYVKIN, S. M., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 764-771

of four such systems. The authors express their gratitude to Boris Pavlovich Konstantinov, now deceased, on whose initiative these researches were begun.

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CSO: 1861-W

- END -

USSR

UDC 621.376.234

RYVKIN, S.M., MATVEYEV, O.A., NOVIKOV, S.R., STROKAN, N.B.

"Semiconductor Detectors Of Nuclear Radiation"

V sb. Poluprovodnikovyye pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works), Moscow, Izd-vo "Sovetskoye Radio," No 25, 1971, pp 267-298

Abstract: The principal problems which arise during design and production of semiconductor counters are described. It is shown that the basic reason which at present limits the resolution of counters is the quality of the starting material. The parameters of the material which determine the characteristics of the counters are shown and methods of measuring the magnitudes indicated are presented. Data are presented on germanium lithium-drift detectors, germanium "radiation" detectors, silicon surface-barrier detectors, and silicon lithium-drift detectors. The technological processes for production of the counters are considered, in particular the various methods for accomplishment of compensation in the operating zone of the detector, as well as methods for creation of contacts. Together with transition procedures, considerable attention is given to ion implantation methods. 13 fig. 1 tab. 64 ref.

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USSR

VALOV, P.M., DANISHEVSKIY, A.M., KASTAL'SKIY, A.A., RYVKIN, B.S., RYVKIN, S.M., YAROSHETSKIY, I.D., Physicotechnical Institute imeni A.F. Ioffe, Academy of Sciences, USSR; Institute of Semiconductors, Academy of Sciences, USSR

"Photon Drag of Electrons During Intraband Light Absorption by Free Current Carriers in Semiconductors"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 12, 1970, pp 1919-1925

Abstract: Photon drag of electrons during indirect intraband absorption of light in semiconductors has been detected experimentally. This effect is due to an asymmetry of the distribution function originating as a result of the momentum of the incident photon flux. The effect was recorded during the absorption of radiation from a CO_2 laser in electronic germanium. The experimental results are in satisfactory agreement with the theory developed in a cited source. 2 figures, 9 bibliographic entries.

Acc. Nr: AP0043662 R

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 507-514

COLLECTIVE PROPERTIES OF EXCITONS IN SILICON

Ashkinadze, B. M.; Kretsu, I. P.; Ryvkin, S. M.; Yaroshetskiy, I. D.

Recombinational radiation for high injection levels is investigated. It is shown that then the exciton density is high their collective interactions become important. At low temperatures (below 20° K) these lead to the formation of exciton «drops». At higher temperatures the formation of exciton associations, which are drop embryos, becomes possible.

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REEL/FRAME
19770066

2/PI

Acc. Nr: AP0043677

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 544-550

R

PHOTON DRAG OF FREE CARRIERS IN DIRECT INTERBAND TRANSITIONS IN SEMICONDUCTORS

Danishevskiy, A. M.; Katal'skiy, A. A.; Yaroshetskiy, I. D.; Ryvkin, S. M.

Drag of free carriers by light in direct optical transitions is predicted and experimentally observed. The experiment was carried out in hole germanium by means of a CO_2 Q-switched laser with a peak power of about 2 kW. With variation of the temperature from room to nitrogen temperature inversion of the drag current sign is found to occur. The regularities observed are in good agreement with the theory developed in ref [1].

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REEL/FRAME 19770081

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USSR

UDC 621.382.2

DUDNIK, YE.P., YEREMIN, V.K., LEVINZON, D.I., RYVKIN, S.M., STROKAN, N.B., SUBASHIYEVA, V.P., TISNEK, N.I. [Physico-Technical Institute imeni A.F. Ioffe, Academy Of Sciences, USSR, Leningrad]

"High-Resolution Counters Of Germanium With Radiation-Induced Defects"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 779-781

Abstract: The characteristics are presented of counters obtained as usual on the basis of germanium with $N_D - N_A \sim 10^{12}$ cm^{-3} but with a decrease of more than one order of magnitude of the background of impurities and defects N_f. The amplitude spectrum of a specimen of ^{137}Cs is shown. The resolution of the counters at this line is less than R = 1.2 percent. The dependence is shown of the constant capture time on the electrical field intensity. 2 fig. 13 ref. Received by editors, 5 Nov 1971.

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USSR

GADZHIYEV, A. R., RYVKIN, S. M., and SHLIMAK, I. S., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR

"n-Germanium Compensated by Fast Neutrons as an Amorphous Semiconductor Model"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 10, 20 May 72, pp 605-608

Abstract: The authors studied the use of fast neutron-irradiated, heavily doped n-type germanium for the creation of a controlled amorphous semiconductor model. n-Ge specimens with an arsenic concentration of $8 \cdot 10^{18}$ cm^{-3} underwent the fast-neutron irradiation. The results indicate that the irradiated n-germanium displays the principal features inherent in an amorphous semiconductor and in this sense can be considered as its model. The authors thank B. I. SHKLOVSKIY for discussing the results.

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RYVKIN, S. M., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR

"Switching Mechanism in Amorphous Semiconductors"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 10, 20 May 72, pp 632-635

Abstract: The article suggests a switching mechanism which should take place in amorphous semiconductors if H. FRITZSCHE's model is valid for them. According to this model, an amorphous semiconductor represents a system in which strong fluctuations in the spatial charge distribution result in such powerful fluctuations in potential and potential electron energy that the corresponding band bendings prove to be of the order of the energy gap of the semiconductor material. Under such conditions a semiconductor represents alternating n- and p-type regions; i.e., a system of a large number of n-p junctions. But such a system of series-connected n-p junctions during the application of voltage should possess an S-shaped current-voltage characteristic; i.e., a (current) switching effect. This is well known for a system

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RYVKIN, S. M., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 10, 20 May 72, pp 632-635

consisting of, say, four regions (i.e., an n-p-n-p structure characteristic of thyristors). An amorphous semiconductor is not a strictly periodic planar structure for which a conclusion can be drawn as to the S-shaped character of the current-voltage characteristic. But the qualitative character of the switching effect in an amorphous semiconductor (i.e., with random distribution of size and form of alternating n- and p-regions) remains, with the difference that the barrier to be overcome by electrons (holes) during injection is the energy distance from the Fermi level (or band edge) to the corresponding "flow levels." The primary switching mechanism is of an electronic nature and does not involve heating of the semiconductor.

The author thanks A. I. UVAROV, B. I. SHKLOVSKIY, and I. S. SHLIMAK for useful discussion of the work.

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USSR

ABDULLAYEV, G. B., ALIYEVA, M. Kh., GORYACHEV, D. N., KAZIYEV, F. N., PARITSKIY, L. G., and RYVKIN, S. M.

UDC: 621.315.592

"Obtaining Photographic Images on Fine Films of Gallium and Indium Selenides"

Leningrad, Fizika i tekhnika poluprovodnikov, vol 6, No 6, 1972, pp 1166-1168

Abstract: This paper is a sequel to an earlier article by some of the authors named above (D. N. Goryachev, et al, 4, 1970, p 1580) published in the journal named above, in which the use of thin films of lead selenides and sulphides for retaining photographic images was discussed. In the present brief communication, the possibility of getting photographic images on thin films of gallium and indium selenides, of the lesser studied class of semiconductors of the $A^{III}B^{IV}$ type, is considered. To do this, use is made of the dependence of the oxide reproduction process speed at the semiconductor-electrolyte interface on the illumination the semiconductor is exposed to. For the experiments described in this article, polycrystals of p-type GaSe were used in films 0.6 to 0.8 μ thick as well as n-type InSe in films about one micron thick, deposited on glass substrates by sputtering in a vacuum.

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UDC: 621.315.592

ABDULLAYEV, G. B., et al, Fizika i tekhnika poluprovodnikov, vol 6, No 6, 1972, pp 1166-1168

In the case of InSe, it was found that the images on it may be strengthened through the use of physical developers.

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Heat Treatment

USSR

UDC 669.14.018.298:
:621.78:621.17

DOLOTOVA, T. S., KUCHERYAVYY, V. I., REVYAKINA, O. K., RYZHAK, S. S., SACHKOV, V. V., and UL'YANOVA, N. V., Moscow Higher Technical School imeni N. E. Bauman, All-Union Scientific Research Institute of Aviation Materials

"Influence of the Conditions of Heat Treatment on the Properties of OOOKh11N10M2T Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 12, 1973, pp 9-13

Abstract: The conditions developed for the heat treatment of OOOKh11N10M2T steel make it possible to produce on the initial large-grained metal properties close to those of semi-finished goods of small section with low temperature at the end of hot deformation and possessing small grains and sufficient high plasticity and viscosity at up to -70°C temperatures. After the heat treatment according to the schedule 1220°C for

USSR

DOLOTOVA, T. S., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 12, 1973, pp 9-13

2 hr, water + threefold austenitization at 1010±10°C for 1-3 hr, water + 600°C for 15 hr, air + 850°C for 1 hr, air + 500°C for 2 hr, the following satisfactory complex of mechanical properties could be obtained: at 20°C - tensile strength σ_t=155 kg/mm^2, specification yield point $\sigma_{0,2}$=149.5 kg/mm^2, residual relative elongation δ=12%, relative narrowing ψ=56.5%, impact ductility a=5.5 kg·m/cm^2, and at -70°C - σ_t=179 kg/mm^2, ψ=43%, a=3.5 kg·m/cm^2. Six figures, three bibliographic references.

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USSR

UDC 669.15'24'26:002.25:531.3

ARAPOVA, L. V., RYZHAK, S. S., and KAGAN, Ye. S.

"Aging Kinetics of Nickel and Chromium-Nickel Alloys Containing Aging-Prone Martensite"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1972, pp 10-15

Abstract: The aging kinetics of two low-carbon (≤ 0.03% C) steels, N18K9M5T and Kh11N10M2T, was studied. Hardness (ΔHRC), electrical resistance (ρ), and coercive force (Hc) were determined during the aging tests, which were carried out at 400-500°C. A heating of both steels at 480°C for 15 sec sharply increased hardness and decreased ρ and Hc. Both steels were characterized by a rapid hardening in the process of maximal aging. The lower the aging temperature, the greater the hardness. But it took a longer time to reach maximal hardness. The coercive force decreased with the increase of the heating time during aging at 400 and 425°C. However, at 475 and 500°C it decreased at first, then it increased sharply. Cold working did not intensify the aging process but the coercive force increased sharply. The electrical resistance decreased for both steels with increased hardness, but when the hardness reached its peak the electrical resistance remained unchanged. The

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ARAPOVA, L. V., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1972, pp 10-15

coercive force changes during aging of these steel at 400-500°C for 100 hr did not reflect the aging process. Addition of 0.8% Ti to a Fe-Ni-Ti alloy increased its hardness to ΔHRC 18 but the addition of 0.9% Ti to Kh11N10M2 resulted in ΔHV_{10} 150 because Ti in this alloy was the only element which caused the aging. After addition of 0.8% Ti to Fe18Ni5Mo the ΔHRC = 8 at maximum aging, but when the same amount of Ti was added to an alloy containing Co and Mo the hardening effect of Ti was HRC = 4-5.

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USSR

UDC: 519.24

MEDVEDEV, G. A., RYZHAKOV, A. P.

"On the Use of Algorithms of Random Search in Systems of Automatic Optimization"

V sb. Zadachi statist. optimizatsii (Problems of Statistical Optimization --collection of works), Riga, "Zinatne", 1971, pp 81-92 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V403)

Translation: It is shown that step-by-step random search algorithms -- search with scaling, search with linear scaling, improved search with punishment by randomness -- are not suitable for tracking the extremum value of a function of the quality of an object, and therefore cannot be used in automated optimization systems. A comparative study is made of the effectiveness of two-step random search algorithms (search with return and search with punishment by randomness and three deterministic algorithms). Authors' abstract.

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USSR

UDC 621.372.413(088.8)

RYZHAKOV, S. M., VALETENKO, N. N.

"Coaxial Resonator for a Self-Oscillator"

USSR Author's Certificate No 254603, Filed 29 Jul 68, Published 13 Mar 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10B166 P)

Translation: The proposed coaxial resonator for a self-oscillator consists of a segment of coaxial line shorted at one end and open at the other with stepped outer conductor, two PN diodes mounted close to its short-circuited end, and a non-contact piston. The PN diodes are controlled by external voltage. To keep the electronic mismatch constant over a wide range of working frequencies of the resonator, the diodes are connected in parallel in the segment of coaxial line in the section where the diameter of the outer conductor increases. The series circuit comprised of a coupling capacitor, the capacitance of the PN junction and the lead inductance of the first diode is tuned to resonance on a frequency higher than the maximum working frequency of the resonator, while this series combination for the second diode is tuned to a frequency lower than the minimum working frequency of the resonator. One illustration.

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USSR

UDC: 621.373:530.145.6

ARKHIPOV, V. K., YERSHOV, Ye. I., PANOV, Ye. I., RYZHAKOVA, Z. L., and TARASOV, R. P.

"Generator of Specially Formed Light Pulses Based on the Gas Laser"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Engineering, Scientific-Technical Collection of Gas Discharge Devices) 1970, No. 3(19), pp 33-36 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D250)

Translation: A light-pulse generator is described in which light signals in the nanosecond range are formed with the deviation of the light beam of a helium-neon laser LG-56 in an electrooptical deviating device under the action of a pulse controlling voltage. The structural peculiarities and the basic output characteristics of the generator are given. Author's abstract

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1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ADIPALDEHYDE -U-

AUTHOR-(04)-PUKROVSKAYA, I.YE., MENYAYLO, A.T., RYZHANKOVA, A.K., MISHINA, L.S.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 266,761

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--01APR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, CYCLOHEXENE, OXIDATION, DICARBOXYLIC ACID, ALDEHYDE, TERTIARY AMINE, ALIPHATIC AMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1739 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132005

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AA0132005
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADIPALDEHYDE WAS PREPD. BY TREATING CYCLOHEXENE WITH O SUB3 IN AN ORG. SOLVENT IN THE PRESENCE OF AN ALIPHATIC TERTIARY AMINE.

UNCLASSIFIED

USSR

UDC 539.124.17

VOROB'YEV, A. A., YEVDOKIMOV, O. B., and RYZHAKOVA, N. K., NII [Scientific Research Institute], Tomsk Polytechnic Institute imeni S. M. Kirov

"Some General Questions in Fast Electron Transfer. IV. Transfer in Matter in an Electric Field"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 1, 1973, pp 23-27

Abstract: The article uses the segment model as the basis for a general method for calculating the passage of electrons in a substance in approximation of continuous moderation in a homogeneous electric field. The criterion of a comparatively weak field is derived for determining the Green function for the trajectory segment. A system of recurrent relations is obtained for the momenta of the distribution function. The principal properties of special functions occurring in theory are considered. The problem of electron energy degradation, with allowance for electron multiplication, is solved for an evaluation of the upper limit of the role of secondary electrons.

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USSR

UDC 537.311.33

RZHANOV, A.V.

"Requirements On Semiconductor Materials Applicable To Radio Electronics"

V sb. Protsessy sinteza i rosta kristallov i plenok poluprovodn. materialov (Processes Of Synthesis And Growth Of Crystals And Films Of Semiconductor Materials--Collection Of Works), Novosibirsk, "Nauka," 1971, pp 7-14 (from RZh: Elektronika i yeye primeneniye, No 5, May 1972, Abstract No 5B6)

Translation: Problems of the contemporary crystal chemistry of semiconductors are discussed. One of the most important problems is the choice of promising materials for thorough purification and the improvement of methods of crystallization. The second problem is the choice of a combination of the properties of semiconductors, the most important for contemporary electronics. During consideration of the problem of the quality of semiconductor single crystals particular attention is paid to uniformity of materials. The next problem is: in which form to use semiconductor materials. The prospect of the synthesis of monocrystalline layers from molecular and atomic beams is noted. The importance of the study of the chemistry of surface reactions and protection of the surface of electron devices is indicated. N.Sh.

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UDC 539.216.2

USSR

KOVALEVSKAYA, T.I., NESTEROVA, S.N., RZHANOV, A.V., SVITASHEV, K.K.

"Study By The Method Of Infrared Spectroscopy Of Multiple Distorted Internal Reflection Of The Structure Of The Transition Layer In The System Germanium--Silicon-Dioxide Film"

Fiz. i tekhn. poluprovodnikov (Physics And Technology Of Semiconductors), 1971, 5, No 9, pp 1720-1724 (from RZh:Elektronika i yeye primeneniye, No 1, Jan 72, Abstract No 1B157)

Translation: The structure of an extremely thin transition layer in the system germanium--SiO_2 film is studied by the method of infrared spectroscopy of multiple distorted total internal reflection. A precise computation is made of the reflection factor in the region of the absorption band of the valence vibrations of the Si-O bonds. The computed and experimental spectra are compared. It is established that the structure of the transition layer is similar to the structure of germanium--silicate glass. Summary.

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Pharmacology and Toxicology

USSR

ANICHKOV, S., Hero of Socialist Labor, Member of the Academy of Medical Sciences USSR and RYZHENKOV, V., Doctor of Medical Sciences, Leningrad

"Ethimizole"

Moscow, Meditsinskaya Gazeta, 17 Mar 72, p 2

Abstract: Ethimizole (bis-methylamide of 1-ethylimidazole-4,5-dicarboxylic acid) is a representative of a new class of neurotropic agents developed at the Laboratory of Chemical Synthesis, Division of Pharmacology, Institute of Experimental Medicine of the Academy of Medical Sciences USSR, in work conducted with the aim of synthesizing physiologically active substances with a structure close to that of purine bases. It stimulates the resporatory center and the hypothalamus centers that regulate secretion of ACTH by the hypophysis, while lowering the response of the cerebral cortex to stimulation. It is used as a respiratory analeptic of central action and as an anti-inflammation and antiallergic agent. Animal experiments showed that the drug, when administered in small doses, stimulates the hypothalamus-hypophysis-adrenal system and raises the level of glucocorticoids in the blood, exerting its anti-inflammation effect in this manner. An anti-inflammation effect produced by action on the hypothalamus has not been known hitherto. The action of ethimizole on the glucocorticoid function of the

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USSR

ANICHKOV, S., Meditsinskaya Gazeta, 17 Mar 72, p 2

adrenals differs from that of ACTH, which on prolonged administration suppresses the secretion of endogenous ACTH. Therapy with corticosteroids depresses the functioning of the hypothalamus-hypophysis-adrenal system to a still greater extent than that with ACTH. When administered in combination with corticosteroids in animal experiments, ethimizole eliminated the harmful effects produced by the hormones in this respect. As distinguished from the ACTH proteohormone, ethimizole was found to be nonallergenic. It increased the elimination of Na by the kidneys in cases in which there was retention of this element by the organism. At a number of Moscow and Leningrad clinics, good results were obtained by treating rheumatoid arthritics and bronchial asthma with ethimizole. At the Institute of Rheumatism, Academy of Medical Sciences USSR, ethimizole is being applied in cases in which treatment of infected arthritics by other methods in ineffective and also in instances in which it is necessary to discontinue administration of hormones. Replacement of corticosteroid therapy by treatment with ethimizole was effective in the therapy of rheumatoid arthritics and of bronchial asthma. Continued administration of ethimizole prevented recurrences of these conditions. Ethimizole is now being produced commerically in the USSR.

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USSR

UDC 669.71.48

BRUSAKOV, YU. I., SIROTKIN, N. N., RZHAVIN, S. A., AVDEYEV, M. P., ALIVOYVODICH, M. KH., KUCHERENKO, A. G.

"Processing Metal-Containing Slags in the Production of Silicon Aluminate Alloys"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 71, pp 177-183 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G197)

Translation: Test results with respect to ore recovery processing of metal slags formed when obtaining and defining aluminum alloys with silicon are discussed. The technical possibility and expediency of recovery of crushed slags in the indicated alloy production process are confirmed. The specific consumption indexes of the alloys in large 120 and 16,500 kilowatt-ampere laboratory and industrial furnaces are presented. The extraction of alloy from the slags exceeded the content of metal phase in them. This indicates additional extraction of metal from the carbides and oxides contained in the slags in the amount of up to 55% in a large laboratory furnace and 27% in an industrial furnaces. There are 5 tables.

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USSR

UDC: 621.438:621.753

TUNAKOV, A. P., RZHAVIN, YU. A.

"The Influence of Technological Tolerances on the Parameters of a Gas Turbine"

Tr. Kazan. Aviats. In-ta (Works of the Kazan' Aviation Institute), No 133, 1971, pp 82-89 (from Referativnyy Zhurnal. Turbostroyeniye, No 1, Jan 72, Abstract No 1.49.112)

Translation: A method is proposed, which makes it possible to establish a numerical relation between scattering of the basic parameters of a turbine stage and the size of the technological tolerances for the dimensions of the flow-through part of the turbine. The method is based upon a discrete mathematical model of the GT stage, which is designed with the conventional tolerances. The model is linearized with respect to all the variables, and a system of linear equations is compiled. As a result of the solution of the equation, a table of influence coefficients is obtained; after transformations, this model makes it possible to establish a relation between the scattering of the basic parameters and the size of the tolerances for the geometric dimensions of the turbine. An example of calculation on the basis of the proposed method is presented. Four tables. Five references.

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USSR

UDC 624.131.43:539.21.084-492.3

GLOTOV, N. M., RYZHENKO, A. P.

"Study of the Supporting Capacity of Gravel Bases for Deep Foundations"

Tr. VNII transp. str-va (Works of the All-Union Scientific Research Institute of Transport Construction), 1971, vyp. 78, pp 3-13 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11V621)

Translation: The results of studying the strength of gravel bases for shell foundations are discussed. The studies were performed using troughs, a test unit, a large hydraulic departure meter and under natural conditions. On the basis of these experiments it was confirmed that coarsely ground gravel and conglomerate behaves analogously to sand under load; therefore, it is possible to study these two materials by the same procedure. Proposals were developed with respect to calculating the supporting capacity of gravel considering their stressed state use of which offers the possibility of more precise determination and increasing the calculated resistances of the coarsely ground material up to 2 times by comparison with the existing norms.

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USSR

UDC: 621.372.8.092.22

BELYACHENKO, V. P., GORSKAYA, R. S., LAZERSON, A. G., RYZHENKO, B. F., CHARUSHKIN, B. D.

"Approximate Calculation of the Characteristics of Film-Type Decelerating Systems on a Dielectric Substrate"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1971, vyp. 1, pp 134-137 (from RZh-Radiotekhnika, No 5, May 61, Abstract No 5B108)

Translation: The proposed method, which can be used to calculate the dispersion characteristics of film-type rod decelerating systems on a dielectric substrate, utilizes the well known results of investigation of film-type rod systems without a dielectric. The method of perturbation and the method of equivlaent substitution are used to derive computational formulas. Two illustrations, bibliography of five titles. Resumé.

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USSR

UDC 621.385.032

ZOLOTAREV, YE. L., LAZERSON, A.G., RYZHENKO, B.F.

"Theoretical Investigation Of Deceleration Systems Of The 'Plates With Rings' Type"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 8, 17-28 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A39)

Translation: A deceleration system (DS) is considered, which consists of a periodic succession of flat rings connected by several plates. The symmetry properties of the DS in question are investigated and the number of wave modes which can be propagated in similar DS is determined. The components of the electromagnetic field and the approximate dispersion equation of various wave modes in a "plates with rings" DS are found with the aid of the method of partial domains, the Fourier method, and one of the projection methods. The formula obtained is for computation of the coupling impedance of the spatial harmonics of the wave. 5 ref. Summary.

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USSR

UDC: 621.372.8:621.385.63

RYZHENKO, B. F.

"Dispersion of a Symmetric Wave in a 'Ring-Rod' System in a Dielectric Tube"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. 3, pp 138-140 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7B113)

Translation: An investigation is made into the effect which the dielectric constant of the material of a tube has on the coefficient of retardation of the fundamental spatial harmonic of a wave in the system. The analysis is based on the assumption that the longitudinal electric wave between the end rings of the system may be approximated by the field of a long narrow slot. The dielectric has the greatest effect on wave dispersion in the long-wave region, where it reduces dispersion. Two illustrations, bibliography of two titles. Resumé.

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USSR

UDC 528.514

NEVEROV, L. A., KORTEV, N. V., LARIONOVA, T. A., MITROFANOV, V. V., MILASHEVSKIY, A. K., POPOV, YU. V., Candidate of Sciences, RYZHENKO, B. V.

"The New KDG-3 Phototachymeter With Semiconductor Emission Source"

Leningrad, Optiko-mekhanicheskaya Promyshlennost', No 9, Sep 70, pp 35-39

Abstract: The authors describe the operating principle, optical system, construction and test results of the first serially produced phase phototachymeter with gallium arsenide diode as the emission source. The instrument can be used to measure distances of up to 2 km with an error of no more than 15 mm over its entire range. Measurement time is 10-15 minutes. The instrument is equipped with thermostatic control and can be used at temperatures from -50 to +50°C. Power consumption is no more than 5 watts.