

1/2 031 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--ANTIMICROBIC MATERIALS IN SURGERY -U-
AUTHOR--(02)-MILONOV, G., PLOTKINA, N.
COUNTRY OF INFO--USSR
SOURCE--MEDITSINSKAYA GAZETA, OCTOBER 2, 1970, P 3, COLS 4-7
DATE PUBLISHED--02OCT70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CELLULOSE, BACTERICIDE, FILTRATION, MACROMOLECULE, SYNTHETIC
FIBER, SUTURE, SURGERY, STAPHYLOCOCCUS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605037/F09 STEP NO--UR/9034/70/000/000/0003.0003
CIRC ACCESSION NO--ANC142466
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE---11DEC70

CIRC ACCESSION NO--AND142466

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DISCUSSES NEW METHODS FOR MAKING BACTERICIDE MATERIALS, SUCH AS ADDING THE BACTERICIDE TO THE FUNCTIONAL GROUPS OF MACROMOLECULES OF THE MODIFIED CELLULOSE OR INTRODUCING IT INTO THE POLYMER SOLUTION WHEN MAKING THE FIBER. ANTIMICROBIC CELLULOSE MATERIALS MANUFACTURED BY THE MOSCOW TEXTILE INSTITUTE AS PROPOSED BY PROFESSOR Z. RUGOVIN CAN BE USED IN HOSPITALS AS ROBES, BEDDING, AIR FILTERS, IN THE FOOD INDUSTRY, WATER FILTERS UNDER FIELD CONDITIONS, FOR STORING STERILE INSTRUMENTS, ETC. PROFESSORS A. MEOS AND L. VOL, P OF THE LENINGRAD TEXTILE INSTITUTE PROPOSED A TECHNIQUE OF FIXING MEDICINAL MATERIALS IN SYNTHETIC FIBERS. SUCH MATERIALS AS STREPTOMYCIN, GUINDOL, ETC. CAN BE INTRODUCED INTO POLYVINYL ALCOHOL FIBERS. A "LETILAN" FIBER WITH HIGH ANTIMICROBIC PROPERTIES HAS BEEN DEVELOPED AND IS BEING USED IN CLINICS IN THE FORM OF ANTIINFECTION SUTURE MATERIALS, KNITTED AND VASCULAR PROSTHESES. OTHER USES OF "LETILAN" ARE ALSO MENTIONED. THE SCIENTIFIC RESEARCH INSTITUTE OF CLINICAL AND EXPERIMENTAL SURGERY IN COLLABORATION WITH ACADEMICIAN B. PETROVSKIY, L. PLOTKIN, ET AL. (LENINGRAD) HAVE DEVELOPED VASCULAR POLYETHYLENE TERAPHTHALATE PROSTHESES WITH A SILVER THREAD. TESTS HAVE SHOWN THAT WEARING OF BACTERICIDE TREATED CLOTHING BY PATIENTS FOR 5 TO 7 DAYS REDUCED THE TOTAL NUMBER OF SKIN MICROORGANISMS AS WELL AS THE NUMBER OF STAPHYLOCOCCIC COLONIES.

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UNCLASSIFIED

PROCESSING DATE--2006070

TITLE--LAPAROSCOPIC INVESTIGATION OF GASTROINTESTINAL CYSTICERCOSES

AUTHOR--(S) IL'IN, V. G., VASILYEV, R. M., SUKHOMLINA, R. K.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 6, PP 107-114

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIGESTIVE SYSTEM DISEASE, ANGIOGRAPHY, RADIOGRAPHY, TV SYSTEM, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REL/FRAME--3022/1776

STEP NO--007/0591770/000/000/0107/0114

CIRC ACCESSION NO--AP010192

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 033

CIRC ACCESSION NO--AP0129142

ABSTRACT/EXTRACT--(U) GP-J- ABSTRACT. LAPAROSCOPIC ROENTGENOTELEVISION CHOLANGIOSCOPY IS A VERY VALUABLE METHOD OF INVESTIGATION WHICH ENABLES, APART FROM VISUAL STUDY, TO OBTAIN MATERIAL FOR PATHOMORPHOLOGICAL INVESTIGATION. LAPAROSCOPIC ROENTGENOTELEVISION CHOLANGIOSCOPY MAKES IT POSSIBLE TO OBTAIN A DISTINCT AND CONTRAST IMAGE OF THE BILIARY TRACT, NOTWITHSTANDING THE FACT THAT THE INVESTIGATION IS CARRIED OUT IN A DAY LIT ROOM. THE ABOVE METHOD HELPS TO CONSERVE ALL THE PHASES OF CONTRAST MEDIUM PASSAGE ALONG THE BILE DUCTS. ONE COULD DISTINCTLY SEE THE CONTRACTILE FUNCTION OF THE GALLBLADDER, PERISTALSIS OF THE DUCTS, DEGREE OF THEIR PATENCY, AS WELL AS THE CHARACTER AND LOCALIZATION OF PATHOLOGICAL CHANGES BEFORE THE OPERATIVE INTERVENTION. THE REFERRED TO TECHNIQUE HAS GREAT DIAGNOSTIC POSSIBILITIES, IT IS TECHNICALLY SIMPLE AND SAFE FOR THE PATIENT. IT IS INDICATED IN ALL CASES WHEN OTHER SIMPLER TECHNIQUES COULD NOT REVEAL THE NATURE OF LESION IN THE BILE DUCTS. LAPAROSCOPIC ROENTGENOTELEVISION CHOLANGIOSCOPY AND CHOLANGIOGRAPHY IS A POLYVALENT METHOD OF INVESTIGATION, WHICH INCLUDES LAPAROSCOPY, TAKING OF THE MATERIAL FOR PATHOMORPHOLOGICAL STUDY AND ROENTGENOCONTRAST INVESTIGATION OF THE BILIARY TRACT WITH THE AID OF THE TELEVISION SCREEN.

FACILITY: MIDLUNNYA ZHIBORUJE PECHER I ZBILCHNYA POTLY I SPETSIALIZII NII KLINICHESKOY I EKSPERIMENTALNOY KHIRURGIY, MOSKVA.

UNCLASSIFIED

USSR

UDC 628.165:542.65

KOLODIN, M. V., SEYITKURBANOV, S., and MILONOV, V. V.

"Washing of Ice Crystals in a Washing Column During Desalination of Salt Water by Freezing"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 6, 1971, pp 20-22

Abstract: It has been established experimentally that the effectiveness of ice crystal washing in a countercurrent wash column depends principally on the height of the washing zone H_k , the rate of ascension of ice in the column v_I , consumption of fresh water for the washing of ice crystals f and on the dimensions of the crystals being treated d_{cr} . A nomograph has been plotted from which these parameters could be determined for given salinity of the water being treated. Consumption of fresh water for washing the crystals in a countercurrent column is much lower than in a centrifugal apparatus. Furthermore, the treatment of a suspension in a field of centrifugal forces requires a very complicated apparatus, adding to the overall cost of the process.

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64

1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--TREPONEMA PALLIDUM IMMOBILIZATION TEST WITH FRESH BLOOD -U-

AUTHOR--MILONOVA, T.I.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 4, PP 56-58

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SKIN DISEASE, VENEREAL DISEASE, TEST, DIAGNOSTIC METHODS,
WHOLE BLOOD, BLOOD SERUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0938

STEP NO--UR/0206/70/000/004/0056/0058

CIRC ACCESSION NO--AP0109095

UNCLASSIFIED

2/2 026

CIRC ACCESSION NO--AP0109095

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. THE BLOOD, ACTIVE AND INACTIVATED
 SERUM FROM 323 PATIENTS WITH SYPHILIS, SUBJECTS EXAMINED FOR SYPHILIS
 AND PATIENTS WITH DERMATIC DISEASES WERE TESTED IN PARALLEL BY THE
 MELANGEUR METHOD OF TREPONEMA PALLIDUM IMMOBILIZATION TEST. A
 COMPARATIVE EVALUATION OF THE RESULTS OBTAINED WAS CARRIED OUT REVEALING
 NO COMPLETE DEVERGENCE BETWEEN THE RESULTS OF TESTS ON THE BLOOD, ACTIVE
 AND INACTIVATED SERUM. THE HIGHEST PER CENT OF PARTIAL DEVERGENCES WAS
 FOUND IN COMPARISONS BETWEEN THE BLOOD AND INACTIVATED SERUM. THE
 RESULTS OBTAINED SUGGEST THAT TPIT MAY BE RECOMMENDED TO BE PERFORMED IN
 MELANGEURS USING THE BLOOD AND ACTIVE SERUM. FACILITY: OTDEL
 MIKROBIOLOGII TSENTRAL'NOGO NI KOZHNO VERNEOLOGICHESKOGO INSTITUTA
 MINISTERSTVA ZDRAVOOKHRANENIYA SSSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 669.716:621.777.2

BARANCHIKOV, V. M., GLEBOV, Yu. P., GOROKHOV, V. S., DENISOV, S. M.,
ZAKHAROV, M. F., MILORADOVA, O. N., KHARENKO, V. F., and TSAREN, V. I.

"Development and Investigation of the Process of Pressing Rods and Shapes
of Aluminum Alloys with Lubricant Without Press-Residue"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970,
pp 129-137, resume

Translation: A number of problems related to the investigation of the process
of pressing aluminum alloys with lubricant and the investigation of mechanical
properties, macrostructure, and geometric dimensions of products are discussed.
Technological-economical data on the process are presented. Five figures, nine
tables, seven bibliographic references.

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USSR

MILOSERDIN, YU. V.; BARANOV, V. M. et al

"Procedure and Apparatus for In-Reactor Investigations of Physical and Mechanical Properties of Materials"

Moscow, Atomnaya Energiya; August 1973, pp 101-104

Abstract: The procedure and apparatus used for in-reactor determination of elastic constants, internal friction, and prolonged hardness of materials are described. The procedure is based on the determination of parameters of ultrasonic resonance vibrations for specimens in the form of discs of 20-mm diameter and 3-mm thickness. The elastic constants are calculated from resonance frequencies, internal friction from the width of the resonance curve, and hardness from the shift in resonance frequency initiated by Vickers-pyramid indentation. The measuring equipment includes ultrasonic waveguides in the form of thin rods for transmission of vibrations to and from the specimens. The electronic equipment is located in the working area. With the apparatus it is possible to measure the above-mentioned parameters on specimens of structural and fissionable materials at temperatures of self-heating (up to 600°C) with an accuracy sufficient to detect comparatively small variations of the recorded parameters. The article includes four equations, two figures, and one table. There are 12 references.

1/1

USSR

UDC 620.172.22.05

BARANOV, V. M., KOROSTIN, O. S., and MILOSERDIN, Yu. V.,
Moscow Engineering Physics Institute

"Device for Measuring Elasticity and Internal Friction Constants
of Small Specimens in a Wide Temperature Range"

Moscow, Zavodskaya Laboratoriya, Vol 38, No 9, 1972,
pp 1143-1144

Abstract: The construction of a device for measuring the modulus of elasticity E , Poisson's ratio μ , and the internal friction Q^{-1} on circular plates (1-5 mm thick, 10-20 mm diam) in vacuum of 10^{-4} mm Hg-column is described by reference to its schematic drawing. The measuring principle is based on the resonance-pulse method. Constants of elasticity E were calculated from resonance frequencies and values of Q^{-1} were determined from the width of the resonance line or from standard formulas. The calculation exactness

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USSR

BARANOV, V. M., et al., Zavodskaya Laboratoriya, Vol 38, No 9, 1972, pp 1143-1144

of E and of Q^{-1} were 2.5-3 % and 7-10 %, respectively. The systematic error in determining Q^{-1} decreases with increasing diameter and increasing mass of the specimen. Values of E and Q^{-1} for Nb, Zr, and Ta, determined with the help of the described device, proved its efficiency at temperatures up to 2200 °C. Two figures, two bibliographic references.

2/2

- 82 -

USSR

UDC 539.376:620.171

MILOSERDIN, YU. V., NABOYCHENKO, K. V., CHEBURKOV, V. I., NAUMOV, S. G.,
LAVEYKIN, L. I., BORTSOV, A. G., Moscow

"High Temperature Creep of Zirconium Carbide"

Problemy Prochnosti, No 3, 1972, pp 50-53.

Abstract: Results are presented from creep and long-term strength tests of specimens of zirconium carbide in the 2,450-2,810°K temperature range. The nature of behavior of the zirconium carbide in various stages of creep and the relationship between parameters characterizing creep and the test conditions of the material are studied. It is demonstrated that in the 2,450-2,810°K temperature interval with stresses of 0.3-1.0 kg/mm², the stable stage of creep of zirconium carbide is determined by a diffusion process with an activation energy of 116 ± 18 kcal/mol.

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- 69 -

Analysis and Testing

USSR

UDC 620.175

MILOSERDIN, Ya. V., KUL'BAKH, A. A., CHECHKO, V. N., and SEMENOV, B. D., Moscow

"Method of Performing Cyclical Elastic-Plastic Tests of Refractory Materials by Twisting at Normal and High Temperatures"

Kiev, Problemy Prochnosti, No 12, Dec 70, pp 51-57

Abstract: This work deals with problems of the low-cycle testing of refractory materials by torsion. A method is described and two installations are studied which perform repeated tests automatically at normal and elevated temperatures. The results are presented from the deformation and molybdenum at temperatures in the 293-1600°K range.

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USSR

UDC: 621.376.234

VILISOV, A. A., VYATEIN, A. P., MAKSIMOVA, N. K., MILOSERDOVA,
L. I., and PEKARSKIY, Ye. N.

"Sensitivity of Gallium Arsenide Detector Diodes"

Kiev, Izvestiya VUZ - Radioelektronika, vol. 14, No. 5, 1971,
pp 585-587

Abstract: This brief communication offers the results of research of the behavior of point contact and Schottky barrier diodes of electronic GaAs. In their experiments, the authors measured the sensitivity of the diodes in the three-centimeter wavelength range at a power level of $10 \mu W$ under short-circuit conditions. The tuning of the detector section or a matched transformer produced a standing wave ratio less than or equal to 2 to 2.5. The diodes tested had an electron concentration of from $1 \cdot 10^{16} \text{ cm}^{-3}$ to $1 \cdot 10^{19} \text{ cm}^{-3}$ for the point-contact, and a material of $n = 1 \cdot 10^{16}$ to $1 \cdot 2 \cdot 10^{17} \text{ cm}^{-3}$ for the Schottky barrier devices. The two types of diodes are compared with regard to their detector characteristics. Curves are given for the sensitivity of both types as functions of the bias current and the frequency. The experiments showed that the sensitivity of the diodes could be significantly increased by applying pulses of the proper shape.

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Superconductivity

USSR

POSTNIKOV, V. S., MILOSHENKO, V. YE., ZOLOTUKHIN, I. V., SHUVIN, G. YE., and SHUKHALOV, YE. I., Voronezh Polytechnic Institute

"Effect of Imperfections on Internal Friction of Superconductors During n-s Transition"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 11, Nov 72, pp 3447-3448

Abstract: The article reports on further studies of the low-frequency internal friction of superconductors by the method of flexural vibrations. Previous articles by the authors reported that the internal friction peak Q^{-1} is detected during the n-s transition and its value does not vary appreciably with a change in the number of impurities in polycrystalline niobium. The present article studies the effect of extended structural imperfections on this peak in polycrystalline and single-crystal specimens of niobium. The Q^{-1} peak of a 99.8 percent deformed polycrystalline specimen has a width that considerably exceeds the width of the peak in a single crystal with a deformation of several percent. No peak is observed experimentally in a single-crystal specimen annealed at 950° C for an hour. No Q^{-1} peak is observed in

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POSTNIKOV, V. S., et al., Fizika Tverdogo Tela, Vol 14, No 11, Nov 72, PP
3447-3448

perfect single crystals, but it is observed in polycrystalline specimens (deformed and annealed) and single crystals with slight deformation, reaching a width of several tenths of a degree. Conclusion: Extended structural imperfections are responsible for such a substantial expansion of the temperature range; theoretical works have failed to consider the effect of these on the character of fluctuations.

2/2

- 70 -

USSR

UDC 539.67+621.317.343

MILOSHENKO, V. Ye., ZOLOTUKHIN, I. V., and POSTNIKOV, V. S.,
Voronezh Polytechnic Institute

"Device for Measuring the Internal Friction and the Electric
Resistance of Thin Foils in the 4.2—300 °K Temperature Interval"

Moscow, Pribery i Tekhnika Eksperimenta, No 1, Jan-Feb 72,
pp 218—220

Abstract: A device for measuring the internal friction Q^{-1} and the electric resistance of thin films and foils of 1—200 μ thickness in the temperature interval of 4.2—300 °K is described by reference to the schematic diagram of the cryostat, the gas communication schema, and the block diagram. By the described method, the internal friction can be measured in the range of helium temperatures correct within 0.5% at 4.2 °K and correct within 1% within 300 °K. The electric resistance is measured by the compensation method using the F-306 low-ohmic potentiometer

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MILOSHENKO, V. YE., et al., Pribory i Tekhnika Eksperimenta, No 1, Jan-Feb 72, pp 218-220

and the M21/4 galvanometer. The $Q-l$ temperature dependences of polycrystalline vacuum condensates of a thin copper film and of the internal friction and the electric conductivity of a niobium foil, showing a $Q-l$ maximum at the transition temperature to the superconductivity state, are illustrated. Five illustr., four biblio. refs.

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- 174 -

Acc. Nr.

AP0048449

Abstracting Service:
CHEMICAL ABST. 570

Ref. Code

4R0449

105570a Optical and photoelectric properties of thin layers of orthorhombic lead oxide. Krainarenko, N. L.; Miloslavskii,

V. K.; Mirzahnickenko, L. M. (P/a. Tekh. Inst. Nitskikh Temp., Kharkov, USSR). Fiz. Tekh. Poluprov. 1970, 4(1), 227 (Russ). The spectral dependence of the absorption coeff. K of thin PbO layers was investigated in the energy range 1.7-5.5 eV, at 85-500°K, for K values of $5 \times 10^{-3} < K < 10^2 \text{ cm}^{-1}$. The absorption spectrum consists of 3 parts: the 1st, corresponding to straight permitted transitions; the 2nd, approximated by straight lines in the $K^{1/2}(h\nu)$ coordinates; and the 3rd, with $h\nu < 27 \text{ eV}$, in single crystals. Peculiarities of the spectral dependence of the photocond. (which is sensitive to annealing of the specimen) are discussed. Photoelec. inactive absorption is absent. The obsd. absorption in the tails is related to a transition between "quasi-surface" states (at the grain boundaries) and permitted zones.

Alexandre Fuchs

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UDC: 681.327.66

MILOSLAVSKIY, G. V.

"A Memory Element Based on MOS Transistors"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratztsy, Tovarnyye Znaki, No 20, Jul 72, Author's Certificate No 343308, Division G, filed 7 Oct 70, published 22 Jun 72, p 176

Translation: This Author's Certificate introduces a memory element based on MOS transistors. The device contains a flip-flop connected through transfer transistors to a coordinate transistor. Also included are a pulse supply source, element-sampling coordinate lines, a constant supply line for the flip-flop, and digit-place lines connected to the transfer transistors. As a distinguishing feature of the patent, power consumption is reduced by including two OR gates whose first inputs are connected to the pulse supply source, while the second inputs are connected to the element-sampling coordinate lines. The outputs of the OR gates are connected respectively to the gate of the coordinate transistor and to its source.

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USSR

M

UDC 621.365.632

ARDELYAN, N.G., MILOTIN, D.D.

"Phase Characteristics Of A Type UV-230 TWT"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 2, pp 146-149 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A140)

Translation: The results are presented of an experimental investigation of the phase characteristics of a Type UV-230 TWT which is used in relay apparatus. Several models of tubes were investigated which made it possible to judge the recurrence of characteristics. The dependences were also measured of the phase of the output signal, on the power supply voltage and the input power. The slope of the dependence of the phase characteristic on the voltage of the decelerating system amounts to $0.9 \div 1.2$ degree/volt, for the anode voltage $0.1 \div 0.3$ degree/volt, and for the voltage of the focusing electrode $0.95 \div 1.1$ degree/volt. With a change of the voltage in the decelerating system corresponding to a $\pm 70^\circ$ phase change, the output power is changed by ≤ 1 db. The maximum deviation of the phase-frequency characteristic from the linear amounted to $\pm [5 + 20]^\circ$. The conversion for AM into FM for various tube models varied within the limits of 6--10 degree/db. With an input power close to the saturation power, the conversion factor has an almost constant magnitude. With an increase of the input power to a magnitude at a 5--7 db higher level of saturation, the conversion factor is changed significantly. 8 ill. 5 ref. G.B.

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MILOV, A. A.

SO. 37125 51279
14 June 75

PROBLEMS OF OBTAINING MONOCRYSTALLINE LAYERS OF SILICON BY THE RHEOTAXIAL METHOD

Author: MILOV, A. A. (MILVOVA, A. A.)
Institute: Institute of Physics, Bulgarian Academy of Sciences, Sofia, Bulgaria

Abstract: The possibility of obtaining monocrystalline layers of silicon by the rheotaxial method is investigated. It is shown that the method is suitable for the preparation of layers of silicon on glass substrates. The physical processes occurring during the growth of silicon layers on glass substrates are discussed. The results of the experiments are presented.

The main problem of the rheotaxial method for the preparation of monocrystalline layers of silicon on glass substrates is the growth of a single crystal on a polycrystalline substrate. In order to discover the effect of the material and the substrate on the rheotaxial process, we used monocrystalline silicon as the substrate and also polycrystalline silicon coated with a layer of SiO₂.

We have performed studies of the possibility of obtaining monocrystalline layers of silicon by the method of silicon tetrafluoride by deposition on glass substrates coated with glass of various composition. In order to discover the effect of the material and the substrate on the rheotaxial process, we used monocrystalline silicon as the substrate and also polycrystalline silicon coated with a layer of SiO₂.

The results of the experiments are presented. It is shown that the method is suitable for the preparation of layers of silicon on glass substrates. The physical processes occurring during the growth of silicon layers on glass substrates are discussed. The results of the experiments are presented.

The main problem of the rheotaxial method for the preparation of monocrystalline layers of silicon on glass substrates is the growth of a single crystal on a polycrystalline substrate. In order to discover the effect of the material and the substrate on the rheotaxial process, we used monocrystalline silicon as the substrate and also polycrystalline silicon coated with a layer of SiO₂.

1. The glass must not contain impurities of III and V group elements of the periodic table.
2. The coefficient of thermal expansion of the glass must correspond to the coefficient of thermal expansion of silicon ($-6.0-4.10^{-6} \text{ deg}^{-1}$).
3. At a temperature below 1,020° C the glass must be in the liquid state.

USSR

MILOV, L. T.

"Method of Processing of A Priori Information on a Control Object in Order to Reduce the Number of Changing Parameters of Dynamic Characteristics"

Izbr. Tr. Vses. Mezhvuz. Simpoz. po Prikl. Mat. i Kibernet, Gor'kiy, 1967
[Selected Works of All-Union Interdepartmental Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967], Moscow, Nauka Press, 1973, pp 198-201 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V246, by the author).

Translation: A method is suggested for construction of speed-optimal control systems for linear objects with parameters which are unknown in advance but remain constant during the process of control. It is proven that if the number of unknown parameters is less than the order of the object, an optimal control rule can be found which is independent of the values of the parameters. Examples are presented.

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USSR

UDC: 534.632:621.317.77

MILOV, V. A. and GARINA, T. N."Phase Meter for Measuring the Speed of Sound in Heterogeneous Materials"Leningrad, Priborostroyeniye, No 1, 1972, pp 31-35

Abstract: The phase meter described in this paper measures the speed of sound in nonhomogeneous materials by converting the phase shift between continuously transmitted and received signals of 1 kHz in a time interval compensated by the delay of a tunable slave multivibrator. The extent of the coincidence between pulses produced by two other multivibrators is estimated by a microammeter, and the phase shift or the delay time is read out from a variable resistor in the circuit of the tunable multivibrator. Choice of frequency of 1 kHz for the testing signal is dictated by the principle that in studying polydispersive materials, it is sometimes best to use a signal of wavelength much longer than the dimensions of the nonhomogeneities. A description is given of precautions taken to reduce distortions in the signal at the point of contact of the transducer and the material under test. A block diagram and schematic of the phase meter are presented together with a cross-sectional diagram of the transducer. The authors are members of the Leningrad Engineering-Building Institute.

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UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--DETERMINATION OF THE ACTIVITY OF PHENYLALANINE HYDROXYLASE IN THE
HEPATIC TISSUE -U-

AUTHOR--(05)-POKROVSKIY, A.A., USACHEVA, N.T., MILOVA, G.N., YERMOLAYEV,
M.V., YERMOLOV, A.S.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 5, PP 122-124

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER, ENZYME ACTIVITY, BIOPSY, PHENYLALANINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0207

STEP NO--UR/0219/70/069/005/0122/0124

CIRC ACCESSION NO--AP0120905

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2/2 017

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PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120905

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS HAVE ELABORATED A MICROMETHOD OF DETERMINING THE ACTIVITY OF PHENYLALANINE, 4, HYDROXYLASE OF THE LIVER WHICH ENABLES TO EVALUATE THE ENZYMIC ACTIVITY IN SEVERAL MILLIGRAMS OF TISSUE OBTAINED DURING BIOPSY. THE ENZYMIC ACTIVITY WAS DETERMINED IN THE HEPATIC TISSUE OF DIFFERENT ANIMALS, ADULT PERSONS AND CHILDREN SUFFERING FROM PHENYLPIRUVIC OLIGOPHRENIA. FACILITY: INSTITUTE OF NUTRITION OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, MOSCOW.

UNCLASSIFIED

USSR

UDC: 621.396.6-181.5

KARASEV, V. I., KOROBV, A. I., HEPIN, V. A., MILOVA, G. P.

"Some Peculiarities in the Breakdown of Thin Films of Photoresist"

Elektron. tekhnika. Nauchno-tekhn. sb. Materialy (Electronic Technology. Scientific and Technical Collection. Materials), 1970, VYP. 5, PP. 73-78 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V186)

Translation: It is found that breakdown processes in a photoresist film are similar to the ionization processes which take place in gases in nonhomogeneous fields. Gas inclusions play a decisive part in the breakdown processes. The microrelief of electrode surfaces has an appreciable effect on breakdown of thin films of photoresist (up to one micron thick).

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1/2 016 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--EFFECT OF PH ON THE KINETICS OF OXYGEN LIBERATION ON A GRAPHITE
ANODE -U-
AUTHOR--(02)-KOKHANDV, G.N., MILOVA, N.G.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIIMIYA 1970, 6(1) 73-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HYDROGEN ION CONCENTRATION, OXYGEN, GRAPHITE ELECTRODE,
ELECTROLYTIC OXIDATION, CHEMICAL REACTION MECHANISM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/0466 STEP NO--UR/0364/70/006/001/0073/0077
CIRC ACCESSION NO--AP0107072
UNCLASSIFIED

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PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107072

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF PH ON THE EVOLUTION OF O ON GRAPHITE (15 TIME 15 TIME 5 MM) FROM PHOSPHATE BUFFERED SOLNS. MAINTAINED AT 50DEGREES WAS STUDIED BY MEASURING THE STEADY STATE POLARIZATION. AT PH LESS THAN 7, THE EXPTL. TAFEL COEFF. VALUE B WAS NEARLY CONST. AT 0.2, WHICH CORRESPONDED TO DISCHARGE OF H SUB2 O; IT LINEARLY DECREASED TO 0.062 AT PH GREATER THAN 13, WHICH CORRESPONDED TO DISCHARGE OF OH PRIME NEGATIVE. A SLIGHT DIP IN THE B VALUE OCCURRED AT PH 2. GAS ANAL. AT PH VALUES 9 AND 11.2 SHOWED THAT BOTH CO SUB2 AND O WERE EVOLVED. INCREASING C.D. INCREASED THE AMT. OF O AND DECREASED THE AMT. OF CO SUB2. LESS O WAS EVOLVED AT PH 9 AT ALL D.DS. THAN AT PH 11.2. THE RESULTS SHOWED THAT IN THE TRANSITION PH RANGE, THE MECHANISM OF O EVOLUTION INVOLVED DISCHARGE FROM BOTH OH PRIME NEGATIVE IONS AND H SUB2 O, AND THAT THE B VALUE AND THE DEGREE OF ANODIC OXIDN. DEPENDED ON THE NUMERICAL RATIO OF THE 2 DISCHARGING SPECIES.

UNCLASSIFIED

Acc. Nr: **AP0047190**

Ref. Code: **UR0511**

PRIMARY SOURCE: Stomatologiya, 1970, Vol 49, Nr 1, pp 86-87

M

B. Ya. Gorovoy, G. A. Mikhovskiy, Yu. P. Gusev, E. P. Gusev -- THE EMPLOYMENT OF DENTOXIDE FOR REINFORCEMENT OF NONREMOVABLE PROSTHESES

Summary. For the reinforcement of nonremovable prostheses the authors employed a preparation from the group of self-setting epoxy resins -- dentoxide -- endowed with good adhesion, absence of toxicity for the dental pulp and not dissolving in the oral cavity. Dentoxide was used in accordance with the instruction. Observations over 124 patients showed good fixation of bridge prostheses.

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REEL/FRAME
19790689

DI 2

TITANIUM

USSR

UDC 541.8:541.11

VASIL'YEV, V. P., VOROB'YEV, P. N., KHVOSTOVA, I. H., and ~~MILIOZANOVA, V. A.~~
Ivanovo Chemico-Technological Institute, Chair of Analytical Chemistry

"Standard Heat of Solution of $TiCl_4$ in Nitric Acid"

Ivanovo, IVUZ Khimiya i Khimicheskaya Tekhnologiya, Vol 15, No 1, 1972,
pp 47-49

Abstract: The chemistry of titanium, including the thermodynamic properties of its compounds, are of the greatest practical significance. With the use of an improved calorimeter having automatic recording (See V. P. VASIL'YEV et al., Zh. Neorgan. Khimii, 11, 699, 1966), heat of solution, heat of dilution, and heat of destruction of the ampoule, were determined over a wide range of concentration of the HNO_3 solution. The new empirical data make it possible to develop more precise formulas for determining these quantities for the solution of $TiCl_4$ in HNO_3 . All data and formulas, along with graphic representation of the relationship between $TiCl_4$ solution and final HNO_3 concentration, are included in the paper.

1/1

USSR

MILOVANOV, V. B., POKROVSKIY, V. N., CHERENKOV, P. A., and YUTLANDOV, I. A.,
Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR

"Angular Dependence of Multicharged Particles Formed From Al^{27} Nuclei by
660-Mev Protons"

Moscow, Yadernaya Fizika, Vol. 12, No. 2, Aug 70, pp 230-238

Abstract: The angular distributions of multicharged particles C^{11} , N^{13} , and F^{16} formed by bombarding Al^{27} nuclei with 660-Mev nuclei were measured. The measurements were conducted on the synchrocyclotron of the Nuclear Physics Laboratory of the Joint Institute of Nuclear Research. The fragment yield was measured at three angles relative to the direction of the proton beam. The target was aluminum foil 0.27 and 2.43 mg/cm² in thickness. The thickness of the first foil was considerably less than the mean free path of the fragments, which is approximately 4 mg/cm², while the thickness of the second foil was in order of magnitude equal to the mean free path of the fragments, so this target could not be considered as thin. Results showed that the thin and thick targets used gave practically the same angular distributions. The angular distributions

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USSR

MILOVANOV, V. P., et al, Yadernaya fizika, Vol. 12, No. 2, Aug 70, pp 234-238

of the multicharged particles decreased smoothly in absolute value with an increase in the angle of observation. The average number of particles L formed as the result of the reaction and the type of particles accompanying the escape of a fragment is unknown. Curves are given showing the angular dependence associated with the phase space for certain values of L . A tendency was observed toward an increase in the average number of particles L with a decrease in the mass of the fragment from 18 to 8 in the disintegration of Al^{27} nuclei by 660-Mev protons. It turns out on the average that in the formation of one of these multicharged particles in the final state there appears a total of about 7 particles. This number of particles is approximately one third less than the average number of particles formed in the disintegration of Ag and Br nuclei by 660-Mev protons together with a fragment with $Z > 4$. The angular distributions of multicharged particles formed from Al^{27} nuclei by 660-Mev protons is thus in good agreement with a dependence caused only by the phase space. Further experiments plan to show to what extent the estimated values of L correspond to the real values.

2/2

USSR

UDC 538.21

KORSUNSKIY, M. I., GENKIN, Ya. Ye., LARIN, M. P., and MILOVANOVA, I. A.

"Magnetic Properties of Alloys of the Nb-Mo System"

Alma-Ata, Akademii Nauk Kazakhskoy SSR -- Seriya Fiziko-Matematicheskaya,
No 2, March-April 1971, pp 40-43

Abstract: Experimental measurements of the magnetic susceptibility of pure metals and alloys of the Nb-Mo system at 20°C and -196°C are presented. The magnetic susceptibility of these metals and alloys decreases by 2.8 times with a decrease in the Nb concentration from 100 to 37%.

On varying the temperature from 20° to -196°C the magnetic susceptibility of pure Nb increases by approximately 4%, and that of pure Mo decreases by approximately 4%. Beginning with a Nb concentration of 70%, the magnetic susceptibility decreases as the temperature drops. At an Nb concentration of 37%, the susceptibility decreases by 80%.

The experimental values of the magnetic susceptibility were compared with experimental data for the electronic heat capacity for alloys of the Nb-Mo

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USSR

KORSUNSKIY, M. I., et al, Akademii Nauk Kazakhskoy SSR -- Seriya Fiziko-Matematicheskaya, No 2, March-April 1971, pp 40-43

system. The ratio of the magnetic susceptibility to the heat capacity, which is independent of the density of states, was found to be a function of concentration and temperature.

2/2

- 43 -

USSR

UDC 616.931-02:616.9-036.2

BIRKOVSKIY, Yu. Ye., MILOVANOVA, L. P., SHEMANSKIY, O. V., KVITKO, Ye. G.,
VOYTER, A. S., BAZILEVA, A. M., and MODOVSKAYA, F. Ya., Kiev

"Epidemiological Significance of Mild Atypical Forms of Diphtheria Under Present
Conditions"

Kiev, Vrachebnoye Delo, No 8, Aug 70, pp 145-149

Abstract: The incidence of diphtheria in the USSR has declined sharply since the end of World War II, from 150 per 100,000 population in 1944 to only sporadic cases in 1966. However, this decrease in the diphtheria rate has not been matched by a corresponding decline in the number of carriers of diphtheria bacilli. Studies conducted in 1964 and 1965 in Kiev revealed that 2.5% of all healthy children examined, and about 15% of children in boarding schools and similar groups, were carriers. The disparity between the incidence of diphtheria and the number of carriers is thought to be due largely to a failure to diagnose mild, atypical forms of the disease. These forms are common in immunized children, in whom the characteristic symptoms include subfebrile temperature, mildly hyperemic throat, and slight enlargement of the lymph nodes. The number of cases of children with sore throat who also carry diphtheria bacilli is increasing from year to year. The carrier state and sore throat may be regarded as interrelated.

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USSR

UDC 541.69+547.531+5-7.362

PERSHIN, G. N., VILCHANSKIY, S. D., KIRILINA, A. D., SHISHAROVA, I. G.,
BARDANOVA, M. I., and KOPLYAREVSKIY, I. L., All-Union Chemical-Pharma-
ceutical Scientific Research Institute Imeni S. Ordzhonikidze, and
Institute of Chemical Kinetics and Combustion of the Siberian Division
of the Academy of Sciences, USSR

"Bacteriological Properties of Some Aromatic Mono- and Diacetylene
Amines"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8,
Aug 70, pp 1700-1706

Abstract: Continuing their studies on the germistatic properties of
acetylene amines, the authors report biological properties of a series
of resorcine, phloroglucinol, and mesitylene derivatives. The germi-
static activity was tested in vitro on 17 microorganisms. It was found
that only amines with one triple bond in each aliphatic chain were
active. Introduction of a second triple bond led to an almost complete
inactivation of the molecule.

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UNCLASSIFIED

1/2 020
TITLE--PROPERTIES OF 2-NITROBENZIMIDAZOLES -U-

AUTHOR--(05)--POZHARSKIY, A.F., PERSHIN, G.N., ZVEZDINA, E.A., ZYKOVA, T.Y.,
MILOVANOVA, S.N.
COUNTRY OF INFO--USSR

M

SOURCE--KHIM. FARM. ZH. 1970 4(1) 14-16

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--ORGANIC NITRO COMPOUND, BENZIMIDAZOLE, BACTERICIDE, FUNGICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1520

STEP NO--UR/0450/70/004/001/0014/0118

CIRC ACCESSION NO--AP0112514
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--020070

2/2 020

CIRC ACCESSION NO--AP0112514

ABSTRACT. 2, NITROBENZIMIDAZOLE (I) (0.153 G), 0.08 G NADH, 4 ML ETOH, AND 0.35 ML MEI YIELDED 0.19 G 1, METHYL, 2, NITROBENZIMIDAZOLE (II), M. 170DEGREES (ETOH); 79.3PERCENT 1, ETHYL, 2, NITROBENZIMIDAZOLE (III), M. 170DEGREES (ETOH); WAS ALSO PREPD. II (0.27 G) WAS ALSO PREPD. FROM 0.26 G I AND 0.156 G CH SUB2 N SUB2 IN 40 ML ET SUB2 U. A MIXT. OF 0.163 G I, 0.1 G NADH, 0.25 G PHME SUB2 (PHCH SUB2) IN PRIME POSITIVE CL PRIME NEGATIVE, AND 3 ML H SUB2 O GAVE 0.13 G 1, BENZYL, 2, NITROBENZIMIDAZOLE, M. 107DEGREES (MEOH). II (0.15 G), ETONA (FROM 0.08 G NA), AND 7 ML ETOH YIELDED 1, METHYL, 2, ETHOXYBENZIMIDAZOLE (0.12 G), PICRATE M. 163-4DEGREES (ETOH). II (0.25 G), 0.32 G PHCH SUB2 NH SUB2, AND 5 ML XYLENE YIELDED 0.25 G 1, METHYL, 2, (BENZYLAMINO)BENZIMIDAZOLE, M. 167DEGREES (MEOH). THE COMPS. WERE TESTED FOR ANTIBACTERIAL (11 STRAINS) AND ANTIFUNGAL (6 STRAINS) ACTIVITY.

UNCLASSIFIED

USSR

UDC 621.039.51.001.8 4

ARNOL'DOV, M. N., BOGATYREV, V. K., DUBOVSKIY, B. G., IVANOVSKIY, M. N.,
KALENICH, V. N., KIR'YANOV, G. I., MILOVIDOVA, A. V., FRJLOV, V. V.

"Activation Control of Oxygen in Circulating Sodium-Potassium Coolant Using
a Neutron Generator"

Tr. VNII radiats. tekhn. (Works of the All-Union Scientific Research Insti-
tute of Radiation Engineering), 1972, No. 7, pp 137-144 (from RZh-50. Yadernyye
reaktory, No 11, Nov 72, Abstract No 11.50.93)

Translation: The first stage in carrying out continuous control of oxygen in a
circulating loop with an Na-K alloy and a mockup of a nuclear reactor circuit
is described. The basis of the method is the familiar reaction for deter-
mining oxygen on the basis of N^{15} (the reaction $O^{16} (n, p) N^{15}$). A small-
scale neutron generator of the type NGI-5 with a flux of about $5 \cdot 10^8$ neutron/
/sec was used for activation. This method for oxygen control on the basis of
the N^{15} isotope is also applicable in the active loop of a nuclear reactor.
4 ill., 2 tables, 2 ref.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--REACTION OF MAGNESIUM BICARBONATE AND CALCIUM HYDROXIDE -U-

AUTHOR--(03)-ARAV, R.I., MILOVIDOVA, L.V., MARAGINA, L.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 498-501.

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CALCIUM HYDROXIDE, MAGNESIUM CARBONATE, REACTION KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1945

STEP NO--UR/0080/70/043/003/0498/0501

CIRC. ACCESSION NO--AP0118907

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118907

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. A STUDY OF THE INTERACTION KINETICS OF $Mg(HCO_3)_2$ AND $Ca(OH)_2$ IN RELATION TO THE INTRODUCTION OF $MgCO_3$ AND $CaCO_3$ CRYSTALS SHOWED THAT WITH AN INCREASE OF $Ca(OH)_2$ CONTENT, THE PROCESS TIME IS SHORTENED BY APPROX. A FACTOR OF 4. A TEMP. INCREASE SPEEDS UP THE PPTN. OF Mg IONS. FACILITY: KRYM. FINIAL GOS. NAUCH. ISSLED. INST. STROIT. MATER. IZDELII, USSR.

UNCLASSIFIED

USSR

UDC 612.013.1.014.43.014.461

5

POKROVSKIY, V. I., BULYCHEV, V. V., LISYKOV, T. Ye., MALEYEV, V. V.,
UTEKHIN, V. A., CHERNAYEVA, T. Ye., MAYOROV, Yu. M., MILOVIDOVA, S. S., and
KAFAROV, K. A., Central Department of Infectious Pathology, Scientific Research
imeni N. N. Pirogova, Institute of Epidemiology, Ministry of Health USSR,
and chair of Hospital Therapy, Evening Faculty, Second Moscow Medical Institute,
and Chair of Hygiene, State Central Institute for Physical Culture

"Effect of Dehydration and Hyperthermia on Homeostasis in Healthy Persons"

Moscow, Sovetskaya Meditsina, No 2, 1973, pp 27-31

Abstract: Blood chemistry and cardiovascular changes were studied in 20
healthy males aged 18 to 32 before and after staying various lengths of time
in a sauna bath (15 to 30 and 35 to 55 minutes of exposure to temperatures of
80 to 100° and humidity of 8%). In those who remained in the sauna 15 to 30
minutes, hyperthermia resulted in hyperfunction of the heart, slowing of the
blood flow, elevation of the pH and pressure of venous blood, increase in
serum proteins and in the specific gravity and viscosity of blood, decrease in
clotting time, loss of chlorine and potassium. In the group that remained in
the sauna over 35 minutes, dehydration caused a loss of electrolytes (chiefly
chlorine and potassium) with urine, cardiac hypofunction, slowing of the blood

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USSR

POKROVSKIY, V. I., et al., Sovetskaya Meditsina, No 2, 1973, pp 27-31

flow, decrease in venous and arterial blood pressure, shortening of clotting time, and increase in blood proteins, specific gravity, viscosity, and pH. The biochemical changes in both groups were within physiological limits and had no lasting effects. These findings can be used to determine disruptions of homeostasis, evaluate alterations in water-salt metabolism, acid-base equilibrium, etc. in infectious patients, and assess the efficacy of therapy, particularly in gastrointestinal diseases.

2/2

USSR

UEC 621.378.3

MILOVSKIY, N.D.

"On The Synchronization Band Of The Traveling-Wave Laser"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(18), 1977, pp 95-102

Abstract: The paper considers the phenomenon of synchronization by the external monochromatic signal of a multimode traveling-wave laser with the inhomogeneously broadened line of luminescence of the active substance. The frequency range is found where the laser is the optical quantum amplifier of the external signal operating in a stable stationary regime. The dependence is investigated of the synchronization band on some parameters of the resonator, pumping, and external signal. The author thanks Prof. V.I. Talanov for his constant attention and helpful discussions. 3 fig. 14 ref. Received by editors, 22 Apr 1971.

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USSR

UDC 621.378.3

MILOVSKIY, N. D., POPOVA, L. L., Scientific Research Radio Physics Institute

"Stability of a Single-Frequency Laser in a Nonuniformly Broadened Active Material"

Gor'kiy, Izvestiya vysshikh uchevnykh zavedeniy, Radiofizika, Vol XV, No 1, 1972, pp 19-26

Abstract: The stability of the single-frequency mode of a one-dimensional model of a traveling wave laser in a uniformly broadened active material was investigated earlier [H. Risken, et al., J. Appl. Phys., No 39, 4662, 1968; Phys. Lett., No 26A, 275, 1968; N. D. Milovskiy, Izv. vyssh. uch. zav., Radiofizika, Vol 14, No 1, 93, 1971]. The study showed that as a result of multi-photon interaction with sufficiently large excess of the pumping n^0 over the threshold value n^0_{thresh} ($\lambda = n^0/n^0_{\text{thresh}} - 1 > \lambda_c$), the stationary mode becomes unstable. Investigation of the analogous problem for a laser using a nonuniformly broadened active material with respect to a broad class of disturbances depending on the coordinates and time in the present article demonstrates that nonuniform broadening essentially decreases the value of λ_c . A study was made of the one-dimensional model of a traveling wave laser using an active material nonuniform broadening of which arises as a result of the doppler

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USSR

MILO'SKIY, N. D., et al., Izvestiya vysshikh uchevnykh zavedeniy, Radiofizika, Vol XV, No 1, 1972, pp 19-26

shift of the natural frequency of each molecule moving in the $+z$ -direction with a velocity $\beta\epsilon_0 = v/v_\phi = v(\sqrt{\epsilon_0}/c)$ with respect to a stationary coordinate system. The losses of the laser resonator are assumed uniformly distributed with respect to the entire volume (length l).

Analytical expressions are obtained for the shape of the "amplification line" for the spectral components of the field disturbances with an arbitrary ratio of the luminescence line width to the natural width. With an increase in this ratio the critical excess of pumping over the threshold value for which instability occurred decreases. The developed theory permits analytical investigation of the shapes of the troughs in the "amplification lines" for amplitude and phase disturbances and estimation of the frequency range within which instability can occur, establishment of the presence of three different mechanisms of amplification of the amplitude and phase disturbances and estimation of the effect of each of them on this process, finding the law of variation of the critical intensity of the stable stationary single-frequency generation as a function of $\Omega_0\beta$ and estimation of the power of this generation with respect to order of magnitude.

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Acc. Nr: **AP0048000**

Abstracting Service:

Ref. Code:

INTERNAT. AEROSPACE ABST. **5-78 UR0141**

M

A70-25158 # On the stability of regenerative optical quantum traveling-wave amplifier (Ob ustoiichivosti regenerativnojo OKU begushchei volny). N. D. Milovanov (Gor'kovskii Gosudarstvennyi Universitet, Gorki, USSR). *Radiofizika*, vol. 13, no. 7, 1970, p. 257-265. 25 refs. In Russian. **120 VU2**

The stability of the stationary regime of a one-dimensional model of the optical quantum traveling-wave amplifier has been investigated relative to a wide class of perturbations depending on the coordinate and time. A relation is derived which may be considered to be a criterium of the stability of the stationary regime and can be used to determine the trapping band of the traveling wave laser by the external input signal. (Author) **1**

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REEL/FRAME
19791682

21

1/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--PURIFIED WASTE WATER IN SULFATE PULP PRODUCTION -U-

AUTHOR--(03)-MOREKHIN, M.G., MILOVZOROV, Y.P., SHEVCHENKO, T.V.

COUNTRY OF INFO--USSR

SOURCE--BUM. PROM. 1970, (5), 14-15

DATE PUBLISHED-----70

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

TOPIC TAGS--PAPER INDUSTRY, INDUSTRIAL WASTE, WATER POLLUTION, CHEMICAL
PATENT, WATER RECYCLING EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3006/0992

STEP NO--UR/0239/70/000/005/0014/0015

CIRC ACCESSION NO--AP0134705

UNCLASSIFIED

2/2 010
CIRC ACCESSION NO--AP0134705

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-9- ABSTRACT. THE METHOD OF PURIFICATION OF KRAFT MILL EFFLUENTS DESCRIBED IN U.S.S.R. 245,672, WHICH REMOVES 95-100PERCENT ORG. IMPURITIES AND MAKES POSSIBLE THE RECYCLING OF THE PURIFIED WATER, WAS TESTED IN A TM 68 MACHINE OF CAPACITY 10 M PRIME3-DAY TO DET. THE EFFECT OF THE SALT COMPN. OF THE WATER ON ITS QUALITY FOR USE IN KRAFT PULP MANUF., AND THE LENGTH OF TIME THIS WATER COULD BE USED IN A CLOSED CYCLE BEFORE BEING DEASHED. A PART OF THE SALTS INTRODUCED INTO THE PROCESS WATER DURING PULPING IS REMOVED IN THE PURIFICATION PROCESS, BUT NEW MINERAL IMPURITIES ARE INTRODUCED DURING PURIFICATION, SO THAT THE MINERAL COMPN. IS ALTERED. ACCORDING TO THE PROPOSED METHOD, DEASHING IS TO BE DONE BY DISYN. AFTER 50 CYCLES, I.E. THE CYCLE IS CLOSED BY DISTG. 2PERCENT OF THE INITIAL PROCESS WATER. THE MODEL EXPTS. WERE CONDUCTED FOR 1000 HR, USING EFFLUENTS FROM THE KHERSON PULP MILL, AND THE PURIFIED WATER WAS REUSED 25 AND 50 TIMES IN THE MANUF. OF KRAFT PULP FROM ASPENWOOD AND SPRUCEWOOD. THE PULPS OBTAINED DID NOT DIFFER FROM THOSE MANUF. WITH FRESH WATER. MULTIPLE RECYCLING INCREASED BY 15-17PERCENT THE AMT. OF CHEMS. USED FOR PREPN. OF WHITE LIQUOR AND AN INCREASED FOAMING TENDENCY WAS OBSERVED. THE PURIFIED WATER WAS USED IN ALL STAGES OF THE PULP MANUF. PROCESS (PREPN. OF WHITE LIQUOR, PULP WASHING, BEATING, AND PREPN. OF HANDSHEETS) AND THERE WERE NO EFFLUENTS TO BE DISCHARGED. INDUSTRIAL TESTS ARE NECESSARY TO DET. THE ECONOMIC ASPECTS OF THE NEW PURIFICATION PROCESS. FACILITY: KIEV. TORG.-EKON. INST. KIEV, USSR.

UNCLASSIFIED

USSR

UDC 539.3:534.231.1

MIL'RID, E. M.

"Wave Diffraction on a Transparent Inhomogeneous Convex Cylinder"

Leningrad, Vopr. Dinamich. Teorii Raspostr. Seysmich. Voln -- Sbornik (Questions of the Dynamic Theory of Seismic Wave Propagation -- Collection of Works), Nauka, No 11, 1971, pp 33-47 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V97 by P. V. Krauklis)

Translation: An inhomogeneous convex cylinder is bounded by a medium containing a filamentary source of steady-state oscillations. The problem is two-dimensional and scalar. The velocity in the external medium is greater than the velocity in the cylinder, so that a shadow zone is formed in the cylinder. A study is made of the field of slippage waves in the shadow zone near the boundary. The solution is sought in the form of series in accordance with the powers of $\omega^{-1/3}$ (ω is the frequency), with the coefficients which depend upon the radial coordinates linked to the boundary. Substitution of the series into the equations and into the boundary conditions brings about a recurrent system of differential equations, which is solved by the well-known method. The Green function of the problem in the shadow zone is constructed according to the method of I. A. Molotkov (Problems of Mathematical Physics -- Collection

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USSR

MIL'SHTEYN, G. N.

"Distribution of the Integral of a Markhov Chain with Two States"

Mat. Zap. Ural'sk. Un-t. [Mathematical Writings of Urals University],
1972, Vol 8, No 2, pp 80-90 (Translated from Referativnyy Zhurnal,
Kibernetika, No 3, Moscow, 1973, Abstract No 3 V33 by the author).

Translation: The distribution of the integral $\int_0^t u(s) ds$ is found, where
 $\{u(t), 0 \leq t < \infty\}$ is a Markhov process with two states. It is noted
that the distribution produced can be used for proof of limiting theorems
and laws of large numbers in the case of Markhov chains with two states.

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USSR

UDC 632.95

MIL'SHTEYN, I. M., ROGATYKH N. G., SHVETSOVA-SHILOVSKAYA, K. D., MEL'NIKOV,
N. N.

"Procedure for Obtaining O-arylsulphonylcarbamoyloximes"

USSR Author's Certificate No 316688, filed 21 Oct 68, published 14 Dec 71 (from
RZh-Khimiya, No 12, Jun 72, Abstract No 12N459)

Translation: Compounds with the general formula $RR'C = NCO(O)NHSO_2A$ (I) (R and R' = alkyl or aryl; A = aryl) with acaricid activity are obtained with interaction of the corresponding oxime with arylsulphonylisocyanate. In the presence of Et_3N , 0.015 moles of $PhSO_2NCO$ are added to a solution of 0.015 moles of methyl isopropyl ketone oxime in 50 ml of benzene; it is mixed for 4-5 hours at 40-50°C; the solvent is distilled off and I is obtained (R = Me, R' = iso-Pr, A = Ph); the yield is 95%, the melting point is 120°C (benzene). The I (R = Me, A = Ph) is obtained analogously (R' is recalculated, the yield in %, melting point in °C): Et, 74, 126; Me 97, 124-5; sec-Bu, 95, 113.

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Acc. Nr.:

AP0041157

M

Ref. Code:

UR0131

USSR

UDC 621.924.6:621.833

MIL'SHTEYN, M. Z., KERBIKOV, L. S., VDOVIN, G. P.

"The Diamond Grinding of Hard-Alloy Shaver Teeth"

Moscow, Stanki i Instrument, No 1, 1970, pp 27-29

Abstract: The most labor-intensive operation in the production of shavers, an operation which determines their precision and durability, is grinding the profiles of the teeth. The Institute of Superhard Materials of the State Planning Commission of the Ukrainskaya SSR and the Moscow Tool Plant have developed and put into production a processing method for the diamond machining of disk shavers with detachable hard-alloy teeth. The article gives a description and the specifications of the equipment and process of grinding these teeth.

ea 18

Reel/Frame

19750540

USSR

UDC 519.2:62-50

MIL'TO, A. A.

"Approximation of Correlation Functions"

Sb. nauch. tr. Belorus. s.-kh. akad. (Collection of Scientific Works of the Belorussian Agricultural Academy), Vol 71, 1970, pp 166-173 (from Referativnyy Zhurnal -- Matematika, No 6, June 71, Abstract No 6V254)

Translation: Numerical values of the parameters α and β appearing in the expression of the correlation function $e^{-\alpha r} \cos \beta r$ are determined. A solution is presented using graphs of families of curves and also the least-squares method. Application of the system of graphs and tables which is developed permits more rapid determination of the values of the parameters in the approximating expression of the correlation function with the required degree of accuracy. Author's Abstract

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USSR

UDC 661.185.23

MILUSHEVA, A. Sh., MIRKAMILOVA, M. S.

"Synthesis and Study of Cation Exchange Resins Based on Polycondensation Products of Furfural and Diphenyl Oxide"

Tashkent, Uzbekskiy Khimicheskiy Zhurnal, No 2, 1972, pp 40-42.

Abstract: Condensation-type ion-exchange resins based on furan compounds have high thermal and radiation stability. This work describes the synthesis and study of cation exchange resins by the reaction of polycondensation of diphenyl oxide and furfuran with subsequent sulfuration. The polycondensation process is influenced by the type and quantity of solvent added. The exchange capacity of cationites based on DPO and furfuran in a solvent medium is significantly higher than without the solvent. As the quantity of catalysts -- conc. H_2SO_4 -- added is increased, the exchange capacity increases, apparently due to preliminary sulfuration during polycondensation. The cation exchange resins produced both with and without the solvents had good physical and chemical properties, high thermal and radiation stability.

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Coatings

USSR

UDC 621.357

BELOGLAZOV, S. M., and MILUSHKIN, A. S., Chair of Physical Chemistry, Perm
Pharmaceutical Institute

"Reducing Hydrogen Absorption By Steel on Electrodeposition of Copper Using
Organic Inhibitors"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol 14, No 4, 1971, pp 575-577

Abstract: It was shown that the addition of polyvinyl alcohol and anion-
active "Progress" additive to the sulfate and cyanide electrolytes consider-
ably reduces hydrogen absorption by the substrate and increases the smoothness
of the copper coating while reducing its porosity. Anion-active "Progress"
was much less effective on negatively charged copper deposits when a cyanide
electrolyte was used. It is suggested that appropriate organic additives
prevent a close approach by hydronium ions on water molecules to the metal
surface during the discharge.

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USSR

UDC 627.81(47+57)

MILUSHKINA, R. YE., SHIROKOV, V. M.

"Natural and Technical-Economic Characteristics of Large Reservoirs of Siberia"

Tr. koordinats. soveshchaniy po gidrotekhn. (Works of Coordinating Meetings on Hydroengineering), No 59, 1970, pp 172-178 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D53)

Translation: Data are presented which characterize the structure of agricultural lands flooded by reservoirs; the distribution of expenditures with respect to hydroengineering complexes and reservoirs with respect to different branches (hydroelectric power engineering, water transportation, the fishing industry, water supply, and so on); data on the water conservancy balance (comparison of planned values with actual values); data connected with hydrological changes caused by reservoirs with respect to six large reservoirs being operated in Siberia (Bartsk, Vil'nyus, Irkutsk, Krasnoyarsk, Mamakanskiy Novosibirsk) and 3 large reservoirs being constructed (Sayan, Ust'-Ili and Khantayskiy). A tendency toward reducing the areas of agricultural lands subject to flooding at the reservoirs being newly built is noted. This tendency
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MILUSHKINA, R, YE., et al., Tr. koordinats. soveshchaniy po gidrotekhn., No 59, 1970, pp 172-178

is connected with the factor of uninhabitability of the areas of their construction. The total volume of water coming into the reservoirs of Siberia is 484.14 km³ of which 165.95 km³ gets into the reservoirs in the construction stage. A definite change in times of establishment of the ice cover and clearing of ice in the reservoirs by comparison with natural conditions and also weak utilization of them in transportation and fishing respects are noted. The bibliography has 4 entries.

USSR

UDC: 621.375.9:535

SEBEROV, I. M., MATYUGIN, Yu. A., MILUSHKIN, G. A., TROSHIN, B. I.,
and CHEBOTAYEV, V. P.

"Highly Stable Gas Laser Based on Nonlinear Absorption ($\lambda = 0.63 \mu$)"

Novosibirsk, Avtometriya, No 5, 1972, pp 71-85

Abstract: This is the second part of a series with the title given above, and subtitled "Selection of Oscillation Types in an He-Ne Laser, $\lambda = 0.63 \mu$," the first part of which appears in this same journal, same issue (pp 59-70). In this part, an analysis is given of two methods for selecting the types of oscillation in gas lasers: the first consists in modifying the optical resonator such that the condition of operation is satisfied for only one type of oscillation; the second consists in using amplification saturation and absorption in the gas under the effects of a strong monochromatic field. A short review of the methods of selecting longitudinal types of oscillation in gas lasers with heterogeneous expansion of amplification lines is discussed. Some results are given of experiments in the investigation of the He-Ne laser spectral radiation at $\lambda = 0.63 \mu$ ($3s_2-2p_4$ Ne transition) together with their

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USSR

UDC: 621.375.9:535

BETEROV, I. M., et al, Avtometriya, No 5, 1972, pp 71-85

analysis. The technical characteristics of each element of the laser -- the amplification tube, the inner absorption cell, and the optical laser -- are summarized.

2/2

- 37 -

USSR

UDC: 621.375.9:535

BETEROV, I. N., MATYUGIN, Yu. A., MILUSHKIN, G. A., TROSHIN, B. I.,
and CHEBOTAYEV, V. P.

"Highly Stable Gas Laser Based on Nonlinear Absorption ($\lambda = 0.63\mu$)"

Novosibirsk, Avtometriya, No 5, 1972, pp 59-70

Abstract: This is the first part of a series, entitled "Frequency Stabilization Methods for Powerful Gas Lasers" and is devoted to a detailed description of the design principles for a powerful, highly frequency-stable He-Ne laser operating at a wavelength of 0.63 microns. The structural and technical characteristics of the laser, electronic systems for stabilizing its frequency, and the results of tests made on it are also discussed. The diagram of an experimental apparatus for obtaining narrow resonances in an external absorption cell is given together with various expressions derived on the basis of it. Various methods for stabilizing the frequency of the lasers are shown in three diagrams and are analytically compared using expressions for the sensitivity of the optical discriminators in each. It is emphasized that the choice of optical discriminator is the result of a compromise between technological and physical requirements.

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- 40 -

USSR

UDO 621.315.592:546.19'681

SOKOLOV, YE.B., BOL'SHEVA, YU.N., LOGINOVA, L.V., MIL'VIDSKIY, M.G.

"Behavior Of Copper During Melting Of Gallium Arsenide To A Flux"

Sb.nauch.tr. po probl. mikroelektron. Mosk. in-t elektron.tekhn. (Collection Of Scientific Works On Problems Of Microelectronics. Moscow Institute Of Electronics Technology), 1972, Issue 8, pp 109-112 (from RZh:Elektronika i yeye primen- iye, No 9, Sept 1972, Abstract No 93106)

Translation: The behavior is considered of one of the most studied impurities-- copper at the boundary of melts of gallium arsenide--boric anhydride. It is assumed that with equilibrium of these two melts it is possible for extraction of the impurities in the flux to take place. It is shown that with high concentrations of copper (and copper oxide) in the melt, it is possible to disregard extraction of boric anhydride in the melt. 4 ref. Summary.

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MIL'VIDSKIY, M.G.

SP25 59208
L 73

11-2. CHARACTERISTIC FEATURES OF THE BEHAVIOR OF TELLURIUM ON CRYSTALLIZATION OF GALLIUM ALLOYING IN CONNECTION WITH THE PRESENCE OF STATE OF THE CRYSTALLINE-TELLURIUM SYSTEM

Article by V. E. Vlasovskiy, M. G. Milvidskiy, O. V. Zalozhka, E. S. Mironov, Moscow Institute of Physics and Chemistry, Serpukhov Branch, Serpukhov, Moscow Region, U.S.S.R., 1977, p. 1511

Investigation of the diagram of state of Ga-As-Te led to the following partial ternary systems: Ga-As-GaAs, Ga-As-Te, Ga-As-Te-As₂Te₃, Ga-As-Te-As₂Te₃ and As₂Te₃-GaAs-As. Thus, the phases of tellurium arsenide and tellurium do not change and on crystallization of the gallium arsenide from the melt the compositions of which lie on the selected isotherm of the liquidus, the crystals is a solid solution of the component Ga_{1-x}Te₃As_xAs₂Te₃ and As on the basis of gallium arsenide as a function of what partial tetrahedral the melt composition belongs to. This permits expectation of variations of the nature of the behavior of the alloying admixtures (Te) in the gallium arsenide crystal during crystallization in various partial triangles.

The gallium arsenide crystals were grown by the Czochralski method from melts containing an identical quantity of tellurium and the compositions of which corresponded to isoperitectic points lying on the GaAs-Te, GaAs-As₂Te₃ and GaAs-GaAs sections.

MIL'V. IDSKIV, MG.

59208
6-73

M-04. BEHAVIOR OF ALLOYING AMPLITUDES IN THE PRESENCE OF LIQUID EPITAXIAL GALLIUM ARSENIDE IN CONNECTION WITH THE DIAGRAMS OF STATE OF THE TERNARY SYSTEM Ga-As-Ge.

Article by O. V. Pelevina, N. G. Mil'vidskiy, A. G. Gritsh, M. I. Mikheev, Moscow; Novolot'skiy, I. I. Stipovich, M. P. Ermakov, N. G. Gritsh, M. I. Mikheev, Tomskiyen Khranitel'noy Biblioteki, Tomsk, 1973, 12 p., 12 refs.

A study was made of the diagrams of state of the ternary systems of gallium arsenide and indium, antimony, and tin. The standard solution elements were selected as the admixtures -- tin-donor, germanium-acceptor and iron-deep acceptor. In the investigated systems, within the framework of the quasi-chemical approximations of the theory of solutions, the liquidus isotherms were calculated in the region of primary crystallization of gallium arsenide.

The characteristic features of the behavior of the alloying admixtures are discussed in connection with triangulation of the diagrams of state of the corresponding systems.

The alloyed epitaxial films of gallium arsenide were grown from liquid solutions the compositions of which corresponded to the liquidus isotherms.

The study of the epitaxial layers by methods of radioactive indicators and Hall measurements permitted investigation of the nature of the isotherms: cross sections of the solidus surface in the region of primary crystallization of gallium arsenide.

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US3R

UDC 541.122.2

MIRTSKHULAVA, A. A., RAKOV, V. V., LAYNER, B. D., ~~MILVIDSKIY,~~
M. G., SAKVARELIDZE, L. G., State Scientific Research and Design
Institute of Rare Metals Industry

"Study of the Phase Equilibrium in Gallium Arsenide-Aluminum
Arsenide System"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 9, 1971, pp 2374-
2375

Abstract: The ternary phase diagram of the quasibinary gallium
arsenide-aluminum arsenide system with 0-15 mol% aluminum arsenide
was determined using gravimetric physicochemical analysis.
Arsenic concentration in the melt, temperature of the melt, and
arsenic vapor pressure were determined simultaneously by the above
method. Vacuum degassing of the starting materials and of the
ampoule and graphitization of the crucible prevented aluminum from
interacting with the container and with oxygen. To determine the
liquidus line polythermal cuts of the diagram were plotted for
alloys with different ratios of nonvolatile components. The
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USSR

MIRTSKHULAVA, A. A., et al, Zhurnal Fizicheskoy Khimii, Vol 45,
No 9, 1971, pp 2374-2375

maximum liquidus temperature within each cut corresponded to a Ga-Al-As melt with 50 at.% As. The projections of the liquidus line of the quasibinary system on T-x, P-x, and P-T planes are shown. The experimental coefficient of interdiffusion of the melt components, i.e., Ga, Al, and As, was found to decrease from $1.5 \cdot 10^{-4}$ to $1.1 \cdot 10^{-4}$ sq. cm./sec., when aluminum arsenide concentration in the melt was increased from 0 to 15 mol.%.

2/2

1/3 017 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--STRUCTURAL FEATURES OF SILICON SINGLE CRYSTALS STRONGLY DOPED WITH
ARSENIC -U-
AUTHOR--(04)-GRISHINA, S.P., KLIMOVA, N.M., OSYENSKIY, V.B., MILVIDSKIY,
M.G.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2) 193-5
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, MATERIALS
TOPIC TAGS--SILICON SINGLE CRYSTAL, DOPED ALLOY, ARSENIC CONTAINING ALLOY,
SOLID SOLUTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/0821 STEP NO--UR/0363/70/006/002/0193/0195
CIRC ACCESSION NO--AP0118002
UNCLASSIFIED

2/3 017

CIRC ACCESSION NO--AP0118002

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-U- ABSTRACT. AN ELECTRONMICROSCOPE STUDY WAS MADE OF THE STRUCTURE OF SI SINGLE CRYSTALS DOPED WITH AS TO A CONC. OF 5 TIMES 10 PRIME20-CM PRIME3. THE CRYSTALS WERE GROWN BY THE CZOCHRALSKI TECHNIQUE IN THE MEAN VALUE OF 111 DIRECTION. THE SAMPLES WERE SECTIONED BOTH IN TRANSVERSE AND IN LONGITUDINAL CROSS SECTION, COINCIDING WITH THE (110) PLANE. ELECTRON REPLICATION AND THIN FILM ELECTRON TRANSMISSION TECHNIQUES WERE USED. FOUR SYSTEMS OF PARALLEL GROWTH BANDS WITH PERIODS OF SIMILAR TO 100, SIMILAR TO 40, SIMILAR TO 10, AND SIMILAR TO 2 MU WERE OBSERVED ON LONGITUDINAL SECTIONS. FINER BANDS, WITH PERIODS OF SMALLER THAN OR EQUAL TO 0.1 MU, WERE OBSD. INSIDE THE SIMILAR TO 2 MU BANDS. THE PRESENCE OF PERIODIC HETEROGENEITY IN CRYSTALS IS GNERALLY ASSOCD. WITH PERIODIC CHANGE OF GROWTH RATE. THE PRESENCE IN THE CRYSTALS OF A WHOLE SPECTRUM OF FINE GROWTH BANDS ATTESTS TO THE COMPLEXITY OF THE PROCESSES TAKING PLACE AT THE CRYSTN. FRONT. IN THE MIDDLE PART OF THE CRYSTALS THERE IS A "GATHERING" OF FINE GROWTH BANDS INTO WIDER ONES. A DISCRETE STRUCTURE OF THE CELLS WAS OBSD. IN THE SAMPLES ALONG WITH THE GROWTH BANDS. THE BOUNDARIES OF THE CELLS LOOK LIKE THIN GROOVES (SIMILAR TO 4 MU), INTERSECTING THE GROWTH BANDS IN THE MEAN VALUE OF 110 DIRECTIONS. PPTS. MEASURING SIMILAR TO 10 PRIME3 ANGSTROM IN SIZE WERE OBSD., INTO THE COMPN. OF WHICH ENTERS THE COPING IMPURITY. THE MOST PROBABLE REASON FOR THE FORMATION OF SUCH FINELY DISPERSED PPTS. IS THE PARTIAL DECOMP. OF THE SOLID SOLN. OF AS AND SI DURING COOLING OF THE CRYSTAL FROM THE M.P.

UNCLASSIFIED

3/3 017 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0118002
ABSTRACT/EXTRACT--THERE ARE NO DATA IN THE LITERATURE ON THE SOLY. OF AS
IN SI WITHIN A WIDE TEMP. RANGE.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--HEAT TREATMENT TRANSFORMATIONS IN GALLIUM ARSENIDE STRONGLY DOPED
WITH TELLURIUM -U-
AUTHOR-(04)-GRISHINA, S.P., MILVIDSKIY, M.G., OSVENSKIY, V.B., FISTUL,
V.I.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 294-8
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--METAL HEAT TREATMENT, GALLIUM ARSENIDE, DOPED ALLOY,
TELLURIUM, HALL CONSTANT, CRYSTAL DISLOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0940

STEP NO--UR/0449/70/004/002/0294/0293

CIRC ACCESSION NO--AP011644B

UNCLASSIFIED

2/2 031

UNCLASSIFIED


PROCESSING DATE--16OCT73

CIRC ACCESSION NO--AP0116448

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TE DOPED GAAS SINGLE CRYSTALS DOPED WITH SUFFICIENT TE TO GIVE A CHARGE CARRIER CONC. OF (7-10) TIMES TO PRIME18-CM PRIME3 AND DISLOCATION D. SIMILAR TO 10 PRIME3-CM PRIME2 WERE GROWN BY THE CZOCHRALSKI METHOD. THE HEAT TREATMENT WAS CARRIED OUT IN EVACUATED QUARTZ AMPULS. THE CARRIER D. AND MOBILITY WERE DETD. FROM HALL COEFF. AND COND. MEASUREMENTS OF CROSS SHAPED SAMPLES. ANNEALING WAS PERFORMED AT 700-1000DEGREES AFTER TEMPERING AT 1100DEGREES. FOLLOWING THE TEMPERING PROCEDURE ALL SAMPLES SHOWED AN 40-60PERCENT INCREASE OF ELECTRON CONC. A GENERAL DECAY OF N SUBE IS OBSERVED THROUGHOUT THE ENTIRE ANNEALING PROCESS (SIMILAR TO 100-150 HRS.) AT EACH ANNEALING TEMP. THE INITIAL N SUBE VALUE PRIOR TO TEMPERING IS REACHED WITHIN 20 MIN DURING THE ANNEALING PROCESS REGARDLESS OF TEMP. AT HIGHER COOLING RATES AS THOSE MET UNDER USUAL CRYSTN. CONDITIONS THE IMPURITIES REDISTRIBUTION CANNOT PROCEED, AND THE CRYSTAL REMAINS IN A METASTABLE STATE. THE DECAY OF N SUBE DURING ANNEALING IS ATTRIBUTED TO A TRANSITION OF PART OF THE TE ATOMS INTO INTERSTITIAL POSITIONS OR TO AN INCLUSION INTO A SECOND PHASE. A DECREASE IN ELECTRON MOBILITY IS CAUSED BY THE ANNEALING PROCESS. IT IS ASSUMED THAT TE ATOMS IN THE SECOND PHASE FORM MULTICHARGE COMPLEXES. UNDER ISOTHERMAL CONDITIONS AT GREATER THAN 900DEGREESC THE TRANSFORMATION PROCEEDS IN 2 STAGES. DURING THE FIRST 20 MIN A METASTABLE TE COMPLEX IS FORMED, WHICH IS THEN DISSOLVED AND A SECOND COMPLEX APPEARS, EVENTUALLY WITH THE FORMATION OF A FINELY DISPERSED SECOND PHASE. FACILITY: GOS. NAUCH.-ISSLED. PRONENT. INST. REDKOMETAL. PROM., MOSCOW, USSR.

UNCLASSIFIED

USSR

 UDC: 546.28:518.55

GRISHINA, S. P., KLIMOVA, N. M., OSVENSKIY, V. B., and MIL'VIDSKIY, M. G.,
Giredmet (State Scientific Research and Planning Institute of Rare Metals
Industry)

"Structural Features of Silicon Single Crystals Highly Doped with Arsenic"

Moscow, Neorganicheskiye Materialy, Vol 6, No 2, Feb 70, pp 193-195

Abstract: An electron microscopy study of arsenic-doped silicon crystals, grown by the Chokhralski method, revealed growth zones with a period of up to 1 micron. A study with the replica method established that the cell and growth zones have a discrete structure. Segregations measuring $\sim 10^3 \text{ \AA}$ containing the alloying addition were detected. The partial decomposition of the solid solution of arsenic in silicon, during the cooling of the crystal from its melting temperature, may be responsible for the formation of such finely dispersed segregations. There is a lack of information, however, in the literature on arsenic solubility in silicon over a wide temperature range; the appreciable stability of the segregations with respect to thermal effects cautions against unvalued views regarding their nature. Further studies are essential.

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Acc. Nr:

AP00-18473

Abstracting Service:

CHEMICAL ABST. 5/70

Ref. Code:

ZIR 0070

104741v Disturbance of the homogeneity of gallium arsenide crystals during growth from melts of nonstoichiometric composition. Gimel'farb, F. A.; Lainer, B. D.; Mil'vidskii, M. I.; Fistul, V. I. (USSR). *Kristallografiya* 1970, 15(1), 20-21 (Russ). By local x-ray diffraction spectroscopy, the formation was studied of other phases in the prepn. of Ga arsenide single crystals from the melt of compn. 49-51 at. % As. From melts contg. excess Ga, inclusions contg. 85-90% Ga, 0-0.1% As, and O were obsd. In excess As, pores with a slight excess of As on the walls and compact inclusions contg. 94-96% As and 5.1-3.4 Ga were found. The size of the inclusions was ~200 μ max., and the content of Ga was only slightly higher than in the eutectic mixt. GaAs-As. The origin of these inclusions is discussed.

K. Volka

1/1

REEL/FRAME
19800181

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Acc. Nr. **AP0054912** - Abstracting Service:
CHEMICAL ABST. 6-70

Ref. Code
UFR0070

115479s Heterogeneity of iron-doped gallium arsenide crystals. Gimel'farb, F. A.; Girich, B. G.; Mil'yutskii, M. G.; Omel'yanovskii, E. M.; Pelevin, O. V. (USSR). *Kristallografiya* 1970, 15(1), 112-18 (Russ). The distribution of Fe in Fe-doped GaAs crystals was studied by various methods. At impurity concns. of $\sim 10^{18}/\text{cm}^3$, a 2nd structural component with a const. molar ratio of GaAs:Fe:As = 23.4:76.6 appears. A model describing the mechanism of appearance of this component is proposed. It consists of capture by the crystal front of a drop of the melt which eventually crystallizes when its dislocation concn. of the matrix crystal is higher in the vicinity of the inclusion. The 2nd structural phase, however, has practically no effect on the elec. properties of the semi-insulating GaAs crystals. B. Sotirajanov

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REEL/FRAME
19840116

CK

18

MIL'VIDSKIY, M.G.

3 pgs 55208
L-12

111-1. STATE OF THE EFFECT OF THE DEVIATION OF THE COMPOSITION FROM THE STOICHIOMETRY AND THE CRYSTALLINITY ON THE STRUCTURE OF SINGLE CRYSTALS AND POLYMER CRYSTALS

Article by T. P. Grishin, M. G. Mil'vidskiy, V. B. Ovesnikiy, V. P. Pavlov, V. V. Prilin, Zharkoy Novosel'tsev, III Symposium on Crystalline Solids, Leningrad, 1977, p. 29

It was demonstrated that during the growth from a melt, the deviation of the composition from the stoichiometry can have an effect on the dislocation structure of lithium arsenic selenide crystals both through the crystallization process and by creating additional dislocation sources in the material which has already been crystallized. In the first case the deviation of the composition of the melt from stoichiometry can lead to destruction of the stability of the smooth crystallization front under the conditions of constant supercooling which is expressed in the formation of the low-angle boundaries and the crystal structure. This effect is exhibited more clearly when growing a crystal in the [100] direction and with a small magnitude of the axial temperature gradient at the crystallization front. In the second case the deviation of the composition from stoichiometry has an effect on the formation of the dislocations in the crystal under the effect of thermal stresses. It was established that the deviation from stoichiometry in the direction of the lithium in the surface layers of the crystal leads to more intense generation of the dislocations where the deviation in the direction of the excess arsenic has the opposite effect by comparison with the stoichiometric composition. For growth under conditions of identical stoichiometry of the melt, a noticeable effect of the growth direction on the dislocation density in the crystal was not observed. This is confirmed by the results of calculating the thermal stress field. Using the x-ray diffraction topography, a study was made of the type of dislocations in the single crystals expressed in various crystallographic directions.

UDC 548.4

USSR

MIL'VIDSKII, M. G., OSVENSKII, V. B., NOVIKOV, A. G., FOMIN, V. G.,
GRISHINA, S. P., Government Scientific-Research and Planning Institute for the
Rare Metals Industry

"Effect of Thermal Processing on the Ideal Structure of Monocrystals of
Gallium Arsenide Alloyed with Tellurium

Moscow, Kristallografiya, vol 18, No 4, July-August 1973, pp 826-829

The effect of thermal processing (1100°C, 700°C, up to 50 hr) on the physical
properties of gallium arsenide containing 10^{19} tellurium atoms per cubic
centimeter was studied by selective chemical etching, measurement of the
Hall effect, two-crystal spectrometry, diffraction topography, and precision
measurements of the lattice. The electrical properties and monocrystal struc-
tural data indicate a destruction of the supersaturated solid solutions with
formation of a second phase.

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- 18 -

UDC 548.5

USSR

KARATAEV, V. V., MIL'VIDSKII, M. G., OSVENSII, V. B., STOLYAROV, O. G.,
Government Scientific-Research and Planning Institute for the Rare Metals
Industry

"Effective Partition Coefficient of Excess Basic Components in Crystallization
of Gallium Arsenide from a Melt"

Moscow, Kristallografiya, vol 18, No 4, July-August 1973, pp 830-832

Calculations were made of effective partition coefficients for Ga and As with
growth of GaAs monocrystals by crucible-free zone fusion from a melt with
different deviations from stoichiometry. Total impurities were less than
 10^{17} cm^{-3} . The formula used in the calculations is given. When the melt is
enriched in Ga, $k = 6.1 \times 10^{-3}$; when enriched in As, $k = 8.5 \times 10^{-3}$. Since
crystals grow slowly (0.5 mm/min) under the conditions used, the values may be
considered close to equilibrium.

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MIL'VIDSKIY, M.G.

SPRS 5/2/68
6-73

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4-7. THE CONCENTRATIONS OF THE DISTRIBUTION OF UNCOMPOUNDED CATIONS IN PURE EPITAXIAL LAYERS OF GALLIUM ARSENIDE OBTAINED FROM TEMPERATURE-CONTROLLED SOLUTIONS.

Isaev, M. G., Mil'vidskiy, L. D., Zakharenko, Ye. V., Solov'yeva, G. A., Kolobova, Zhuzhova, Zhuzhova, I. I. *Zhurnal Fizicheskoy Khimii*, 1972, p 1371

A study was made of the donor and acceptor distribution with respect to depth of the epitaxial layers of gallium arsenide obtained by the method of liquid epitaxy in a gallium solution.

The investigated distribution profiles were compared with the growth conditions, the material and heat treatment of the substrate. A study was made of the effect of various conditions of etching the substrate on the electrophysical properties of the layers.

Proposals were made regarding the nature of the observed donors and acceptors.

USSR

UDC: 548.4

BELYATSKAYA, N. S., GRISHINA, S. P., LOPATIN, Ye. P., ~~MIL'-~~
~~VIDSKIY M. G.~~, OSVENSKIY, V. B., FOMIN, V. G., State Scien-
tific Research and Design Institute for the Rare Metals
Industry

"Structural Singularities of Gallium Arsenide Single Crystals
Heavily Doped With Donor Impurities"

Moscow, Kristallografiya, Vol 17, No 1, Jan/Feb 72, pp 158-165

Abstract: A study is made of the effect which tellurium,
selenium, and sulfur doping has on the degree of perfectness
of GaAs single crystals. Metallographic and radiographic
studies show that doping to high concentrations with donor
impurities ($n > 10^{18}/\text{cc}$) may lead to an appreciable reduction
in the dislocation density and to a specific distribution in
the volume of the GaAs single crystals due to strengthening
of the material and intensification of the process of dislo-
cation creep during doping. Nonhomogeneous dopant distribu-
tion in heavily doped single crystals is an additional source

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USSR

BELYATSKAYA, N. S. et al., Kristallografiya, Jan/Feb 72, pp 158-165

of dislocations. Structural investigations show that in the process of growing gallium arsenide single crystals heavily doped with donor impurities, partial decomposition of super-saturated solid solutions takes place, accompanied by the development of additional internal stresses and a lumped structure within the crystal. Five figures, one table, bibliography of eleven titles.

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- 33 -

UDC 621.315.592

USSR

SOLOV'YEVA, YE. V., ~~MIL'VIDSKIY, M. G.~~, State Scientific Research and Planning
and Design Institute of the Rare Metals Industry of Moscow

"Scattering Characteristics of Electrons in Unalloyed Gallium Arsenide"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol. 6, No 5, 1972, pp 810-813

Abstract: A study was made of the scattering processes in single crystals of unalloyed n-type gallium arsenide. The temperature dependence of the electron mobility cannot be explained by scattering on the lattice vibrations and the ionized admixtures alone. It is necessary to consider an additional scattering mechanism. The additional scattering is connected with the presence in the crystals of a center with an ionization energy of 0.1 electron volts. It is proposed that this center is not a point charge center but a complex formation (the composition of which may include lattice defects of the vacancy type) having a large scattering cross section the nature of which varies sharply on variation of the charged state of this center. Another explanation is that the additional electron scattering takes place in the space charge region and the concentration of the additional centers correlates with the number of these regions. The bases for both of these propositions are discussed.

USSR

MIL'VIDSKIY, M. G., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 2, 1972, pp 224-228

played by gallium vacancies and complex complexes of Te atoms with lattice defects. Graphs are included showing the temperature dependence of the internal friction in single crystals of GaAs alloyed with Te and their photoluminescence spectra.

2/2

- 141 -

МІЛ'ВИДСКИЙ, М. Г.

Scientific Research
hold information

МІЛ'ВИДСКИЙ, М. Г.

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JPRS 54003
10 December 1971

EFFECT OF TEMPERATURE AND THERMAL STRESS FIELD ON THE DEFORMATION OF THE DISLOCATION STRUCTURE IN SINGLE CRYSTALS OF COPPER
Abstract from the International Journal of Plasticity

(Article by M. A. Ardenin, S. S. Vakhrameev, M. G. Mil'vidskiy, V. B. Dvornikov, Corresponding Member of the USSR Academy of Sciences, Institute of Metal Physics, Academy of Sciences of the USSR, Moscow, U.S.S.R.; and V. A. Kargin, Institute of the New Metal Industry, Moscow, U.S.S.R.; English translation from Russian, Vol 209, No 2, 1971, published in April 1971, pp 326-331)

Dislocations in single crystals grown from a melt are formed basically under the effect of thermal stresses arising during cooling of the melt during the process of free growth. If these stresses exceed the critical amount of the material of the corresponding temperature, they cause plastic flow with partiality or completely remove the thermal stresses. Consequently, the density distribution of the dislocations in the crystal mass is determined by the thermal stress field in the temperature range of the plastic extension.

However, up to now analysis of the conditions of formation of the dislocation structure of single crystals grown from a melt has reduced essentially to establishment of the critical relations of the dislocation density to the magnitude of the temperature gradients in the vicinity of the crystallization front. Here, the existing role was attributed either to the axial (1) or the radial (2-4) components of the temperature gradient. The problem of the quantitative structure state in the crystal was not considered in these works as a result of the great mathematical difficulties of solving it.

In this paper, a new approach to solving the problem has been used the essence of which consists in the fact that the temperature field is characterized on a computer considering the boundary conditions obtained experimentally after which the thermodynamic stress field is calculated. The volume stress distribution of the thermodynamic shear stresses obtained in this way compares with the corresponding values of the yield stresses for rolling annealed and hardened from independent experiments. This approach permits analysis of the conditions of formation of dislocations in the crystal growth process.

Single crystals of palladium arsenide were grown from water a layer of molten boron anhydride in the [111] direction. The temperature distribution in the crystal was fixed by tungsten-rhenium thermocouples 0.2 cm in diameter.

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UDC 548.4



BUBLIK, V. T., KARAYAYEV, V. V., KULAGIN, R. S., MIL'VEISKIY, M. G.,
OSVENSKIY, V. B., STOLYAROV, O. G., KHOLODNIYY, L. F., State Scientific-Research
and Design Institute of the Rare Metals Industry

"Nature of Point Defects in GaAs Single Crystals as a Function of Composition
of Melt Used in Growing Them"

Moscow, Kristallografiya, Vol 18, No 2, Mar-Apr 73, pp 353-356.

Abstract: The dependence is studied between the nature and concentration of
point defects in GaAs monocrystals and the composition of the growth melt.
During the studies, the density of specimens was determined with high pre-
cision, lattice periods and internal friction were measured. The results
produced indicate that single-phase GaAs crystals can be grown from melts
containing between 46.7 and 53.5 at. % As, crystals of stoichiometric com-
position being produced from a melt rich in As, with its concentration in
the melt 50.5 at. %.

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USSR

UDC 621.311.26:621.311.072.311.011.3.076.12

MILYAKH, A. N., TONKAL', V. Ye., and BUKHINSKIY, S. I.

"Possibility of Self-Compensation of the Reactive Load Power in Multiphase Frequency Converters"

V sb. Probl. tekhn. elektrodinamiki (Problems of Technical Electrodynamics -- collection of works), vyp. 24, Kiev, Naukova Dumka Press, 1970, pp 3-8 (from RZh-Elektrotehnika i Energetika, No 4, Apr 71, Abstract No 4 Ye242)

Translation: A study is made of a circuit permitting use of the reactive power of an RL-load to improve the power factor of a multiphase frequency converter. In the example of operation of a three-phase frequency converter with a sinusoidal output voltage on a symmetrical linear actively inductive load it is demonstrated that the described circuit is operating properly when $\cos \phi$ of the load is no less than 0.5544. The calculation formulas for determining the total active power, the reactive power and the distortion power in the presence of compensation are presented. There are 6 illustrations, 1 table, and a 5-entry bibliography. [Institute of Electrodynamics of the Ukrainian SSR Academy of Sciences, Kiev]

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- 8 -

USSR

UDC 569.112.227.3

KOROTUSHENKO, G. V., GRIGORKIN, V. I., CHUKHIRIN, L. A., MILYAKOV, A. P.,
KUZ'MINA, T. M., KRIVONOSOVA, L. F., Murmansk Marine Engineering School,
Lipetskiy Affiliate of Moscow Institute of Steels and Alloys

"Cavitation-Corrosion Resistance of Chrome-Nickel-Tungsten Austenitic Steel"

Kiev, Fiziko-khimicheskaya Mekhanika Materialov, Vol 8, No 4, 1972, pp 92-93.

Abstract: The authors studied the cavitation-corrosion resistance of type 30Kh14NSV austenitic steels made in a vacuum furnace. The tungsten content was varied between 0.5 and 5%. The tendency of the austenite to form deformation martensite with 50% compression and with cavitation was also studied. The studies were performed in a 3% aqueous NaCl solution. The greater the tendency of the austenite toward the formation of both "volumetric" and "surface" martensite, the higher the cavitation-corrosion resistance. The maximum cavitation-corrosion resistance corresponds to the optimal content of tungsten in the steel, approximately 3%. Further increases to 5% cause the resistance and quantity of "surface" and "volumetric" martensite to decrease significantly. The reason for this maximum on the deformation martensite vs. alloy admixture curve has not been established. The steel with the optimal composition for corrosion-cavitation resistance has com-
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UDC 569.112.227.3

KOROTUSHENKO, G. V., GRIGORKIN, V. I., et. al., Kiev, Fiziko-khimicheskaya
Mekhanika Materialov, Vol 8, No 4, 1972, pp 92-95.

paratively low corrosion rate in sea water. The steel with 5% tungsten
therefore has the maximum cavitation-corrosion resistance, superior to that
of Kh18N10T steel by more than an order of magnitude.

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UDC 669.140

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CHELYSHEVA, A. A. (Aspirant), PROKOSHKIN, D. A. (Doctor of Technical Sciences, Professor), RAKHSHTADT, A. G. (Doctor of Technical Sciences, Professor), ~~MIN, V. V. (Doctor of Technical Sciences)~~, GURVICH, YA. B. (Candidate of Technical Sciences), ~~MIN, V. V. (Doctor of Technical Sciences)~~ (Engineer), and ~~MIN, V. V. (Doctor of Technical Sciences)~~ A. A. (Candidate of Technical Sciences), Moscow Higher Technical School Imeni N. E. Bauman

"Study of Hydroerosion Resistance of High Strength Chromium-Manganese-Silicon Steels"

Moscow, IVUZ Mashinostroyeniye, No 1, Jan 70, pp 117-122

Abstract: The article presents the study of properties of steels 40Kh3G6S and 50Kh3G6S after heat and heat-mechanical treatment. It is shown that the steels, after ordinary hardening, high-temperature heat-mechanical treatment (VTMO) and low-temperature heat-mechanical treatment (NTMO) plus low-temperature tempering possess a reduced value of yield point at high value of tensile strength. The low yield point is explained by the presence of a considerable quantity of residual austenite. In the process of deformation during determination of the tensile strength the residual austenite apparently is transformed into martensite and therefore the tensile strength reaches high values. The use of sub-zero treatment, which induces the transformation

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CHELYSHEVA, A. A., et al., IVUZ Mashinostroyeniye, No 1, Jan 70, pp 117-122

of residual austenite into martensite, considerably increases the yield point from 67 kg/mm² to 140 kg/mm² after hardening in steel 40Kh3G6S with a small increase in the tensile strength. The comparison of mechanical properties of studied steels after hardening, VTMO, NTMO and low temperature tempering at equal quantity of residual austenite shows that heat-mechanical treatment, particularly NTMO, increases the strength properties of steels. Hydroerosion tests show that steels 40Kh3G6S and 50Kh3G6S possess a considerably high resistivity to jet-impact erosion. At that, the difference between resistance after hardening and low temperature tempering and hardening, sub-zero treatment and low temperature tempering is insignificant regardless of the fact that in the latter case the quantity of martensite is much higher. It is shown that the deformation of steels 40Kh3G6S and 50Kh3G6S under VTMO and particularly under NTMO increases the quantity of residual austenite as compared to ordinary hardening. This is due to lowered transformability of supercooled and deformed austenite into martensite. Likewise, the resistance to jet-impact erosion of these steels significantly increased after VTMO but particularly after NTMO, as compared to ordinary hardening and tempering. This increase in the resistance to hydroerosion due to VTMO and NTMO is traced to high degree of work hardening of austenite obtained as a result of deformation during VTMO and NTMO and to its partial transformation into martensite.

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1/2 011 UNCLASSIFIED PROCESSING DATE--ZONCY70
TITLE--DETERMINATION OF METHANOL IN ALCOHOL RAW MATERIAL AND RECTIFIED
ALCOHOL USING THE GAS CHROMATOGRAPH KHT, 63 KI -U-
AUTHOR--(U2)-MILYAKOV, V.T., FEODOROV, A.F.
COUNTRY OF INFO--USSR
SOURCE--FERMENT. SPIRIT. PROD. 1970, 36(2), 36-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--METHYL ALCOHOL, GAS CHROMATOGRAPH, CHROMATOGRAPHIC
ANALYSIS/(U)KHT63KI GAS CHROMATOGRAPH
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1377 STEP NO--UR/0071/70/036/002/0036/0037
CIPC ACCESSION NO--A00115001

2/2 011

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135051

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. MECH IS QUANT. MEASURED BY CHROMATOG. ON POLY, (ETHYLENE GLYCOL) OF MOL. WT. 300. THE MATERIAL WAS ANALYZED (COLUMN TEMP. 500DEGREES) AS IT CAME FROM THE EVAPORATOR WHICH OPERATES AT 110-150DEGREES. USED IN PLANTS IN WHICH BEETS WERE FERMENTED IT WAS FOUND THAT THE MAX. RELATIVE ERROR WITH RESPECT TO THE CALIBRATIONS WHICH WERE DONE WITH PURE MECH MIXTS. WAS 1.4PERCENT, THUS, THE ACCURACY IS SUFFICIENT FOR TECHNOL. CONTROL WORK. FACILITY: VORONEZH. TECHNOL. INST., VORONEZH, USSR.

UNCLASSIFIED

USSR

UDC 669.74:621.73.011

LIVSHITS, B. G., OKHRIMENKO, Ya. M., TYURIN, V. A., and MILYAYEV, I. M.,
Moscow Institute of Steel and Alloys

"Deformation Characteristics of Low-Plasticity Manganese-Aluminum Alloys"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya,
No 11, 1970, pp 126-129

Abstract: An experimental investigation was made of the temperature dependence of the plasticity of Mn-Al alloys (71% Mn; 29% Al) in dynamic and quasi-static compression, in the interval of 20-1100°C, and of the effect of the structural condition on strain hardening in the cyclic loading process. Experimental data are discussed by reference to diagrams showing the deformation stress during static upsetting at various temperatures and in relation to the compression degree in highly coercive and monotonic cyclic loading conditions. A sharp increase of plasticity was found in a low rate deformation at 550-850°C, which in this interval combines with phase transformations. An abnormal increase of the elastic modulus, the proportional limit, and the maximum compression stress takes place in a repeated loading after unloading the specimens in a highly coercive condition.

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USSR

UDC 621.373.531

MILYAYEV, N. A., RUSSKIKH, N. P., MISHCHENKO, N. A.

~~Statistical~~ Properties of Some Basic Parameters of D901 Silicon Varicaps and Their Effects on the Output Characteristics of a Capacitive Parametron"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 1970, vyp. 215, pp 116-135 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G203)

Translation: The distribution law of the magnitude of the capacitance and Q-factor of D901 varicaps is investigated for fixed values of the bias voltage. It is demonstrated that the distribution law of the parameters is close to normal in the entire voltage and frequency operating range at temperatures from 25 to 120° C. The basic characteristics of the distribution law are obtained: the general mean with fiducial limits, the mean square deviation, and so on. The amplitude and phase variations of the capacitive parametron caused by variations of the basic parameters of the varicaps are defined. The bibliography has 4 entries.

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- 130 -

Acc. Nr: **AP0043592**

M

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 796-799

PARAMAGNETIC RELAXATION PROCESSES
IN $Al(NO_3)_3 \cdot 9H_2O:Fe^{3+}$ SINGLE CRYSTALS
AT HELIUM TEMPERATURES

A. A. Manenkov, Milyayev, V. A.

Spin-lattice relaxation, spin-spin cross relaxation and the discrete saturation effect are experimentally studied at helium temperatures in aluminum nitrate single crystals containing an iron paramagnetic ion impurity. The dependence of the relaxation processes and discrete saturation effect on Fe^{3+} ion concentration is studied in a broad range of concentrations.

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REEL/FRAME
19762064

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MANENKOV, A. A. and MILYAYEV, V. A. Physics Institute Imeni P. N. Lebedev,
Academy of Sciences USSR

"Paramagnetic Relaxation Processes in $\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}:\text{Fe}^{3+}$ Single Crystals at Helium Temperature:"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 58, No. 3,
Mar 70, pp 796-799

Abstract: Spin-lattice relaxation, spin-spin cross relaxation, and the discrete saturation effect in aluminum nitrate single crystals with an iron paramagnetic ion impurity were studied experimentally at helium temperatures. It was noted that such crystals were used by Hughes and Richards as material for a laser operating in a null magnetic field; the working frequency of the laser was 9.35 GHz with a pumping frequency of 23.7 GHz. This laser was shown to have a good frequency standard and to be capable of giving several hundred microwatts with fairly high stability. The experiment was conducted since there is no data in the literature on the electron paramagnetic resonance spectrum and relaxation in this material. Relaxation processes and the discrete saturation effect were measured as functions of Fe^{3+} ion concentration over a concentration.

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MANENKOV, A. A. and MILYAYEV, V. A., Zhurnal eksperimental'noy i teoreticheskoy fiziki, Vol. 58, No. 3, Mar 70, pp 786-799

range of $5 \cdot 10^{-4}$ to $5 \cdot 10^{-2}$. It was found that the spin-lattice relaxation time is very strongly dependent on the concentration of Fe^{3+} ions. The discrete saturation effect, which is associated with the superhyperfine interaction of Fe^{3+} ions with paramagnetic nuclei, is critically dependent on concentration and appears only at small paramagnetic ion concentrations when electron dipole interactions become negligible.

2/2

1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70
 TITLE--MULTI CHANNEL PHYSIOLOGICAL INDICES RECORDER -U-
 AUTHOR--(02)-NILYUKAS, V.YU., YARASHAUSKAYTE, M.A.
 COUNTRY OF INFO--USSR *m*
 SOURCE--USSR 241609
 REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZITSY, TOVARNYE ZNAKI NR 14
 DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PATENT, LABORATORY EQUIPMENT, MULTITRACK RECORDING, BIOLOGIC
LABORATORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--1998/1390

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

CIRC ACCESSION NO--A0121370

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PROCESSING DATE--13NDV70

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CIRC ACCESSION NO--AA0121870
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. INCLUDING A CHANNEL FOR RECORDING
MOMENTARY VALUES OF SLOWLY CHANGING INDICES, COMMUTATOR AND CONTROL
BLOCK IS FITTED WITH CHANNELS FOR AVERAGED OUT PHYSIOLOGICAL INDICES
VALUES, FOR INSTANCE A CHANNEL FOR AVERAGE INDEX FREQUENCY WHICH
INCLUDES AN AMPLITUDE DISCRIMINATOR, STANDARD IMPULSE GENERATOR,
SUMMATOR AND STORAGE ELEMENT, AND AN AVERAGE AMPLITUDE CHANNEL INCLUDING
AN INTEGRATOR AND STORAGE ELEMENT. THIS ALLOWS INDICES WITH DIFFERING
RATES OF CHANGE TO BE RECORDED ON A SINGLE CARRIER. THERE IS ALSO A
CONTROL IMPULSE GENERATOR TO SYNCHRONISE AND RECORD INDICES IN A GIVEN
SEQUENCE.

FACILITY: KAUNASSKIY MEDITSINSKIY INSTITUT.

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