"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC 539.434+539.376

MIGACHEV, B. A., and VOROB'YEVA, E. L., Urals Scientific Research Institute of Ferrous Metals

"Temperature-Velocity Relationship of Metal Resistance to Plastic Deformation"

Moscow, Stal', No 12, Dec 73, pp 1108-1109

Abstract: The advantage of using orthogonal rotation planes of an experiment for the mathematical description (and study) of the temperature-velocity relationship of metal resistance to plastic deformation is shown. The deformation relationship itself is a function of three independent variables: temperature-(t), magnitude ( $\varepsilon$ ) and velocity ( $\xi$ ), and has the form $\ln \sigma = \varphi(\ln \xi, \ln \varepsilon, t)$. An emprical formula was derived from this relationship for determining the deformation resistance and has the general form: $\sigma = A \xi^{a} \varepsilon^{b} e^{-ct}$. Values of A, a, b, and c are given for 21 steels, 3 heat-resistant alloys, and white cast iron. Three tables, six bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

Acc. Nr: AP0044847

Ref. Code: UR 0497

PRIMARY SOURCE: Klinicheskaya Meditsina, 1970, Vol 48, Nr 2, pp 149-151

# THE DIAGNOSIS OF INTRATHORACIC NEOPLASMS ON THE BASIS OF MATHEMATICAL ANALYSIS

K. I. Myshkin, L. E. Migal'

Summary

The problem of the search of new differential diagnosis signs of spheroid intrathoracic neoplasms is still pressing in connection with the absence of accurate methods of diagnosis. As one of the new trends the authors propose to utilize mathematical analysis of the symptom-complex of tumors and cysts of the lung and mediastinum. By means of a specially elaborated scheme the authors coded the case histories of 300 patients operated for the above-mentioned diseases. The data derived were treated on the electron computer «Ural-2». This resulted in the creation of a differential diagnosis table based on the determination of the sum total of weight values of the most characteristic symptoms selected by the computer. With due consideration of the critical value the table enables to answer three most important practical questions: malignant or benign character of the disease, tumor or cyst, pulmonary or extrapulmonary localization of the neoplasm. The value of the table was verified by confrontation of the preoperative and postoperative diagnoses. The results testify to the perspective nature of the method proposed for the diagnosis of spheroid neoplasms of intrathoracic localization.

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19771702

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JPRS 91208

6-73

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XV-8. EFFECT OF THE CRYSTALLIZATION CONDITIONS ON THE DISLOCATION STRUCTURE AND PROPERTIES OF HOMOEPITAXIAL LAYERS OF GERMANIUM

[Article by Yu. D. Vaulin, N. N. Migal', V. P. Migal', L. N. Aleksandrov, S. I. Stenin, Novosibirsk; Novosibirsk, III Simpozium po Proisestam Rosta i Sintezu Polupovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 219]

Epitaxy was realized by the iodide transport reaction in a sealed ampoule. The deposition temperatures of the layers were 500, 550 and 600° C. The initial iodine concentrations defining the supersaturation varied within the limits of 0.1-6.0 milligrams/cm$^3$, and the substrate orientation was (111). The crystallographic imperfections arising in epitaxial germanium were studied by x-ray Borman topography using symmetric and asymmetric surveys.

The variation of the dislocation structure is observed as a function of supersaturation at constant deposition temperature. For small iodine concentrations the dislocations are located in the transit ion layer with an increase in supersaturation these dislocations are transformed by sliding into a system of half loops fastened in the film-substrate junction. Closed loops are also detected. A further increase in iodine concentration leads to the disappearance of the dislocations. The variation of the deposition temperature shifts the described picture along the supersaturation scale. An analysis of the topograms demonstrated that for deposition temperatures of 500 and 550° C in the layer, dislocations with the <111> axis perpendicular to the substrate surface predominate, and at 600° C-60°, dislocations.

In this paper the mechanism of the formation of dislocations in the junction and the causes of the evolution of the dislocation structure as a function of supersaturation and temperature are discussed.



Migal, N.N.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--ACETATE COMPLEXES OF CERIUM, PRASEODYMIUM, AND NEODYMIUM IN WATER ETHANOL SOLUTIONS -U-

AUTHOR-(02)-MIGAL, P.K., CHEBOTAR, N.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1218-23

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACETATE, CERIUM COMPOUND, PRASEODYMIUM COMPOUND, NEODYMIUM COMPOUND, COMPLEX COMPOUND, POTENTIOMETRIC TITRATION, CHEMICAL SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0767 STEP NO--UR/0078/70/015/005/1218/1223

CIRC ACCESSION NO--AP0136204

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

2/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136204

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPLEXING OF TERVALENT CE, PR, AND ND WITH ACO PRIMENEGATIVE WAS STUDIED POTENTIOMETRICALLY IN AQ. ETOH SOLNS., CONTG. 0-80 WT. PERCENT ETOH. STABILITY CONSTS. OF THE FORMED COMPLEXES (LN(ACO) SUBN PRIME3-N ARE TABULATED. ON GOING FROM LA TO ND INHIBITION OF THE FORMATION OF ACETATE COMPLEX PPTS. WAS OBSERVED. THIS PHENOMENON MAY BE USED FOR SEPG. LA, CE, AND PR FROM ND AS WELL AS OTHER LANTHAMIDES AND ALSO FOR SEPG. MIXTS. OF LA, CE, AND PR INTO THE SEP. ELEMENTS. FACILITY: KISHINEV. GOS. UNIV., KISHINEV, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

JPRS 91205

6-73

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XV-8. EFFECT OF THE CRYSTALLIZATION CONDITIONS ON THE DISLOCATION STRUCTURE AND PROPERTIES OF HOMOEPITAXIAL LAYERS OF GERMANIUM

[Article by Yu. D. Vaulin, N. N. Migal', V. P. Migal', L. N. Aleksandrov, S. I. Stepin, Novosibirsk; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 219]

Epitaxy was realized by the iodide transport reaction in a sealed ampoule. The deposition temperatures of the layers were 500, 550 and 600° C, the initial iodine concentrations defining the supersaturation varied within the limits of 0.1-6.0 milligrams/cm$^3$, and the substrate orientation was (111). The crystallographic imperfections arising in epitaxial germanium were studied by x-ray Borman topography using symmetric and asymmetric surveys.

The variation of the dislocation structure is observed as a function of supersaturation at constant deposition temperature. For small iodine concentrations the dislocations are located in the transition layer with an increase in supersaturation these dislocations are transformed by sliding into a system of half loops fastened in the film-substrate junction. Closed loops are also detected. A further increase in iodine concentration leads to the disappearance of the dislocations. The variation of the deposition temperature shifts the described picture along the supersaturation scale. An analysis of the topograms demonstrated that for deposition temperatures of 500 and 550° C in the layer, dislocations with the <111> axis perpendicular to the substrate surface predominate, and at 600° C-60°, dislocations.

In this paper the mechanism of the formation of dislocations in the junction and the causes of the evolution of the dislocation structure as a function of supersaturation and temperature are discussed.



Migal, V. P.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC 620.793.27

MIGAY, L. L., MAL'CHEVSKIY, Ye. G., ARONS, V. I., DRUZHININ, I. P., and VOROB'YEVA, L. P., State Scientific Research and Planning Institute of Rare Metals Industry

"Corrosion Resistance of Vanadium and Its Titanium Alloys in a 3% NaCl Solution"

Moscow, Zashchita Metallov, Vol 7, No 6, Nov-Dec 71, pp 699-700

Abstract: The corrosion resistance and mechanical properties of Va alloyed with 5-20% Ti were investigated. Ingots weighing 10-12 kg, smelted in an electric furnace, were forged and rolled to 2 mm- and 0.3-mm-thick sheets. An increased Ti-content increased the corrosion resistance in a naturally aerated solution. The corrosion rate of the alloy with 5 % Ti is considerably lower than 0.001 mm/year, which is the standard limit of ideal corrosion resistance of metals. Electrochemical investigations carried out in a naturally aerated 3 % HCl-solution revealed that Va and its alloys with Ti are not passivated at potentials of 0.05 —0.7 v relative to a normal hydrogen electrode, but with increasing Ti-content a decrease of the anodic current takes place. According to measurements of stationary electrode potentials, a refining of potentials of Va and its alloys takes place in time. One illustr., one table.

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Transformation and Structure

USSR UDC: 537.29:669.15

VEDENEYEVA, M. A., ZHUK, N. P., KRASIKOV, K. I., and MIGAY, L. L.

"Effect of the Structure of Kh18N10T Steel on Its Anodic Behavior"

Moscow, Fizika i Khimiya Obrabotki Materialov, no 6, Nov-Dec 70, pp 128-131

Abstract: This paper deals with the effect of the structure of Kh18N10T steel subjected to electromagnetic (maximum strain rate) and explosive forming on its anodic behavior. Hydrostatic forming (a low-rate strain) was selected for correlation with the high-rate strain types. A metallographic examination of the structure of steel deformed by various methods indicates no size reduction of the grain. Therewere a great number of twins in the steel following explosive and electromagnetic forming than after hydrostatic forming, which points to the contribution of twinning to the plastic flow of the material under these methods of strain. X-ray diffraction examination has shown that following either electromagnetic or explosive forming, there is a greater widening of interference lines, with an increase in deformation rate, than after hydrostatic forming.

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USSR

VEDENEYEVA, M. A., et al, Fizika i Khimiya Obrabotki Materialov, no 6, Nov-Dec 70, pp 128-131

The analysis of the anodic polarization curves for Kh18N10T steel indicates that both the type of forming and the rate of deformation have an insignificant effect on the curve shape in both the transition and repassivation regions and have hardly any effect on the total passivity potential; however, they significantly affect the current density with the total passivity region. With an increase in deformation rate, the current density in the total passivity region in the specimens after explosive and hydrostatic forming increases; in specimens with an equal extent of deformation after hydrostatic forming, the current density in the total passivity region is much greater than that in specimens after explosive forming. It is also shown that the capacity of Kh18N10T steel to change to a passive state in $H_2SO_4$ solutions is independent of the number of defects and the type of their distribution in the structure of the metal but does depend on the amount of the $\alpha$-phase, which increases the heterogeneity of the structure and impairs the protective properties of the film on steel in the passive state.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC 620.193.5

MIGAY, L. L., KOZLOVA, N. N., LYAPUNOV, A. I., MAL'CHEVSKIY, YE. G., BEKETOV, B. I., State Scientific Institute of the Rare Metal Industry

"Oxidation of Heat-Resistant Steels and Alloys"

Moscow, Zashchita Metallov, Vol 8, No 6, 1972, pp 722-723

Abstract: A study was made of the oxidation rate of several standard and experimental steels and alloys in a current of technical oxygen and in a calm air atmosphere at 1000°. Sheet specimens 2 mm thick were used to determine the oxidation resistance by the increase in mass after oxidation and its loss after removal of the scale.

The difference in oxidation resistance of the investigated materials in a calm air atmosphere is not so great as in technical oxygen. The Kh25N20S2 chromium-nickel steel alloyed with silicon is the least oxidation resistant, and materials alloyed with aluminum were the most oxidation resistant. Analogous results were obtained during prolonged experiments in the air for 5000-10,000 hours [N. N. Kozlova, et al., Struktura i svoystva zharoprochnykh metallicheskikh materialov, Moscow, Nauka, 306, 1967]. The OKh15S2Yu2BT (EP 676) steel without nickel and KhN45Tu (EP 747) alloys sparingly alloyed with nickel had the greatest oxidation resistance in oxygen and air.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

1/2 016 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--BEHAVIOR OF CHLORINE IN THE ELECTROLYSIS OF COPPER AND INSOLUBLE ANODES AND AIR AGITATION OF THE ELECTROLYTE AT HIGH CURRENT DENSITIES

AUTHOR-(05)-BUZHINSKAYA, A.V., MIGINA, A.I., ZHATKINA, T.F., MIKHAYLOVA, O.I., BOBROV, A.B.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(3), 315-17

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER ELECTROLYTIC REFINING, ELECTROLYTE, ELECTRODEPOSITION, EXTRACTIVE METALLURGY, CHLORINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1382 STEP NO--UR/0364/70/006/003/0315/0317

CIRC ACCESSION NO--AP0116831

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UNCLASSIFIED PROCESSING DATE--09OCT70

2/2 016

CIRC ACCESSION NO--AP0116831

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE ELECTROLYSIS OF A SOLN. CONTG. CU 45-50, H SUB2 SO SUB4 90-100, NISO SUB4 SMALLER THAN OR EQUAL TO 20, AND CL NEGATIVE (AS NACL) 50-500 G-DM PRIME3 AT 50DEGREES, THE ELECTROLYTE WAS AGITATED BY AN AIR FLOW OF 10 L.-CM PRIME2 OF INTERELECTRODE CROSS SECTION PER HR. THE RATIO OF CL IN THE ATM. TO THAT IN SOLN. DOES NOT CHANGE WHEN THE C.D. IS INCREASED FROM 1000 TO 2500 A-M PRIME2. A CONCN. OF 0.5-1.5 G FECL SUB3-DM PRIME3 IS SUFFICIENT IN THE HYDROMETALLURGICAL TREATMENT OF CEMENT CU AND SUBSEQUENT ELECTRODEPOSITION OF CU FROM SOLN. FACILITY: GOS. NAUCH. ISSLED. INST. TSVET. METAL., MOSCOW, USSR.

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1/2 016 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--BEHAVIOR OF CHLORINE IN THE ELECTROLYSIS OF COPPER AND INSOLUBLE ANODES AND AIR AGITATION OF THE ELECTROLYTE AT HIGH CURRENT DENSITIES

AUTHOR-(05)-BUZHINSKAYA, A.V., MIGINA, A.I., ZHATKINA, T.F., MIKHAYLOVA, O.I., BOBROV, A.B.

COUNTRY OF INFO--USSR

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SOURCE--ELEKTROKHIMIYA 1970, 6(3), 315-17

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER ELECTROLYTIC REFINING, ELECTROLYTE, ELECTRODEPOSITION, EXTRACTIVE METALLURGY, CHLORINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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CIRC ACCESSION NO--AP0116831

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2/2 016 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0116831

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE ELECTROLYSIS OF A SOLN. CONTG. GU 45-50, H SUB2 SO SUB4 90-100, NISO SUB4 SMALLER THAN OR EQUAL TO 20, AND CL NEGATIVE (AS NACL) 50-500 G-OM PRIME3 AT 50DEGREES, THE ELECTROLYTE WAS AGITATED BY AN AIR FLOW OF 10 L.-CM PRIME2 OF INTERELECTRODE CROSS SECTION PER HR. THE RATIO OF CL IN THE ATM. TO THAT IN SOLN. DOES NOT CHANGE WHEN THE C.D. IS INCREASED FROM 1000 TO 2500 A-M PRIME2. A CONCN. OF 0.5-1.5 G FECL SUB3-DM PRIME3 IS SUFFICIENT IN THE HYDROMETALLURGICAL TREATMENT OF CEMENT CU AND SUBSEQUENT ELECTRODEPOSITION OF CU FROM SOLN. FACILITY: GOS. NAUCH. ISSLED. INST. TSVET. METAL., MOSCOW, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--EFFECT OF MOISTURE AND SURFACE ACTIVE AGENTS ON THE TENSILE STRENGTH OF CHROME TANNED LEATHER -U-

AUTHOR-(03)-MIGLYACHENKO, A.F., MIKHANOSHA, YE.S., TSIMBALENKO, A.A.

M

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., TEKHNOL. LEGK. PROM. 1970, (1), 91-3

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SURFACE ACTIVE AGENT, LEATHER, TENSILE STRENGTH, TANNING MATERIAL/(U)OP7 SURFACE ACTIVE AGENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0950 STEP NO--UR/0323/70/000/001/0091/0093

CIRC ACCESSION NO--AP0124610

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

2/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124610

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SAMPLES OF CHROME TANNED LEATHER WERE COMPLETELY SOAKED IN DISTD. H SUB2 O OR IN A 0.5PERCENT AQ. SOLN. OF SURFACTANT OP-U AND THE DEPENDENCE OF THEIR TENSILE STRENGTHS ON H SUB2 O CONTENT WAS DETD. AT H SUB2 O CONTENTS LARGER THAN OR EQUAL TO 120PERCENT (COMPLETE SATN), THE STRENGTH OF THE SAMPLES WAS ONLY SLIGHTLY GREATER THAN THAT OF DRY LEATHER. THE STRENGTH INCREASED UNIFORMLY AS THE H SUB2 O CONTENT WAS REDUCED TO 40PERCENT (FOR DISTD. H SUB2 O) OR 20PERCENT (FOR OP-Y SOLN.), AND THEN FELL SHARPLY. THE STRENGTH VALUES WERE SLIGHTLY HIGHER FOR SAMPLES WETTED WITH DISTD. H SUB2 O. THE MAX. VALUE OF TENSILE STRENGTH OCCURRED AT THE POINT OF TRANSFER OF BONDING OF WATER FROM MECH. TO PHYSIOCOCHEM. TYPE BONDING.

FACILITY: KIEV. TEKHNOL. INST. LEGK. PROM., KIEV, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC: 621.375.421

MIGONIS, R. P., KUNITSKIS, N. Ya.

"Effect of Phase-Amplitude Response on the Distortions in Single-Band Amplifiers"

Tr. Nauchn.-tekhn. konferentsii "Radioelektronika". T. 6 (Works of the Scientific and Technical Conference on Radio Electronics. Vol. 6), Kaunas, 1970, pp 29-32 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D26)

Translation: The paper presents the results of studies of the effect which the phase-amplitude characteristic has on distortions of single-band signals in linear amplifiers. Resumé.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UNCLASSIFIED PROCESSING DATE--02OCT70

1/2 022

TITLE--FIBER FORMING PROPERTIES OF GRAFT COPOLYMERS OF POLYACRYLONITRILE AND THEIR MIXTURES WITH HOMOPOLYMERS --U-

AUTHOR-(04)-BIGRAMYAN, T.SH., PESKOVA, V.P., LIVSHITS, [illegible], [illegible], Z.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VOLOKNA 1970, (2) 25-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYACRYLONITRILE FIBER, COPOLYMER, CELLULOSE RESIN, THIOCYANATE, POLYMER RHEOLOGY, BENDING STRENGTH, ABRASION RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1513 STEP NO--UR/0188/70/000/002/0025/0027

CIRC ACCESSION NO--AP0112507

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 027

CIRC ACCESSION NO--AP0112507

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIBER FORMING PROPERTIES OF POLYACRYLONITRILE (I)-NA CH CELLULOSE GRAFT COPOLYMERS (II), PREPD. IN THE PRESENCE OF FE PRIME2 POSITIVE AND H SUB2 O SUB2, AND THEIR MIXTS. WITH I WERE COMPARED. FIBERS WERE FORMED BY USE OF PPTG. BATHS OF ACONS FOR I AND THE I-II MIXTS OR CACL SUB2 BATHS FOR II. RHEOL. PROPERTIES OF POLYMER SOLNS. ARE COMPARED. ALTHOUGH COST OF THE PRYS. MECH. PROPERTIES OF THE II FIBERS WERE UNSATISFACTORY, FIBERS FROM THE I-II MIXTS. EXCEEDED I FIBERS IN ABRASION RESISTANCE AND BENDING STABILITY. THE MOISTURE ABSORPTIVITY OF THE MODIFIED FIBERS WAS APPROX. THAT OF COTTON.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

AA0046383 MIGULEV Yu A UR 0482

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

242509 VOLTAGE COMPARATOR suitable for use in the computer and measuring fields and self-adjusting and optimum systems of automatic control has the transistor bases with different contacting characteristics are connected through resistors to the sources of the tensions and the collectors are connected to an element with relay characteristics. 16.2.68. as 1219007/18-24.S.K.VASILEV et al.F.E. DZERZHINSKII MILITARY ENG.ACAD.(24.9.69)Bul 15/25. 4.69. Class 42m5. Int.Cl.G 06j.

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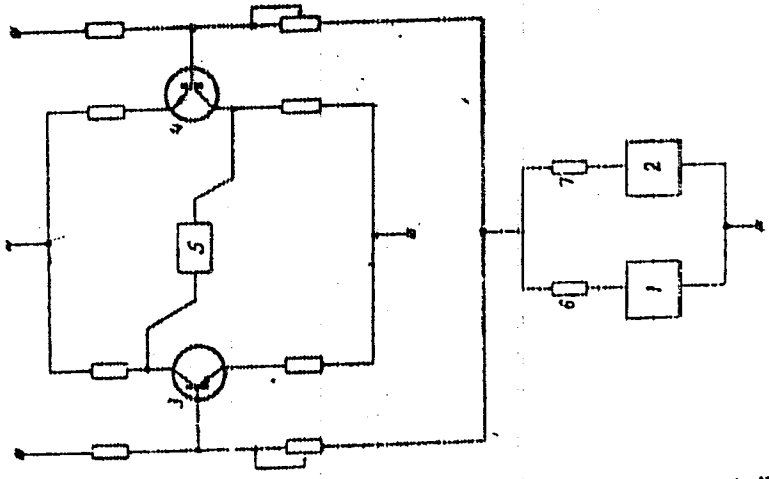


Fig 1

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

AA0046383

AUTHORS: Vasil'yev, S. K.; Lepilov, N. S.; Migulev, Yu. A.

Voyennaya Inzhenernaya Akademiya im. F. E. Dzerzhinskogo

19781554

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC 621.375.82

ALESHKEVICH, V.A., MIGULIN, A.V., SUKHORUKOV, A.P., CHERNOV, S.P.

"Limitation Of Intensity And 'Spreading' Of The Light Field Energy With Nonstationary Thermal Defocusing"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), 1972, pp 90-94

Abstract: The results are reported of experiments on the observation of space-time distortions of the pulsed radiation of a xenon laser which passes through a cell with an absorbent liquid (alcohol). Two effects connected with nonstationary thermal defocusing were studied for the first time -- "spreading" of the energy and limitation of the pulse intensity. "Spreading" of the laser beam energy was investigated by an impression of the pulse on a photographic film. An increase of nonlinear dispersion in the pulse time leads to the following pattern of energy density distribution: the front of the pulse - the nonlinear leader - leaves a trace in the form of a bright central spot inside the initial diameter; the remaining part of the pulse is distributed in the form of a background to the beam, of a diameter dependent on the total pulse energy and serves as a pedestal for the central spot. In accordance with this pattern, distortions of of the pulse at the beam axis were observed. A decrease of the intensity was started after passage of the nonlinear leader through the cell with a liquid.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR

ALESHKEVICH, V.A., et al., Kvantovaya elektronika, Moscow, No 5(11), 1972

If the energy at the leading edge exceeded the energy of the loader, then limitation of the peak intensity occured. Theoretical equations of the effects are presented. The results of the experiment were found in accordance with theoretical evaluations of the effects considered. The authors thank [illegible] for useful discussions which in many respects contributed to fulfillment of the work. 3 fig. 5 ref. Received by editors of ZhETF, 18 Feb 1972; by the editors of Kvantovaya elektronika, 14 Mar 1972.

2/2

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

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83950

S/019/60/000/012/027/097
A152/A029

9.2520 (1024, 1020, 1159)

AUTHORS: Skorin, B. I., Migulin, I. N., Gvozdetskiy, V. Ya.

TITLE: A Self-Stabilizing Amplifier Built Around Transistors

PERIODICAL: Byulleten' izobreteniy, 1960, No. 12, p. 23

TEXT: Class 21a$^2$, 1801. No. 129238 (642193/26, October 26, 1959). This self-stabilizing amplifier built around transistors has combined positive and negative feedback. It has the following special feature: to balance the currents of the triodes connected in parallel, into the emitter circuits of the triodes are connected the special windings of output transformers for forming a voltage on them proportional to the mean current of the triodes, in opposition to the voltages in the resistances, as well as resistances for forming negative feedback voltages proportional to the emitter currents of each triode.

Card 1/1

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

Soviets and US Personalities Attending Radio and Electronic Conferences

The following list of Soviet and US personalities attending radio and electronic conferences within and outside of the USSR during 1955-57 was compiled on the basis of a survey of 1956 and 1957 issues of leading Soviet periodicals in radio engineering, electronics, and communications.

All-Union Scientific Session Devoted to Radio Day (25-29 May 1957 in Moscow by Scientific Methodical Society of Radio Engineering and Electronic Communications imeni A. S. Popov)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

MIGULIN, I. N

**Equivalent Circuits and Parameters for Semiconductor Junction Transistors Derived**

I. N. Migulin, in a work dated 23 March 1956, considered a system for low- and for high-frequency parameters of semiconductor junction transistors permitting the theory of semiconductors and tube amplifiers to be generalized.

A simple interpretation was given of the frequency dependence of the parameters of a semiconductor transistor. The equivalent circuits were indicated, and the fundamental formulae were derived. (Elektrosvyaz', No 9, Sep 56, pp 46-53)

SO: CIA FDD Sum 1186 11 Jan 57

CONFIDENTIAL

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC: 621.375.7.001.5

VYSTAVKIN, A. N., [illegible], V. [illegible], KUZ'MIN, L. S., [illegible], [illegible] K., MIGULIN, V. V.

"Concerning the Particulars of Parametric Regeneration in Superconducting Point Contacts"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 896-899

Abstract: [illegible] parametric interactions in a point contact for the [illegible] combination frequencies. The analysis is [illegible] circuit of the point contact proposed in a previous paper (A. N. Vystavkin et al., Radiotekhnika i Elektronika, Vol 15, No 11, 1970, p [illegible]). It is found that there is a region of negative resistance with a [illegible] to a region of synchronization. The consequences and region of applicability of this effect are discussed.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC: 616.12-008.315-08:616.001.17

MIGULINA, M.A., KALIBERDIN, G.V., and FOMIN, V.S.

"Dynamics of the Phases of Myocardial Contraction Upon Exposure to High Temperatures"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 2, 1970, pp 38-40

Abstract: Exposure of eight males 22-24 years of age to 80°C for one hour every third day for two weeks produced distinct functional shifts in myocardial contractility - increased duration of the contraction period, shortening of the ejection period, decrease in mechanical systole and hemodynamic index. Repeated exposure to the same temperature at 2-10 day intervals for two months did not result in adaptation or compensation.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UNCLASSIFIED PROCESSING DATE--16OCT70

1/2 039

TITLE--THE FUNCTION OF THE EXTERNAL RESPIRATION IN PROLONGED ACTION OF LIMINAL ANGULAR ACCELERATIONS -U-

AUTHOR-(02)-FOMIN, V.S., MIGULINA, M.A.

M

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OTORINOLARINGOLOGII, 1970, NR 3, PP 84-89

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RESPIRATION, BIOLOGIC ACCELERATION EFFECT, VESTIBULAR APPARATUS, ANGULAR ACCELERATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1249 STEP NO--UR/0607/70/000/003/0084/0089

CIRC ACCESSION NO--AP0107725

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UNCLASSIFIED PROCESSING DATE--16OCT70

2/2 039

CIRC ACCESSION NO--AP0107725

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONTINUOUS ACTION OF CONSTANT POSITIVE (UP TO 3 MINUTES) AND NEGATIVE (UP TO 3 MINUTES) ANGULAR ACCELERATIONS (3 PRIMEO-SEC PRIME2) IN PERSONS WITH A HIGH VESTIBULAR STABILITY (ACCORDING TO DATA OF A MEDICAL FLIGHT COMMISSION) DURING THE FIRST SECONDS CAUSED A STATISTICALLY SIGNIFICANT ACCELERATION OF THE ACTIVITY OF THE FUNCTION OF EXTERNAL RESPIRATION (AN INCREASE OF THE VOLUME AND RATE OF INSPIRATION, FREQUENCY OF RESPIRATORY MOVEMENTS). A GRADUAL INCREASE OF THE DURATION OF ADEQUATE STIMULATION OF THE VESTIBULAR FUNCTIONS RESULTED IN A PROPORTIONAL RISE OF INDICES OF THE FUNCTION OF THE EXTERNAL RESPIRATION, ESPECIALLY OF THE MINUTE RESPIRATORY VOLUME. A MAXIMAL RISE OF THE MINUTE VOLUME (BY AN AVERAGE OF TWO TIMES) WAS NOTED AT THE END OF THE THIRD MINUTE OF ACTION OF NEGATIVE ANGULAR ACCELERATION. ATTENTION WAS DRAWN TO THE MARKED DISTURBANCE OF THE RHYTHM (REGULARITY) OF THE INSPIRATORY VOLUME AND RESPIRATORY MOVEMENTS AT THE END OF ACTION OF POSITIVE (AN AVERAGE OF 2 ONE HALF TIMES) AND, ESPECIALLY, NEGATIVE (AN AVERAGE OF 3 ONE HALF TIMES) ACCELERATIONS. CLOSING OF THE EYES WAS CONDUCTIVE TO A DISTINCT INTENSIFICATION OF THE FUNCTION OF THE EXTERNAL RESPIRATION IN THE PROCESS OF ROTATION IN COMPARISON WITH THE EFFECT IN OPEN EYES OF THE EXAMINEES.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UNCLASSIFIED PROCESSING DATE--09OCT70

1/2 025

TITLE--DYNAMICS OF SYSTOLIC PHASES UNDER THE ACTION OF HIGH TEMPERATURE -U-

AUTHOR-(03)-MIGULINA, M.A., KALIBERDIN, G.V., FOMIN, V.S.

M

COUNTRY OF INFO--USSR

SOURCE--VOENNO-MEDITSINSKII ZHURNAL, FEB. 1970, 1970, P. 33-40

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MYOCARDIUM, HEART RATE, DIAGNOSTIC METHODS, BIOLOGIC THERMAL EFFECT, TEMPERATURE CHAMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0929 STEP NO--UR/0177/70/000/000/0038/0040

CIRC ACCESSION NO--AP0109086

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

2/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109086

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE DYNAMICS OF SYSTOLIC PHASES IN A GROUP OF 8 HEALTHY MALE SUBJECTS CONFINED IN A THERMOCHAMBER EVERY THIRD DAY AT A TEMPERATURE OF 80 DEG C FOR 50 TO 70 MIN OVER A PERIOD OF TWO WEEKS, OR OVER A PERIOD OF 2 MONTHS WITH INTERMISSIONS OF 10 DAYS AND 1 HR DAILY EXPOSURES TO 50 DEG C DURING THE INTERMISSION PERIODS. AN ANALYSIS OF POLYGRAPHIC CARDIAC PHASE RECORDINGS INDICATES A SLACKENING OF THE SYSTOLIC ACTIVITY IN THE MYOCARDIUM OF THE SUBJECTS.

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JPRS 59661

31 July 1973

(5)

AUTOMATIC PYROMETER FOR MEASURING THE TRUE TEMPERATURE OF METALS ON THE BASIS OF RADIATION

[Article by D. Ye. Gust, V. V. Grishin, I. M. Bondar', Yu. G. Migun, S. P. Nurzhkin, Russian, pp 339-343, no further information available]

The most important problem in the pyrometry of radiation is the measurement of the temperature of a body on the basis of radiation when the radiating capacity of the body changes during measurement.

We know that the solution to this problem is subject to difficulties of a theoretical nature and the only success that has been achieved thus far in solving it has involved radiators whose surfaces exhibit diffuse or mirror reflection that obeys the Lambert law. In these cases, the missing information on radiating capacity is obtained from the additional flux of radiant energy from a lateral source, reflected by the surface of the radiator [1,2]. Polarization of the radiation from a metallic mirror was used in [3,4] to obtain the missing information.

It has been shown [5] that within the limits of validity of the Drood formula the values for the true temperature can be determined by one of the methods of pyrometry on the basis of the relative distribution of spectral energy density of thermal radiation. However, the method can only be used at a relatively low temperature range. It has also been shown [6,7] that there are several new possibilities of measuring the true temperatures with changing radiating capacity, based on acquisition of additional information obtained directly from the flux of polychromatic radiation [8] on the basis of a new form of distribution of spectral density of Wien-Planck radiation [10].

It has been shown in these papers that although the values of the true temperature and radiating capacity cannot be determined directly from the value of the fluxes of intrinsic radiation, the view which is widely held in optical pyrometry concerning the impossibility of estimating separately from temperature the influence of the radiating capacity on the results of measurements of the flux of the temperature radiation itself is not always valid.



Migun, Yu. G.

MIGUN

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UDC 534.2

USSR

GENKIN, M. D., GOLUBEV, V. S., MIGUN, YU. G., ORLOV, A. I.

"Technique and Equipment for Studying Three-Dimensional Oscillations of Rotating Parts of Reducer Installations"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 41-57 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh479)

Translation: A technique for using accelerometers to study three-dimensional vibrations of rotating parts consisting of solid bodies is presented in general form. The essence of the method consists of determining the components of translational and angular displacements of the part in a space of three measurements. These components are determined in a coordinate system connected with the part from readings of a group of accelerometers fastened to the parts in some way. Mathematically, the problem reduces to the solution of a system of algebraic equations defined by the readings of the instruments. Equipment errors in a transformation of coordinates are analyzed. Authors abstract.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR

UDC: 621.374.522

MIGUNOV, L. V.

"Some Problems in Computing Superconductive Coaxial Transmission Lines"

Kiev, Izvestiya VUZ - Radielektronika, vol. 14, No. 5, 1971, pp 581-582.

Abstract: This brief communication considers the effect of the dielectric losses on the parameters of superconductive coaxial transmission lines. An expression is obtained for the transfer characteristic of such a line, and the example of a superconductive coaxial line made of niobium and lead with the transverse dimensions of $r_1$ = 0.125 mm and $r_2$ = 0.4 mm and with polyfluoroethylene resin filling to compute the attenuation of the signal for a line 2000 meters long. The losses in the dielectric are also computed. Curves of the line's transfer characteristic with and without the dielectric losses taken into account are given. It is noted that neglecting the dielectric losses for lines longer than 500 m leads to erroneous results in the line's computations.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR

UDC: 621.317:621.372.833

MIGUNOV, L. V.

"A Wide-Band Coupling Device for a Measurement Line"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 50-51 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A382)

Translation: To reduce nonhomogeneities and maintain constant wave impedance of a coaxial-to-strip coupler, a special channel line with different transverse dimensions is designed by calculation and experiment. An experimental investigation of one coupler specimen showed it to have a standing wave ratio of 1.06 or less in the range of 0.65-3 GHz. The design is comparatively simple and may be used in various pieces of SHF equipment. Bibliography of one title. E. L.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC: 537.312.62

MIGUNOV, L. V.

"Some Problems in the Calculation of Superconducting Transmission Lines"

Tr. Gor'kov. politekhn. in-ta (Works of Gor'kiy Polytechnical Institute), 1970, 26, No 7, pp 19-22 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D501)

[No abstract]

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UNCLASSIFIED PROCESSING DATE--02OCT70

1/3 043

TITLE--MEASUREMENT OF TOTAL ELECTRON CONCENTRATION IN THE POLAR IONOSPHERE DETERMINED FROM SIGNALS OF THE THIRD ARTIFICIAL EARTH SATELLITE,

AUTHOR-(04)-SOLODOVNIKOV, G.K., MISYURA, V.A., MIGUNOV, V.M., GORBACHEV, I.I.

COUNTRY OF INFO--USSR, ANTARCTICA

SOURCE--MOSCOW, GEOMAGNETIZIM I AERONOMIYA, VOL X, NO 2, 1970, PP 334-336

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS, ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY, NAVIGATION

TOPIC TAGS--IONOSPHERE, POLAR AREA, ELECTRON DENSITY, SOLAR ACTIVITY, ARTIFICIAL EARTH SATELLITE, ANTARCTIC STATION, SIGNAL RECEPTION/(U)SPUTNIK 3 SATELLITE, (U)MIRNYY ANTARCTIC STATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1662 STEP NO--UR/0203/70/010/002/0334/0336

CIRC ACCESSION NO--AP0109656

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

2/3 043 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109656

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER GIVES THE RESULTS OF DETERMINATIONS OF THE TOTAL ELECTRON CONTENT IN THE POLAR IONOSPHERE OF BOTH HEMISPHERES DURING THE PERIOD OF HIGH SOLAR ACTIVITY ON THE BASIS OF DATA ON THE FARADAY EFFECT OF SIGNALS OF THE THIRD ARTIFICIAL EARTH SATELLITE AT A FREQUENCY OF 20 MC-SEC REGISTERED AT MURMANSK AND MIRNYY DURING THE PERIOD MAY-JULY 1968. AES SIGNALS WERE PICKED UP WITH PLAN POLARIZED ANTENNAS. DATA FROM 210 OBSERVATIONS AT MURMANSK AND 106 OBSERVATIONS AT MIRNYY WERE PROCESSED. THE RECORDS WERE DISTINCTLY DIFFERENT FROM THOSE FOR THE MIDDLE LATITUDES. WHEREAS FOR THE MIDDLE LATITUDES THERE IS USUALLY A CLEARLY EXPRESSED MONOTONIC VARIATION OF THE ANGLE OF ROTATION OF THE RADIO WAVE POLARIZATION PLANE PHI SUBPHI, THE POLAR REGIONS ARE CHARACTERIZED BY A NONMONOTONIC CHANGE IN PHI SUBPHI AT DIFFERENT TIMES OF DAY, REGARDLESS OF SATELLITE ALTITUDE. THIS NONMONOTONIC VARIATION OF PHI SUBPHI INDICATES THAT THE POLAR IONOSPHERE CONTAINS EXTREMELY STRONG INHOMOGENEITIES OF ELECTRON CONCENTRATION DURING BOTH DAYTIME AND NIGHTTIME. MEASUREMENTS WERE CONVERTED TO THE TOTAL NUMBER OF ELECTRONS IN A VERTICAL COLUMN OF THE IONOSPHERE OF A UNIT CROSS SECTION (N SUBO). THE N SUBO VALUES WERE USED IN CONSTRUCTING DAILY CURVES OF THE DEPENDENCE OF TOTAL NUMBER OF ELECTRONS IN A VERTICAL COLUMN AS A FUNCTION OF TIME OF DAY. THESE CURVES ARE FOR 64DEGREES N AND S. CURVES WERE CONSTRUCTED ONLY FOR THOSE ORBITAL SEGMENTS INTERSECTING 64DEGREES. THIS LARGELY EXCLUDED THE LATITUDE EFFECT. IN BOTH HEMISPHERES THE N SUBO MAXIMUM WAS AT APPROXIMATELY THE SAME TIME, ABOUT 1400 LT.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

3/3 043 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109656

ABSTRACT/EXTRACT--DURING THE COURSE OF THE DAY N SUB0 IN THE SOUTHERN HEMISPHERE CHANGES BY A FACTOR OF ABOUT 4. THIS CANNOT BE ATTRIBUTED TO DIFFERENCES IN SATELLITE ALTITUDE SINCE IN ALL CASES IT WAS ABOVE THE F2 MAXIMUM. THE DIFFERENCE CAN PROBABLY BE ATTRIBUTED TO THE DIFFERENCE IN SEASONS IN THE TWO HEMISPHERES. DURING LOW ACTIVITY N SUB0 IN THE POLAR LATITUDES IS APPROXIMATELY THREE TIMES LESS THAN DURING HIGH ACTIVITY. IN THE MIDDLE LATITUDES THESE CHANGES ATTAIN A FACTOR OF 7. DURING BOTH HIGH AND LOW ACTIVITY N SUB0 IN THE MIDDLE LATITUDES IS 1.5-2 TIMES GREATER THAN IN THE POLAR REGIONS.

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USSR UDC 576.852.23.097.29

DALIN, M. V., MIGINOV, V. K., FISH, N. G., POLIKAR, A. Ch., and IL'NITSKAYA, Ye. A., Moscow Institute of Vaccines and Sera imeni Mechnikov, and Sofia Institute of Epidemiology and Microbiology

"Heterogeneity of a Specific Toxin in a Filtrate of Corynebacterium diphtheriae"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, Jul 70, pp 115-118

Abstract: In an earlier study, the authors showed that toxin in filtrates of Corynebacterium diphtheriae strain PW-8 may consist not only of proteins with a sedimentation rate of about 4S, but also of larger components. In the present work, the molecular composition of toxic filtrates from the Weissensee and Massachusetts varieties are compared and the composition of filtrates obtained at different times of culturing is analysed. C. diphtheriae strain PW-8 grown in stab culture produced two types of specific toxin in the filtrates: macromolecular, with a sedimentation rate of about 6 to 11S; and low-molecular, with a sedimentation rate of about 4-5S and possessing greater toxicity and antibinding activity (attributed to proteolysis of the molecules of specific toxin during culturing). The macromolecular toxin appeared in the filtrates within a few hours after the start of growth and persisted throughout (36 hours). It is tentatively identified as Ehrlich's "toxon."

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UDC 532.516

USSR

MIGUNOVA, G. I., SHIRSHOV, A. N.

"Numerical Solution of the Problem of Flow of a Viscous Liquid in a Channel with Sudden Constriction"

V sb. Chislen. metody rascheta techeniya vyazkoy zhidkosti v kanalakh (Numerical Methods of Calculating the Flow of a Viscous Liquid in Channels--collection of works), Moscow, 1971, pp 17-25 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B509)

Translation: A study was made of the problem of turbulent flow around an offset in a flat channel. The problem was reduced to solving the system of equations for the current and vortex function. It was assumed that the kinematic transfer coefficient of the momentum is constant. The sticking conditions were taken as the boundary conditions on the wall. The absence of tangent stresses was assumed on the upper wall of the channel. The problem was solved by the buildup method using the explicit difference scheme. Finite-difference relations, the approximating equations and boundary conditions are presented. The calculation was performed on a fine grid in the vicinity of the offset and a larger grid in the rest of the area. The finite-difference equation for determining the pressure field is also presented. The results from calculating the pressure function, the pressure diagram and the longitudinal velocity component are presented.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC: 51

KUZ'MIN, I. V., and MIGUNOVA, L. V.

"A Mathematical Model of Municipal Traffic Control"

Pribory i sistemy avtomatiki. Resp. mezhved. temat. nauch.-tekhn. sb. (Automation Devices and Systems. Republic Interdepartmental Thematic Scientific and Technical Collection), 1973, vyp 27, pp 10-14 (from RZh-Matematika, No 9, Sep 73, Abstract No 9V596 by the authors)

Translation: The problem of the public transportation load on a route is examined by the method of queuing theory. A model for the movement of a conveyance and filling with passengers is constructed in the form of differential equations, the main parameters of the model being traffic intensity and the intensity of passenger flows. The law of distribution of passenger streams is arbitrary.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

AA0039827 Migutskiy, L. R. UR 0482 5

Soviet Inventions Illustrated, Section I Chemical, Derwent,

3/10

237914 METALLISED SINTER PRODUCTION uses heated air for sintering and heated reducing gas, at controlled waste gas pressure. To upgrade the end product and prevent secondary oxidation, the reducing gas temperature (heated to 1200°C) is reduced to 100°C at a rate of 30-50 degrees/min. The gas is heated in regenerative chackers themselves heated by the sintering air re-circulating. After the charge has been placed on the throat grid, it is fired and sintered, keeping gas pressure above 1.0 atm. abs. The fine, low-sulphur

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end product occurs as a cake whose upper part is at 1000-1300°C. The reducing gas is passed through the bed, also under controlled pressure. Termination of this reducing blow operation is signified by the cessation of ferrous oxide reduction as the sinter cake cools back to 300-100°C, and thus prevents secondary oxidation. 1.4.67. as 1145585/22-2. MIKHALEVICH, A.G. et al. I.P. Bardin Ferrous Metallurgy Res. Inst. (11.7.69.) Bul.9/20.2.69. Class 18a. Int.Cl. C21b.

AUTHORS: Mikhalevich, A. G.; Voskoboynikov, V. G.; Buvarov, A. A. Bunakov, O. D.; Zhurakovskiy, B. L.; Migutskiy, L. R.; Antonov, V. M.; Sholeninov, V. M.; and Tkachev, V. V.

Tsentral'nyy Nauchno - Issledovatel'skiy Institut Chernoy Metallurgii imeni I. P. Bardina

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR

UDC: 621.375.82

MIKABERIDZE, A. A., OCHKIN, V. N., SOBOLEV, N. N.

"On the Population of Lower Laser Levels in a Carbon Dioxide Laser"

Moscow, Kvant. elektronika--sbornik (Quantum Electronics--collection of works), No 1(13), "Sov. radio", 1973, pp 41-46 (from RZh-Fizika, No 8, Aug 73, abstract No 8D1061 by the authors)

Translation: The vibrational temperatures of deformation vibrations of $CO_2$ molecules are measured by the method of rotating spectral lines in the 15-μm region. Comparison of the resultant vibrational temperatures with the calculated gas temperatures shows that the population of the lower laser levels is equilibrium in nature. Parallel measurement of the vibrational temperatures for antisymmetric vibrations of $CO_2$ molecules enables determination of the absolute population of the laser levels and inversion. The results are compared with measurements by the method of laser signal amplification. Bibliography of 20 titles.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

Entomology

USSR

MELIKADZE, L. D., MIKADZE, L. D., SHONIYA, D. I., GURGENIDZE, Z. I., BARABADZE, Sh. Sh., and AZKHAZAVA, I. I., Georgian Institute of Plant Protection

"Olfactometry to Evaluate Chemical Attractants"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 2, 1972, pp 473-476

Abstract: A description is given of a device used to test attractants of the European spruce bark beetle (Dendroctonus micans) and other insects. Unlike other olfactometric methods, it can determine the optimum concentration of an attractant in the air. Air is fed through a thermostat-controlled heating coil and bubbler containing the substance tested. The temperature is controlled to keep the vapor pressure uniform. The air saturated to the same concentration by the vapor of the attractant (working mixture) enters the working part of the olfactometric unit. Both the control and the working parts of the unit are divided into three chambers. The working mixture after entering the olfactometer gradually fills the three chambers and through openings in the bottom of the third chamber diffuses along a platform where the insects are kept. An equal amount of pure air flows from the control part and moves along the platform in the opposite direction, creating a concentration

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MELIKADZE, L. D., et al., Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 2, 1972, pp 473-476

gradient along the platform. Depending on the reaction of the insects to the substance, they crawl into the working or control part of the olfactometer. The optimum concentration is determined (a) from a curve showing the dilution of the working mixture at the outlet from the third chamber of the olfactometer and (b) from the dynamics of migration of the insects in time. The optimum concentration is that which attracts the most insects.



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USSR UDC 669.26'854'794.620.193.41

TAVADZE, F. N., MIKADZE, O. I., RUDOY, A. P., and MANDZHAGALADZE, S. N.,
Institute of Metallurgy, Academy of Sciences Georgian SSR

"Influence of Lanthanum and Yttrium on Corrosion Resistance of Chromium in Sulfuric Acid"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1974, pp 28-30

Abstract: This work presents a study of the influence of lanthanum and yttrium on the corrosion resistance of chromium in sulfuric acid at 20 and 100° C. The material used in the study was electrolytically refined chromium containing 0.006% N, 0.004% O, less than 0.04% Si, 0.005% Ni, 0.01% Fe, 0.006% Al, 0.002% S, 0.003% Cu. The content of the rem in the chromium alloys was 0.24-1.48% La, 0.28-2.83% Y. One peculiarity of the process of corrosion of chromium alloys with lanthanum and yttrium in sulfuric acid solutions is that the maximum rate is observed in the initial period of the test, with subsequent stabilization. Lanthanum and yttrium are anodic inclusions and are etched out in sulfuric acid. The structure of the matrix does not influence the corrosion resistance of the alloys of chromium in 50% sulfuric acid, but does in a 30% solution. The introduction of 0.28% Y to chromium activates the chromium, while 0.68% La does not damage its passivity at room temperature.



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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

MIKADZE, Z. M.

STRUCTURE AND PROPERTIES OF VERY PURE BORON CARBIDE

[Paper by [illegible], G. N. [illegible], [illegible] and Z. M. Mikadze; Dimitrovgrad, Pogloshchayushchiye materialy i sterzhni regulirovaniya bystrykh reaktorov (Absorbing materials and control rods for fast reactors). Russian, International Working Group for Fast Reactors Specialists Meeting, Dimitrovgrad, 4-8 June, 1973]

In this paper the results of an investigation of the properties of boron carbide obtained by magnesium-thermal reduction are presented. In this work it is demonstrated that the material is very pure with respect to chemical composition, the powder is characterized by a rounded shape of the particles; the compacted products have satisfactory thermophysical properties. The results of an investigation of the physico-chemical properties of the material (dispersivity, density, specific surface, microhardness, mechanical properties for compression and wettability) are presented.

In distinction from other methods of the preparation of boron carbide powder, the magnesium-thermal method makes it possible to obtain very pure material of more accurate stoichiometric composition [1].

In this work, the basic characteristics of boron carbide powder obtain by means of magnesium-thermal reduction are considered, and the results of an investigation of certain properties of monolithic highly pure boron carbide are considered.

The boron carbide powder is distinguished for its high degree of purity. The chemical couposition is given in Table 1.



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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--PERMEABILITY OF MUSCLE FIBER MEMBRANES TO POTASSIUM, RUBIDIUM, AND CESIUM -U-

AUTHOR-(02)-MARTIROSOV, S.M., MIKAELYAN, L.G.

COUNTRY OF INFO--USSR

SOURCE--TSITOLOGIYA 1970, 12(4), 505-9

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PERMEABILITY MEASUREMENT, POTASSIUM, RUBIDIUM, CESIUM, MUSCLE TISSUE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0276 STEP NO--UR/0053/70/012/004/0505/0509

CIRC ACCESSION NO--[illegible]

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

2/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134081

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MEMBRANE POTENTIALS OF MUSCLE FIBERS WERE MEASURED IN SOLNS. CONTG. K PRIME POSITIVE, RB PRIME POSITIVE, OR CS PRIME POSITIVE. RELATIVE PERMEABILITIES (P SUBRB-P SUBK AND P SUBCS-P SUBK) DEPENDED ON ASYM. PROPERTIES OF THE MEMBRANE IN RELATION TO K PRIME POSITIVE. IN CONDITIONS OF ELECTROGENIC EXTRUSION OF NA PRIME POSITIVE FROM MUSCLES WITH A HIGH INTRACELLULAR NA PRIME POSITIVE CONCN., THE MEMBRANE POTENTIALS WERE MORE NEG. WHEN THE MEMBRANE WAS LESS PERMEABLE TO IONS REPLACING INTRACELLULAR NA PRIME POSITIVE (K SUBK SMALLER THAN E SUBRB SMALLER THAN E SUBCS FOR P SUBK LARGER THAN P SUBRB LARGER THAN P SUBCS). FACILITY: LAB. PHYSIOL. VEG. NERV. SYST., INST. PHYSIOL., EREVAN, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UNCLASSIFIED PROCESSING DATE--16OCT70

1/2 024

TITLE--ION EXCHANGE DURING ELECTROGENIC ACTIVE TRANSPORT OF IONS -U-

AUTHOR-(02)-MARTIROSOV, S.M., MIKAELYAN, L.G.

COUNTRY OF INFO--USSR

SOURCE--BIOFIZIKA 1970, 15(1), 104-11

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MUSCLE PHYSIOLOGY, BIOPOTENTIAL, CELL PHYSIOLOGY, CELL MEMBRANE, SODIUM COMPOUND, POTASSIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0012 STEP NO--UR/0217/70/015/001/0104/0111

CIRC ACCESSION NO--AP0105112

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UNCLASSIFIED PROCESSING DATE--16OCT70

2/2 024

CIRC ACCESSION NO--AP0105112

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEMBRANE POTENTIALS OF MUSCLE FIBERS WITH HIGH INTRACELLULAR NA CONCN. WERE DETD. IN THE PERIOD OF ELECTROGENIC ACTIVE ION TRANSPORT. THE MEMBRANE POTENTIAL DECREASE WAS RELATED TO THE INCREASE OF THE K PRIME POSITIVE CONCN. IN THE MEDIUM AND REMAINED ALMOST CONST. DURING INCREASE OF THE INTRACELLULAR NA PRIME POSITIVE CONCN. AND SIMULTANEOUS K PRIME POSITIVE DECREASE; AT THE SAME TIME, THE DIFFERENCE BETWEEN THE DETD. MEMBRANE POTENTIAL AND K PRIME POSITIVE POTENTIAL REMAINED CONST. IN THE 1ST INSTANCE, AND INCREASED IN THE 2ND. FACILITY: INST. PHYSIOL., EREVAN, USSR.

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UDC:537.226+537.311.33]:539.16.04

USSR

ARIFOV, U. A., MIKHAELYAN, V. M., SINYUKOV, V. A., KOROSTELEV, Yu. A., LYUTOVICH, A. S.

"Alloying of Silicon by Bombardment With Thermal Neutrons"

Kristalliz. Tonkikh Plenok [Crystallization of Thin Films -- Collection of Works], Tashkent, Fan Press, 1970, pp. 136-139 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Ye 1100 by T. B. Karashev)

Abstract: Specimens of p-type Si with specific impedence approximately 1200 ohm·cm were bombarded by a stream of reactor neutrons $1.8 \cdot 10^{13}$ $cm^{-2}$. $sec^{-1}$ for one hour. After annealing at 800°C for four hours, the bombarded specimens had n-type conductivity and ρ = 600 ohm·cm. Analysis of the variation, with temperature of concentrations and mobilities of carriers showed that the conductivity resulted from the donor impurity, giving a fine level. The alloying effect is related to the phosphorus formed as

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USSR UDC:537.226+537.211.33]:539.16.04

ARIFOV, U. A., MIKHAELYAN, V. M., SINYUKOV, V. A., KOROSTELEV, Yu. A., LYUTOVICH. A. S., Kristalliz. Tonkikh Plenok [Crystallization of Thin Films -- Collection of Works], Tashkent, Fan Press, 1970, pp. 136-139 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Ye 1100 by T. B. Karashev)

a result of nuclear transformation. The possibility of producing high-resistance n-type Si crystals with even volumetric properties by this method is noted; this is difficult to achieve by other methods.

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UDC 669.71.018.9.4

USSR

MIKADZE, L. M.

"Degasification of Aluminum Alloys Under the Pressure of Inert Gases"

Tr. XV Nauchno-tekhn. konferentsii prof.-prepodavat. sostava i nauchn. rabotn. probl. i otrasl. labor. Gruz. politekhn. in-t (Proceedings of Fifteenth Scientific and Technical Conference of Professorial and Instructor Staff and Scientific Workers of the Special-Research and Sectorial Laboratories of the Georgian Polytechnical Institute), vyp. 14, Tbilisi, 1970, pp 102-106 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G239 by G. SVODTSEVA)

Translation: A19 aluminum alloy underwent degasification. The method was based on the decrease in the solubility of the gases (mainly hydrogen) contained in the metal under the influence of the pressure of inert gas on the surface of the liquid melt. Under argon pressure the dissolved gases pass from the molten metal into the furnace atmosphere and are removed. Thus, in the process of alloy degasification under argon pressure of 7-10 atm the gases left the furnace with a hydrogen content 0.0104 g/cu m higher than the hydrogen content of the argon. The breaking point for degasified specimens increased by 85.7 atm. Five tables.

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AA0039827 Mikalevich, A.G. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

3/10

237914 METALLISED SINTER PRODUCTION uses heated air for sintering and heated reducing gas, at controlled waste gas pressure. To upgrade the end product and prevent secondary oxidation, the reducing gas temperature (heated to 1200°C) is reduced to 1000°C at a rate of 30-50 degrees/min. The gas is heated in regenerative checkers themselves heated by the sintering air re-circulating. After the charge has been placed on the throat grid, it is fired and sintered, keeping gas pressure above 1.0 atm. abs. The fine, low-sulphur

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end product occurs as a cake whose upper part is at 1000-1300°C. The reducing gas is passed through the bed, also under controlled pressure. Termination of this reducing blow operation is signified by the cessation of ferrous oxide reduction as the sinter cake cools back to 300-100°C, and thus prevents secondary oxidation. 1.4.67. as 1145585/22-2. MIKHALEVICH, A.G. et al. I.P. Bardin Ferrous Metallurgy Res. Inst. (11.7.69.) Bul.9/20.2.69. Class 18a. Int.Cl. C21b.

AUTHORS: Mikhalevich, A. G.; Voskoboynikov, V. G.; Buvarov, A. A. Bunakov, O. D.; Zhurakovskiy, B. L.; Nigutskiy, L. R.; Antonov, V. M.; Sholeninov, V. M.; and Tkachev, V. V.

Tsentral'nyy Nauchno - Issledovatel'skiy Institut Chernoy Metallurgii imeni I. P. Bardina

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MIKAEL

holographic memori

HOLOGRAPHIC MEMORIES

Optical methods of information storage would greatly
Nuyes. In [2, 3] it was shown that holographic methods of infor-
mation storage would possess many properties which would make
them suitable for use in designing novel memory devices. The
possibility of sequential storage of a large number of pictures in
a single hologram, a high storage of a large number of pictures in
simplicity of information recovery are some of these properties.

In [1] the principles of designing holographic-type
memory devices were presented, together with some practical
realizations. Several schemes of sequential and parallel inter-
mation storage were examined. It was shown that parallel stor-
age can yield a capacity which approaches the limit determined
by the resolution of the hologram. Immediate access memo-
ries based on this information storage technique can be obtained.

The schematic diagram in Fig. 1 shows a sequential
holographic memory. The beam of laser 1, operating in the CW
mode, is split by a semitransparent mirror into two beams of
equal intensity, forming an address channel and a number chan-
nel. The first beam, before reaching the hologram, passes

[illegible]

5 - deflecting mirrors; 6 - semitransparent
[illegible] - 7 - deflecting
[illegible] - 9 - modulator; 10 - limit
[illegible] - 11 - [illegible]

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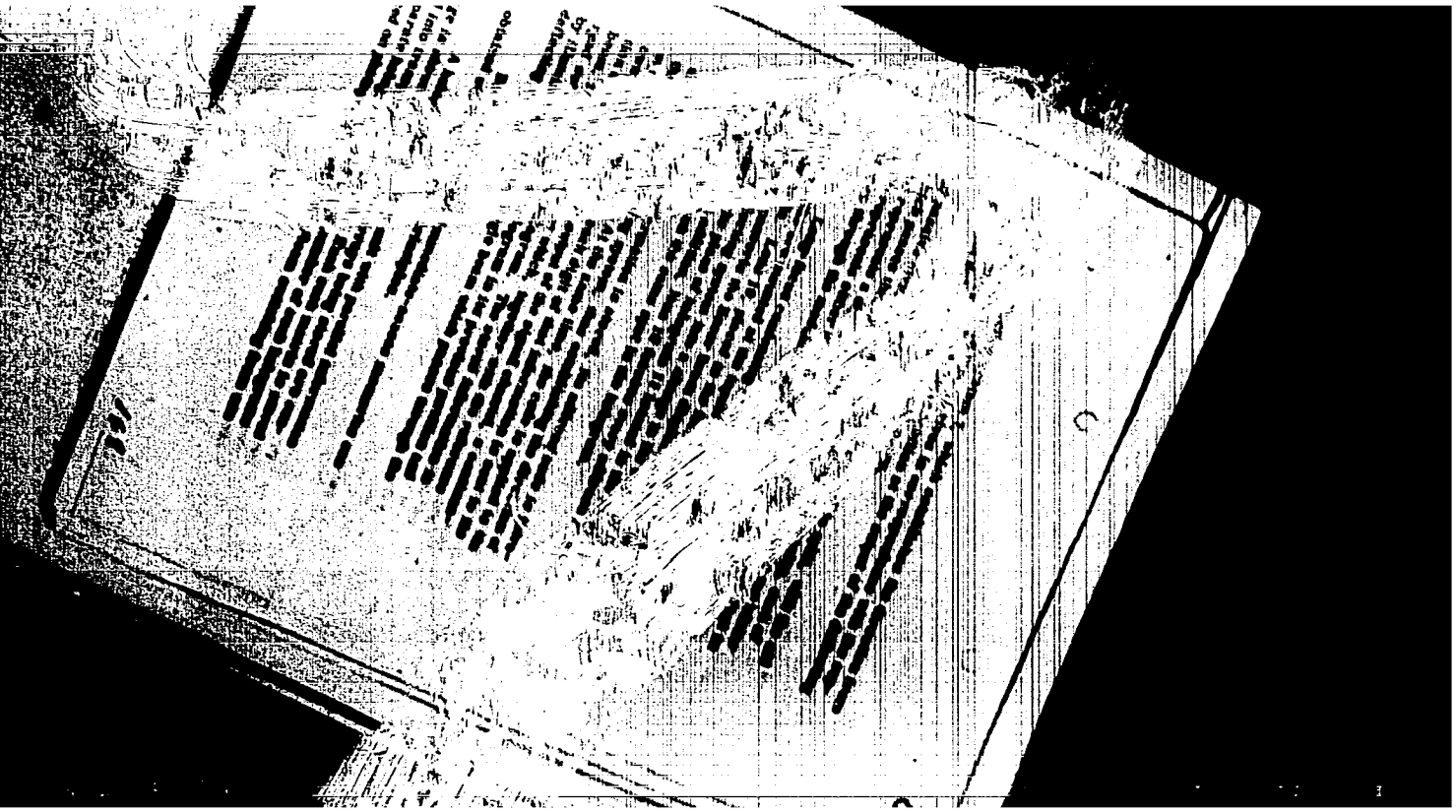

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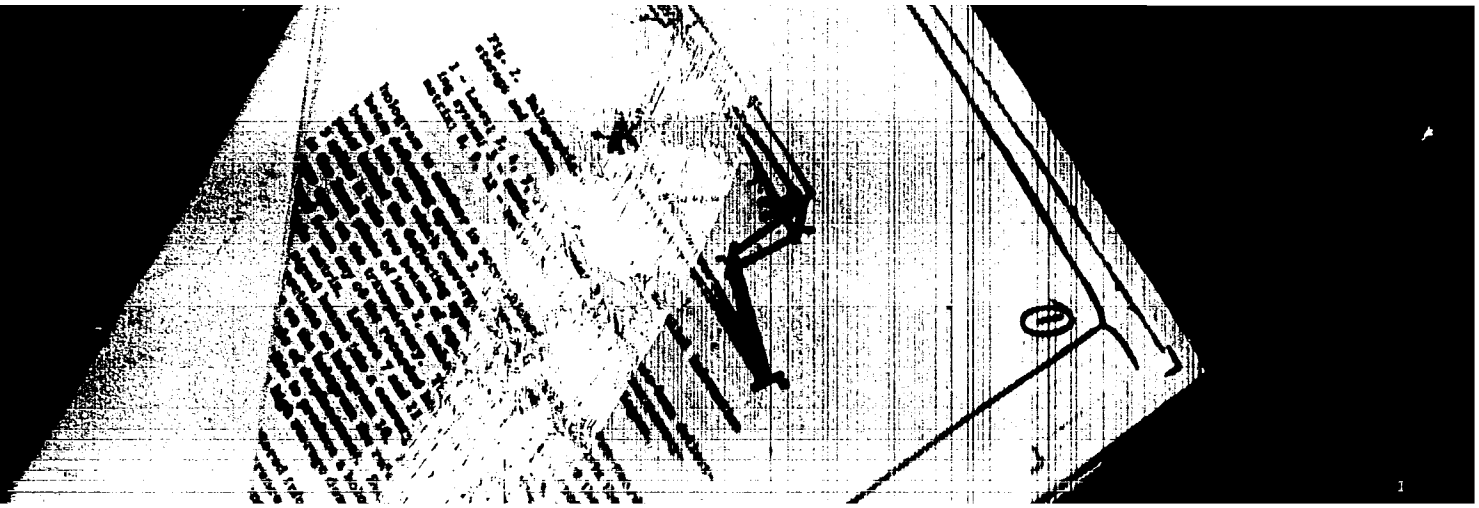

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UDC: 621.376:530.145.6

USSR

MIKAELYAN, A. L., KOBLOVA, M. M., ZASOVIN, E. A.

"Study of a Beam Deflection System Based on Lithium Niobate Crystals"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 120-124 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D175)

Translation: The authors investigate a discrete ten-stage beam deflection system utilizing crystals of lithium niobate and Iceland spar. The beam is displaced in two planes at the output, forming a matrix of 32 × 32. The controlling voltage is 1 kV. Four illustrations, bibliography of two titles.

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UDC 621.376.325

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USSR

MIKAELYAN, A.L., D'YACHENKO, V.V.

"Waveguide-Type Optical Resonators"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), 1972, pp 97-99

Abstract: In optical resonators it is possible to use oscillation types analogous to waveguide types. The paper describes seven of the simplest variations of such optical "waveguide" resonators. The active element has the form of a flat plate; the lateral surfaces of it are polished. The light ray is admitted through an end at some angle, and then experiences complete reflection from the lateral surfaces and emerges through the second end. The paper classifies such resonators by the number of reflections from the lateral surfaces and the sign of the angle at which the beam falls at the end. The high selectivity of waveguide resonators and their insensitivity to thermoptical effects caused by pumping is stressed. Experimental results are presented which confirm the high sensitivity of the oscillations of waveguide resonators in the case of strong [illegible] of the active medium. 3 fig. 5 ref. Received by editors, 8 [illegible] 1972.

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UDC 621.375.82

USSR

MIKAELYAN, A. L., KOBLOVA, M. M., ZASOVIN, E. A.

"Investigation of a Deflection System for a Ray Based on Lithium Niobate Crystals"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 1, Moscow, 1971, pp 120-124 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D1143)

Translation: A discrete 10-cascade system for the deflection of laser radiation using lithium niobate crystals and Iceland spar was investigated. The beam was displaced at the output in two planes, forming a 32 × 32 matrix. The controlling voltage was equal to 1 kv. Authors abstract.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC 621.375.82

MIKAELYAN, A. L., ANIKINA, Ye. B., MINAYEV, V. P., TURKOV, Yu. G.

"Single-Mode Ruby Laser With Ring Resonator"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 1, Moscow, 1971, pp 136-139 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D1043)

Translation: A single-mode ruby ring laser operating in a free generation mode was investigated. The laser was used to record holograms on "Mikrat-VR" film and on thin metal films. Authors abstract.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC: 621.373:530.145.6

MIKAELYAN, A. L., KUPRISHOV, V. F., TURKOV, Yu. G., ANDREYEV, Yu. V., SHCHERBAKOVA, A. A.

"Investigation of Emission From a Ruby Laser With Automatic Q-Switching"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 102-109 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D182)

Translation: The paper presents the results of a study of the effects of giant pulse emission in a ruby laser which does not contain special switching elements. Automatic Q-switching is achieved by using unstable configurations of the optical cavity. Seven illustrations, bibliography of five titles. Resumé.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC: 621.373:530.145.6

MIKAELYAN, A. L., ANIKINA, Ye. B., MINAYEV, V. P., TURKOV, Yu. G.

"A Single-Mode Ruby Laser With Ring Cavity"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 136-139 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D183)

Translation: The paper presents the results of a study of a single-mode ruby ring laser which operates in the free emission mode. The laser is used for recording holograms on "Mikrat-VR" film and thin metal films. Four illustrations, bibliography of six titles. Resumé.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

1/2 039 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--COHERENT SUPERPOSITION OF THE EMISSION FIELDS OF SINGLE FREQUENCY RUBY LASERS -U-

AUTHOR-(03)-MIKAELYAN, A.L., MINAYEV, V.P., TURKOV, YU.G.

M.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, DOKLADY, VOL. 191, MAR. 21, 1970, P. 565-567

DATE PUBLISHED--21MAR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RUBY LASER, LASER EMISSION COHERENCE, LASER RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0712 STEP NO--UR/0020/70/191/000/0565/0567

CIRC ACCESSION NO--AT0121371

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UDC 669.71.018.9.4

USSR

MIKADZE, L. M.

"Degasification of Aluminum Alloys Under the Pressure of Inert Gases"

Tr. XV Nauchno-tekhn. konferentsii prof.-prepodavat. sostava i nauchn. rabotn. probl. i otrasl. labor. Gruz. politekhn. in-t (Proceedings of Fifteenth Scientific and Technical Conference of Professorial and Instructor Staff and Scientific Workers of the Special-Research and Sectorial Laboratories of the Georgian Polytechnical Institute), vyp. 14, Tbilisi, 1970, pp 102-106 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G239 by G. SVODKSEVA)

Translation: A19 aluminum alloy underwent degasification. The method was based on the decrease in the solubility of the gases (mainly hydrogen) contained in the metal under the influence of the pressure of inert gas on the surface of the liquid melt. Under argon pressure the dissolved gases pass from the molten metal into the furnace atmosphere and are removed. Thus, in the process of alloy degasification under argon pressure of 7-10 atm the gases left the furnace with a hydrogen content 0.0104 g/cu m higher than the hydrogen content of the argon. The breaking point for degasified specimens increased by 85.7 atm. Five tables.

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AA0039827 Mikalevich, A.G. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

3/10

237914 METALLISED SINTER PRODUCTION uses heated air for sintering and heated reducing gas, at controlled waste gas pressure. To upgrade the end product and prevent secondary oxidation, the reducing gas temperature (heated to 1200°C) is reduced to 100°C at a rate of 30-50 degrees/min. The gas is heated in regenerative checkers themselves heated by the sintering air re-circulating. After the charge has been placed on the throat grid, it is fired and sintered, keeping gas pressure above 1.0 atm. abs. The fine, low-sulphur

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AD

AUTHORS: Mikhalevich, A. G.; Voskoboynikov, V. G.; Buyarov, A. A. Bunakov, O. D.; Zhurakovskiy, B. L.; Migutskiy, L. R.; Antonov, V. M.; Sholeninov, V. M.; and Tkachev, V. V.

Tsentral'nyy Nauchno - Issledovatel'skiy Institut Chernoy Metallurgii imeni I. P. Bardina

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

MIKAELYAN, A. L.

MIKAELYAN, A.L.

(1)

## HOLOGRAPHIC MEMORIES

Optical methods of information storage would greatly increase storage capacity in comparison with conventional techniques. In [2, 3] it was shown that holographic methods of information storage would possess many properties which would make them suitable for use in designing novel memory devices. The possibility of sequential storage of a large number of pictures in a single hologram, a high storage reliability, and a comparative simplicity of information recovery are some of these properties.

In [1] the principles of designing holographic-type memory devices were presented, together with some practical realizations. Several schemes of sequential and parallel information storage were examined. It was shown that parallel storage can yield a capacity which approaches the limit determined by the resolution of the holograms. Immediate-access memories based on this information storage technique can be obtained.

The schematic diagram in Fig. 1 shows a sequential holographic memory. The beam of laser 1, operating in the CW mode, is split by a semitransparent mirror into two beams of equal intensity, forming an address channel and a number channel. The first beam, before reaching the hologram, passes

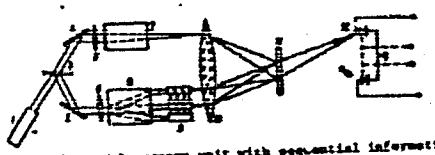

Fig. 1. Holographic memory unit with sequential information storage and readout

1 - Laser; 2, 4 - reflecting mirrors; 3 - semitransparent mirror; 5, 6 - long-focus condensing lenses; 7 - deflecting system; 8 - passive beam splitter; 9 - modulators; 10 - lens; 11 - hologram; 12 - photodiodes.



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TD Foreign Science Bulletin Vol. 5 No. 5 May 1967

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through deflecting system 7, which establishes the direction from which a reference wave arrives in correspondence with the supplied address. Each beam position at the output of the deflecting system defines one of the addresses.

The beam in the number channel is split, with the aid of passive divider 8, into N beams of equal intensity, each of which passes through a separate electro-optical light modulator and represents a digit of the number being stored. Each digit in turn represents either 0 or 1, depending on whether the light passes through the modulator or not.

Long-focus collimating lenses 5 and 8 having equal focal lengths are mounted at the inputs of the address and number channels. Lens 10, placed in the focal plane of the above two lenses, converts the linear beam displacement at the output of the deflecting system into a change in the angle of beam inclination to the plane of hologram 11 located in the focal plane of this lens. In addition, lens 10 focuses every address beam and digital beam on the same spot in the hologram.

When information is stored, its address code is introduced in the deflecting system, thus establishing the direction of the reference beam. At the same time, the code is applied to the signal input, whereby each digit of that information is sent to its own modulator. At the output of the signal channel, a continuation of beams is produced which, together with the reference beam, is stored in the hologram. The stored information is read out by placing the hologram in its previous position and by illuminating it with a single beam which passes through the deflecting system.

Both read-only and immediate-access memories can be obtained utilizing the above principles.

A holographic memory unit with parallel information storage is shown in Fig. 2. The arrays being stored are converted into transparency-matrix 6. Each such matrix is stored in a separate hologram, and a large number of such holograms are placed on photographic plate 10. Beam switching from one



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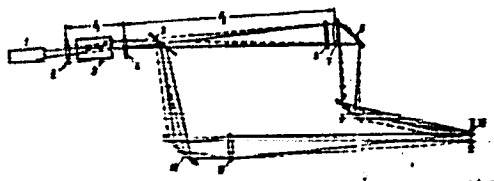

Fig. 2. Holographic memory unit with parallel information storage and readout

1 - Laser; 2, 4, 7, 11 - lenses; 3 - coordinate-beam deflecting system; 5 - semitransparent mirror; 6 - transparency matrix; 8, 9, 12 - reflecting mirrors; 10 - hologram.

hologram to another is accomplished by means of two-coordinate beam deflecting system 3. Long-focus lens 2 converts the laser beam into one which converges slightly and which has the focal point behind the deflecting system, and semitransparent mirror 5 splits it into two beams of equal intensity. Lens 4, mounted in the focal plane of lens 2, makes it possible to illuminate the same spot on the transparency. The information is then recovered from any of the recorded holograms by using a single photodiode matrix. Lenses 7 and 11 convert the diverging and reference signal beams into a converging beam and equalize their cross sections on hologram 10. Reflecting mirrors 8, 9, and 12 combine on the hologram the reference beam and the signal for any angle of displacement. Such an optical arrangement makes it possible to produce a hologram in a converging beam, thus ensuring a high storage density.

To recover the stored information, the hologram is illuminated with a single reference beam, reproducing an image of the recorded matrix which consists of bright and dark spots. The image is then projected on a mosaic of photodiodes connected in a matrix. Each number, stored in the hologram, is projected



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on a column of photodiodes. Photodiodes corresponding to the same digit of the stored number are arranged in row order.

A storage density of $10^7$ bit/cm$^2$ was obtained with the parallel scheme, and the sequential scheme showed that 300 holograms can be stored in a single spot of a photoemission with a sufficiently high S/N ratio.

On the basis of the above study it was concluded that holographic memory devices can be obtained with a capacity of up to $10^{11}$ bits using 10 cm × 10 cm memory elements. If photochromic materials are used as data carriers, immediate-access holographic memories with a high storage capacity and speed can be realized. [JR]

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2. Bobrinev, V. I., and I. V. Potapova. Methods for increasing the depth of pictures recorded on holograms. Radiotekhnika i elektronika, v. 13, no. 11, 1968, 2069-2072.

3. Mikaelyan, A. L., A. P. Akaenchikov, V. I. Bobrinev, E. Kh. Galyanyan, and V. V. Shatun. Holograms recorded on photochromium films. IN: Akademiya nauk SSSR. Doklady, v. 181, no. 5, 1968, 1105-1106.




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UDC 621.378.325

USSR

MIKAELYAN, A.L., D'YACHENKO, V.V.

"Waveguide-Type Optical Resonators"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), 1973, pp 84-89

Abstract: In optical resonators it is possible to use oscillation types analagous to waveguide types. The paper describes seven of the simplest variations of such optical "waveguide" resonators. The active element has the form of a flat plate; the lateral surfaces of it are polished. The light ray is admitted through an end at some angle, and then experiences complete reflection from the lateral surfaces and emerges through the second end. The paper classifies such resonators by the number of reflections from the lateral surfaces and the sign of the angle at which the beam falls at the end. The high selectivity of waveguide resonators and their insensitivity to thermoptical effects caused by pumping is stressed. Experimental results are presented which confirm the high coherency of the oscillations of waveguide resonators in the case of serious deformations of the active medium. 5 Fig. 9 ref. Received by editors, 1 June 1972.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC: 621.376:530.145.6

MIKAELYAN, A. L., KOBLOVA, M. M., ZASOVIN, E. A.

"Study of a Beam Deflection System Based on Lithium Niobate Crystals"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 120-124 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D175)

Translation: The authors investigate a discrete ten-stage beam deflection system utilizing crystals of lithium niobate and Iceland spar. The beam is displaced in two planes at the output, forming a matrix of 32 × 32. The controlling voltage is 1 kV. Four illustrations, bibliography of two titles.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC 621.375.82

MIKAELYAN, A. L., KOBLOVA, M. M., ZASOVIN, E. A.

"Investigation of a Deflection System for a Ray Based on Lithium Niobate Crystals"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 1, Moscow, 1971, pp 120-124 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D1143)

Translation. A discrete 10-cascade system for the deflection of laser radiation using lithium niobate crystals and Iceland spar was investigated. The beam was displaced at the output in two planes, forming a 32 × 32 matrix. The controlling voltage was equal to 1 kv. Authors abstract.

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USSR

UDC 621.375.82

MIKAELYAN, A. L., ANIKINA, Ye. B., MINAYEV, V. P., TURKOV, Yu. G.

"Single-Mode Ruby Laser With Ring Resonator"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 1, Moscow, 1971, pp 136-139 (from RZh-Fizika, No 7, Jul 71, Abstract No 7D1043)

Translation: A single-mode ruby ring laser operating in a free generation mode was investigated. The laser was used to record holograms on "Mikrat-VR" film and on thin metal films. Authors abstract.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC: 621.373:530.145.6

MIKAELYAN, A. L., KUPRISHOV, V. F., TURKOV, Yu. G., ANDREYEV, Yu. V., SHCHERBAKOVA, A. A.

"Investigation of Emission From a Ruby Laser With Automatic Q-Switching"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 102-109 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D182)

Translation: The paper presents the results of a study of the effects of giant pulse emission in a ruby laser which does not contain special switching elements. Automatic Q-switching is achieved by using unstable configurations of the optical cavity. Seven illustrations, bibliography of five titles. Resumé.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR UDC: 621.373:530.145.6

MIKAELYAN, A. L., ANIKINA, Ye. B., MINAYEV, V. P., TURKOV, Yu. G.

"A Single-Mode Ruby Laser With Ring Cavity"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 136-139 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D183)

Translation: The paper presents the results of a study of a single-mode ruby ring laser which operates in the free emission mode. The laser is used for recording holograms on "Mikrat-VR" film and thin metal films. Four illustrations, bibliography of six titles. Resumé.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

1/2 039 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--COHERENT SUPERPOSITION OF THE EMISSION FIELDS OF SINGLE FREQUENCY RUBY LASERS -U-

AUTHOR-(03)-MIKAELYAN, A.L., MINAYEV, V.P., TURKOV, YU.G.

M.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, DOKLAYD, VOL. 191, MAR. 21, 1970, P. 565-567

DATE PUBLISHED--21MAR 70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RUBY LASER, LASER EMISSION COHERENCE, LASER RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0712 STEP NO--UR/0020/70/191/000/0565/0567

CIRC ACCESSION NO--AT0121371

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

2/2 039 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0121371

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF EXPERIMENTS IN WHICH THE COHERENT SUPERPOSITION OF SINGLE FREQUENCY RADIATION FIELDS WAS PERFORMED IN TWO Q MODULATED COUPLED RUBY LASERS HAVING SIMILAR RESONATOR LENGTHS, THRESHOLD PUMPING LEVELS AND OTHER PARAMETERS. THE RADIATION COHERENCE ENHANCEMENT ACHIEVED BY THIS TECHNIQUE IS DISCUSSED.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--RECORDING A LARGE NUMBER OF IMAGES BY THE METHOD OF SUPERPOSITION OF HOLOGRAMS -U-

AUTHOR-(03)-MIKAELYAN, A.L., BOBRINEV, V.I., SOKOLOVA, L.Z.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, DOKLADY, VOL. 191, APR. 1, 1970, P 799, 800.

DATE PUBLISHED--------70

SUBJECT AREAS--METHODS AND EQUIPMENT

TOPIC TAGS--HOLOGRAM, MAGNETIC RECORDING, PHOTOSENSITIVITY, SIGNAL TO NOISE RATIO

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1799 STEP NO--UR/0020/70/191/000/0799/0800

CIRC ACCESSION NO--AT0125411

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 022

CIRC ACCESSION NO--AT0125411

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE QUALITY OF IMAGES OF SIMPLE OBJECTS DURING SUCCESSIVE RECORDING OF A LARGE NUMBER OF HOLOGRAMS ON THE SAME SEGMENT OF A PHOTOSENSITIVE SURFACE. THE MAXIMUM POSSIBILITIES OF THIS TYPE OF RECORDING ARE ESTABLISHED, TAKING INTO ACCOUNT THE EFFECT OF NOISE ARISING AS A RESULT OF THE GRAINNESS OF THE PHOTOEMULSIONS. IT IS SHOWN THAT THE SIGNAL, TO, NOISE RATIO IS INVERSELY PROPORTIONAL TO THE SQUARE OF THE NUMBER OF PHOTOGRAPHS AND INCREASES WITH AN INCREASE IN THE NUMBER OF LIGHT SENSITIVE ELEMENTS OF THE PHOTOSENSITIVE MATERIAL, I.E., WITH THE AREA OF THE HOLOGRAM. IT IS CONCLUDED THAT THE MAXIMUM RECORDING DENSITY DECREASES WITH AN INCREASE IN THE AREA OF THE HOLOGRAM.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

1/2 032 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--A NEW METHOD FOR THE GENERATION OF A GIANT PULSE IN LASERS -U-

AUTHOR-(05)-MIKAELYAN, A.L., KUPRISHOV, V.F., TURKOV, YU.G., ANDREYEV, YU.V., SHCHERBAKOVA, A.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PIS'MA V ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, VOL 11, NO 5, 5 MAR 70, PP 244-246

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GIANT PULSED LASER, RUBY LASER, REFRACTIVE INDEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1721 STEP NO--UR/0386/70/011/005/0244/0246

CIRC ACCESSION NO--AP0123528

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

2/2 032 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0123528

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DESCRIBES A NEW METHOD FOR THE GENERATION OF GIANT PULSES IN A RUBY LASER WHICH DOES NOT INVOLVE THE INTRODUCTION OF ADDITIONAL MODULATING ELEMENTS INTO THE CAVITY. THE OSCILLATOR DESIGN WAS DESCRIBED IN AN EARLIER ARTICLE BY THE AUTHORS. A RUBY CRYSTAL WITH SAPPHIRE ENDPIECES 7 MM IN DIAMETER AND 120 MM LONG (TOTAL CRYSTAL LENGTH 157 MM) WAS USED. EXCITATION WAS EFFECTED BY MEANS OF AN IFP-1200 FLASHLAMP. THE CAVITY CONSISTED OF A FULLY REFLECTING SPHERICAL MIRROR. THE GENERATION MODE OF THE LASER DEPENDS ESSENTIALLY ON THE LENGTH OF THE CAVITY. WITH LENGTH VALUES CORRESPONDING TO THE STABILITY REGION OF THE CAVITY ORDINARY FREE GENERATION TAKES PLACE, ACCOMPANIED BY SPIKES. AN INCREASE IN VALUES CORRESPONDING TO THE REGION OF CAVITY INSTABILITY CHANGES THE CHARACTER OF THE GENERATION, AND GIANT PULSE RADIATION IS OBSERVED ALONG WITH THE FREE GENERATION SPIKES. IT IS SUGGESTED THAT THE MECHANISM INVOLVED IN THE OBSERVED PHENOMENA IS DUE TO A CHANGE IN THE COURSE OF THE BEAMS IN THE CAVITY AS A RESULT OF CHANGES IN THE REFRACTIVE INDEX OF THE RUBY CROSS SECTION ACCORDING TO THE FIELD IN THE CAVITY. IT IS NOTED THAT THE PRINCIPLE OF GIANT PULSE GENERATION BEING CONSIDERED DOES NOT NOT DEPEND ON THE RADIATION WAVELENGTH AND APPARENTLY CAN BE USED FOR NEODYMIUM GLASS AND OTHER ACTIVE MEDIA WHICH GENERATE IN THE IR RANGE.

FACILITY: MOSCOW SCIENTIFIC RESEARCH INSTITUTE OF INSTRUMENT BUILDING.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DESIGN PRINCIPLES OF HOLOGRAPHIC MEMORY DEVICES -U-

AUTHOR-(04)-MIKAELIANS, A.L., BOBRINEV, V.I., NAUMOV, S.M., SOKOLOVA, L.Z.

COUNTRY OF INFO--USSR

SOURCE--IEEE J. QUANTUM ELECTRONICS USA), VOL. QE 6, NO. 4, P. 193-8 (APRIL 1970)

DATE PUBLISHED----APR70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--HOLOGRAPHY, MEMORY ELEMENT, INFORMATION STORAGE AND RETRIEVAL, HOLOGRAM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0072 STEP NO--US/0000/70/000/004/0193/0198

CIRC ACCESSION NO--AT0123844

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

2/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0123844

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO METHODS OF INFORMATION STORGAE IN A HOLOGRAPHIC MEMORY DEVICE ARE DISCUSSED: CONSECUTIVE STORAGE OF INDIVIDUAL BINARY NUMBERS ON THE SAME HOLOGRAM, AND PARALLEL STORAGE OF MASSES OF BINARY NUMBERS ON INDIVIDUAL HOLOGRAMS. OPTICAL SETUPS OF RESPECTIVE MEMORY DEVICES ARE DESCRIBED. EXPERIMENTAL RESULTS OF THE INVESTIGATION OF THESE SETUPS ARE PRESENTED. FACILITY: A.S. POPOV SOC. RADIO ENGNG. AND TELECOMMUNICATIONS, MOSCOW, USSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR

MIKAELYAN, A. L., KUPRISHOV, V. F., TURKOV, YU. G., ANDREYEV, YU. V., and SHCHERBAKOVA, A. A., Moscow Scientific Research Institute of Instrument Building

"A New Method for the Generation of a Giant Pulse in Lasers"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 11, No 5, 5 Mar 70, pp 244-246

Abstract: The article describes a new method for the generation of giant pulses in a ruby laser which does not involve the introduction of additional modulating elements into the cavity. The oscillator design was described in an earlier article by the authors. A ruby crystal with sapphire endpieces 7 mm in diameter and 120 mm long (total crystal length 157 mm) was used. Excitation was effected by means of an IFP-1200 flashlamp. The cavity consisted of a fully reflecting spherical mirror. The generation mode of the laser depends essentially on the length of the cavity. With length values corresponding to the stability region of the cavity ordinary free generation takes

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USSR

MIKAELYAN, A. L., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 11, No 5, 5 Mar 70, pp 244-246

place, accompanied by spikes. An increase in values corresponding to the region of cavity instability changes the character of the generation, and giant pulse radiation is observed along with the free-generation spikes. It is suggested that the mechanism involved in the observed phenomena is due to a change in the course of the beams in the cavity as a result of changes in the refractive index of the ruby cross section according to the field in the cavity. It is noted that the principle of giant pulse generation being considered does not depend on the radiation wavelength and apparently can be used for neodymium glass and other active media which generate in the IR range.

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USSR

UDC 548.522

GRIGAS, B. P., and MIKALKEVICHYUS, M. P.

"Growing Single Crystals From the Vapor Phase by a Dynamic Procedure"

Moscow, Neorganicheskiye Materialy, Vol 6, No 1, 1970, pp 141-142

Abstract: In view of the deficiencies in existing methods of growing single crystals of the $A_2^{V}B_3^{VI}$ type from the vapor phase, the authors investigated a dynamic procedure for growing such crystals by means of which it is possible to obtain large, uniform single crystals. The basis for this method is the creation of identical physical conditions on the crystallization front during growth of the single crystal along its entire length by maintaining constant temperatures, temperature gradient, vapor phase composition (continuous renewal of the evaporating material), and saturated vapor pressure in the ampoule on the crystallization front. Evidence is presented which demonstrates that by using the proposed procedure it is possible not only to obtain high-quality, large single crystals, but also to control their physical properties by varying the pressure of the saturated vapor of the volatile component. Single crystals of SbSI, SbSeI, and $Sb_2S_3$ were grown with several different temperatures of preliminary heating of the initial material and temperatures of the evaporator moving with respect to

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR

GRIGAS, B. P., et al, Neorganicheskiye Materialy, Vol 6, No 1, 1970, pp 141-142

the ampoule at a rate equal to the growth rate of the crystal from the vapor phase. It is pointed out that it is necessary to create conditions such that no admixtures are transferred along the evaporator. A graph is presented showing the specific resistance of $Sb_2Se_3$ single crystals as a function of the pressure of the saturated selenium vapor when growing $Sb_2Se_3$ single crystals.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR

UDC:691.327:666.972.52:666.9.015.6

TSULUKIDZE, P. P., BURCHULADZE, Sh. V., MIKASHVILI, Yu. N.

"Influence of Age of Water-Engineering Concrete on Its Strength and Deformation Properties Under Compression"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 11, Nov 73, pp 16-18

Abstract: Complex physical and chemical processes occur in the concrete used in dams as it ages, significantly changing its structure. Concrete specimens were taken from several dams in the Georgian SSR at different times following pouring and tested under compression. Cubic specimens and cores were used. Compressive strength was found to increase over the 28-day strength approximately according to the formula

$$R_t = R_{28}(0.14 + 0.59\log t),$$

where t is the age of the concrete in days. Compressibility was found to increase very slightly with increasing age, in spite of the increasing compressive strength. Modulus of elasticity increases with age, transverse deformation factor decreases. Ultrasonic wave transmission velocity increases.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

USSR

UDC 512.7

MIKAYELYAN, G. S.

"On Locally Finite Sylow Classes of Groups"

V sb. Mat. issledovaniya (Mathematical Research -- Collection of Works), Vol 6, Vyp. 3, Kishinev, "Shtiintsa," 1971, pp 85-91 (from RZh-Matematika, No 2, Feb 72, Abstract No 2A303 from author's abstract)

Translation: The article continues the study of Sylow classes of groups begun by A. G. KUROSH, A. P. DITSMAN, and A. I. UZKOV. A description is given of all Sylow classes consisting of locally finite groups. An intermediate result that is obtained is a description of Sylow classes consisting of finite groups.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202020013-9

UDC 539.67

USSR

TAVADZE, F. N., and MIKELADZE, A. G.

"Brittleness and Abnormal Internal Friction in Pure Iron"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka", 1970, pp 56-61

Abstract: Results are presented of an investigation of iron refined by non-crucible zone melting in a hydrogen atmosphere. The temperature dependence of internal friction in pure iron after annealing at more than 650°C, which differs from the curve of a sample annealed at less than 650°C, was studied in a magnetic field. An abnormal drop in damping decrement was observed at about 80°C. The abnormal internal friction is explained by a sharp decrease in the number of defects in the grain volume and appeared as the effect of directed ordering of impurity atoms in a magnetic field. 5 figures, 5 references.

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TITLE--INTERNAL FRICTION OF IRON BORON ALLOYS -U-

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTERNAL FRICTION WAS INVESTIGATED OF PURE FE, CRYST. B, AND FE-B ALLOYS AFTER VARIOUS THERMAL TREATMENTS. INTERNAL FRICTION WAS MEASURED ON WIRE SPECIMENS (0.75-0.8 MM IN DIAM. AND 100 MM LENGTH) WITH DIRECT AND INVERSE TORSION PENDULUM IN A PERMANENT MAGNETIC FIELD OF 300 OE AT TEMPS. MINUS 190-600DEGREES IN AN INERT ATM., OR AT 10 PRIME NEGATIVE4 TORR. INTERNAL FRICTION OF ANNEALED FE (300 HR AT 700DEGREES IN WET H) DEPENDS LITTLE ON TEMP. AT MINUS 190-70DEGREES. ONE PEAK AT MINUS 75DEGREES WAS OBSD. TWO WEEKS HOLDING AT ROOM TEMP. DID NOT EFFECT THE HEIGHT OF THE PEAK. THE PEAK IS REMOVED BY HEATING TO 150DEGREES. WHEN FREQUENCY IS INCREASED 1-3.5 HZ, THE PEAK SHIFTS SIMILAR TO 12DEGREES. FROM THE PEAK SHIFT THE ACTIVATION ENERGY WAS DETD. AS 6.4KCAL-MOLE. DURING INVESTIGATION OF TEMP. DEPENDENCE OF INTERNAL FRICTION OF B, A PEAK AT 260DEGREES WAS REVEALED. ACTIVATION ENERGY DETD. FROM TEMP. SHIFT WAS 20 PLUS OR MINUS 2KCAL-MOLE. IN FE SPECIMENS CONTG. 0.004-0.016PERCENT B THE PEAK OF INTERNAL FRICTION WAS AT 40DEGREES. DEPENDENCE OF INTERNAL FRICTION ON B CONTENT IN FE-B ALLOYS WITH GRAIN SIZE 70-100 AND 10-20MU IS GIVEN. TEMP. DEPENDENCE OF INTERNAL FRICTION OF A SPECIMEN CONTG. 0.2PERCENT B IS GIVEN.

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ABSTRACT/EXTRACT--ON A SPECIMEN QUENCHED FROM 720DEGREES 2 PEAKS WERE OBSD.: ONE AT 40DEGREES, AND THE OTHER AT 340DEGREES. AFTER ANNEALING AT 500DEGREES, THE LOW TEMP. PEAK DISAPPEARED, THE HEIGHT OF THE HIGH TEMP. PEAK REMAINED UNCHANGED. TEMP. DEPENDENCE OF INTERNAL FRICTION OF THE SAME SPECIMEN BUT STRAINED TO 10-15PERCENT DEFORMATION AND ANNEALED AT 500DEGREES REVEALED A PEAK AT 240DEGREES, THE PEAK AT 340DEGREES WAS INCREASED. THE ORIGIN OF 40DEGREES PEAK IS ASSOCD. WITH MIGRATION OF INTERSTITIAL B ATOMS UNDER STRAIN. B DISSOLVES IN ALPHA FE AND GIVES MAX. OF INTERNAL FRICTION AT 40DEGREES. THIS MAX. IS INCREASED WHEN B CONTENT IN FE IS INCREASED; BUT DECREASES WHEN THE BORIDES APPEAR IN THE STRUCTURE. IT SEEMS THAT BORIDES ENHANCE PPTN. OF B ATOMS FROM SOLID SOLN. THE PEAK AT 240DEGREES CAN BE EXPLAINED BY INTERACTION OF DISLOCATIONS WITH B ATOMS; THE MAX. INTERNAL FRICTION AT 340DEGREES IS RELATED TO OCCURRENCE OF BORIDES.

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