

Theoretical Automation

USSR

UDC 62.5.681.3.007

MASLOV, A. A., PROFIMOVA, R. P.

"Problem of Calculation of Linearly Approximated Functions with Even Distribution of Error on Low-Power Computer"

Tr. Mosk. Aviats. In-ta [Works of Moscow Aviation Institute], No. 194, 1970, pp 101-105 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 4, 1971, Abstract No. 4B67 by BG).

Translation: A method is presented for calculating linearly approximated functions (LAF) for exponential functions and functions described by exponential series by iteration. The method allows LAF to be produced with evenly distributed error throughout their entire intervals with the required degree of accuracy and calculated on low-power computers. The essence of the method is as follows: for an analytically fixed function $y=f(x)$ with established limiting values with respect to X and Y and number of intervals N, the initial data accepted are the equal division intervals along the X-axis. During iteration calculation, displacement of the boundaries of intervals occurs (with the exception of the limiting values of the functions) to the right (or the left) along the X-axis; the monotonic approximation to the desired values provides convergence of the iteration process. The error in the approximation is equalized by displacing the common boundary ($\Delta x_{m,i}$) of the mth and (m-1)th intervals on the iteration

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UDC 62.5.681.3.007

MASLOV, A. A., PROFIMOVA, R. P., Tr. Mosk. Aviats. In-ta, No. 194, 1970, pp 101-105.

step in accordance with the formula $\Delta x_{m,i} = \frac{\epsilon_{m,i} - \epsilon_{(m-1),i}}{\Delta k_{m,i}}$:

where $\epsilon_{m,i}$ and $\epsilon_{(m-1),i}$ are the errors in approximation in intervals m and $(m-1)$, $\Delta k_{m,i}$ is the increment in the slope of the LAF upon transition from interval $(m-1)$ to interval m . A flow chart is presented for a program for calculation of LAF intervals and described for the "NAIRI" computer. 2 figs, 1 table, 2 biblio refs.

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1/2 029 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--TECHNOLOGY AND DESIGN OF SOLID STATE DEVICES -U-

AUTHOR--MASLOV, A.A.

COUNTRY OF INFO--USSR

M

SOURCE--(TEKHOLOGIYA I KONSTRUKTSII POLUPROVDNIKOVYKH PRIBOROV) MOSCOW.
ENERGIYA. 1970. 295 PP
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--SEMICONDUCTOR DEVICE, THIN FILM SEMICONDUCTOR, SEMICONDUCTOR
JUNCTION, SEMICONDUCTOR RECTIFIER, ELECTRONIC EQUIPMENT PRODUCTION,
MONOGRAPH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1245

STEP NO--UR/0000/70/000/000/0001/0295

CIRC ACCESSION NO--AM0130246

UNCLASSIFIED

272 029

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AM0130246

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTRODUCTION 3. CHAPTER I
MATERIALS IN THE PRODUCTION OF SOLID STATE DEVICES 8. II AUXILLIARY
TECHNOLOGICAL OPERATIONS 42. III MECHANICAL TREATMENT OF
SEMICONDUCTORS 59. IV FILMS IN THE PRODUCTION OF SOLID STATE DEVICES
77. V THE TECHNOLOGY OF OBTAINING RECTIFYING JUNCTIONS 117. VI
SURFACE STATES AND METHODS OF TREATING THE SURFACES OF SEMICONDUCTORS
195. VII THE DESIGN OF BODIES OF SOLID STATE DEVICES 237. VIII
ASSEMBLY OPERATIONS IN THE PRODUCTION OF SOLID STATE DEVICES 257. IX
THE RELIABILITY OF SOLID STATE DEVICES 273. LITERATURE 292. THE BOOK
CONTAINS INFORMATION ON THE TECHNOLOGY OF PRODUCTION OF SOLID STATE
DEVICES. EXAMINED ARE MATERIALS, THEIR INFLUENCE ON THE CHARACTERISTICS
OF THE DEVICES AND ALSO METHODS OF THEIR MECHANICAL AND CHEMICAL
TREATMENT. THE BOOK IS FOR ENGINEERS AND STUDENTS OF THIS SPECIALTY AT
HIGHER SCHOOLS.

UNCLASSIFIED

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UDC 681.335.813

USSR

SAKHAROV, O. N., MASLOV, A. A., KALMYKOV, I. V.

"A Device for Generating Functions of Two Variables"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsey, Tovarnyye Znaki, No 12, 1970, Author's Certificate No 267 196, filed 3 Jan 69, p 121

Abstract: This Author's Certificate introduces a device for generating functions of two variables. The unit contains linear elements, a summing amplifier, and diode functional converters with reference voltages which vary according to predetermined laws. As a distinguishing feature of the patent, precision is improved and the device is simplified by connecting a source of voltage proportional to the first variable to the main inputs of those functional converters in which the source of voltage proportional to the second variable is connected to the reference voltage inputs through linear elements. A source of voltage proportional to the second variable is also connected to the main inputs of the other functional converters, whose reference voltage inputs are connected through linear elements to the signal source which is proportional to the first variable. The outputs of all functional converters are connected to the input of the summing amplifier. 1/1

USSR

UDC 621.382

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MASLOV, A.A.

"Production Processes And Construction Of Semiconductor Devices"

Tekhnologiya i konstruktii poluprovodnikovyykh priborov (of English above), Moscow, "Energiya," 1970, 296 pp, ill, 1 r 19 k (from REN--Elektronika i nye primeneniya, No 6, June 1970, abstract No 68391)

Translation: The book considers materials which are used in the production of semiconductor devices, their effect on the characteristics of the devices, and also mechanical and chemical methods for processing them. The technology is described of the preparation of both rectifying and ohmic contacts to semiconductors. A special chapter is devoted to the construction of semiconductor devices and methods for their assembly. In conclusion the question is considered of the reliability of semiconductor diodes and transistors and the planned means for its increase. The book is intended for engineers and students of advanced courses of higher educational institutes for corresponding specialities.

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USSR

UDC 532.501.34:532.517.2

GAPONOV, S. A., MASLOV, A. A., Novosibirsk

"Numerical and Asymptotic Methods of Solving the Problem of Complete Stabilization of the Boundary Layer"

Moscow, Zhurnal Prikladnoy mekhaniki i tekhnicheskoy fiziki, No 3, 1972, pp 60-64

Abstract: The numerical method proposed by S. A. Gaponov, et al. ["Numerical Solution of the Problem of Complete Stabilization of a Supersonic Boundary Layer," Zhurnal Prikladnoy mekhaniki i tekhnicheskoy fiziki, No 2, 1972] is used to calculate the complete stabilization temperatures of a supersonic boundary layer on a flat plate with the temperature boundary conditions $\theta(0) = 0$ where θ is the amplitude of the temperature disturbance. The results obtained indicate the erroneousness of the conclusion of the paper by E. Reshotko ["Transition Reversal and Tollmien-Schlichting Instability," Phys. Fluids, No 3, Vol 6, 1963] regarding the existence of two complete stabilization domains. The asymptotic method used by Reshotko is analyzed, and it is demonstrated that the two total stabilization domains appear as a result of the fact that the equations used to construct the viscous solutions are inapplicable for low surface temperatures. The analysis results are confirmed by direct numerical integrations.

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1/2 032 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--MODERNIZATION OF THE CONTINUOUS ACTION PNEUMATIC GRAVIMETRIC
MEASURING DEVICE DN-20-3A -U-
AUTHOR--(03)-PISKAREV, YU.A., PLIS, G.A., MASLOV, A.D.
COUNTRY OF INFO--USSR
SOURCE--KHIM. VOLOKNA 1970, (3), 71-2
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--GRAVIMETER, FLOW RATE, ELECTROMAGNETISM, ELECTRIC VIBRATOR,
POLYVINYL CHLORIDE, ACRYLONITRILE, ACRYLIC COPOLYMER/(U)DN203A
GRAVIMETER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3009/0111 STEP NO--UR/0183/70/000/003/0071/0072
CIRC ACCESSION NO--AP0138976

UNCLASSIFIED

2/2 032
CIRC ACCESSION NO--AP0138976
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

USE OF A CONST. FREQUENCY (50 HZ) VIBRATING FEEDER, WHOSE OUTPUT CAN BE CONTROLLED BY CHANING THE AMPLITUDE OF VIBRATIONS PRODUCED BY AN ELECTROMAGNETIC VIBRATOR. THE MODIFICATION GIVES A MORE LINEAR RELATION BETWEEN THE FLOW RATES OF POLYMER (SUCH AS POLY(VINYL CHLORIDE) OR ACRYLONITRILE COPOLYMERS) AND AIR.

UNCLASSIFIED

USSR

UDC 533.916

BREDIKHIN, M. Yu., IL'CHENKO, A. M., MASLOV, A. I., SKIBENKO, A. I.,
SKIBENKO, Ye. I., YUFEROV, V. B.

"Study of a Dense Plasma Formed by an Electron Beam in a Magnetic Trap"

Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb.
(Plasma Physics and Problems of the Controlled Thermonuclear Fusion.
Republic Interdepartmental Collection), 1972, No. 3, pp 147-161 (from
RZh-Fizika, No 11, Nov 72, Abstract No 11G237)

Translation: An experimental study of the possibility of the formation of a dense plasma in the interaction of a high-energy electron beam with a neutral gas in a magnetic field of helical configuration is described. The introduction of a neutral gas into the interaction region in the form of a supersonic jet made it possible to produce the necessary pressure drop without applying special differential pumping systems. Conditions for the exponential rise in plasma density as a function of the parameters of the beam-plasma discharge were determined. It was concluded on the basis of the experiments that it is possible to form a plasma with a density of $5-7 \cdot 10^{14} \text{ cm}^{-3}$ with a supersonic jet of neutral gas.

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USSR

UDC 533.9.03,621.039.616

BREDIKHIN, M. Yu., IL'CHENKO, A. M., MASLOV, A. I., SKIBENKO, A. I., SKIBENKO, Ye. I., and YUFEROV, V. B.

"Investigating Conditions for the Formation of a Dense Plasma in Electron Beam Injection Into a Magnetic Trap"

Moscow, Atomnaya energiya, Vol 29, No 4, Oct 70, pp 276-282

Abstract: The continuation of an earlier article by the same authors (Ukrainian Physical Journal, 14, 1969, p 1167), this paper describes experimental work they performed to study the conditions of plasma formation with a density of 10^{14} - 10^{15} cm⁻³ in a corkscrew-shaped magnetic trap into which an electron beam interacting with a neutral gas was injected. The experiments were performed with the VGL-2 equipment, in which the magnetic field is generated by two solenoids cooled with liquid nitrogen. Maximum magnetic field intensity is 21 kilogauss. A diagram of the VGL-2 together with details of the equipment's operation and the experimental method is given. Oscillograms showing the development of the beam-plasma discharge are reproduced, and curves of the growth time of plasma density as a function of electron beam current and the time rate of change of plasma density in the ionization of a neutral gas are plotted.

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Measuring, Testing, Calibrating

USSR

UFC 621.391.832.4

ROSTOVTSSEV, Yu. G., MASLOV, A. Ya., DOLGALEV, S. D., ZHIGORA, P. P.

"A Device for Measuring Edge Distortions of Pulses"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 2, Jan 73, Author's Certificate No 362501, Division H, filed 5 Apr 71, published 13 Dec 72, p 142

Translation: This Author's Certificate introduces: 1. A device for measuring edge distortions of pulses in telegraph communications channels. At the input of the installation is an advancing pulse generator with decoder. One output of the decoder is connected through a switch to a display, and the output of the display is connected to the generator and to the decoder. As a distinguishing feature of the patent, measurements can be made without interrupting communications. For this purpose the input of the device is connected to a second input of the switch through an additional switch with delay in series with a pulse duration measurement device. The second output of the decoder is connected to a second input of the additional switch with delay. 2. A modification of this device distinguished by the fact that the outputs of all six digital places

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USSR

ROSTOVSKIY, Yu. G. et al., USSR Author's Certificate No 362501

of the shift register in the decoder are connected to a single AND circuit. Connection of the second digital place is through a NOT circuit, and the first four outputs are additionally connected to a second AND circuit, the outputs of the AND circuits being the outputs of the decoder.

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USSR

UDC 533.697.4:532.55

KAMZOLOV, V. N., ~~MASLOV, B. N.~~, PIRUMOV, U. G., Moscow

"Study of the Trajectories of Particles in Lavale Nozzles"

Mekhanika Zhidkosti i Gaza, No 5, 1971, pp 136-143.

Abstract: A method is presented for calculating the trajectories and parameters of liquid or solid particles during flow of two phase streams through Lavale nozzles, allowing the number of particles precipitating onto the wall of the nozzle to be determined and the momentum loss phenomena related to this to be evaluated. A method is suggested allowing the known gas parameters to be used to produce an approximate determination of the trajectories and parameters of particles in the sub- and supersonic portions of the nozzles and to determine the number of particles striking the nozzle wall, to determine approximately the density, velocity and temperature of particles, to establish certain qualitative specifics of flow, in particular, the formation near the nozzle walls of closed and open zones in which particles of a given size are absent. One defect of the method is that when calculating the movement of particles, changes in gas parameters caused by delay of particles are not considered.

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USSR

UDC 681.325.66(088.8)(47):621.3.072.8

LOBACHEV, V. M., MASLOV, B. V., MOTENKO, N. I., and SHAGULIN, V. I.

"A Shaper for Control of Pulse-Potential Cascades"

USSR Author's Certificate No 285970, Filed 7 Apr 69, Published 12 Jan 71
(from Referativnyy Zhurnal -- Avtomatika, Telemekhanika, i Vychislitel'naya
Tekhnika, No 8, 1971, Abstract No 8B182 P)

Translation: A shaper which controls pulse-potential cascades is being patented. It contains an emitter-repeater, the transistor of which is shunted by a diode. In order to decrease power consumption and to accelerate the process of discharging the capacitors of the control circuits, the diode indicated above is switched on in a direction opposite the shunted transition of the base-emitter of the transistor of the repeater. The latter, made from electrodes galvanically decoupled from the common line of the power supply, is charged simultaneously at all control resistors of the indicated pulse-potential cascades, each of which is connected with the corresponding output terminals via its own capacitor and an additional diode.

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USSR

UDC 621.373.52

DANIL'CHENKO, V. P., MASLOV, D. V., SHAKHMEYSTER, L. Ye.

"A Very-Low-Frequency Square Pulse Generator"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 36, Soviet Patent No 288035, class 21, filed 26 Oct 68, published 3 Dec 70, p 54

Translation: This Author's Certificate introduces a very-low-frequency square pulse generator based on Soviet Patent No 268485. As a distinguishing feature of the patent, the range of frequencies generated is extended, and provision is made for using asymmetric electrochemical converters by making the time-mark circuit on the basis of two electrochemical converters connected in series-opposition. The patent also covers a modification of this device distinguished by the fact that provision is made for remote control of the generation period with memorization of the external action. The control device is made in some such form as a controlling selector switch connected to one or two electrochemical converters respectively.

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USSR

M UDC: 621.373.52

GOLUBEVA, V. A., DANIL'CHENKO, V. P., MASLOV, D. V., SHAKHMEYSTER, L. Ye.

"A Very Low Frequency Square Pulse Generator"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 14, 1970, Author's Certificate No 268485, filed 25 Mar 68, p 37

Abstract: This author's certificate introduces a very low frequency square pulse generator which consists of a flip-flop with current-delaying circuits and an electrochemical cell connected in the load diagonal, and two threshold amplifiers. As a distinguishing feature of the patent, the operating reliability of the generator is improved and the range of controllable frequencies is extended by connecting thyristors in the collector circuits of the flip-flop transistors through transformer windings connected in opposition. One of these thyristors is shunted by an element which makes the circuit asymmetric.

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AA0044787 - Maslov, D.V.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

1/70

243008 INFRA-LOW FREQUENCY PULSE GENERATOR for shaping rectangular pulses, containing a trigger, an electro-chemical element, two current stabilisers and two threshold amplifiers (transistors). To simplify the circuitry and reduce the number of components required, the following method of connection is adopted:

The base of each of the two transistors forming the trigger is connected to the collector of the other transistor in the trigger via the collector-base junction of the amplifier transistor, the collector-emitter junction of the current stabiliser transistor and the resistor of the current stabiliser, these last three being in series. Parallel to the emitter-base junction of

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19771603

AA0044787

one threshold amplifier transistor are connected the base emitter junction of the other threshold amplifier transistor and the electro-chemical element. The bases of the current stabiliser transistors are inter-connected via a ballast resistor while their collectors are inter-connected by the electro-chemical element.

18.3.68 as 1227250/18-24.V.A.GOLUBEVA et alia.
(24.9.69.) Bul 16/5.5.69. Class 21c, 46/50, 21a¹,
36/02. Int.Cl.G 05F, H 03k.

AUTHORS:

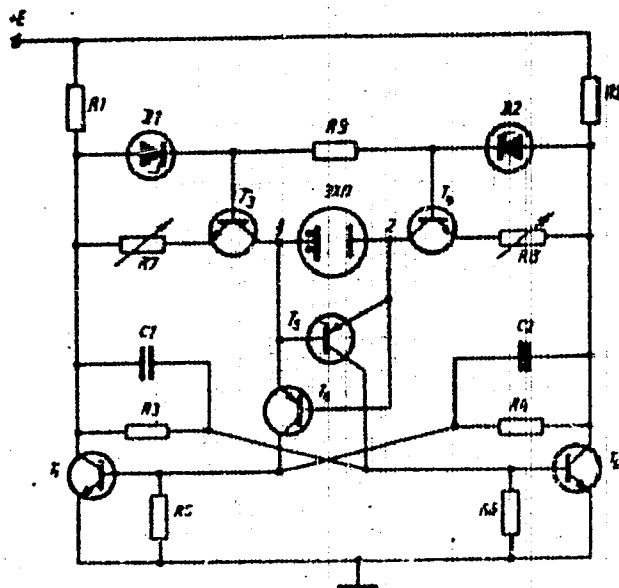
243008

Golubeva, V. A.; Danil'chenko, V. P.; Maslov, D.V.;
Shakhmeyster, L. Ye.

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19771604

AA0044787



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UDC: 621.374.4

FEDOROV, V. A., FURMAN, N. P., MASLOV, E. B.

"A Key Frequency Divider With High Division Coefficient"

V sb. Obmen opytom v radioprom-sti (Experience Pooling in the Radio Industry-- collection of works), Vyp. 2, Moscow, 1970, pp 57-58 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7G311)

Translation: A description is given of a key frequency divider based on two transistors connected in an LC-oscillator circuit with a key at the input to which oscillations are sent through an RC phase-shifting network from the output tank. The distinguishing feature of the divider is that it uses an active key in addition to capacitive feedback. The use of capacitive feedback simplifies the divider, while the active key in combination with an rf choke in the emitter circuit increases the division coefficient by an order of magnitude. Bibliography of four titles. Resumé.

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USSR

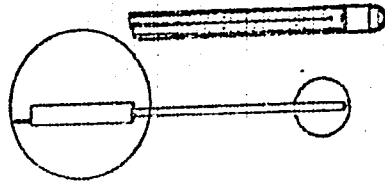
UDC: 615.473.9:615.832.9

SHAL'NIKOV, A. I., ZYUKIN, N. A., GDOVSKIY, V. A., LUR'YE, Yu. Yu., ~~MASLOV,~~
F. M., FREYDOVICH, A. I., Institute of Physical Problems imeni S. I. Vavilov

"A Device for Directional Freezing of Tissues"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obrazttsy, Tovarnyye Znaki,
No 12, Apr 72, Author's Certificate No 333951, Division A, filed 11 Nov 70,
published 30 Mar 72, p 19

Translation: This Author's Certificate introduces a device for directional freezing of tissues which contains a vacuum-insulated vessel holding two parallel tubes for delivery and removal of a cooling agent. The device also contains a heat-insulation liner, a charcoal getter and a tip. As a distinguishing feature of the patent, in order to freeze tissues arranged eccentrically relative to the longitudinal axis of the device, a wire helix with high heat conductivity is placed in fixed contact with the tip.



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USSR

M UDC 061:621.791.037

MASLOV, G. A.

"All-Union Scientific-Technical Seminar on the Quality of Electrowelding Equipment Being Produced"

Moscow, Svarochnoye Proizvodstvo, No 4, Apr 70, p 59

Abstract: The seminar was held in Zaporozh'ye, 16-18 September 1969, with about 150 participants from various scientific institutions.

Some formal and generalized criticisms of the electrowelding equipment industry were made. There were discussions of newly developed contact-welding machines, devices for automatic welding, various general-purpose machines for the welding of nonferrous metals, remote-control welding transformers, research on mechanized arc and electroslag welding, and semi-automatic equipment for carbon-dioxide welding.

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AA0051848

UR 0482

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

239597 INDUCTIVE LEVEL METER where a float can move freely along the inductive coils indicating its position corresponding to the measured level. The float has been improved, it has two flanges which make it possible to obtain a parallel reading from two independent coils.

12.12.66 as 1119046/26-10. A.S. ABRAMOV et al.
(28.7.69) Bul 11/18.3.69. Class 42e. Int.Cl.G 01f.

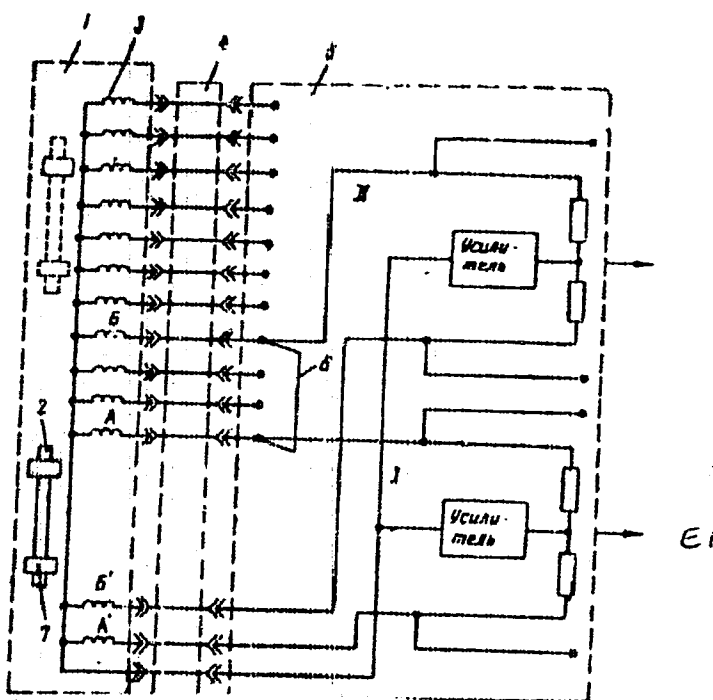
AUTHORS: Abramov, A. S.; Zotov, S. V.; Maslov, G. S.; Vargin, B.A.;
Shorin, N. I.; Korniyushin, P. M.; Mirskoy, B. I.; Chistyakov, N. N.;
Mosyakov, V. A.; Kozlovskiy, G. V.; Chichigin, I. B.; Batov, V. A.;
Golovachev, V. T.; Lyakhterov, M. N.; Kobelev, Yu. M.

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USSR

UDC: 539.385

TERENT'YEV, V.F., ROSHCHIN, V.V. and MASLOV, I.I., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR

"Cyclic Strength of Dissimilar Weld Joints of Low-Carbon Steel With 18-8-Type Stainless Steel"

Moscow, Sb. "Ustalost' metallov i splavov". "Nauka" Press, 1971, pp 73-80

Translation: This study concerns the cyclic strength of specimens from weld joints of dissimilar metals involving 20 and Kh18N1VT steels. The tests were conducted by alternating pure bending at room temperature. The specimens were prepared by non-consumable electrode welding using two variants: 1) surfacing sv-10Kh16N25M6 filler wire on 20 steel; 2) surfacing Kh1810NT steel and filling in the basic groove with sv-08G2S welding wire. The cyclic strength of the weld joints of dissimilar steels made with austenitic filler wire under 10^8 loading cycles was 18-19 kg/mm² which is 20% lower than the fatigue limit of the weakest component of the weld joint -- the 20 steel. The cyclic strength of a joint made with austenitic filler wire as welded is determined by the strength of the fusion area. (4 illustrations, 6 biblio. references; summary)

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USSR

UDC 621.785.53

TERENT'YEV, V. F., STEPANOV, V. N. and MASLOV, L. I., Institute of Metallurgy
imeni A. A. Baykov

"Weld Joint Strength of Steels 20 and Kh18N10T at 20-500 C"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, No 6, Nov-Dec 71, pp 11-15

Abstract: Purpose of this work was to study the static and cyclic strength of weld joints of steels 20 and Kh18N10T from 20 to 500°C. Samples were cut from the ends of tubes and argon-arc welded according to three variants: 1) surfacing on steel 20 with welding wire EP-267--first three layers; remaining layers -- welding wire Sv-04Kh19N11M3; 2) surfacing on steel 20 with welding wire Sv-10Kh16N25Mo (EI-395)--first three layers, remaining layers same as variant 1; 3) surfacing on steel Kh18N10T and filling the seam with welding wire Sv-02G2S. Tensile tests showed that, with temperature change, the location and type of failure of dissimilar steel welded joints changes and is associated with the phenomenon of strain aging of pearlitic low-carbon steel. Fatigue tests of the welded joints between 20° and 500° C showed that strain-hardening of the low-carbon steel also tends to shift the failure

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TERENT'YEV, V. F., et al, Fiziko-Khimicheskaya Mekhanika Materialov, No 6,
Nov-Dec 71, pp 11-15

point to the austenitic steel at the blue brittleness temperature. The re-
inforcing structural heterogeneity of the austenitic and pearlitic at the
melting interface at 500°C does not lower fatigue strength of a welded joint
of steel 20 + Kh18N10T. 2 figures, 1 table, 6 bibliographical references.

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1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70
 TITLE--A COMPOSITION FOR PROVIDING A FOUNDATION FOR ELECTROVACUUM ARTICLES
 -U-
 AUTHOR--(04)-MASLOV, N.I., PETROV, G.N., RAPPOPORT, L.YA., KOGAN, F.S.
 COUNTRY OF INFO--USSR *M*
 SOURCE--USSR 264,960
 REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
 DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTROVACUUM, PATENT, ADHESION, BUTADIENE, ISOPRENE, ORGANIC ISOCYANATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--3002/1456

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

CIRC ACCESSION NO--AA0128855

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 014

CIRC ACCESSION NO--AA0128855

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

ABSTRACT. A COMPN. FOR INCREASING THE ADHERENCE OF ELECTROVACUUM ARTICLES, E. G., ELEC. LAMPS, TO THEIR FOUNDATION IN CONDITIONS OF INCREASED MOISTURE HAS THE FOLLOWING RELATION OF COMPONENTS (IN WT. PARTS). DIVINYL POLYMER WITH ISOPRENE 10-11, TOLYLENE DIISUCYANATE 1-1.1, EPICHLORHYDRIN 0.29-0.31, DIMETHYLBENZYLAMINE 0.21-0.23, AND POWD. MARBLE 28-36.

UNCLASSIFIED

USSR

UDC: 532.596+551.46.06.8

MASLOV, N. K.

"Principle of Invariant Control of the Motion of a Hydrofoil Boat"

Tr. 3-go Vses. soveshchaniya po teorii invariantnosti i yeye primeneniyu v sistemakh avtomat. upr. T. 2. Primeneniye invariantn. sistem avtomat. upr. (Works of the Third All-Union Conference on the Theory of Invariance and its Application to Automatic Control Systems. Vol. 2. Use of Invariant Automatic Control Systems), Moscow, "Nauka", 1970, pp 218-220 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B568)

Translation: This paper considers application of the methods of the theory of invariance to solution of the problem of automatic control of a hydrofoil boat in the case of random perturbing effects. The statistical characteristics of wave perturbations are utilized, and use is made of the principle of statistical invariance based on V. S. Kulebakin's theory of $K(D)$ -images. Bibliography of five titles. Author's abstract.

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1/2 032 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--THERMODYNAMICS OF IODIDES OF GERMANIUM HYDRIDE -U-
AUTHOR--(03)--ROMASHKO, B.V., ANTONOV, A.A., MASLOV, P.G.
COUNTRY OF INFO--USSR M
SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 828-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--THERMODYNAMICS, IODIDE, GERMANIUM COMPOUND, HYDRIDE,
THERMODYNAMIC PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1993/G291 STEP NO--UR/0076/70/044/003/0828/0829
CIRC ACCESSION NO--AP0113221
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113221
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THERMODYNAMIC PROPERTIES OF MANY
ISOTOPES OF GE HYDRIDE OF TYPE GEX SUB4, GEX SUB3 Y, GEX SUB2 Y SUB2,
GEX SUB2 Y, GEXYZ (X, Y, Z EQUAL H, D, T, I) AS FUNCTION OF ABS. TEMP.
AND PRESSURE CAN BE CALCD. FROM FORMULAS DERIVED BY THE METHOD REPORTED
EARLIER (CA 64: 16715F; 66: 10467G). FORMULAS ARE GIVEN. THEY ARE
VALID AT 250-1500DEGREEK (250-1000DEGREEK FOR C SUBPDEGREES) AT ANY
PRESSURE, WITH AN ACCURACY OF 0.1-1.0PERCENT (0.2-2.0PERCENT FOR C
SUBPDEGREES). IN ORDER TO USE THESE FORMULAS, IT IS NECESSARY TO KNOW
THE MOL. WT., LENGTH OF BONDS AND ANGLES BETWEEN THEM, AND SYMMETRY
VALUES FOR EACH MOL. NUMERICAL DATA FOR COEFFS. USED IN THESE FORMULAS
ARE GIVEN. FACILITY: LENINGRAD PEDAGOG. INST. IM. GERTSENA,
LENINGRAD, USSR.

UNCLASSIFIED

I/2 023 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--THERMODYNAMICS OF GASEOUS OXYGEN CONTAINING COMPOUNDS -U-
AUTHOR-(04)-BORISOV, M.I., KULAGIN, V.I., ANTONOV, A.A., MASLOV, P.G.
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 826-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--THERMODYNAMICS, OXYGEN COMPOUNDS, THERMODYNAMIC PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0295 STEP NO--UR/0076/70/044/003/0826/0827
CIRC ACCESSION NO--AP0113225
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113225

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORMULAS ARE DERIVED FOR THE 1ST TIME WHICH CAN BE USED FOR THE CALC. OF THERMODYNAMIC PROPERTIES OF 10 GASEOUS COMPS.: HUX (X EQUAL D, T, AL, F), DOX (X EQUAL T, AL, F), TOX (X EQUAL AL, F), AND ALOF AS FUNCTION OF TEMP. AND PRESSURE. THEY ARE VALID AT 250-6000DEGREEK AND AT ANY PRESSURE AT WHICH A GIVEN GAS CAN BE CONSIDERED AS BEING IDEAL. THE ACCURACY IS 0.1-0.8PERCENT, AND 0.1-1.5PERCENT FOR C SUBPDEGREES. ALL VALUES ARE EXPRESSED IN CAL-MOLE-DEGREE. VALUES OF COEFFS. PRESENT IN THESE FORMULAS ARE TABULATED. FACILITY: LENINGRAD. GOS. PEDAGOG. INST. IM. GERTSENA, LENINGRAD, USSR.

UNCLASSIFIED

172 026 UNCLASSIFIED PROCESSING DATE--09OCT70
 TITLE--THERMODYNAMICS OF GASEOUS MIXED DEUTERIUM AND TRITIUM DERIVATIVES
 OF GERMANIUM HYDRIDE -U-
 AUTHOR--(03)-ROMASHKO, B.V., ANTONOV, A.A., MASLOV, P.G.
 COUNTRY OF INFO--USSR
 SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 827-8
 DATE PUBLISHED-----70
 SUBJECT AREAS--CHEMISTRY, PHYSICS
 TOPIC TAGS--THERMODYNAMICS, DEUTERIUM, TRITIUM, GERMANIUM COMPOUND,
 HYDRIDE
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1993/0294
 CIRC ACCESSION NO--AP0113224
 STEP NO--UR/0076/70/044/003/0827/0828
 UNCLASSIFIED

M

2/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70
CIRC ACCESSION NO--AP0113224
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CALCN. METHOD REPORTED EARLIER
ICA 64 IS TO 16715F; 66 IS TO 10467X; 67 IS TO 57427G) WAS EMPLOYED FOR
THE CALCN. AND TABULATION OF THERMODYNAMIC PROPERTIES OF ALL POSSIBLE D
AND T DERIVS. OF GE HYDRIDES AS FUNCTION OF TEMP. AND PRESSURE.
FORMULAS DERIVED ARE VALID AT 250-1500DEGREESK AT ANY PRESSURES, AND
ARE ACCURATE WITHIN 0.1-1.0PERCENT, AND 0.1-2PERCENT FOR C SUBP. THESE
FORMULAS CAN BE USED WITHOUT KNOWING EITHER THE VIBRATIONAL, OR
ELECTRON AND ROTATIONAL CHARACTERISTICS. FACILITY: LENINGRAD.
GOS. PEDAGOG. INST. IM. GERTSENA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--020CT70
TITLE--THERMODYNAMIC FUNCTIONS OF SIX SUB2 YZ TYPE HALOSILANES -U-
AUTHOR--(05)-MASLOV, P.G., USVYATTSEVA, T.E., BOYKO, V.G., KARETNIKOVA,
N.I., YENGALYCHEV, YU.S.
COUNTRY OF INFO--USSR M
SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 825
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--THERMODYNAMIC FUNCTION, SILANE, SILICON COMPOUND, GAS STATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/0270 STEP NO--UR/0076/70/044/003/0825/0825
CIRC ACCESSION NO--AP0113206
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--0200170

CIRC ACCESSION NO--AP0113206

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORMULAS ARE DERIVED FOR THE
CALCN. OF THERMODYNAMIC PROPERTIES OF 12 GASEOUS HALOSILANES SIX SUB2
YZ (X, Y, Z EQUAL F, Cl, BR, I) AS FUNCTION OF TEMP. AND PRESSURE. THEY
WERE OBTAINED BY THE METHOD REPORTED EARLIER (CA 64: 16715F). FORMULAS
ARE VALID FOR C SUBRHODEGREES AND ENTHALPY (H TAUDEGREES MINUS H
SUBODEGREES) AT 250-1000DEGREEK (ACCURACY 0.2-3PERCENT); AS WELL AS FOR
ENTROPY AT 250-1500-2000DEGREEK (ACCURACY 0.2-1.5DEGREES). VALUES OF
COEFFS. IN THESE FORMULAS, ARE GIVEN. FACILITY: Leningrad, Gos.
PEDAGOG. INST. IM. GERTSENA, Leningrad, USSR.

UNCLASSIFIED

USSR

UDC 612.822.3.08

RAYEVA, S. N., MASLOV, P. I., and KOKAREV, A. A., Department of Memory Study, Institute of Biophysics, Academy of Sciences USSR, Pushchino on Cka, and the Institute of Neurochemistry, USSR Academy of Medical Sciences imeni Academician N. N. Burdenko, Moscow

"A Device for Following the Activity of Individual Neurons in the Deep Structures of the Human Brain"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 59, No 11, Nov 73, pp 1,761-1,763

Abstract: A micrometric micromanipulator has been constructed for use in human stereotaxic surgery for recording the electrical activity of individual subcortical neurons or their populations, depending on the electrode employed. A tungsten electrode 0.3 mm in diameter, tapered to 1-2 microns, and insulated with laquer was made for individual neuron recording. In essence, the instrument consisted of a cannula with a micrometer for introducing the electrodes. In addition to recording potentials, the same instrument may be used for stimulation. The instrument described has been used with success in 45 operations.
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USSR

UDC 621.375.9:535

BYKOVSKIY, Yu. A., VELICHANSKIY, V. L., GONCHAROV, I. G., MASLOV, V. A.,
NIKITIN, V. V.

"Pulsed Semiconductor Laser Used as a High-Resolution Spectroscope"

Leningrad, Optika i Spektroskopiya, No. 3, Mar 71, pp 508-510

Abstract: A method is proposed for graduating a pulsed laser-spectroscope in the optical range with the aid of a Fabry-Perot interferometer. It is pointed out that a unique combination of properties of semiconductor lasers make them promising for high-resolution spectroscopy. The radiation of semiconductor lasers covers a wide spectral range due to a large selection of materials, and any semiconductor laser evenly retunes its frequency with a change in temperature or pressure within the limits permissible for lasers of other types. Also, the line width of a semiconductor laser is sufficiently small; for example, the ratio $\Delta\nu/\nu = 10^{-9}$, where $\Delta\nu$ is the line width and ν is the basic frequency, for injection lasers of GaAs and $Pb_{0.88}Sn_{0.12}Te$. In this work a pulsed GaAs scanning semiconductor laser was used to observe absorption at the resonance absorption line in cesium-133. The nature in the change of the length of the genera-

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USSR

BYKOVSKIY, Yu. A., et al, Optika i spektroskopiya, No. 3, Mar 71, pp 508-510

tion wave of the laser with time was investigated in order to graduate the spectroscope and be able to measure the frequency interval between absorption lines and the width of these lines. A block diagram of the calibration device is shown. The radiation of the laser diode forms into a parallel beam into which the Fabry-Perot interferometer is placed with a resolution of $5 \cdot 10^5$. The distance between absorption lines and their width are functions of the position of the lines on an oscillogram relative to the beginning of the pulse, and this is related to the nonlinear dependence of the wavelength of the laser radiation on time. The reason for this is that generation modes of the laser are determined by the optical length of its resonator. The pulsed excitation mode leads to a nonlinear variation of the increase in temperature of the active region of the injection laser with time. This produces a change in the refractive index of the active medium which basically determines the change in the generation wavelength. The distance between absorption lines was 9.2 ± 0.1 GHz, corresponding to a value obtained by radiospectroscopy methods.

USSR

UDC: 621.373:535(206.1)

BYKOVSKIY, Yu. A., VELICHANSKIY, V. L., ~~MASLOV, V. A.~~, and SMIRNOV, V. L.

"A Method for Increasing the Coherence of Pulsed, Semiconductor Laser Radiation"

Leningrad, Optika i Spektroskopiya, vol 32, No 3, 1972, pp 621-623

Abstract: This brief communication investigates the possibility of compensating the increase in wavelength of a pulsed laser due to heating of the active region through the pressure created by a barium zirconate piezoceramic element. For short pulses, the temperature increase and the laser wavelength increase are proportional to the square root of the time. But with application of pressure to the injection laser, the radiation spectrum shifts toward the short wavelengths. Consequently, the applied pressure can compensate the temperature change of the laser radiation wavelength during a pulse of the injection current, thus resulting in an improved time coherence of the laser. The design of a diode containing the piezoceramic element is shown. Experiments performed by the authors are described. They acknowledge their gratitude to Yu. P. Zakharov for the specimens and to V. V. Nikitin for his useful comments.

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1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--Q FACTOR MODULATOR OF A LASER RESONATOR BASED ON A FABRY PEROT
INTERFEROMETER WITH ALTERNATING ABSORPTION (MODULIATOR DOBROTNOSTI
AUTHOR--(03)-GONCHAROV, I.G., MASLOV, V.A., BYKOVSKIY, YU.A. *M*
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL PRIKLADNOI SPEKTROSKOPII, VOL. 12, JAN 1970, PP 136-138
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--HELIUM NEON LASER, FABRY PEROT INTERFEROMETER, Q FACTOR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY PEEL/FRAME--1979/1610 STEP NO--UR/0368/70/012/000/0136/0138
CIRC ACCESSION NO--AP0047932
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--19SEP70

CIRC ACCESSION NO--AP0047932

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF EXPERIMENTS IN WHICH THE Q FACTOR OF A HELIUM NEON LASER WAS MODULATED AT A WAVELENGTH OF 3.39 MU M AS THE RESULT OF POWER ABSORPTION BY NONEQUILIBRIUM FREE CURRENT CARRIERS IN ITS RESONATOR. A PLANE PARALLEL GERMANIUM PLATE WAS USED AS ONE OF THE RESONATOR MIRRORS AND A FABRY PEROT INTERFEROMETER POSITIONED AT THE FOCUS OF A QUARTZ LENS AS THE OTHER.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--COMPARISON OF WELDING VARIANTS FOR STEEL KH18N10T USED IN WEAK
SULFURIC ACID SOLUTIONS -U-
AUTHOR--BRISKMAN, A.N., MASLOV, V.A. *M*
COUNTRY OF INFO--USSR
SOURCE--SVAR. PROIZVOD. 1970, (2), 25-7
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--WELDING ELECTRODE, CORROSION RESISTANT STEEL, ACID CORROSION,
STEEL WELDING, NICKEL STEEL, TITANIUM STEEL/(U)KH1810T STEEL, (U)1404
ELECTRODE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/1379 STEP NO--UR/0135/70/000/002/0025/0027
CIRC ACCESSION NO--AP0107852
LLLLLLLLLLLL UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70
CIRC ACCESSION NO--AP0107852
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRODES L40M AND WIRE
SV-05KH19E3S2 ARE RECOMMENDED FOR WELDING STEEL KH18N10T, USED IN WEAK H
SUR2 SO SUB4 SOLNS.

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UNCLASSIFIED

Lasers and Masers

UDC: 621.315.592

USSR

BYKOVSKIY, Yu.A., VELICHANSKIY, V.L., GONCHAROV, I.G., and MASLOV, V.A.

"Using the Fabry-Pérot Resonator for Stabilizing Injection Laser Frequency"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 6, 1970, pp 685-689

Abstract: This paper is the continuation of an earlier one written by the same four authors (ZhETF, 57, 1109, 1969) in which they gave preliminary results in stabilizing semiconductor laser frequencies by an external resonator. The present article gives the detailed results of investigating the spectral characteristics and the frequency stabilization of injector lasers through the Fabry-Pérot interferometer. The lasers under test were operated in the continuous regime, and their spectral characteristics were studied as a function of the injection current, which determines the active region temperature under steady-state conditions. The laser radiation spectrum was first investigated on a DFS-12 spectrograph with a resolution of about 1 Å to select specimens were GaAs with a length and width of 50 to 200 microns, prepared by the liquid epitaxy method. To guarantee continuous operation, the lasers were placed in a cryostat in a nitrogen atmosphere, with the p and n parts of the diode in contact with the cooling element. Threshold currents ranged

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USSR

BYKOVSKIY, Yu.A., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 685-689

from 150 to 500 ma depending on the quality of the specimen and its dimensions. The oscillation wavelength at the threshold covered a range of 8625 to 8715 Å for the various diodes. A block diagram of the frequency stabilizing equipment is given. The authors thank V.V. Nikitin for his comments and Yu.P. Zakharov for preparing the lasers.

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USSR

UDC: 8.74

TURBOVICH, I. T., GITIS, V. G., MASLOV, V. K.

"Pattern Recognition. A Deterministic-Statistical Approach"

Opoznanije obrazov. Determinirovanno-statisticheskij podkhod (cf. English above), Moscow, "Nauka", 1971, 248 pp, ill. 1 r. (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1071)

Translation: The authors consider theoretical aspects and algorithms for design of recognition automata, and also examples of solving practical problems based on the deterministic-statistical approach developed in this book.

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MASLOV, V.N.

SPKS 59308
C.73

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XII-13. STUDY OF PERFECTION OF THE STRUCTURE, UNIFORMITY AND CORROSION OF GEM-GAP MEMBRANES

Article by N. G. Shumakly, L. N. Zhukova, Ye. N. Kiseleva, V. N. Maslov, V. G. Ermilov, Trudy Khimicheskoi Akademiya Nauk SSSR, Seriya Khimicheskaya, 1972, No. 1, p. 1111

The x-ray double-crystal spectrometry method, the method of electron diffraction patterns and the x-ray spectral microanalysis were used to study the perfection of the structure, the uniformity and composition of the epitaxial membrane films of solid solution of the gem-gap system. The films were studied by the sandwich method using H₂O and HCl vapor on GMA substrate oriented with respect to the (100) and (111) planes at the carrier reaction. It is demonstrated that the homogeneity with respect to composition and the perfection of the film structure become worse with an increase in the GAP content, beginning especially sharply at 50 percent GAP. It is established that the variations of the periodicity of the structure in the given epitaxial films are basically related to the presence of the disoriented mosaic blocks.

The noncorrespondence of the composition of the film obtained and the initial charges were detected. This noncorrespondence decreases with an increase in H₂O vapor carrier.

The presence of a negative deviation from the Weard rule was established, which indicates compression of the lattice with the formation of the solid solution.

UNCLASSIFIED

PROCESSING DATE--20NOV70

172 U11
TITLE--RECOMBINATION OF CHARGE CARRIERS AT A RECTIFYING CONTACT BETWEEN
ION EXCHANGE MEMBRANES -U-
AUTHOR-(03)-LIKHODED, V.N., MASLOV, V.N., ZOTOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 1118-20

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ION EXCHANGE MEMBRANE, ANION, CATION, ION RECOMBINATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0008

STEP NO--UR/0057/70/044/004/1118/1120

CIRC ACCESSION NO--AP0132308

UNCLASSIFIED

272 011

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132308

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RECOMBINATION PROCESSES OF CHARGE CARRIERS AT A (H PRIME POSITIVE) MINUS (OH) PRIME NEGATIVE RECTIFYING CONTACT BETWEEN ION EXCHANGE MEMBRANES ARE INVESTIGATED. THE LIFE TIME OF THE MINORITY CARRIERS IN PI EQUALS 1.6 TIMES 10 PRIME8 NEGATIVE SEC. WHILE THE EFFECTIVE DIFFUSION LENGTH OF THE CHARGE CARRIERS IS L EQUALS 2.4 TIMES 10 PRIME8 NEGATIVE CM. FACILITY: MOSK. INST. IONKOI HIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 025

CIRC ACCESSION NO--AP0121837

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REASONS FOR THE EMERGENCE AND THE METHODS OF ELIMINATION OF CHEM. HETEROGENEITY OF GAP SUBX AS SUBL NEGATIVEX SINGLE CRYSTALS WERE INVESTIGATED. THE CRYSTALS WERE GROWN BY THE SANDWICH METHOD ON GAAS SUBSTRATES WITH (111) ORIENTATION, BY USING A POWD. SOURCE PLACED 0.5 MM FROM THE SUBSTRATE. THE TRANSFER WAS ACCOMPLISHED IN A MOIST H ATM. AT AN AV. TEMP. OF 930-500DEGREES. THE GROWTH RATE WAS 10-20 MU,HR. THE DISTRIBUTION HETEROGENEITY OF THE FUNDAMENTAL COMPONENTS OF THE GAP-GAAS SOLID SOLN. WAS DETERMINED BY LOCAL X RAY SPECTROGRAPHIC ANAL. FOR SOLID SOLNS. WITH GAAS PREDOMINANT, THE HETEROGENEITY SHOWS UP PRIMARILY BECAUSE OF THE NONHOMOGENEITY OF THE SOURCE, AND CAN BE ELIMINATED BY HOMOGENIZATION. AT A HIGH GAP CONTENT, A MORE SIGNIFICANT EFFECT IS EXERTED ON THE UNIFORMITY OF THE CRYSTALS BY LATERAL GAS ETCHING OF THE GAAS SUBSTRATE, WHICH CAN BE REDUCED TO A MIN. BY MASKING THE SUBSTRATE, WITH THE EXCLUSION OF THE SECTION INTENDED FOR GROWING THE EPITAXIAL LAYER. PRIOR HOMOGENIZATION OF THE SOURCE AND THE MASKING OF THE SUBSTRATE ARE THE NECESSARY CONDITIONS FOR THE ELIMINATION OF CHEM. HETEROGENEITY OF SINGLE CRYST. LAYERS OF GAP-GAAS SOLID SOLNS. DURING EPITAXIAL GROWTH BY THE SANDWICH METHOD.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

1/2 025

TITLE--CHEMICAL HETEROGENEITY OF EPITAXIAL LAYERS OF GALLIUM PHOSPHIDE

GALLIUM PHOSPHIDE SOLID SOLUTIONS -U-
 AUTHOR--(05)-GIMELFARB, F.A., KISHOV, I.M., SAKHAROV, B.A.,
 FISTUL, V.I.
 COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 461-7

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--GALLIUM, PHOSPHIDE, ARSENIDE, SOLID SOLUTION, EPITAXIAL GROWTH, SPECTROSCOPY, SINGLE CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/1344

STEP NO--UR/0363/70/005/003/0461/0467

CIRC ACCESSION NO--AP0121837

UNCLASSIFIED

USSR

UDC 621.315.592

GULYAYEVA, A. S., KRASYUK, V. A., MASLOV, V. N., and SAKHAROV, B. A., Corresponding Member of the Academy of Sciences USSR, State Scientific Research and Planning Institute of the Rare Metals Industry, Moscow

"Change of GaAs Single Crystal Photoluminescence in Regions Damaged by a Laser Beam"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 4, 1972, pp 815-817

Abstract: The authors studied changes in the photoluminescence of GaAs single crystals with p- and n-type conduction and a carrier concentration of $1 \cdot 10^{17}$ -- $3 \cdot 10^{17}$ cm^{-3} in the regions damaged by a laser beam. The p-type Zn-doped samples were obtained by the Czochralski method; the n-type Te-doped samples, by the Czochralski and Bridgman methods. The samples were exposed to single light pulses of 500-microsecond duration from a laser with the active element of glass with neodymium, $\lambda = 1.06 \mu$. The absorption coefficient of the samples at this wavelength was $\alpha = 1-3 \text{ cm}^{-1}$. At a mean luminous flux density of $\sim 5 \cdot 10^5$ w/sq cm the damage appeared on the sample face opposite

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USSR

GULYAYEVA, A. S., et al., Doklady Akademii Nauk SSSR, Vol 205, No 4, 1972,
pp 815-817

To see if in all GaAs samples containing Te there is an increase in the intensity of the line with the 1.23-ev peak in laser-damaged areas, n-type samples underwent heat treatment at 800° C for six hours so as to introduce copper into them. The line with the 1.23-ev peak was found to disappear for samples containing copper.

The authors thank T. G. YUGOVA for carrying out the heat treatment of the samples.

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SPRS 59266
6-73

11-8. POSSIBILITY OF THERMODYNAMIC RESTRICTION OF THE NUMBER OF COMPONENTS PARTICIPATING IN CHEMICAL EQUILIBRIUM

Article by V. N. Maslov, Novosibirsk, III Stupeniye po Fiziko-khimiya, Sovetskaya Akademiya Nauk SSSR, Seriya Khimicheskaya, 12-17 June, 1977, p 103

The chemical equilibrium was investigated in terms of the statistical distribution of the components with respect to chemical states with different energy (Fermi-Dirac distribution). The equilibrium condition is equality of the chemical potential of the component in all the chemical distributions where the given component participates.

The relation was derived for calculating the number of degrees of freedom with the chemical equilibrium

$$F = (r + 1) - (f + \sum_{i=1}^k n_i)$$

where r is the number of components (chemical elements or stable atomic groups), f is the number of types of molecules, k is the number of external forces, n_i is the total number of chemical distributions of all the components.

It was demonstrated that the number of degrees of freedom can decrease to zero for complication of the chemical system.

The number of degrees of freedom was defined for isobaric-isothermal equilibrium in the system H-Cl-Ca. If we assume the presence in the equilibrium gas phase of H₂, Cl₂, Ca, H₂, Cl₂, HCl, CaCl₂, CaCl₃ molecules, then in the presence in the system of liquid gallium and for constancy of the partial hydrogen pressure, only nonvariant equilibrium turns out to be possible. On deviation from the conditions of nonvariant equilibrium, the molecules CaCl₂ and CaCl₃ must disappear from the composition of the equilibrium mixture.

This conclusion can serve as an explanation of the experimental data presented in reference [1].

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1. V. S. Maslov, Zh. Elektrokhimichesk. Soc., No 118, 1473, 1971.

MASLOV, V. N.

MASLOV, V.N.

SPRS 59003
6-73

V-9. TRANSPORT OF THE GASE-CAP SOLID SOLUTION IN THE GAS TRANSPORT REACTION WITH WATER VAPOR

Article by V. M. Kiselev, V. N. Maslov, V. V. Nechaev, B. A. Sakharov, Honorary Correspondent, III Stepanovskaya Ploshchad, Moscow, Fizicheskii Zhurnal, 1972, p. 39

In this paper an experimental study was made of the variation of the composition of the gas-cap solid solution during its transport by water vapor in the steady process. The transport is realized from a source with a temperature of 920°C on graphite substrata with a temperature of 920°C. It was established that with a cap concentration of 30 percent the deposit is enriched in phosphorus; at higher concentrations it is enriched with arsenic. In order to explain the experimental data, the theory of regular solutions was used. The value of the energy of interaction of the molecules in the investigated solution was obtained. The effect of the molecular nature of the solution on the variation and composition of the deposit by comparison with the composition of the source during the gas transport reaction is discussed.

MASLOV, V.N.

SPRS 59868
C. 73

VII-1b. PROPERTIES OF ALLOYED EPITAXIAL LAYERS OF CALCIUM ARSENIDE GROWN IN THE Ga-AsCl₃-H₂ SYSTEM

Articles by L. I. P'yankov, L. A. Zhukova, E. S. Kapellorich, V. M. Maslov, V. Yu. Papalany, B. I. Kuda, Ye. V. Solov'yeva, Moscow; Rovestibirsk. Ill. Simpozium po Protsessam Rosta i Sintezu Poluprovodnikov Kh. Kristallov i Lend., Nussien, 11-17 June, 1977, p 86

Reports of zincite epitaxial layers in the Ga-AsCl₃-H₂ system were alloyed either by thermal evaporation of the impurity (Te, In) or by introduction of it in the form of a gaseous compound (H₂Se, (C₂H₅)₂Zn). The dependence of the carrier concentration in the layers on the admixture concentration in the gas phase was found. With an increase in the tellurium content, the growth rate of the layer drops almost to zero whereas the zinc practically has no effect on the growth rate. The use of diethyl zinc does not lead to worsening of the electrophysical parameters of the layers by comparison with the alloying by the method of thermal evaporation of zinc. The concentration of the charge carriers in the layers alloyed with selenium and selenium is reduced in the direction of the film plane whereas in the layers alloyed with zinc, the concentration of the carriers increases a little. This difference is connected with the difference in the coefficients of the vapor-crystal junction. According to the data of electrophysical studies, the degree of compensation of the donors in the layers alloyed with selenium is constant and close to 0.5. An increase in the tellurium concentration in the layer leads to an increase in the dislocation density and the number of growth spirals. In the epitaxial alloyed with selenium with a carrier concentration of the type of 3·10¹⁸ cm⁻³, either an increase in the dislocation density to 1·10⁸ cm⁻² or the appearance of spiculate microdefects was observed. At low alloying levels with selenium (3·10¹⁶ cm⁻³) and in the entire range of alloying with zinc using diethyl zinc, the dislocation density in the layer is close to the dislocation density in the substrate; the morphology of the layers does not change.

MASLOV, V. N.

5985 59308

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6

VII-1a. APPLICATION OF THE METHOD OF CONTINUOUS WEIGHING FOR STUDYING THE EXCHING AND GROWTH PROCESSES IN THE $(\text{Ga-As})_{1-x}\text{As}_x$ SYSTEM

SESSION VII

Article by Lu, I. B. Yakovlev, E. S. Kopylovich, V. N. Maslov, V. Ya. Popelznev, B. G. Buda, Ye. V. Solov'yeva, N. G. Kozlovskaya, III Simpozium po Prirodoznaniyu i Sintezu Poluprovodnikov Kristallov i Plazm, Krasnodar, 12-17 June, 1972, p. 851

A simple method of continuous weighing has been developed to investigate the starting stage of gallium and the growth of the epitaxial layer of GaAs. On completion of the period of saturation of the gallium with arsenic, the composition of the gas phase is changed sharply, and the gallium content in the gas flow under stationary conditions corresponds to the equilibrium above the solid gallium arsenide, and the arsenic content is determined by the amount of AsCl₃ introduced into the reactor. In contrast to the available published data it has been found that the growth rate of the GaAs layer is established in practice immediately with respect to completion of the saturation period. The nature of the experimental dependences of the growth rate on the process parameters indicates that the growth of GaAs takes place in the diffusion-limited region. The temperature profile in the reactor was determined for which the radial gradients are eliminated which causes uncontrolled nucleation of the GaAs on the reactor walls in the substrate zone. A study was made of the effect of the conditions of the growth process on the structure and the electrical properties of the unalloyed epitaxial layers of GaAs. The electron mobility in the layers grown under optimal conditions reached 8250 cm²/v-sec at 300°K and 43,000 cm²/v-sec at 77°K with a concentration of them of 3·10¹⁸ cm⁻³.

Single Crystals

USSR

UDC 669.26-172

ABANIN, D. D., (DECEASED), YEBSTYUKHIN, A. I., MASLOV, V. P., RAKITSKIY, A. N.,
and TREFILOV, V. I., Moscow, Kiev

"Structure and Mechanical Properties of Chromium Iodide Single Crystals"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan/Feb 74, pp 143-149

Abstract: The structure and mechanical properties of chromium iodide were studied to determine why chromium is extremely brittle at room and low temperatures. Single crystals of chromium were produced from the thermal dissociation of chromium iodide which had a high degree of perfection (ratio of electrical resistances measured at 300 and 4.2° K was equal to $(1.5-3.0) \times 10^2$). Bend tests of the single crystals showed that the modulus of elasticity for chromium has a minimum value in the $\langle 111 \rangle$ direction which is caused by the accumulation of dislocations in the $\{111\}$ planes, being higher than in planes $\{100\}$ and $\{110\}$. It was also noted that with increased purity of the single crystals from interstitial impurities the specific surface energy minimum transfers from plane $\{111\}$ to plane $\{100\}$. Therefore, brittle slip in chromium single crystals occurs in these two planes. Six figures, two tables, 32 bibliographic references.

1/1

USSR

UDC 669.26.048

YEVSTYUKHIN, A. I., ABANIN, D. D., KORNEYEV, V. A., MASLOV, V. P.

"Obtaining Alloys Based on Chromium by the Iodide Method"

V sb. Metallurgiya i metalloved. chist. met. (Metallurgy and Physical Metallurgy of Pure Metals — collection of works), vyp. 9, Moscow, Atomizdat Press, 1971, pp 12-19 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G338)

Translation: In order to obtain iodide alloys of Cr with Y, V, and Ti, the charge was pressed and melted in an argon atmosphere in an arc furnace. Shavings which entered into the iodide process were prepared from the ingot obtained. Calculations were performed determining the possibility of deposition of Cr alloys with V, Ti, and V. Thermal dissociation was carried out by the Van Arkel scheme. In all the experiments the filament temperature was 1,000-1,100°, and the flask temperature was 750-800°. The precipitates obtained in the iodide process were remelted in an arc furnace and investigated. The Cr-V and Cr-Ti alloys in the analyzed concentration range are single-phase, but separations of a second phase are obvious in the microstructure of the Cr-Y alloy. On introduction of Y into the raw material, the effect of additional purification of the Cr is observed in the process of iodide refining. The iodide alloys of Cr with V and Ti were obtained, and the transfer coefficient was found as a function of the raw material composition.

1/1

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USSR

UDC 534.2

GENKIN, M. D., ~~MASLOV, V. P.~~

"Transfer of Vibration Through a Sound Bridge"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 28-34 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh477)

Translation: The transfer of a flexural wave from one plate to another through a band rigidly fastened to both plates is discussed. The flexural wave propagates in one of the plates and enters the band at an arbitrary angle. Authors abstract.

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USSR

UDC 624.07:534.1

BOBROVNITSKIY, Yu. I., GENKIN, M. D., MASLOV, V. P.

"Oscillations of an Infinite Lattice of Strings"

V sb. Vibroakust. aktivnost' mekhanizmov s zubchatymi peredachami (Vibro-acoustic Activity of Mechanisms with Geared Transmissions), Moscow, "Nauka", 1971, pp 197-204 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10V174)

Translation: A study is made of the propagation of normal waves in an infinite string lattice, and its Green's function. Alternating bands of transmission and nontransmission take place when the lattice waves propagate in different directions. It is shown that the boundaries between these bands are the natural frequencies of a single repeated cell of the lattice. Forced oscillations of the lattice under the effect of an arbitrary external load are computed by means of the Green's function. The Greens function is found in the form of a double integral which is not expressed in terms of the unknown functions. The asymptotic behavior of this function is investigated. It is found in particular that the wave amplitude always falls off in inverse proportion to the square root of

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USSR

BOBROVNITSKIY, Yu. I. et al., Vibroakust. aktivnost' mekhanizmov s zub-
chatymi peredachami, Moscow, "Nauka", 1971, pp 197-204

the distance from the source. An equation is also found for the wave front of a point source. In addition, the input compliance of the lattice is computed. This quantity is expressed in terms of entirely elliptical integrals of the first kind. Authors' abstract.

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1/2 005 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--ON THE STATIONARY PHASE METHOD FOR FEYNMAN'S CONTINUAL INTEGRAL -U-
AUTHOR--~~MASLOV, V.P.~~ M
COUNTRY OF INFO--USSR
SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 2, NR 1, PP
30-35
DATE PUBLISHED-----70

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ABSTRACT/EXTRACT--(U) GP-C-
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USSR

UDC 681.325.65

BLAZHKEVICH, B. I., VOROBKEVICH, V. Yu., MASLOV, V. S., SOLOMCHAK, V. P.,
and YATSUN, I. A.

"An Analog-Digital Measurement Converter"

Novosibirsk, Konf. po avtomatiz. nauch. issled. na osnova primeneniya EVM,
1972--sbornik (Conference on Automating Computer-Based Scientific Research,
1972--collection of works), 1972, pp 84-90 (from RZh-Avtomatika, Telemek-
hanika i Vychislitel'naya Tekhnika, No 11, Nov 72, abstract No 11B307)

Translation: The authors consider a servo-type analog-digital converter
designed for remote measurement of a slowly varying component of the output
voltage of a static electric field strength pickup within limits of ± 640 mV
with an error no greater than 0.025% for a transmission channel error of
up to 1%. The converter consists of a measurement amplifier, a device for
automatic selection of subranges, a control unit, and a power supply. The
given measurement range is broken down into 128 partially overlapping sub-
ranges; selection of subranges is accomplished by automatic comparison of
the input quantity with a discretely variable voltage formed by a code-analog
converter from a reference voltage source. One illustration, bibliography of
nine titles. L. P.

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USSR

UDC 681.335

BLAZHKEVICH, B. I., VOROBKEVICH, V. Yu., MASLOV, V. S., SOLONCHAK, V. P., and YATSUN, I. A.

"Analogous-Code Measuring Transformer"

V Sb. "Konf. po Avtomatiz. Nauch. Issled, na Osnove Primeneniya EVM, 1972" [In the Collection "Conference on Automation of Scientific Investigations on the Basis of the Application of Electronic Computers, 1972"], Novosibirsk, 1972, pp 84-90 (from Referativnyy Zhurnal, No 10, Oct 72. 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 10.32.119)

Translation: An analogous-code measuring transformer of tracking action with an input impedance $\geq 10^9$ ohm is discussed. The transformer is designated for remote measuring the slowly changing component of the output voltage of the statical transducer of the electric field intensity in the ± 640 mv range with an error not exceeding 0.025%, at an transmission channel error up to 1%. One illustration, nine bibliographical references.

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USSR

UDC: 621.375.82

DZYUBENKO, M. I., KOROBV, A. M., MASLOV, V. V., and NAUMENKO, I. G.

"Investigating the Characteristics of Lasers Using Organic Compounds With Dispersion Resonators"

Kiev, V sb. Kvant. elektronika (Quantum Electronics--collection of works) "Nauk. dumka," No 6, 1972, pp 109-119 (from RZh--Fizika, No 4, 1973, Abstract No 4D1231)

Translation: The oscillation characteristics of 1-phenyl-4-(p-chlorodiphenyl) butadiene-1.3 in a prism dispersion resonator and bis-/1-p-tolyl-6-methyl-quinoline-4/trimethiodionecyaninperchlorate in a resonator with a diffraction grating are investigated. The solutions of these substances were excited by the second harmonic and fundamental frequency of a ruby laser in the first and second cases respectively. Smooth tuning of the average oscillation wavelength of the first compound was realized in the 4045-4215 Å range, for the second compound it was realized in the 7320-7620 Å range. Here, the radiation spectrum for each narrowed to 10-20 Å and 1-3 Å respectively. It was discovered that the superluminescence phenomenon arising in lasers using organic solutions with dispersion

USSR

DZYUBENKO, M. I., et al., V sb. Kvant. elektronika, No 6, 1972, pp 109-119

resonators limits the tuning frequency range and substantially affects the spectral, energy, and spatial angular characteristics of the stimulated emission. Bibliography of 15. Authors' abstract

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USSR

UDC 621.394.542.1

KATKOV, F.A., MASLOV, V.V.

"Multifrequency Device For Transmission Of Discrete Information"

Mnogochastotnyye ustroystva peredachi diskretnoy informatsii (cf English above), Kiev, "Tekhnika," 1971, 85 pp, ill. 24 k. (from RZh--Elektrosvyaz', No 6, June 1971, Abstract No 6.64.239K)

Translation: Methods are considered for an increase of the efficiency and reliability of transmission of discrete information with the use of multifrequency codes. The effect of phase distortion on the transmission rate is studied and a method is given of increasing the speed of response of time-and-frequency systems. The principal units are described of a multifrequency system and the device constructed. The book, intended for technical engineers and scientific workers who are occupied with development, planning, and application of systems for transmission of discrete information, can be useful to students of higher education institutions for appropriate professions. 37 ill. 14 tab. 15 ref. Annotation.

1/1

Aluminum and Its Alloys

UDC 621.3:669.71

USSR:

VORONTSOVA, L. A., MASLOV, V. V., and PESHKOV, I. B.

"Aluminum and Aluminum Alloys in Electrical Engineering Products"

Alyuminiy i Alyuminiyevyye Splavy v Elektrotekhnicheskikh Izdelyakh, Moscow, Energiya Press, 1971, 224 pages

Translation of Annotation: This book studies problems of the use of aluminum and aluminum alloys in various electrical engineering products. The physical and mechanical properties of aluminum and aluminum alloys (electrical conductivity, mechanical strength, fatigue, creep, etc.) and specifics of technological processes related to the use of these materials (welding, soldering) are presented.

The book is designed for engineering and technical workers involved in the design, planning, manufacture, operation, and repair of electrical engineering products in which aluminum and its alloys are used as conductors and structural materials.

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VORONTSOVA, L. A., et al., *Alyuminiy i Alyuminiyevyye Splavy v Elektrotekhnicheskikh Izdelyakh*, Moscow, Energiya Press, 1971, 224 pages

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VORONTSOVA, L. A., et al., Alyuminiy i Alyuminiyevyye Splavy v Elektrotekhnicheskikh Izdelyiyakh, Moscow, Energiya Press, 1971, 224 pages

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VORONTSOVA, L. A., et al., Alyuminiy i Alyuminiyevyye Splavy v Elektrotekhnicheskikh Izdeliyakh, Moscow, Energiya Press, 1971, 224 pages

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USSR

UDC 621.373.826:53

MASLOV, V. Yu. and NAZAROVA, L. G.

"Propagation of Laser Radiation in Water"

Moscow, v sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 6 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 6--collection of works) "Nauka," 1972, pp 20-21 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D371)

Translation: The Young interference method was used for measuring the coherence function of light passing through a radiation-dispersing water layer. It was established that the coherence function of the beam passing through the water differed only slightly from the initial situation (without the water). This difference slightly exceeds the discrepancy determined by the measurement error (about 7%). A. K.

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USSR

UDC 629.7.036.3:53.601.1

MASALOV, Ya. F.

"Combined Method of Calculation of Mean Velocity and Mass-mean Temperature of a Gas Flow From the Diagram of the State of the Substance"

Teplofiz. Svoystva i Gazodinamika Vysokotemperatur. Sred. [Heat-physical Properties and Gas Dynamics of High Temperature Media -- Collection of Works], Moscow, Nauka Press, 1972, pp 109-111 (Translated from Referativnyy Zhurnal, Aviatsionnye i Raketnye Dvigateli, No 12, 1972, Abstract No 12.34.15, from the Resume).

Translation: A method is presented for determination of the mean velocity and mass-mean temperature of a gas stream at a high temperature gas-heater nozzle. The values of deceleration enthalpy and mass flow rate of the substance necessary for the calculation are determined by experimental measurements; the remaining desired quantities included in the main equations are found from an i-s diagram of state of the substance. The mass-mean temperature and deceleration enthalpy determined can then be used to find the maximum temperature along the axis of the stream and, using the Fay and Ridel formula, the heat flux into the body from the plasma stream flowing around it can be estimated. 3 Biblio. Refs.

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USSR

UDC: 621.382.2:621.317.799

MASLOV, Ye. A., PUSHKIN, E. I.

"A Device for Measuring the Static Current Gain of a Transistor"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331342, Division G, filed 17 Aug 70, published 7 Feb 72, p 140

Translation: This Author's Certificate introduces a device for measuring the static current gain of a transistor. The device contains a source of setting up conditions and a display. As a distinguishing feature of the patent, the measurement process is automated by connecting an operational amplifier to the source of setting up conditions through a resistor. The feedback circuit of the amplifier is connected to the output of the circuit for automatic selection of the measurement range. The range selection circuit is connected to the inputs of the digital display unit. The second inputs of this display are connected through a decoder to a reversible counter. The first input of the reversible counter is connected through an electronic switch and a null indicator to a double integration circuit. The second input of the reversible counter is connected to the output of

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USSR

MASLOV, Ye. A., PUSHKIN, E. I., USSR Author's Certificate No 331342

a one-subtraction circuit. The first output of the reversible counter is connected through a measurement mode selection circuit to the operational amplifier, and the second output of the reversible counter is connected to the input of the one-subtraction circuit.

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USSR

KLEMENT'YEV, A. A., MASLOV, Ye. P., PETROVSKIY, A. M., YASHIN, A. I.

"Control of Stochastic Processes with Adjustable Duration of the Test Interval"

Tr. IV Vses. Soveshch. po Avtomat. upr., 1968. Teoriya Avtomat. upr. [Works of Fourth All-Union Conference on Automatic Control, 1968. The Theory of Automatic Control], Moscow, Nauka Press, 1972, pp 226-236, Discussion 256-262 (Translated from Referativnyy Zhurnal. Kibernetika, No 3, Moscow, 1973, Abstract No 3 V282 by the authors).

Translation: The problem is solved of synthesis of an optimal testing and control algorithm for a discrete random process with incomplete information. Three types of losses are defined: to deviation of the controlled process $\{\eta_n\}$ from the assigned mode $\{\theta_n\}$; to control of the process $\{\eta_n\}$; to testing of the process $\{\eta_n\}$. Suppose the number of cycles of existence of process $\{\eta_n\}$ is finite and equal to N . As a result of the operations of testing and control, and also the mismatch in coordinate y and θ_n , $n = 1, 2, \dots, N$, summary random losses C arise. The mathematical expectation of the value of C is minimized by selecting the $1/2$

USSR

KLEMENT'YEV, A. A., MASLOV, Ye. P., et. al., Tr. IV Vses. Soveshch. po Avtomat. upr., 1968. Teoriya Avtomat. upr., Moscow, Nauka Press, 1972, pp 226-236, Discussion 256-262.

number and placement of moments of testing and control, and also by selecting control u_k , $k = 1, 2, \dots$. The problem is solved by methods of dynamic programming.

2/2

Logic & Game Theory

USSR

UDC: 62-501.7:518.9

ABRAMYANTS, T. -G., VOLKOVINSKIY, M. I., MASLOV, Ye. P., and
PETROVSKIY, A. M., Moscow

"Tracking Game on a Plane With a Limited Number of Tracking
Trajectory Corrections"

Moscow, Avtomatika i Telemekhanika, No 7, 1972, pp 31-39

Abstract: The purpose of this paper is to analyze a differential tracking game on a plane for a limited number of tracking trajectory corrections. The game is played by having two participants, a pursuer and an evader, moving as points on a plane. The pursuer uses piece-wise programmed control, with shifts from one control law to another at a particular moment, the number of such shifts being finite. The trajectory corrections are defined as the transitions from one program to the other. It is assumed that the players have simple types of motion, with the velocity of the pursuer exceeding that of the evader. Solutions for the game are sought on the basis of a combination of classical calculus of variations and dynamic programming.

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USSR

UDC: 621.396.6:621.318

MASLOV, Yu. N., SHUROV, M. I.

"On Calculating a Nonhomogeneous Section of a Magnetic Circuit"

Sb. nauchn. tr. Vladimir politekhn. in-t (Collected Scientific Works of Vladimir Polytechnical Institute), 1970, vyp. 10, pp 57-59 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V369)

Translation: The authors consider a section of magnetic circuit which contains a gap in the form of a hole made for a pin. It is shown that such nonhomogeneities lead to errors in calculation, and a refined formula is given for the reluctance in the case of cubic approximation of the magnetization characteristic. One illustration, bibliography of seven titles. Resumé.

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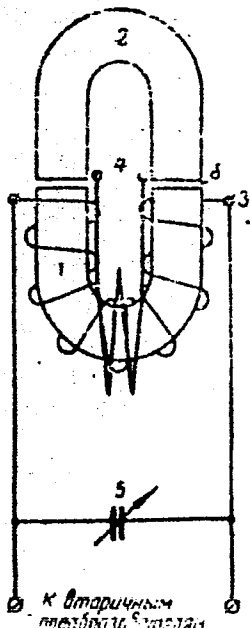
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UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

241543 TEST SET FOR MAGNETIC CORES, comprising
electromagnet (1) with two windings linked
through an air gap with test sample (2). The test
winding is bridged by a compensating capacitor
calculated from equation of reactive components
introduced by the air gap and the test winding.
17.1.68 as 1211863/18-10.M.A. BABIKOV et al (1.9.69)
Bul 14/18.4.69. Class 21a. Int.Cl.G 01r.

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AUTHORS: BAbikov, M.A.; Seleznev, Yu.V.;
Maslov, Yu.N.; Rhyzhkov, G.P.

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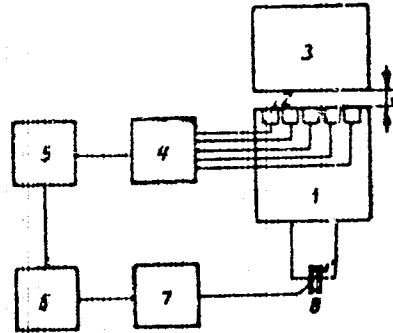
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Soviet Inventions Illustrated, Section II Electrical, Derwent,

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241521 TEST SET FOR MAGNETIC CORES in which the effect of air gap between the test sample and the instrument is eliminated by means of inductive sensors (2) in the gap. The measurements are transmitted to an integrator (4) and through amplifiers to a compensator (7) which adjusts the value of corrective capacitance (8).

17.1.68 as 1211366/18-10. YU. N. MASLOV, YU. V. SELEZNEV.
 (3.9.69) Bul 14/18.4.69. Class 21a. Int. Cl. G01r.



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UNCLASSIFIED

1/2 012
TITLE--NEW EFFECTIVE METHOD FOR DERIVING SELF CONSISTENT FORMULAS OF THE
TEMPERATURE AND PRESSURE DEPENDENCE OF THERMODYNAMIC FUNCTIONS -U-
AUTHOR--(02)-MASLOV, YU.P., ANTONOV, A.A.

M

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 320-4

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--THERMODYNAMIC FUNCTION, PARAMETER, GEOMETRY, MIXED HALOGENATED
ORGANIC COMPOUND, THERMAL EFFECT, CHLOROFLUOROCARBON COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/0331

STEP NO--UR/0076/70/044/002/0320/0324

CIRC ACCESSION NO--AP0103986

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

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CIRC ACCESSION NO--AP0103986

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COEFFS. IN THE EQUATIONS EXPRESSING TEMP. DEPENDENCY OF C SUBP DEGREES, HDEGREES, SDEGREES, AND GDEGREES AT 250-6000DEGREES K FOR A GROUP OF THE COMPOS. OF RELATED STRUCTURE CAN BE OBTAINED WHEN THE PARAMETERS DESCRIBING THE GEOMETRY OF MOL. (LENGTHS AND BOND ANGLES, SYMMETRY NOS. SIGMA) ARE KNOWN. IF THE VALUES SDEGREES SUB298 AND HDEGREES SUB298 FOR A COMPD. OF THIS GROUP ARE AVAILABLE THE CALCN. CAN BE PERFORMED WITHOUT USING ITS GEOMETRIC PARAMETERS. VALUES OF SDEGREES AND GDEGREES FOR CCL SUB2 FBR, CH SUB2 CLI, CH SUB2, BRI, AND CH SUB2 FCL FOR 298-6000DEGREEK ARE TABULATED AND COMPARED WITH THE DATA OBTAINED BY USING THE METHODS OF STATISTICAL THERMODYAMIGS.

UNCLASSIFIED

UDC: 8.7^L

USSR

SALIMOV, A. Kn., MASLOV, Yu. S., PLATONOV, I. N.

"Tie-in of the 'Konsul-254' Electric Printer for Alphanumeric Data Output"

V sb. Chisl. metody v tekhn.--ekon. zadachakh (Numerical Methods in Technical and Economic Problems--collection of works), Kazan', Kazan' University, 1971, pp 138-141 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V966)

Translation: It is pointed out that in resolving and translating programs written in ALGOL-60 (or any other language) on the M-20 computer, the need arises for output of alphanumeric information. The construction of a device for matching the "Konsul-254" electric printer to the M-20 computer and some modifications in the M-20 are described. V. Alekperov.

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UDC 548.4

USSR

MASLOVA, L. A., TSIVINSKIY, S. V., Physicotechnical Institute of Low Temperatures, Ukrainian SSR Academy of Sciences

"Investigation of the Principles Underlying Formation of the Dislocation Structure in Alkali Halide Crystals of a Given Shape Grown in a Solid Crucible by the Bridgman Method"

Moscow, Izvestiya Akademii Nauk SSSR: Ser. Fizicheskaya, Vol 37, No 11, Nov 73, pp 2353-2356

Abstract: The principles underlying formation of the dislocation structure during crystal growth can be studied both to discover the factors which determine the average dislocation density and to establish the processes responsible for the formation of small-angle boundaries. This paper takes both these directions. It has been found that when crystals are grown in a solid crucible, dislocations are formed as a result of plastic deformation occurring as the crystal cools from the melting point to a temperature T_1 at which the crystal still remains plastic (e.g., room temperature). Plastic deformation is close to uniaxial stretching and occurs as a consequence of adhesion of the crystal to the walls of the crucible due to the

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USSR

MASLOVA, L. A., TSIVINSKIY, S. V., Izvestiya Akademii Nauk SSSR: Ser. Fizicheskaya, Vol 37, No 11, Nov 73, pp 2353-2356

difference between the coefficients of linear expansion of the crystal α_1 and the crucible α_2 along the direction of growth. Dislocation density can be evaluated from the equation

$$N = \frac{2(\alpha_1 - \alpha_2)(T_{\text{melt}} - T_1)}{bD}, \quad (1)$$

where b is the interplanar distance for crystallographic planes with low indices perpendicular or nearly perpendicular to the direction of growth; D is the transverse dimension of the crystal: the diameter for circular crystals, and the width of the lateral face on which the dislocation density is determined for specimens with a square cross section. According to (1), as each section of the crystal cools, the dislocation density in this section gradually increases. When the dislocation density passes a critical value, block boundaries with minimum disorientation appear under the influence of thermal stresses. If small-angle boundaries form close to the crystallization front at a distance close to the size of a block,

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REEL # 19
Lyubkin, A.A.
to MASLOVA, L.A.