"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC 621.375.826

PFAYFFER, M., VERNKE, V., LAU, A., VAYGHAN, KH. I., LEITS, K., GADOV, P.

"Procedure for Separating the Weak Lines of Forced Combination Scattering by Means of Selective Absorption on the Frequency of the Strongest Stokes Component"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), Moscow, No 5, 1971, pp 129-131 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D342)

Translation: In the presence of forced combination scattering, usually only the combination scattering component with the largest amplification coefficient appears in the spectrum. Its appearance causes such strong depletion of the intensity of the exciting laser that the other combination scattering signals cannot grow to the sensitivity threshold of the receiver. By selective absorption for the predominant Stokes component it is possible to facilitate the appearance of other combination scattering frequencies. It was theoretically demonstrated that when using an absorbing liquid for which the ratio of the absorption coefficient on the frequency of the first Stokes component and on the laser frequency of 100:1 is obtained, the detection threshold of the weak component can be reduced by 7 times. The bibliography has 5 entries.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC 612.019+612.273.2

LAUER, N. V. and VISHNYAK, S. M., Institute of Physiology imeni A. A. Bogomolets, Academy of Sciences UkSSR

"Role of Respiration in Regulating Oxygen Parameters in Young Animals After Exposure to Hypoxia"

Leningrad, Fiziologicheskiy Zhurnal SSSR, No 12, 1971, pp 1,823-1,831

Abstract: Experiments with puppies 2- to 3-weeks old, 1.5 to 2.5 and 5 to 6 months old and adult dogs given hypoxic mixtures to breathe showed that hypoxia resulted in a small increase in the puppies' ventilation compared with the older animals. It also the efficiency of respiration in metabolism brought about a prolonged period of stabilization of the oxygen paramters, and prevented adequate O_2 saturation of the blood, despite the comparatively large amount of O_2 ventilated in the lungs and alveoli and a high paO_2. As the puppies aged, the relationships between external respiratory function and oxygen demand improved and they became more resistant to disruption by hypoxia. Slowing of the rhythm and decrease in intensity of ventilation increased the functional reserves and strengthened their role in regulating homeostasis in an altered gaseous medium.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

1/2 024 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--THE CONTENT AND ACTIVITY OF BASIC COMPONENTS OF KININ SYSTEM IN BLOOD SERUM OF PATIENTS WITH RHEUMATISM -U-

AUTHOR--PASKHINA, T.S., YAROVAYA, G.A., LAUFER, A.I., GULIKOVA, O.M., TRAPEZNIKOVA, S.S.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 152-161

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RHEUMATIC DISEASE, BLOOD CHEMISTRY, CHROMATOGRAPHY, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0766 STEP NO--UR/0301/70/016/002/0152/0161

CIRC ACCESSION NO--AP0102730

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

2/2 024 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102730

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACTIVITY AND CONTENT OF BASIC COMPONENTS OF KININ SYSTEM KININOGEN, KALLIKREIN, KININASE AND TOTAL BAEE ESTERASE AND ANTITRYPTIC ACTIVITY IN BLOOD SERUM OF 30 HEALTHY MEN AND 17 PATIENTS WITH RHEUMATISM HAS BEEN STUDIED. THE ACTIVITY OF KALLIKREIN IN BLOOD SERUM WAS DETERMINED BY MEANS OF ORIGINAL CHROMATOGRAPHIC METHOD AND WAS AMOUNTED TO 30 PLUS OR MINUS 5 MKF-ML IN THE CONTROL, I. E. 6,0 PLUS OR MINUS 1,7PERCENT FROM TOTAL BAEE ESTERASE ACTIVITY. THE ACTIVITY OF THIS ENZYME IN BLOOD SERUM OF PATIENTS WITH RHEUMATISM IN ACUTE STAGE OF THE DISEASE IS ELEVATED AT AVERAGE BY 5-7 TIMES. THE TOTAL BAEE ESTERASE ACTIVITY OF BLOOD SERUM REFLECTING THE ACTIVITY OF PROTEINASES OF TRYPSIN TYPE (AND KALLIKREIN) TENDS TO INCREASE IN PATIENTS WITH RHEUMATISM. BLOOD SERUM KININOGEN CONTENT IN PATIENTS WITH RHEUMATISM (II AND III STAGES OF RHEUMATIC PROCESS) WAS DIMINISHED FROM 4.6 (CONTROL) TO 3.5 MUG OF BRADYKININ PER ML. THE ACTIVITY OF KININASE (CARBOXYPEPTIDASE N) WAS UNCHANGED. ANTITRYPTIC ACTIVITY OF BLOOD SERUM OF PATIENTS WAS DECREASED DURING THE III RD STAGE OF THE PROCESS ONLY; IN PATIENTS WITH I AND II STAGES THE ACTIVITY WAS AT THE NORMAL LEVEL OR EVEN SLIGHTLY INCREASED. THE ANALYSIS OF RESULTS INDICATES TO SOME CORRELATION BETWEEN CHANGES IN CHARACTERISTICS OF KININ SYSTEM COMPONENTS AND THE EXTENT OF RHEUMATIC PROCESS ACTIVITY. THE FALL IN KININOGEN CONTENT AND INCREASE IN KALLIKREIN ACTIVITY BOTH TESTIFY TO THE ACTIVATION OF KININ SYSTEM AT RHEUMATISM.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC: 621.391.2

LAUFER, M. V., STROGIY, V. G.

"Finding the Spectra of Modulated Pulse Sequences by the Method of Spectral Functions"

Kiev, IVUZ Radioelektronika, Vol 15, No 5, May 72, pp 641-644

Abstract: A method is given for finding the spectra of modulated pulse sequences by using spectral functions. The proposed method is used for determining the signal spectrum from the ChIM-2 for a rectangular pulse train.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

UDC: 669.721.042.62

ARUSOO, A. K., KARRO, Kh. Kh., LAUGIS, Yu. Ya., LOOTUS, Ya. K., LOYGOM, V. V., SAKKOS, Kh. A., TIYSMUS, Kh. A.

"MHD Drives for Pumping of Liquid Magnesium"

MGD v Metallurgii i Liteyn. Proiz-ve [MHD in Metallurgy and Foundry Production -- Collection of Works], Kiev, 1972, pp 126-130 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G202, by G. Svodtseva).

Translation: The Tallin Polytechnical Institute has developed and introduced to metallurgical production several induction MHD drives for feeding liquid Mg from a continuous refining furnace to a casting conveyor. The basic technical data are presented on the MHD drives and a schematic diagram of the power portions is presented. The drives operate under manual control. During tapping, the static head and hydraulic resistance are increased. This means that conservation of constant productivity requires that the supply voltage be increased by 1.2-1.8 times. The channel of the pump is replaced every three to five days. A diagram of the activity of the MHD drive under manual control is presented.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC [621.357.7:669.781]:669.14

FOMINYKH, I. P., VOLOSKOV, N. V., and LAUKHIN, V. I.

"The Effect of Boridation on Properties of the Steel 20G2"

Tula, Sb. Tekhnol. mashinostroyeniya (Collection of Works: Machinebuilding Technology), Vyp 11, 1971, pp 66-79 (from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom, No 23(II), 1972, Abstract No 23L302 by A. D. Davydov)

Translation: The effect of electrolytic boridation on mechanical properties and wear resistance of steel 20G2 subjected to different heat treatment was studied. A comparison of the strength and plasticity of this steel showed that the ultimate strength of borided samples (in comparison with unborided or casehardened) was the highest, 157.5 kg/cm² in the presence of sufficient plasticity which amounted to 8% elongation and 4 kg/cm² of impact toughness after hardening and tempering. Plasticity of the borided steel which was not subjected to heat treatment was high but its strength was low (62.8 kg/cm²). Hardening conducted at the boriding temperature eliminated the effect of grain growth and increased the ultimate strength of 108 kg/cm² in the presence of a satisfactory plasticity. The microhardness of the surface layer of borided items remained unchanged at 1200 Hv, regardless of the types of heat treatment. Experimental data indicated that the resistance to wear of borided layer was higher compared with the casehardened or simply hardened layer after either low or high annealing.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

UDC 536.42

ALYMOV, A. V., LAUKHIN, V. N., RABIN'KIN, A. G., and SMIRNOVA, A. S., Institute of Chemical Physics of the Academy of Sciences USSR

"Device for the Investigation of Phase Transitions Pressurized up to 40 kbar in a 2—400 °K Interval"

Moscow, Pribory i Tekhnika Eksperimenta, No 1, Jan-Feb 72, pp 185—187

Abstract: A press designed for the investigation of superconductivity, compressibility, and phase transitions of first and second type of different materials under pressures up to 40 kbar is described by reference to its layout. The design of the press makes it possible to change the load on specimens smoothly and reversibly from 0 to 2.5—3 tons in a 2—400 °K temperature interval. Unlike the generally in magnetic measurements under pressure used beryllium bronze, the high-pressure chamber and punches are made of the new 40KhNYu non-magnetic dispersion-hardening material (HRC 59—60, tensile strength up to 200 kg/mm^2). The

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

ALYMOV, A. V., et al., Pribory i Tekhnika Eksperimenta, No 1, Jan-Feb 72, pp 185-187

pickups of the device register changes in the length of specimens by changing load or temperature, the developed power of the press, and the susceptibility of the specimen under pressure by changing temperature. The phase transition curves of the RbI salt under pressure at 293, 77, and 4.2 °K are shown. Four illustr., one biblio. ref.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

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USSR UDC 621.165

DEYCH, M. Ye., FILIPPOV, G. A., SALTANOV, G. A., LAUKHIN, Yu. A., and SIVOBOROD, V. A.

"Investigation of Phase Transitions in Eddy Currents of Supersaturated Steam"

Moscow, Energetika i Transport, No 2, 1972, pp 160-166

Abstract: In the article are presented the results of an experimental investigation of the condensation of water vapor in a vortex wake behind a stream flowing lengthwise about a flat plate at $M_\infty < 1$. Special attention was devoted to the structure of the vortex wake and to the particle size of the liquid phase in the wake. The dispersion field of the liquid phase in the wake behind the edge was measured. The stream was photographed in order to obtain the wake structure more exactly. A theoretical justification of the possibility of steam condensation in eddy currents is given on the basis of the consideration of a single eddy. 5 figures. 9 references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

UDC 543.272.2

LAUR, Ya. P., and LEYNI, E. I.

"A Device for Gathering Information on the Composition of Gases"

Avtomatiz. i kontrol'no-izmerit. pribory. Nauch.-tekhn. cb. (Automation and Control-Measuring Instruments, Scientific Research Collection) No 9, 1972, pp 18-20 (from Referativnyy Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 1, 1973, Abstract No 1.32.866 by V. S. Krasnova)

Translation: A circuit is described for automated measurement of the composition of waste gases by one set of gas analyzers on two formaldehyde generating aggregates with the derivation of information in both the analog form on the secondary instrument and in digital form of a centralized-control machine ELRU-2M, developed and introduced by the "KIVIYLI" slate-chemical works. The logic circuit is realized with the aid of and/not logic elements, executed on electromechanical relays located in the time-control unit RED-12U and in all secondary instruments. The electrical circuit of the monitor and the input bridge of ELRU-2M are fed a constant voltage of 1.5 volts. For temperature compensation they are united by a three-wire circuit. The gas analyzers together with the secondary instruments are mounted near technical pipelines. (2 illustrations)

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC: 620.171.32

TRAPEZNIKOV, D. A., ANUFRIYEV, Yu. P., KOCHETOV, D. V., LAUKHINA, N. S., URSIN, V. A., Moscow

"Evaluating the Thermal Stability of Graphites Over a Broad Temperature Range"

Kiev, Problemy Prochnosti, No 9, Sep 72, pp 18-21

Abstract: Experimental studies are conducted as a basis for analyzing the heat-stressed and limiting states of graphite construction elements and plotting their thermal resistance as a function of temperature. Five grades of graphite were tested: VPP, VPP-1000, MPG-8, ARV and PROG-2500. Annular specimens were subjected to a load consisting of a steady-state radial heat flux. The temperature was recorded at four points along the radius of the specimen at the time of fracture, and diametric displacements were determined. These figures were then used to calculate the temperature distribution through a cross section of the specimen, as well as tangential strain on the outer surface. The thermal stability of the graphite materials was calculated by determining the temperature differential as a function of surface temperature at the beginning of fracture. An expression is given which approximates the

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USSR

TRAPEZNIKOV, D. A. et al., Problemy Prochnosti, No 9, Sep 72, pp 18-21

deformed state of the rings within 10%. It is found that the temperature differential and heat flux at fracture are complicated functions of temperature, and that these functions are determined by temperature changes in the principal characteristics of the graphite materials -- maximum tensile deformation, coefficient of thermal expansion, modulus of elasticity and thermal conductivity.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

Graphite

USSR UDC 666.764.4:620.17

URSIN, V. A., ANUFRIYEV, YU. P., PETUKHOVA, I. A., and LAUKHINA, N. S.

"On the Evaluation of the Strength of Graphite Materials"

Moscow, Zavodskaya Laboratoriya, Vol 38, No 12, 1972, pp 1518-1519

Abstract: Regression functions were used to determine effective coefficients of stress concentration α_σ in graphites for which a correlation relationship between strength and density exists and the correlation coefficients are in the 0.5-0.9 limits. By applying this correlation relationship, the error in determining α_σ could been reduced by more a factor at two in comparison with usual methods, where for α_σ is taken the relation of arithmetic mean values. The material strength depends on a series of technological factors, whereas α_σ-values are determined by the gaining of the material. One figure, three formulas, three tables, five bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

LAUKMANIS, L. A.

SO: JPRS 53279
14 Jul 73

KINETICS OF GAS PICKLING AND EPITAXIAL GROWTH OF SEMICONDUCTOR MATERIALS

[illegible]

(Article by L. A. Laukmanis, [illegible]; Novosibirsk, [illegible] Struktura [illegible] Novosibirsk [illegible] Russian, Part 2, [illegible], pp [illegible])

The formation of epitaxial films and the process of gas [illegible] considered as the result of the interaction of the gas phase with the solid state. The direction of the process basically depends on the thermal conditions and composition of the gas phase in the process zone. In the literature there is no united opinion regarding the kinetics of these processes:

*Process mechanism	Kinetic equation	Bib. ref
$M + HX_4 + 2HX_2$	$\frac{dI}{dt} = -kP_4^{1/2}$	[illegible]
- - - - - - -	$\frac{dI}{dt} = -k_1'P_4^{1/2} + k_2'P_2^{1/2}$	[illegible]
$GeCl_4 + H_2 \rightarrow GeCl_2 + 2HCl$ $2GeCl_2 \rightarrow Ge + GeCl_4$	$\frac{d[GeCl_4]}{dt} = k_1'[GeCl_2]^2 + k_2[H_2]^2 - k_1[GeCl_4]$	[illegible]
- - - - - - -	$I = \frac{P_1}{\lambda_1}[GeCl_4] - \frac{P_2}{\lambda_2}[GeCl_4]$	[illegible]
Not taken into account	$\Pi = \mu P^*$	[illegible]

In the table the following notation was used:

P^* is the partial pressure of the diffusant on the phase interface. μ is the transport factor defined experimentally and dependent on the structural design of the reactor and the experimental conditions. I is the growth rate. P_2, P_4 are the partial pressure of the dihalide and the tetrahalide respectively. M is the metal, X is the halide.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

SOV JPRS 59279
14 June 73

VARIATION OF THE ELECTROPHYSICAL PARAMETERS OF EPITAXIAL FILMS OF GERMANIUM AS A RESULT OF GAS ETCHING

[Article by E. E. Aboltyn', [illegible] Teltyn; Novosibirsk, Protsessy Rosta i Struktura Monokristallicheskikh Sloyev Poluprovodnikov -- Study Simposium, Russian, Part 2, 1969, pp 110-115]

We have studied the variation of the electrophysical parameters of substrates and epitaxial films of germanium as a result of etching with gaseous hydrogen chloride.

The epitaxial films of germanium were obtained by means of the gas transport reactions in the iodide process. The gas etching was carried out in a horizontal quartz reactor with induction heating. The apparatus and the procedure for carrying out the process are described in references [1-3]. The studies were made in the temperature range of 430-920° C with the application of pure hydrogen as the gas carrier. The HCl concentration in the H_2 flow was 5-18 percent. The duration of the process was 5-10 minutes. Before the process, the specimens underwent a complete mechanical and chemical treatment cycle.

The results with respect to studying the effect of the gas etching in all cases compared with the results of studying the effect of the treatment in a hydrogen flow under conditions identical to the gas etching conditions.

The effect of the gas media on the electrophysical properties was determined by measuring the mean specific resistances, the type of conductivity, the lifetime of the minority carriers, and a study of the surface morphology under a microscope.

The variation of the electrical parameters of the specimens was controlled by means of super high frequency methods. In order to monitor the lifetime of the minority carriers the specimens were irradiated by a super high frequency electromagnetic field. The excess carriers were introduced by direct current pulses or pulses of the microwave field. The lifetime of the minority carrier was determined by the pulse decay time. The separate measurement of the total and the surface lifetimes offer the possibility of studying the variation of the lifetime of the minority carriers both on the surface and in the volume.

LAUKMANIS, L.A.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

UDC [537.226+537.311.33]:[537+535]

LAURINAVICHUS, A. K., and POZHKLA, YU. K.

"Investigation of Helicon Waves in n-InSb Specimens in Microwave Range According to Magnetoreflection"

Lit. fiz. sb. (Collection of Lithuanian Works on Physics), 1971, 11, No 1, pp 65-71 (summaries in Lithuanian and English) (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE786 by authors)

Translation: An experimental investigation was made of helicon waves in n-InSb specimens according to magnetoreflection of circularly polarized waves at frequency $f=36.910 \cdot 10^9$ Hz. Measurements were made at the temperature of liquid nitrogen and at constant magnetic field induction up to 1 tesla. A comparison was made of the theoretical and experimental dependence of the reflection coefficient as a function of magnetic induction for specimens with known free charge carrier concentration and mobility. For specimens with a low carrier concentration, magnetoplasma resonance is observed in the magnetoreflection. To increase resolution of dimensional resonances during the investigation of helicon waves in the region of weak magnetic fields, matching quarter-wave dielectric plates were used.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

UDC 62.503.53

KEMESHIS, P. P., LAURINAVICHYUS, A. B.

"Investigation of the Stability of a Two-Dimensional Tracking System With Two Degrees of Freedom"

Vil'nyus, Nauchnyye trudy vysshikh uchebnykh zavedeniy Lit. SSR. Avtomatika i vychislitel'naya tekhnika (Scientific Works of Institutions of Higher Education of the Lithuanian SSR. Automation and Computer Technology), No 2, 1970, "Mintis", pp 105-112

Abstract: The authors study the stability of a two-dimensional system with two degrees of freedom. An analysis is given of the effect which cross connections have on the stability of the given system. Two tables, two illustrations, bibliography of five titles.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

UDC: [537.226+537.311.33] : [537+535]

LAURINAVICHYUS, A. K. and POZHELA, Yu. K.

"Angular Reflection of Microwaves from Laminar Specimens of n-InSb in Which Helicon Waves are Propagated"

Lit. fiz. sb. (Lithuanian Physics Collection) No. 3, 11, 1971, pp 457-460 (from RZh-Fizika, No. 11, 1971, Abstract No. 11B1109)

Translation: With angular incidence of an electromagnetic wave on a magnetized solid plasma of laminar n-InSb, two reflected waves are obtained, one of which is propagated perpendicular to the surface of the specimen and is caused by the reflection of the helicon from the rear wall of the specimen. The experiment was conducted at a frequency of 38.2 GHz and a temperature of 77° K.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

Microelectronics

UDC 621.59:621.315

TKACHUK, B.V., LAURS, YE.P., MIKHAL'CHENKO, V.I., PEROVA, L.V.

"Thin Polysilicone Films--New Insulating Material For Cyrogenic Electronics"

Dielektriki. Mezhved. nauch. sb. (Dielectrics. Interdepartmental Scientific Collection), 1972, Issue 2, pp 65-68 (from RZh:Elektronika i yeye primeneniye, No 8, August 1972, Abstract No 8A70)

Translation: Polysilicone films with a volume resistivity of 4 . (10^{14}-10^{15}) ohm. cm, a breakdown strength of 2 . 10^6 V/cm, a dielectric constant of 2.7--4.5, and a loss angle of (2.5 - 4.5) . 10^{-3} are prepared by polymerization of organo-silicon compounds in a glow-discharge plasma. The effects were studied of the conditions of preparation and the changes of temperature from room temperature to 4.2° K on the dielectric properties of polysilicone films. Conclusions are drawn concerning their suitableness for use as insulating layers and protective coatings during production of large integrated circuit. 2 ill, 7 ref. Summary

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

1/2 026 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SPECIFIC POLYSACCHARIDES OF ALCALIGENES FAECALIS AND ALKALI FORMING MUTANTS OF ENTEROBACTERIA -U-

AUTHOR-(02)-RASHBA, O.YA., LAUSHNIK, G.M.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOL. ZH. (KIEV) 1970, 32(2), 163-75

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--POLYSACCHARIDE, ANTIGEN, GLUCOSE, TOXICITY, BIOLOGIC MUTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605004/006 STEP NO--UR/0438/70/032/002/0163/0175

CIRC ACCESSION NO--AP0139642

UNCLASSIFIED

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UNCLASSIFIED PROCESSING DATE--04DEC70

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CIRC ACCESSION NO--AP0139642

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THREE POLYSACCHARIDE FRACTIONS, O ANTIGEN, WEAKLY BOUND, AND STRONGLY BOUND, WERE PREPD. FROM 6 STRAINS OF A. FAECALIS AND 6 ALKALI FORMING MUTANTS OF ENTEROBACTERIA. THE FRACTIONS CONTAINED 18-25PERCENT REDUCING SUBSTANCES, 2.5-17.5PERCENT PROTEIN, 0.2-5PERCENT P, AND 1.0-9PERCENT N; NO NUCLEIC ACID WAS FOUND IN THE O ANTIGEN FRACTION. NO MONOSACCHARIDE WAS COMMON FOR POLYSACCHARIDES OF ALL CULTURES AND FRACTIONS. RHAMNOSE, XYLOSE, GALACTOSE, AND GLUCOSE WERE PRESENT MORE OFTEN THAN THE OTHER SUGARS, RIBOSE WAS FOUND VERY SELDOM, AND HEPTOSE WAS PRESENT ONLY IN ONE MUTANT. ALL ALKALI FORMING MUTANT WERE SEROL. RELATED, REGARDLESS OF THE METHOD OF THEIR PREPN. AND INITIAL CULTURE. BOTH THE COMPLETE O ANTIGEN AND THE OTHER TWO FRACTIONS DIFFERED WITH RESPECT TO THEIR ANTIGENIC COMPN. ON THE BASIS OF THEIR TOXICITY, THEY COULD BE ARRANGED IN THE FOLLOWING ORDER: O ANTIGEN LARGER THAN WEAKLY BOUND LARGER THAN STRONGLY BOUND FRACTIONS. ALL THREE POLYSACCHARIDE FRACTIONS APPARENTLY BELONG TO DIFFERENT MORPHOL. UNITS. FACILITY: INST. MIKROBIOL. VIRUSOL., KIEV, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC: 621.376.32

BOGACHEV, V. M., LAUT, L. N.

"Maximum Frequency Deviation in One-Tank FM Signal Oscillators With Varicaps"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Electrical Communications Technology--collection of works), vyp. 7, Moscow, "Svyaz'", 1971, pp 22-35 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D314)

Translation: Conditions are found for obtaining the maximum frequency deviation in two groups of FM signal oscillator circuits with varicaps. In solving the problem, it is assumed that the maximum permissible voltage of the varicap is known as well as the amplitude of the oscillatory voltage on the tank. Some recommendations are given on calculating frequency modulators for the proposed oscillator groups. The term "frequency modulation" is understood in this paper in its broadest sense, i. e. the term covers frequency modulation proper, frequency sweep, frequency tuning, etc. Six illustrations, bibliography of five titles. Resumé.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UDC: 531.55:521.1

USSR

LAUPSENIYEKS, L. K.

"Calculating the Original Orbits of Artificial Earth Satellites by Minimization Methods"

Uch. zap. Latv. un-t (Scientific Notes. Latvian University), 1970, 137, No 5, pp 39-59 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4A94)

Translation: Calculation of the orbits of artificial satellites reduces to finding the absolute minimum of some quality function. The calculations are unique, and can be used to account for perturbations if observations cover an extensive arc of the orbit. The method is illustrated by examples. Bibliography of ten titles. Author's abstract.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UDC: 621.372.853.1.092.22

USSR

IVASHKA, V. L., LAUTSYUS, A. S., KIBARTAS, V. V.

"Determining the Surface Resistivity of Thin Metal Layers on Superhigh Frequencies"

Lit. fiz. sb. (Lithuanian Physics Collection), 1970, 10, No 3, pp 385-390 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2B218)

Translation: The authors calculate the coefficient of reflection from a system consisting of a thin metal layer and a dielectric substrate accommodated in a rectangular waveguide. Formulas are derived for a type H_{10} wave which interrelate the surface resistivity, parameters of the substrate and modulus of the ciefficient of reflection. The results are used as a basis for determining the surface resistivity of thin layers of chromium in the 8-10 GHz range. Bibliography of three titles. Authors' abstract.

1/1

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED PROCESSING DATE--04DEC70

1/2 026

TITLE--MIXED COMPLEXES OF THE RARE EARTH ELEMENT IONS WITH O,DIHYDROXYCHROMENOLS AND 2,THENOYLTRIFLUOROACETONE AND THEIR USE IN

AUTHOR-(03)-POLUEKTOV, N.S., SANDU, M.A., LAUYER, R.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM.; 25: 899-903 (MAY 1970)

DATE PUBLISHED----MAY70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METAL COMPLEX COMPOUND, RARE EARTH COMPOUND, ORGANIC COMPLEX COMPOUND, FLUORINATED ORGANIC COMPOUND, ACETONE, BENZENE, SOLVENT EXTRACTION, PHOTOMETRIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0075/70/025/000/0899/0903

PROXY REEL/FRAME--3008/1179

CIRC ACCESSION NO--AP0136194

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 026

CIRC ACCESSION NO--AP0138194

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IONS OF RARE EARTH ELEMENTS FORM MIXED COMPLEX COMPOUNDS WITH THE REAGENTS OF THE DIHYDROXYCHROMENOL GROUP WITH 2 THENOYLTRIFLUOROACETONE, WHICH CAN BY EXTRACTED WITH BENZENE. THE COMPOSITION AND PROPERTIES OF THE COMPOUNDS FORMED WERE STUDIED. AN EXTRACTION PHOTOMETRIC METHOD WAS DEVELOPED FOR DETERMINING YTTRIUM (OR ANY OTHER ELEMENT OF THE YTTRIUM SUBGROUP) IN THE PRESENCE OF LANTHANUM.

FACILITY: INST. OF GENERAL AND INORGANIC CHEMISTRY, ODESSA.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 009

TITLE--MIXED COMPLEXES OF RARE EARTH ELEMENTS WITH 5,7,DIBROMO,8,HYDROXYQUINOLINE, 1,10,PHENANTHROLINE, DR

AUTHOR-(03)-POLUEKTOV, N.S., MISHCHENKO, V.T., LAUYER, R.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 988-92

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RARE EARTH COMPOUND, COMPLEX COMPOUND, HYDROXYL RADICAL, QUINOLINE, PHENANTHROLINE, NEODYMIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0078/70/015/004/0988/0992

PROXY REEL/FRAME--3002/1201

CIRC ACCESSION NO--AP0128619 UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 009

CIRC ACCESSION NO--AP0128619

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RARE EARTH METAL IONS (M) FORM 8,COORDINATE COMPLEXES WITH 5,7,DIBROMO,8,HYDROXYQUINOLINE (HA), 1,10,PHENANTHROLINE (PHEN) AND DIPHENYLGUANADINE (L) OF THE COMPN. (MA SUB3 (PHEN)) AND (MA SUB4) HL. HLMA SUB4) AND NH SUB4 (MA SUB4) FORMED AT PH GREATER THAN OR EQUAL TO 6.5 IN THE ABSENCE OF 1,10,PHENANTHROLINE AND DIPHENYLGUANIDINE OR IN THE CASE OF N EQUALS ND IN THE PRESENCE OF 1,10,PHENANTHROLINE.

FACILITY: LAB., INST. OBSHCH. NEORG. KHIM., ODESSA, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UDC 681.333

USSR

LAUZHADIS, A. I., KAZAKYAVICHUS, Ch. A., Vil'nyus Department of the Affiliate of the All-Union Scientific Research Institute of Electric Welding Equipment

"A Device for Simulating Welding Equipment"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 4, Feb 72, Author's Certificate No 326599, Division G, filed 12 Nov 69, published 19 Jan 72, p 184

Translation: This Author's Certificate introduces a device for simulating welding equipment. The device contains a load-simulating unit, thyristors, DC sources, and capacitors. As a distinguishing feature of the patent, the class of problems which can be solved is extended by making the load unit in the form of two circuits, each of which consists of a power thyristor, adjustable resistor, and DC source connected in series; and a control thyristor connected to a cutoff capacitor in parallel with these series circuits.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

Genetics

USSR

LAUZIS, A.

"The Gene: Problem of the Century"

Riga, Nauka i Tekhnika, No 4, 1970, pp 12-16

Abstract: In an interview with a correspondent of Nauka i Tekhnika, Academician Nikolay Petrovich Dubinin, a leading Soviet geneticist, tells why he believes that in the near future biology will displace physics as the leading science. After describing his theories of gene divisibility and genetic-automatic (gene drift) processes, which he advanced over 40 years ago, and which have now won universal acceptance, Academician Dubinin discusses current projects in his laboratory - laws of mutation, molecular changes in DNA that result from mutations, and possible ways of preventing mutations. The work on antimutagenesis has significant practical implications for the treatment of genetic diseases, prevention of aging, and control of cancer.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UDC 619:576.851.55:576.809.33

USSR

URGUYEV, K. R., KIRILLOV, L. V., LYUBICH, F. D., LAVCHENKO, Ye. G., PANFILOV, I.D. and PLESKIKH, A. S.

"Toxin Formation by Cl. perfringens in a Casein-Pancreatic Nutrient Medium"

Moscow, Veterinariya, No 2, Feb 73, pp 39-40

Abstract: A study was made of the cultivation on a casein-pancreatic medium of Cl. perfringens, type D, that causes infectious enterotoxemia of sheep and is used as a component part in the preparation of a concentrated polyvalent vaccine used against braxy, infectious enterotoxemia, and malignant dropsy of sheep as well as dysentery of lambs. On enzymatic hydrolysis of the casein at 42°C for 20-30 min, the medium, which contained 25% yeast water and 1% millet, had a high content of all peptide fractions, which form the principal source of N in toxin synthesis. The accumulation of epsilon-toxin was 4-6 times greater than in other media (e.g., Hottinger's medium). The formation of toxin was related to the content in the medium of alburoses with a high and medium molecular weight and depended on the amine coefficient of the medium (the ratio of non-protein N to the total amine N). The highest toxigenicity (20,000-24,000 Dlm/ml) was obtained at an amine coefficient in the 0.72-0.75 range.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

2

USSR

URGUYEV, K. R, et al., Veterinariya, No 2, Feb 73, pp 39-40

At increasing values of the coefficient to 0.91 and higher, the toxin content dropped sharply (to 4,000-6,000 Dlm/ml). The higher the content of free amino acids and the lower that of peptide fractions, the lower was the concentration of the toxin formed.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

Turbine and Engine Design

UDC: 621.165.015

USSR

LAVENBERG, V. D., ROMANOVSKIY, G. F., RIBLIN, E. P., and LIBERMAN, M. A.

"Evaluating the Effect of Blade Height of the Flow-Through Section on the Efficiency of Three-Ring Active Stages"

Tr. Nikolayev korablestroit. in-ta (Works of the Nikolayev Ship-Building Institute), 1972, vyp 64, pp 129-132 (from RZh-Turbostroyeniye, No 5, 1973, Abstract No 5.49.33)

Translation: The authors present the results of a theoretical study on the effect of the blade height of the flow-through section on the economy of three-ring, low-consumption turbine stages operating at low velocity ratios. Graphic and analytic relationships are presented which make it possible to estimate the degree of effect of blade height on the coefficient of efficiency of a three-ring turbine in the design stage. Original article: 4 illus., 2 bibl. entries.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UDC 539.376:620.171

USSR

MILOSERDIN, Yu. V., NABOYCHENKO, K. V., CHEBURKOV, V. I., [illegible] S. G., LAVEYKIN, L. I., EORTSOV, A. G., Moscow

"High Temperature Creep of Zirconium Carbide"

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

Abstract: Results are presented from creep and long-term strength tests of specimens of zirconium carbide in the 2,450-2,810°K temperature range. The nature of behavior of the zirconium carbide in various stages of creep and the relationship between parameters characterizing creep and the test conditions of the material are studied. It is demonstrated that in the 2,450-2,810°K temperature interval with stresses of 0.5-1.0 kg/mm², the stable stage of creep of zirconium carbide is determined by a diffusion process with an activation energy of 116 ± 18 kcal/mol.

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LAVLINSKY

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

TECHNICAL TRANSLATION

FSTC-HT-23-[illegible]-72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV, SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: I. A. DEYTSGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY IMENI T.G. SCHEVCHENKO

Translated for FSTC by ACSI

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- Title Page -

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UDC: 621.391.84:621.391.883.2

USSR

LAVLINSKIY, N. P., TERPUGOV, A. F.

"On a Suboptimum Filter for Detection of Poisson Signals"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 200-210 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A35)

Translation: The following problem is considered: against a background of Poisson flow of events of constant intensity λ there may appear a signal which gives a Poisson flow of events of variable intensity $\rho\mu(t)$, where $\mu(t)$ depends on signal shape and is assumed as given, while ρ is a random quantity with probability density $p(\rho)$. A characteristic is found for a linear filter which guarantees a minimum probability of signal skip error (in the class of linear systems) for the case of a fixed probability of false alarm. The characteristics of the resultant suboptimum filter are determined for a number of special cases of $\mu(t)$ and $p(\rho)$. Expressions of the probability of target skipping are found for these special cases. An estimate of the optimality of the given filter is found. Resumé.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

Luminescence

UDC 621.3.032.35:541.182.65

USSR

OSIPOV, B. S., MERKUSHEV, O. M., LAVOROV, I. S., and KRAVESOV, V. D., Leningrad Technological Institute imeni Lensovet

"Electrophoretic Precipitation of the Suspensions of Electroluminophores"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 46, No 4, Apr 73, pp 796-800

Abstract: The process of electrophoretic precipitation of electroluminophores from suspensions, and their behavior in electric field was studied in order to determine basic laws of the formation of electroluminescent panels (ELP). To obtain desired ELP by the electrophoretic method, it is necessary to use a luminophore with uniform distribution of the activator's concentration among its particles, or the direction of the electric field and the concentration of the suspensions have to be selected so that they would fall in the range of the aggregation of particles. The brightness of the ELP obtained in this fashion should exceed the brightness of the panels obtained by the pulverization method.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED PROCESSING DATE--18SEP70

1/2 031

TITLE--ANOMALIES OF MAGNETIC AND ELECTRICAL PROPERTIES IN LITHIUM AND ALUMINUM FERRITE -U-

AUTHOR-(04)-BELOV, K.P., GORYAGA, A.N., GRIDASOVA, T.YA., LAVORVSKAYA, O.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(1), 277-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--LITHIUM, ALUMINUM, IRON, MAGNETOSTRICTION, ELECTRIC CONDUCTIVITY, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0181/70/012/001/0277/0279

PROXY REEL/FRAME--1980/0250

CIRC ACCESSION NO--AP0048529

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 031

CIRC ACCESSION NO--AP0048529

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPECIMEN WAS MAGNETIZED AT 4.2DEGREESK IN FIELDS LESS THAN OR EQUAL TO 50 KOE. UNDER THESE CONDITIONS, THE SPECIMEN HAS NO MAGNETIC SATN. THIS CAN BE RELATED EITHER TO THE EXISTENCE OF TRIANGULAR ORDERING OR TO A LARGE MAGNETIC ANISOTROPY. CALCNS. SHOW THAT THE 1ST POSSIBILITY IS CORRECT. THE TEMP. DEPENDENCES OF THE ELEC. RESISTANCE AND MAGNETORESISTENCE OF THE FERRITE WERE STUDIED. MAX. WERE OBSD. ON THE CURVE SIGMA VERSUS TAU. ONE OF THEM IS DETD. BY THE TRUE MAGNETIZATION NEAR THE CURIE TEMP., AND THE 2ND OCCURS AT TEMPS. WHERE THERE IS AN ANOMALY ON THE CURVE IN R VERSUS (1-TAU). THE EXISTENCE OF THE 2ND MAX. ON THE CURVE DELTAR-R(TAU) IS APPARENTLY RELATED TO A DISTORTION OF THE NONCOLLINEAR MAGNETIC STRUCTURE AND ITS TRANSITION INTO A COLLINEAR MAGNETIC STRUCTURE. TEMP. DEPENDENCES OF THE COERCIVE FORCE AND MAGNETIZATION IN WEAK FIELDS DO NOT EXHIBIT ANY ANOMALIES.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UDC 666.972

USSR

AKHVERDOV, I. N., Corresponding Member of the Academy of Sciences BSSR,
LAVREGA, L. YA., Belorussian Polytechnical Institute

"Structure and Strength of Fine-Grain Polymer Cement Concrete"

Minsk, Doklady Akademii nauk BSSR, No. 12, Dec 71, pp 1095-1098

Abstract: The effect of polymer additives on the formation of porosity and strength of fine-grained concrete is investigated. It is noted that one of the most important characteristics of the structural properties of concrete is its porosity and that not only is the absolute value of the porosity important but also its physical character. The physicomechanical properties of polymer cement centrifuged and vibrated concrete, steamed and hardened under normal moisture conditions and also under combined conditions of seven days in water and the remaining time in air were studied. It was found that the addition of E-89 epoxy amine resin considerably reduces the capillary porosity of concrete and simultaneously increases the closure. E-89 water-soluble resin assists the increase in porosity by expanding the centrifuged concrete and raising its homogeneity. The strength of steamed polymer cement samples increases with the age of the concrete and exceeds the strength of samples without the additive

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USSR

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

AKHVERDOV, I. N., LAVREGA, L. YA., Doklady Akademii nauk BSSR, No. 12, Dec 71, pp 1095-1098

in absolute value. It is concluded that the introduction of water soluble measurements to concretes makes it possible to obtain the required water permeability in fabricating centrifuged tubes in the one-layer method of centrifuging.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED PROCESSING DATE--04DEC70

1/2 008

TITLE--MUTAGENIC ACTIVITY OF SOME ALKYLATING AGENTS IN ASPERGILLUS NIDULANS -U-

AUTHOR-(02)-KOVALENKO, S.P., LAVRENCHUK, I.N.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOL. ZH. (KIEV) 1970, 32(1), 35-9

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ASPERGILLUS, MICROORGANISM, MUTAGEN, ALKYLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605002/B07 STEP NO--UR/0438/70/032/001/0035/0039

CIRC ACCESSION NO--AP0139409

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 008

CIRC ACCESSION NO--AP0139409

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INDUCTION OF MUTATION IN ARGININE REQUIRING STRAINS OF A. NIDULANS WAS INVESTIGATED USING NE METHANESULFONE (I), 1,4,BIS(DIAZOACETYL)BUTANE (II), 2,2 PRIME,DICHLORO,2 PRIME PRIME,METHOXYTRIETHYLAMINE (III), AND N,(5,METHYLTHENYL),2,2 PRIME,DIBROMODIETHYLAMINE (IV). THE MUTAGENS, CLASSIFIED ACCORDING TO THEIR ACTIVITY, WERE IV LARGER THAN III LARGER THAN I LARGER THAN II. FACILITY: INST. MIKROBIOL. ZERUSOL., KIEV, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

E. Mathematical Modeling of Thought Processes

USSR

GEL'MAN, O. Ya., LAVRENCHUK, N. B.,

"The Problem of Construction of a Theory of Cognitive Activity"

K voprosu o postroyenii teorii poznavatel'noy deyatel'nosti [English version above], Institute of Cybernetics Academy of Sciences Georgian SSR, Tbilisi, 1972, 16 pages (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V680 DEP)

Translation: A number of fundamental problems of modern science and technology require rather well developed and precise conceptions of the structure and functions of cognitive activities (CA), its regularities and origin, etc., i.e., the results of a certain theory of CA (TCA) are needed.

A program for the construction of such a theory is the subject of this work. Based on concepts developed in an article by O. Ya. Gel'man, N. B. Lavrenchuk, "Systems Analysis of Scientific Theory as a Certain Functional Structure" (on deposit at VINITI, No 2804-71), the authors formulate three principles determining the structure, subject and models of a TCA. They are

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

GEL'MAN, O. Ya., LAVRENCHUK, N. B., K voprosu o postroyanii teorii poznavtel'noy deyatel'nosti, 1972, 16 pages

used as the basis for study of the specifics of various TCA subsystems and a rough outline is drawn for a future TCA, which may provide a rational basis for integration and coordination of various CA studies, thus facilitating their further development.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

Mechanical and Optical

USSR UDC 620.193.5:/621.793.6:669.14/

OSINTSEV, V. D., GORBUNOV, N. S., LAVRENKO, N. A., LITVINOVA, N. YE., and SIDEL'NIKOVA, E. A., VNIKTI (All-Union Sci Res, Design and Technological Institute of the Pipe Industry, Dnepropetrovsk)

"Effect of Diffusion Chromium Plating and Heat Treatment on the Corrosion Resistance of Chromium Plated Steel in Hot Sulfurous Gases"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 2, 1973, pp 17-19

Abstract: The effect of chromium plating temperature, carbon content in the steel, cooling rate and heat treatment on the corrosion resistance of a contact-diffusion chromium coating in the gases of an industrial tubular heat exchanger used in the production of elementary sulfur was investigated. Steels 10, 20, 45, armco iron and steel 1Ф with titanium (0.14% C and 0.74% Ti) were used in this study. Chromium plating was done at 1100 and 1150° C for six hours in a vacuum of 0.01-0.001 mm Hg. Samples were placed inside a tube in a flow of gas containing almost 4% by volume) sulfur (sulfur dioxide, hydrogen sulfide, sulfur vapors and sulfur-organic compounds). Gas temperature was kept at 270-290°C and test time was 12,240 hours. Samples of steels Kh25T, Kh18N10T and St. 3 (not plated) were also tested for comparison. Steel 10 + Ti after plating at 1150°C and steel 10, annealed or normalized after plating, had the least

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USSR

OSINTSEV, V. D., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 1973, pp 17-19

corrosion (0.002-0.003 g/m^3-hr) when they were rapidly cooled (600-1000° C/hr) owing to the smaller amount of carbides able to enter the alpha-solid solution. 1 figure, 5 bibliographic references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

Catalysis

UDC 541.128

USSR

LAVRENKO, V. A., CHEKHOVSKIY, A. A., and DATSENKO, L. I.

"Effect of Crystallographic Orientation of the Surface of Single Crystals of Silicon Dioxide and Magnesium Oxide on the Recombination Rate of Hydrogen Atoms"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLV, No 5, 1971, pp 1124-1127

Abstract: An experimental study was made of the recombination rate coefficients of hydrogen atoms on the [100], [111], and [110] faces of single crystals of MgO and [0001], $11\bar{2}0$], and $[10\bar{1}0]$ faces of single crystals of SiO_2. The experimental procedure is described, and the data for the probability of recombination of hydrogen atoms on the given surfaces are tabulated. The surface activity depends on the crystallographic orientation and is determined by the crystal chemical characteristics of the surfaces. Admixtures contained in a single crystal of MgO can have no significant effect on the recombination reaction rate.

Good agreement between the data presented here and those obtained by other authors is noted and the results are generalized as proof that not only in

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USSR

LAVRENKO, V. A., et al., Zhurnal Fizicheskoy Khimii, Vol XLV, No 5, 1971, pp 1124-1127

the case of crystals of standard semiconductors, but also in the case of nonconducting oxides the surface orientation can play a significant role in adsorption and heterogeneous catalysis.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

Ecology

USSR UDC 581.55:001.1

LAVRENKO, Ye. M., Botanical Institute, Academy of Sciences USSR, Leningrad

"Main Problems of Biogeocenology and Goals of Biogeocenological Research in the USSR"

Moscow, Zhurnal Obshchey Biologii, No 4, 1971, pp 395-408

Abstract: Following a general discussion of the concept of biogeocenosis, development and current status of biogeocenology in the USSR, and ways of studying biogeocenoses, the author outlines the following four main aspects of the field: (a) natural biogeocenoses (chiefly zonal and regional in mountains) and biogenocenoses developed as a result of man's activities (e.g., clearing of forests, grazing farm animals) in the various natural areas of the Soviet Union; (b) artificial biogeocenoses (crops and plantings of different composition) in various natural areas of the Soviet Union; (c) effects of the recent technological revolution on the biogeogenetic cover and biosphere as a whole; (d) compilation of a biogeocenotic map of the USSR on a 1:4,000,000 scale. Some of the shortcomings in existing research are pointed out and ways of eliminating them are suggested.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

UDC 621.382.2:621.317.799

LAVRENKO, YU. YE., MANOYLOV, V.F.

"Measurement Of Impedance Of Microwave Diode With Help Of Non-Matched T-Bridge"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Proceedings Of The All-Union Scientific-Technical Conference On Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 47-49 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B512)

Translation: An account is given of a method for measuring the impedance of parametric diodes with the help of a reflectometer, in the circuit of which a non-matched double waveguide T-junction is included for increasing the precision of measurement. The results of the experimental test of the method show its applicability for series measurements. 1 ill. 4 ref. K.S.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC: 681.3

LAMEKIN, V. P., LAVRENOV, O. Ye., Riga Institute of Civil Aviation Engineers imeni the Lenin Komsomol

"Calculation of the y-Parameters of an Integral Amplifier by Reducing the Matrix of an n-Pole Network to that of a Quadripole"

Leningrad, Izvestiya VUZov, Priborostroyeniye, Vol 16, No 1, 1973, pp 101-106

Abstract: The method of transforming the matrix of the multinode integrated circuit of a linear amplifier to the equivalent matrix of a two-terminal pair network is used for digital computer calculation of its y-parameters and operational parameters. It is shown that the proposed method can be used for simple and accurate computation of the frequency dependences of y-parameters of integral amplifiers, as well as their technical and working parameters.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

1/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--OXIDATION REDUCTION POTENTIALS OF FORMAMIDINE DISULFIDE THIOUREA AND CERIUM(IV) CERIUM(III) SYSTEMS IN AQUEOUS ACETIC ACID SOLUTIONS -U-

AUTHOR-(04)-ZEGZHDA, T.V., LAVRENOVA, L.G., SHULMAN, V.M., USTYANTSEVA, T.A.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(3), 442-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REDOX REACTION, FORMIC ACID, THIOUREA, SULFIDE, PLATINUM ELECTRODE, CERIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0195 STEP NO--UR/0364/70/006/003/0442/0444

CIRC ACCESSION NO--AP0114581

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED PROCESSING DATE--16OCT70

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CIRC ACCESSION NO--AP0114581

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REDOX POTENTIAL IN A CELL CONTG. FORMAMIDINE DISULFIDE ((H SUB2 NC (:NH)S) SUB2) THIOUREA AND N HCL AND 0-90PERCENT ACOH WAS MEASURED AT 25DEGREES WITH A PT AND GLASS ELECTRODES AND COMPARED WITH A CELL CONTG. CE PRIME4 POSITIVE:CE PRIME3 POSITIVE (AS SULFATES), N HCL, AND 0-80PERCENT ACOH. THE POTENTIAL OF THE FORMAMIDINE DISULFIDE THIOUREA SYSTEM IS PRACTICALLY INDEPENDENT OF THE SOLVENT COMPN. THE DATA FOR BOTH SYSTEMS ARE IN GOOD AGREEMENT WITH THOSE OBTAINED WITH THE SCE AND PT ELECTRODES. FACILITY: INST. NEORG, KHIM., NOVOSIBIRSK, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UDC 541.15:678.742

USSR

STAREN'KIY, A. G., LAVRENTOVICH, Ya. I., and KABAKCHI, A. M., Institute of Physical Chemistry, Acad. Sc. USSR

"Effect of the Type and of the Energy of Radiation on the Radiolysis of Polypropylene"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 12, No 11, Nov 70, pp 2,476-2,480

Abstract: Isotactic polypropylene has been irradiated with γ-rays and α-particles with energy of 28 Mev in an attempt to investigate the nature of early stages in the radiolysis of this polymer. The structure of the tracks of charged particles appeared to have an effect on chemical processes. At low doses polypropylene is degraded yielding 0.86 bonds per 100 ev, while at higher doses it is crosslinked. Gel-fraction is obtained at 25 Mrad with γ-irradiation but only at 50 Mrad when α-particles were used. It was determined that γ-particles are less effective in the crosslinking process and in formation of diene and triene sequences than γ-irradiation, but they are more effective in the processes of the formation of vinylidene bonds. Possible mechanism for the primary reactions in radiolysis have been proposed.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

GLORIA

SO: JPRS 55933
09 MAY 1972

SIMULATION AND METHODS OF SOLVING CONTROL PROBLEMS

[Article by L. Lavretskiy, NIIOUS: Moscow, Na Stroykakh Rossii, Russian, No. 3, 1972, pp 19-20]

In accordance with the topical area of this section, a study was made of methods, procedures, algorithms and models for solving specific organizational and economic problems of construction production control.

Eighteen reports were given on the presented topics the authors of which provided the section with additional information on their developments and presented broader material for examination. A number of papers were devoted to the problems of simulating the calendar and annual plans of the construction organizations (Y. Adel'son-Vel'skiy, V. Voropayev, S. Kalinovskaya, L. Averbakh, Ye. Kibalov, V. Fink, B. Shirokov, I. Berg, V. Tovbis, V. Serov, Yu. Sorokin, V. Lavrova, V. Prudenkova, L. D'yakonova, Yu. Golubeva, L. Popov, G. Yarymova, O. Mikhnenkov, N. Vil'yams). A study of these problems demonstrated that the attention of many organizations leading the development of automatic control systems has been attracted to the problems of calendar and current planning. All the planning problems will be stated in the optimization area. For this purpose, the authors are calling on a variety of mathematical apparatus, creating a proper procedure for formalization in a number of projects. The implemented algorithms permit the development of the corresponding programs on computers of various classes.

Developments in the field of regulating construction production were widely presented (G. Yavorskiy, Yu. Lokhvitskiy, V. Lerner, Yu. Shar'yy, B. Alekseyev, L. Dobrynin, S. Romanov, Yu. Birin, G. Matlin, Ye. Bol'shev). In the reports, solutions of specific problems of operative control were proposed — resource distribution, organization of deliveries of both stored and unstored products, transportation administration and mechanization media. A highly important specific feature of these developments was the fact that a significant part of them were the operating documents approved in practice and actually existing in the construction organizations.

A significant amount of attention was given in the topics and directly in the reports to the optimization problems of organizing technological

LAVRETSKIY, L.

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UDC 547.241

USSR

LAVRENT'YEV, A. N., MASLENNIKOV, I. G., and SOCHILIN, Ye. G., Leningrad Technological Institute imeni Lensovet

"Synthesis of Tris(heptafluoropropyl)phosphine and Mixed Tertiary Phosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, pp 2663-2665

Abstract: Tris(heptafluoropropyl)phosphine, b.p. 142° has been obtained from bis(heptafluoropropyl)iodophosphine and heptafluoroiodopropane in presence of metallic antimony. Analogously trifluoromethylbis(heptafluoropropyl)phosphine, b.p. 112-113° and bis(trifluoromethyl)heptafluoropropylphosphine, b.p. 67-68° and some mixed tertiary phosphines were obtained.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UDC: None

USSR

BALASHOV, Ye. P., LAVRENT'YEV, B. F., PETROV, G. A., and PUSANKOV, D. V.

"Digital Computing Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 9, 1973, p 165, No 368606

Abstract: This device contains a magnetic storage unit with a linear selector. The digital readout lines of the latter are connected to a counting amplifier, whose outputs are, in turn, connected to an AND shift. The distinctive feature of the device is that two delay circuits are contained in each digital circuit, with the inputs of each delay joined to the output of the counting amplifier output and the AND shift output for that digit. This arrangement has the effect of simplifying the structure of the device and increasing its operating speed.

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Materials

UDC 539.3.551.243

USSR

VLADIMIROVA, V. L., and LAVRENT'YEV, F. F.

"The Temperature Dependence of the Yield Point of Hexagonal Metals at Low Temperatures"

Khar'kov, Fiz. Mekhanizmy Plastich. Deform. pri Nizk. Temperaturakh -- Sbornik (The Physical Mechanisms of Plastic Deformation at Low Temperatures -- Collection of Works), 1971, pp 7-10 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V472 by L. I. Mirkin)

Translation: An investigation is made of the influence of the temperature, purity, and deformation rate upon the critical shear stress in monocrystals of zinc (99.999 and 99.99%), cadmium (99.98%), and magnesium (99.99%). The initial density of the dislocations is determined; depending upon the crystal purity, this comprises from 10^4 to 10^7 cm^{-2}. Deformation was carried out by simple shear and by compression in planes 0001 and directions 1120 at rates from 8×10^{-4} to 2×10^{-2} and at temperatures from 1.4 to 300°K. The result was obtained, that in crystals of high purity virtually no relationship exists between the critical shear stress and the temperature. In crystals of lesser purity, an anamolous relationship appears between the critical shear stress and the temperature (increase of the critical shear stress with a temperature

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

VLADIMIROVA, V. L., and LAVRENT'YETV, F. F., Fiz. Mekhanizmy Plastich. Deform. pri Nizk. Temperaturakh — Sbornik, 1971, pp 7-10

decrease in the interval of 300-40° K, and a decrease of the critical shear stress with a temperature decrease from 40 to 1.4° K). Analysis of data of the change of dislocation mobility in relation to the temperature showed that constancy of the critical shear stress may be linked to simultaneous matching of increase of the rate and decrease of the density of the dislocations. The observed relationship of the critical shear stress to the temperature in crystals of lesser purity is linked to an infraction of this matching, due to the presence of admixtures. Furthermore, the dislocation rate is not a function of purity; the entire change is linked to the decrease of density of the mobile dislocations. For magnesium crystals, the relationship of the critical shear stress to the temperature is considerably affected by the deformation rate. Other conditions being equal, an increase of the deformation rate brings about an increase of the critical shear stress. A linear relationship of the critical shear stress to the logarithm of the deformation rate is observed at all temperatures, and as the temperature decreases, there takes place a parallel shift of the straight line into the region of higher critical shear stresses. At zero stress the activation energy equals 5×10^{-2} ev, at temperatures of 300 and

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

VLADIMIROVA, V. L., and LAVRENT'YETV, F. F., Fiz. Mekhanizmy Plastich. Deform. pri Nizk. Temperaturakh -- Sbornik, 1971, pp 7-10

77°K the activation volume equals 3.4×10^{-20} and 1×10^{-20} cm^3 respectively; the obtained parameters are linked to the surmounting of basal dislocations of the point admixture defects.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

1/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ROLE OF FOREST TYPE DISLOCATIONS IN THE PLASTIC DEFORMATION OF ZINC SINGLE CRYSTALS -U-

AUTHOR-(02)-LAVRENTYEV, F.F., VLADIMIROVA, V.L.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1), 150-6

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--CRYSTAL DISLOCATION, ZINC, PLASTIC DEFORMATION, HIGH PURITY METAL, TWINNING, METAL SINGLE CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0688 STEP NO--UR/0126/70/029/001/0150/0156

CIRC ACCESSION NO--AP0105664

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

2/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105664

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE D. OF FOREST DISLOCATIONS IN THE (BAR 1122) (BAR 1123) SYSTEM ON PARAMETERS OF THE STRENGTHENING CURVE DURING SHEAR IN THE (0001) (BAR 1120) SYSTEM OF 99.99PERCENT PURE ZN CRYSTALS AT 293DEGREES K, WAS INVESTIGATED. THE FLOW STRESS, THE STRENGTHENING COEFF., AND THE TIME OF THE EARLY STAGE VARY SIGNIFICANTLY WITH INCREASED D. OF FOREST DISLOCATIONS. EXPRESSIONS WERE OBTAINED FOR THE CHANGES OBSD. AT FOREST DISLOCATION DS. OF 1 TIMES 10 PRIME3 TO 3 TIMES 10 PRIME6 CM PRIME NEGATIVE2, THE DAMPLING OF THE DISLOCATION MOTION IS THE MECHANISM DETG. THE STRENGTHENING, WHEREAS AT GREATER THAN 3 TIMES 10 PRIME6 CM PRIME NEGATIVE2 THE STRENGTHENING IS CONTROLLED BY THE DISLOCATION MULTIPLICATION PROCESS. THE MULTIPLICATION THEREBY HAS A DISCRETE NATURE WHICH MANIFESTS ITSELF IN JUMP LIKE DEFORMATION. THE CRIT. SHEAR STRESS AND THE FLOW STRESS VALUES AT THE EASY SLIP STAGE ARE CAUSED BY THE SAME MECHANISM, NAMELY BY ELASTIC INTERACTION OF THE DISLOCATIONS IN THE (0001) (BAR 1102) SYSTEM WITH DISLOCATIONS IN THE (BAR 1122) (BAR 1123) SYSTEM, WITH THE FORMATION OF RECOMBINATION SEGMENTS FORMED BY SESSILE DISLOCATIONS. THE TWINNING PROCESS WHICH, AS A RULE, PRECEDES FRACTURE, SHIFTS TOWARDS THE REGION OF LESSER DEGREES OF DEFORMATION WITH INCREASING FOREST DISLOCATION D. SUCH AN INTERACTION CAN LEAD TO THE APPEARANCE OF DISLOCATIONS, THE BURGERS VECTOR (BAR 1011) OF WHICH LIES IN THE (BAR 1012) TWINNING PLANE, I.E. SUCH A REACTION CAN SERVE AS THE SOURCE OF TWINNING DISLOCATIONS.

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Single Crystals

USSR

UDC 669.5.548.4:539.4

LAVRENT'YEV, F. F., and VLADIMIROVA, V. L., Physicotechnical Institute of Low Temperature, Academy of Sciences, Ukr SSR

"The Role of Forest Dislocation in the Plastic Deformation of Zinc Single Crystals"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metalloveideniye, Vol 29, No 1, Jan 70, pp 150-156

Abstract: The role of forest dislocation in the plastic deformation of zinc single crystals was studied. The effect of forest dislocation density ρ_f in the {1122} <1123> system on parameters of the work-hardening curve for displacement in the (0001) <1120> zinc crystal system (99.99%) at a temperature of 293°K was investigated. The forest dislocation density varied from 10^4 to $10^7 cm^{-2}$. It is shown that the flow stress τ_t, the hardening modulus at the A stage $\theta_a = d\tau/d\varepsilon$, and the extent of the A stage $a_A = \varphi_0/\varepsilon$ vary substantially with increasing forest dislocation density. The flow stress is described by the relation $\tau_T = \tau_c + \alpha G b \rho_f^{1/2}$, where τ_c is the stress at $\rho_f = 0$ for ε deformation; G is the displacement modulus; b is the Burgers vector; and $\alpha = 1.9$ is the slope coefficient.

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USSR

LAVRENT'EV, F. F. et al., Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 150-156

The θ (ρ_d) dependence is described by the deformation curve with a maximum, while a_1(ρ_d) decreases monotonically down to zero at $\rho_d = 10^7 cm^{-2}$. The variation of the above-mentioned parameters is tentatively explained by the change of controlling mechanisms hindering the dislocation multiplication. In the range of ρ_d from 1×10^3 to $3 \times 10^6 cm^{-2}$, the dislocation movement is hindered by the controlling mechanism determining the work-hardening, while from $3 \times 10^6 cm^{-2}$ and up the work-hardening is controlled by the dislocation multiplication. The microstructures of zinc crystals with consecutively increasing dislocation density in the {1122} <1123> system from 8×10^3 to $\sim 10^7 cm^{-2}$ are presented. Orig. art. has: 5 figures.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC: 621.375.132:621.375.4(088.8)

BAZAROV, B. V., LAVRENT'YEV, G. F., RAZORENOV, N. Ye.

"An AC Amplifier"

USSR Author's Certificate No 221054, filed 3 Jun 66, published 3 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D114 P)

Translation: An AC amplifier is proposed with a phase-sensitive rectifier with negative feedback proportional to the direct current of the load. To simplify the design and improve reliability, the primary winding of the feedback transformer is connected in series with the switches of the phase--sensitive rectifier, and the secondary winding is connected to the input of the AC amplifier.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC 621.762.2:669.24

LAVRENT'YEV, I. A., SHCHEGOLEVA, R. P., BOROK, B. A., RYBAL'CHENKO, M. K.

"Problem of Using the Waste from Machining Alloys for Powder Metallurgy"

K voprosu ispol'zovaniya otkhodov mekhanicheskoy obrabotki splavov dlya tseley poroshkovoy metallurgii (Problem of Using the Waste from Machining Alloys for Powder Metallurgy), Metallurgy Institute of the USSR Academy of Sciences, Moscow, 1971, 21 pp, ill. 20-entry bibliography, No 3522-71 Dep. (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G398 DEP)

Translation: Results are presented from the development of a technological process for obtaining KhN55VMTFKYu Ni-alloy powder from shavings -- production waste. The developed technological process was tested in the production of experimental lots of the powder. A study was made of the conditions of obtaining the sintered and deformed alloy and its mechanical properties at room temperature and higher temperatures. Five illustrations, 6 tables, and a 20-entry bibliography.

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(1)

JPRS 60084
27 NOVEMBER 1973

LAVRENT'YEV, I. V.

INTEGRAL CHARACTERISTICS OF THE DC MAGNETOHYDRODYNAMIC CHANNEL CONSIDERING CONDUCTIVITY AND TRANSVERSE BOUNDARY EFFECTS

[Abstract of a Paper by I. V. Lavrent'yev Given at the Magnetohydrodynamic Conference, pp 164-168]

A study was made of the flow of an isotropically conducting liquid in a rectangular channel $|x| < \infty$, $|y| < 1$, $|z| < \delta$ bounded for $z = \pm\delta$, $|x| < \infty$ and $y = \pm 1$, $|x| < C$ by thin conducting walls (characterized by the parameters d_2 and d_1), and for $y = \pm 1$, $|x| < C$, by ideally conducting electrodes. The velocity of the liquid and the external magnetic field are considered given $\vec{v} = (v(y, z), 0, 0)$, $\vec{b} = (0, 0, -b_z(x))$, and the magnetic Reynolds number is small. Under these assumptions, the problem reduces to solving the Poisson equation for the electric potential ϕ with known right-hand side with the boundary conditions

$$\varphi = \pi \quad \text{for } y = 1,\ |x| < C,\ |z| < \delta,$$

$$\frac{\partial\varphi}{\partial y} - d_1\left(\frac{\partial^2\varphi}{\partial x^2} + \frac{\partial^2\varphi}{\partial z^2}\right) = 0 \quad \text{при } y = 1,\ |x| > C,\ |z| < \delta;$$

$$\varphi = 0 \quad \text{for } y = 0,\ |x| < \infty,\ |z| < \delta,$$

$$\frac{\partial\varphi}{\partial z} - d_2\left(\frac{\partial^2\varphi}{\partial x^2} + \frac{\partial^2\varphi}{\partial y^2}\right) = 0 \quad \text{при } z = \delta,\ |x| < \infty,\ |y| < 1,$$

$$\frac{\partial\varphi}{\partial z} = 0 \quad \text{for } z = 0,\ |x| < \infty,\ |y| < 1$$

Writing ϕ in the form

$$\varphi = \varphi_0(x, y) + \sum_{\mu} \varphi_{\mu}(x, y) \cos(\mu z/\delta),$$

where summation is carried out with respect to all positive roots of the equation $d_2 \mu \operatorname{ctg} \mu = -1$, we arrive at the following problem:

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(3)

JPRS 60637
27 December 1973

EXPERIMENTAL STUDY OF THE INTEGRAL CHARACTERISTICS OF THE DC MAGNETOHYDRODYNAMIC CHANNEL

[Abstract of a Paper by V. F. Vasil'yev, B. C. Karasev, I. V. Lavrent'yev Given at the Magnetohydrodynamic Conference, [illegible]]

In order to check the results of theoretical studies of the electromagnetic processes occurring in magnetohydrodynamic channels and their integral characteristics, a number of experiments were performed on a conduction magnetohydrodynamic channel of constant rectangular cross section with conducting walls and one pair of electrodes. The presence in the device of a source of hydraulic power (electromagnetic pumps) and an external electric power supply (a unipolar machine) permitted experiments to be performed for all operating modes of the magnetohydrodynamic channel in a broad range of variation of the load factor. In the generator mode the characteristics were taken for constant flow rate of the working medium, and in the pump mode, both for constant and variable current and voltage. The presence on the electromagnet of plug-in pole terminals of different lengths permitted discovery of the effect of taking the magnetic field beyond the electrode zone on the integral characteristics of the channel in the generator and pump operating modes. The characteristics of the magnetohydrodynamic machine were obtained with a system of compensation busses and without them.

A comparison of theory and experiment demonstrated that it is necessary to consider the contribution of the transverse boundary effect to the channel characteristics, especially for sufficiently large extensions of the magnetic field beyond the electrodes. The quantitative comparison of the theoretical results obtained from solving the three-dimensional problem, that is, considering both the longitudinal and transverse effects, with the experimental results can be considered entirely satisfactory.

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CSO: 8044/0653-W

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- 66 -

LAVRENT'YEV, I. V.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC 528.024.6:528.5

LAVRENT'YEV, I. V., MOVSESYAN, R. A., TAPLASHVILI, I. A., KHESED, Ye. A.

"The SGN-27D System for Hydrostatic Leveling"

Moscow, Geodeziya i Kartografiya, No 11, Nov 72, pp 23-28.

Abstract: The SGN-27D system is designed for high frequency hydrostatic leveling with remote determination of the position of the fluid level in connected vessels. It differs from other similar systems in its switching method in selecting sensors and in that it contains an internal pulse counter in the control unit, which makes it more convenient to use. In order to expand the area of application of hydrostatic leveling, a number of problems remain yet to be solved, one of which is consideration of temperature influences. Here, in the opinion of the author s, the two-fluid method should be used, developing devices with wide ranges of measurement of fluid level. Finally, all measurements must be performed automatically under program control. This will allow the most convenient hours to be used for measurement, for example the night hours. These problems are being studied at the Yerevan Polytechnical Institute imeni K. Marx and other organizations, and it is hoped that the method of hydrostatic leveling will become widely used in the near future.

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USSR UDC: 621.317.3:[621.315.61+621.315.592]

URYVSKIY, Yu. I., SYNOROV, V. F., CHURIKOV, A. A., POPOV, V. A., KONONOV, V. I., LAVRENT'YEV, K. A., MASLENNIKOV, P. N.

"Ellipsometric Method of Checking Dielectric and Semiconductor Films"

Elektron. prom-st'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No 2, pp 82-83 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12A393 by A. K.)

Translation: The ellipsometric inspection method is distinguished by high information capacity and resolution: It enables simultaneous measurement of the thickness and index of refraction of the film on a substrate during production with accuracy of up to 1 nm and 0.05 respectively. The method is based on determining the change in parameters of polarized light reflected from the surface being studied.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

UDC [621.357:621.72.027]:669.3

LAVRENT'YEV, L. F., MIKHAYLOV, L. F., ROMANENKO, I. N.

"Experimental Study of the Effect of the Degree of Purity and Contact Pressure on the Contact Resistance of Flat Copper Surfaces"

V sb. Elektr. razryad v elektrotekhnol. ustanovkakh (Electric Discharge in Electrotechnical Devices -- collection of works), Cheboksary, 1971, pp 93-96 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L361)

Translation: A study was made of the dependance of the contact resistance of flat Cu surfaces on the procedure used in machining them (the surface was machined with a fine sandpaper, a coarse file, or oxidized by chlorine) and the magnitude of the contact pressure for various D. The pressures varied from 0.1 to 4 kg/cm^2; D reached 50 a/cm^2. It was demonstrated that in order to insure minimum contact resistance for flat contacts up to 50 cm^2 in area a pressure of 1.5-2 kilogram-force/cm^2 is sufficient. When P = 2 kilogram-force/cm^2, the mean contact resistance $\rho \approx$ 1-1.5 ohm-cm^2. For large contact surfaces, special lapping of the surface is required or making the contacts sectional (with each section area $\leq$ 40-50 cm^2). The contact surfaces must be cleaned to remove oxides.

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Radiobiology

UDC 612.014.482

USSR

ZAPOL'SKAYA, N. A.; FEDOROVA, A. V.; LAVRENT'YEV, F. N.; Leningrad Scientific Research Institute of Radiation Hygiene, Ministry of Health RSFSR

"Long-Term Effects of Combined Exposure to External and Internal Radiation Sources"

Moscow, Gigiyena i Sanitariya, No 7, 1971, pp 53-57

Abstract: One group of rats was irradiated with x-rays, two others were given a misture of radionuclides consisting of alkali earth and rare earth elements, two others were given the same isotopes after single external irradiation, and a sixth group was used as controls. Those animals exposed to both external and internal radiation died sooner and in greater numbers than those exposed to either radiation factor separately. The irradiated and control animals eventually died of the same diseases, but owing to lowered general resistance, the experimental animals became sick much more often and earlier. There was a definite relationship between the total absorbed dose,

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

ZAPOL'SKAYA, N. A., et al, Gigiyena i Sanitariya, No 7, 1971, pp 53-57

the type of radiation, and the development of malignant neoplasms. Malignant neoplasms appeared chiefly in animals exposed to the combined radiation and in those that received a single mixture of isotopes with an initial activity of 20 microcuries. If the total dose from internal radiation sources was higher than that from external sources, the nature of the long-term effects was determined by the internal dose.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

Radiobiology

UDC 615.849.1.038.065

USSR

LAVRENT'YEV, L. N., Leningrad Scientific Research Institute of Radiation Hygiene, Ministry of Health RSFSR

"The Morphological Picture of Injuries and Restorative Processes during the Combined Effect of External and Internal Irradiation"

Moscow, Meditsinskaya Radiologiya, Vol 15, No 3, 1970, pp 76-78

Abstract: A study was made of the morphological picture of injuries and restorative processes during the combined effect of external and internal irradiation. A total of 350 male rats were divided into five groups of 50 rats each, with a sixth group of 100 rats as controls. The rats were exposed to various combinations of whole-body x-ray irradiation and internal irradiation with a mixture of strontium 90 and cerium 144 isotopes, administered daily via a gastric probe over a period of 210 days. Histological preparations were made over a 700-day period. Investigations revealed that a variety of disorders resulted from the exposure to radiation. Among the injuries observed were perivascular edemas and protein dystrophies of the liver and kidneys, sclerotic changes, diffuse edema of the mucous membrane and stratum submucosum of the intestine, pneumonia, chronic inflammatory changes of different parts of the extremities and trunk, hemorrhage, lymphoreticular sarcoma of the large intestinal wall, and others. The intensity and regenerative processes of the various injuries varied depending on the radiation dose, type of radiation, elapsed time, [illegible] the rate absorbed by organs and tissues

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

1/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--SCIENCE IN SIBERIA -U-

AUTHOR-(02)-LAVRENTYEV, M.A., TROFIMUK, A.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIRODA, NO. 1, 1970, PP 2-6

DATE PUBLISHED--------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--R AND D MANPOWER SUPPLY, SCIENCE CENTER, SCIENCE ACADEMY MEMBERSHIP, SCIENTIFIC PERSONNEL, ACADEMIC PERSONNEL, ACADEMIC INSTITUTION, UNIVERSITY, ACADEMY OF SCIENCE R AND D, HIGHER EDUCATION INSTITUTE R AND D/(U)NATIONAL ACADEMY OF SCIENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1433 STEP NO--UR/0026/70/000/001/0002/0006

CIRC ACCESSION NO--AP0104743

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED PROCESSING DATE--16DEC70

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CIRC ACCESSION NO--AP0104743

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HISTORY, ORGANIZATIONAL COMPOSITION, AND SOME OF THE RECENT ACTIVITIES OF THE SIBERIAN BRANCH OF THE USSR ACADEMY OF SCIENCES ARE DESCRIBED BRIEFLY. AT PRESENT, THERE ARE 24 ACADEMICIANS, 51 CORRESPONDING MEMBERS, MORE THAN 2000 DOCTORS AND CANDIDATES OF SCIENCES AND ABOUT 24,000 OTHER SCIENTIFIC AND TECHNICAL PERSONNEL WITHIN THE SIBERIAN BRANCH. THE HEADQUARTERS OF THE SIBERIAN BRANCH IS AT NOVOSIBIRSK, WHICH ALSO INCLUDES 17 VARIOUS RESEARCH INSTITUTES. THERE ARE ALSO REGIONAL SCIENTIFIC RESEARCH CENTERS AT IRKUTSK, KRASNOYARSK, VLADIVOSTOK, AND YAKUTSK, WITH SMALLER FACILITIES AT ULAN-UDE, MAGADAN, PETROPAVLOVSK-KAMCHATKA, AND ON SAKHALIN ISLAND. MOST OF THE ARTICLE DEALS WITH THE PAST ACHIEVEMENTS AND PRESENT ACTIVITIES OF THE VARIOUS DEPARTMENTS IN PHYSICOMATHEMATICAL, GEOLOGICAL, MINERALOGICAL, GEOGRAPHICAL, BIOLOGICAL, AND CHEMICAL SCIENCES. IN CONCLUDING IT IS STATED THAT ALL OF THE LEADING SCIENTISTS ALSO WORK AT THE UNIVERSITY AT NOVOSIBIRSK.

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AN0009837

UR9036

TITLE-- IDEAS REDUCED TO MACHINERY

NEWSPAPER-- LITERATURNAYA GAZETA, JANUARY 1, 1970, P 10, COLS 1-8

ABSTRACT-- IN THIS INTERVIEW, THE VICE PRESIDENT OF THE ACADEMY OF SCIENCES AND CHAIRMAN OF ITS SIBERIAN BRANCH, M. A. LAVRENT'YEV, REVEALED HIS VIEWS ON SCIENCE-INDUSTRY RELATIONS AND WHAT IS BEING DONE ABOUT IT AT THE NOVOSIBIRSK RESEARCH CENTER. THE KEY FACTORS WHICH, IN HIS OPINION, INFLUENCE THE REDUCTION OF BASIC SCIENTIFIC IDEAS TO PRACTICAL APPLICATIONS ARE-- PERSONNEL, ECONOMIC INCENTIVE, AND RESERVE CAPABILITIES. HE ALSO SAID THAT A SPECIAL SYSTEM IS BEING CREATED AT THE NOVOSIBIRSK RESEARCH CENTER FOR REDUCING BASIC SCIENTIFIC IDEAS TO PRACTICAL APPLICATIONS. THE SYSTEM WILL CONSIST OF DESIGN BUREAUS AND PILOT PLANTS SET UP BY MINISTRIES AND THE ACADEMY OF SCIENCES. FEW MINISTRIES AND AGENCIES HAVE RESPONDED SO FAR. THE NOVOSIBIRSK HAS ALSO DRAWN PLANS FOR TRAINING THE PERSONNEL. ENGINEERING SCHOOLS WILL BE ESTABLISHED AT THE NOVOSIBIRSK UNIVERSITY AND THE STUDENTS ATTENDING THEM WILL PUT IN SOME TIME AT THE PILOT PLANTS OF THE CENTER JUST AS THE STUDENTS MAJORING IN MATHEMATICS OR PHYSICS ARE PUTTING TIME IN AT RESEARCH INSTITUTES.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC: 533.6.07

BYKOV, V.N. and LAVRENT'EV, M.E.

"Application of Holography Method to Determination of Dispersion in Two-Phase Gas-Liquid Flow"

Moscow, Fiz. Aerodispersn. Sistem. Mezhved. Nauch. Sb. (Physics of Aerodispersion Systems. Interagency Scientific Symposium, 1972, Vyp 7, pp 132-136 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2B 483 by A.V. Frolov)

Translation: Possibility of applying holographic methods to the investigation of gas-liquid flows is examined. It is pointed out that the method of forming holograms in the far diffraction zone (Traungofer holography) is the most promising in this respect. Recording of such holograms is described, experimental results of holographing water droplets moving in the stream of air at 20 m/sec velocity are presented. A ruby laser in quality modulation regime with passive cryptocyanine shutter was used as a light source. The laser generated monopulses of 2×10^{-8} sec duration. The hologram was recorded

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BYKOV, V. N. and LAVRENT'EV, M. E., Fiz. Aerodispersn. Sistem. Mezhved. Nauch. Sb. 1972, Vyp 7, pp 132-136

on PANKHROM T-18 photographic emulsion. It is pointed out that this method makes it possible to trace particles of 5-10 micromm diameter. 6 references. English resume.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC 517.946

LAVRENT'YEV, M. M., Corresponding Member of the Academy of Sciences USSR, and REZNITSKAYA, K. G., Computer Center of the Siberian Department of the Academy of Sciences USSR, Novosibirsk

"Uniqueness Theorems of Some Nonlinear Inverse Problems of Parabolic-Type Equations"

Moscow, Doklady Akademii Nauk SSSR, Vol 208, No 3, 1973, pp 531-532

Abstract: The article considers inverse problems for parabolic-type equations when the solution is considered to be known at some fixed point of space at every moment of time. Analogous problems for hyperbolic-type equations were considered previously by V. G. ROMANOV and A. S. BLAGOVESHCHENSKIY.

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USSR

UDC 632.951:636.089.3

IVANOV, N. I., and LAVRENT'YEV, P. A., (DECEASED), Kazan' Veterinary Institute imeni N. E. Bauman

"Acaricidal Activity of Cyclophos"

Moscow, Khimiya, v Sel'skom Khozyaystve, Vol 10, No 9, (119), 1973, pp 68-69

Abstract: On the basis of laboratory and field trials it was established that the effectiveness of cyclophos is about the same as that of the chlorophos in application against pasture mites and ticks. The residual activity of a 1% emulsion of cyclophos and 1% solution of chlorophos against Ixodes ricinus and Hyalomma anatolicum on the haired skin cover of large cattle was less than 48 hrs.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

E. Mathematical Modelling of Thought Processes

USSR

VAYRADYAN, A. S. and LAVRENT'YEV, V. S.

"Analysis of Three-Layer Perceptrons for Learning with Error Correction"

Inzh. Mat. Metody v Fiz. i Kibernet. [Engineering Mathematics Methods in Physics and Cybernetics -- Collection of Works], No 2, Moscow, Atomizdat Press, 1973, pp 70-79 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V773)

Translation: The behavior of a three-layer perceptron is studied with a simple R-element, the reaction of which to a stimulus is represented by ρ, while the true value of the output is represented by r^*. The correction of errors is fixed by the following relationships: $\eta = \Delta V$ if $\rho - r^* = 2$; $\eta = \alpha\Delta V$ if $\rho - r^* = 1$; $\eta = -\Delta V$ if $\rho - r^* = -2$; $\eta = -\alpha\Delta V$ if $\rho - r^* = -1$; $\eta = 0$ if $\rho - r^* = 0$, where $0 < \alpha < 1$, ΔV is the step of change of the weight of the perceptron, the initial values of which are equal to zero. The studies are performed for the case $\alpha = 1/2$. An analytic expression is produced for the sum of the inputs U_x to the R-element when the test stimulus S_x is presented after a fixed learning sequence has been presented. An approximate method is studied for determination of the mathematical expectation and dispersion of the value of U_x, based on approximation of the joint distribution rule of the num-

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

VAYRADYAN, A. S. and LAVRENT'YEV, V. S., Inzh. Mat. Metody v Fiz. i Kibernet., No 2, Moscow, Atomizdat Press, 1973, pp 70-79

ber N_{ij}, N_{em} A-elements excited by the corresponding stimuli, and $f(U_{kt})$ = sign U_{kt}, the normal rule of joint distribution of these quantities. Block diagrams are presented for the programs for calculation of $E(U_x)$, $\sigma^2(U_x)$ and $E(U_{54})$. A method is also studied for precise determination of $E(U_x)$ and $\sigma^2(U_x)$ for the case when with a fixed learning sequence, correction in any perceptron of the fixed class is performed as in a full perceptron. A. Doroshenko

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR

UDC 543.544

PEVNITSKAYA, M. V., LAVRENTIYEV, YU. G., and VARENTSOV, V. I., Institute of the Physicochemical Principles of Mineral Raw Material Processing of the Siberian Department of the Academy of Sciences USSR, Institute of Geology and Geophysics of the Siberian Department of the Academy of Sciences USSR

"Experimental Study of Concentration Profiles in Ion Exchange Membranes"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 11, Nov 70, pp 2952-2954

Abstract: The article demonstrates the possibility of using x-ray spectrum local analysis with the aid of an electron probe for the study of concentration profiles in ion exchange membranes. The distribution of Cu^{+2}, Ca^{+2}, Na^{+} ions in a heterogeneous (MK-40) and homogeneous (MK-100) membrane was studied. Concentration profiles were obtained during ion transfer in a constant electric field. Stationary profiles are given for Cu^{+2} ions in an MK-40 membrane and Ca^{+2} ions in an MK-100 membrane.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

1/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EVALUATING THE RESISTANCE OF TRANSPARENT PAINT AND VARNISH COATING TO COHESION AND ADHESION DEGRATION -U-

AUTHOR-(04)-AVILOV, G.V., LAVRENTYEV, V.V., SEREBRENNIKOV, A.I., UPENSKIY, V.I.

COUNTRY OF INFO--USSR

SOURCE--LAKOKRASOCH. MATER. IKH PRIMEN. 1970, (1), 52-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PAINT, VARNISH, COHESION STRENGTH, PLASTIC FILM, METAL TO NONMETAL BONDING, POLYSTYRENE RESIN, POLYSILOXANE, SILICONE COATING, MATERIAL DEGRADATION, MECHANICAL FAILURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0426 STEP NO--UR/0303/70/000/001/0052/0054

CIRC ACCESSION NO--AP0119362

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

2/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119362

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRANSPARENT COATINGS WERE APPLIED TO A STRONG TRANSPARENT FILM. THE COATED FILM WAS DRAWN BACK AND FORTH UNDER TENSION OVER THE EDGE OF A STEEL BLOCK. THE APPEARANCE OF CRACKS IN THE COATING WAS RECORDED AUTOMATICALLY BY MEASURING THE RATIO OF TRANSMITTED TO REFLECTED LIGHT. THE NO. (N) OF PASSES WAS TAKEN AS THE FLEX DURABILITY. THE ADHESION DURABILITY WAS DETD. BY APPLYING PRESSURE ON THE FILM AT THE STEEL BLOCK EDGE WITH A DIAGONALLY PLACED RUBBER ROLLER. THIS REDUCED THE NO. OF PASSES TO N SUB1. THE DIFFERENCE (N MINUS N SUB1) WAS TAKEN AS THE COHESION STRENGTH OF THE COATING. THE FOLLOWING RESULTS ARE REPORTED (COATING N, N SUB1 GIVEN): POLYSTYRENE COTG. POLY(DIPHENYLSIOLANE), 44, 13; ORGANOSILICONE LACQUER (I) (UNPLASTICIZED), 9,4; PLASTICIZED I, 575, 125.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SELECTION OF CONDITIONS FOR THE DILUTION OF SAMPLES DURING X RAY FLUORESCENCE ANALYSIS -U-

AUTHOR--LAVRENTYEV, YU.G.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1969, 35(12), 1452-4

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LINE INTENSITY, ABSORPTION COEFFICIENT, FLUORESCENCE SPECTRUM, X RAY ANALYSIS, DILUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1466 STEP NO--UR/0032/70/035/012/1452/1454

CIRC ACCESSION NO--AP0118455

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

2/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118455

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE DEGREE OF DILN. AND OF THE ABSORPTION COEFF. OF THE DILUENT ON THE INTENSITY OF ANAL. LINES IN X RAY FLUORESCENCE ANAL. WAS STUDIED. EXPRESSIONS WERE DERIVED FOR CALCG. THE CONCN. OF THE ELEMENT DETD., THE MIN. DEGREE OF DILN., AND THE ANAL. ERROR PRODUCED BY THE DILN. FACILITY: INST. GEOL. GEOFIZ., NOVOSIBIRSK, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

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6-73

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SESSION X

X-1. STUDY OF THE MICROMORPHOLOGY AND DISTRIBUTION OF ADMIXTURES IN EPITAXIAL AND GALLIUM ARSENIDE AS A FUNCTION OF THE GROWTH TIME

[Article by L. G. Lavrent'yeva, M. D. Vilisova, I. V. Ivonin, D. M. Krasil'nikova, F. A. Kuznetsov, Yu. M. Rumyantsev, M. P. Yakubenya, Tomsk, Novosibirsk; Novosibirsk, III Simposium po Protsessam Rosta i Sintesa Poluprovodnikovykh Kristallov i Plenok, Russian, 14-17 June 1972, p 126]

A study was made of the epitaxial layers of gallium arsenide grown in an open iodide system on substrates deflection by degrees from (111)A in the (110) direction. The growth time varied from one minute to three hours.

It was demonstrated that for all growth times beginning with one minute, the growth of the layers of the given orientation takes place by shifting of the parallel steps. There are a number of growth defects leading to disturbance in the ordered motion of the steps. These are the growth holes, the growth hills and some centers of retardation of the steps in which the steps form local pileups and loops. There is a significant rearrangement of the surface of the growing layer with growth time — the growth hills and holes disappear, the density of the centers of retardation of the steps decrease, and the configuration of the steps changes. The rearrangement of the surface of the layers is accompanied by variation in alloying level. A clear correlation has been established between the electron concentration in the layer and the density of the centers of retardation of the steps. The observed correlation indicates that the nonuniformity of alloying and the formation of the transition layer can be connected with growth defects and their effect on the motion of the growth steps.

LAVRENT'YEVA, L. G

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

3PRS 59218
C-73

XIV-6. EFFECT OF THE CRYSTALLIZATION TEMPERATURE ON THE ELECTROPHYSICAL PROPERTIES AND MORPHOLOGY OF EPITAXIAL GALLIUM ARSENIDE

[Article by L. G. Lavrent'yeva, I. V. Ivonin, Yu. G. Katayev, L. M. Krasil'nikova, [illegible], Yu. M. [illegible], A. D. Shukov, [illegible]

[illegible] Proceedings, [illegible] 12-17 June 1972, p 1[illegible]

Studies were made of the micromorphology and the distribution of the admixture with respect to thickness of the autoepitaxial layers of gallium arsenide with the (1,075; 1, 1) A orientation as a function of the crystallization temperature in the GaAs-HI-H_2 system. The epitaxy temperature varied within the range of 600-750° C; here, the thermodynamic supersaturation was kept constant.

For the stationary section, the optimal temperature range (675-700° C) is observed at which the layers grow more perfect with respect to structure with the greatest clarity, irregular system of growth stages on the surface, and with maximum admixture concentration and maximum electron mobility. In the case of a reduction in the crystallization temperature from optimal, the growth stages are exhibited more weakly, the growth rate drops, and the alloying level increases. The increase in temperature above optimal leads to local isolation of the second phase, inhibition of the growth stages in these sections and destruction of the regularity. Here, the growth rate decreases, and the alloying metal increases.

Thus, an analysis of the results shows that the clear correlation is observed between the investigated characteristics. One of the important regulators of capture of the admixture by the growing layer is the surface microstructure and the mechanism of its growth.

LAVRENT'YEVA, L.G

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

JPRS 59208
6-73

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XII-7. EFFECT OF CRYSTALLIZATION CONDITIONS ON THE ANISOTROPY OF THE GROWTH AND ALLOYING OF GERMANIUM IN GAS TRANSPORT SYSTEMS

[Article by L. G. Lavrent'yeva, I. S. Zaitsev, I. V. Ivonin, S. Yu. Torgov, Tomsk; Novosibirsk, III Simpozium po rostu kristallov iz gazovoy fazy [Growth Crystals from Gaseous Phase], Russian, 12-17 June 1972, p 1[illegible]]

1. It was previously demonstrated that the anisotropy of the growth rate Av of germanium in the Ge-Hl-H_2 system has a significant feature: the growth rate decreases on deviation from (111) and (110) to (311). It is assumed that this phenomenon is caused by significant difficulties in the discharge of adatoms in the stage arising on increasing the angle of deflection (Kristallografiya [Crystallography], Vol 15, No 4, 834, 1970).

2. The study of the anisotropy of the germanium growth rate in the same system in the (111)-(110) range confirmed that the (111) plane actually corresponds to a sharp peak. The appearance of the growth rate peak at (111) plane contradicts the thermodynamic data predicting the minimum growth rate for this plane.

3. In order to discover the generality of the observed laws, studies were made of Av in the Ge-Ge system. It was found that the growth anisotropy in this case differs essentially from the preceding anisotropy. The (111) and (100) planes have sharp growth rate minima. The growth rate increases on deviation from (111) and (100) by a small angle, and then it drops sharply on deviation from the faces by an angle of more than 10°. Thus, the significant difficulties with the adatom discharge in the stage arise in this stage in the middle of the investigated interval.

4. It is assumed that the cause of the difficulties which arise with the adatom discharge in this stage is adjustment of the surface structure caused by the effect of a number of thermodynamic and kinetic factors.

5. The electron microscope studies of the surface of germanium layers of different orientation confirming the stated proposition were performed.

6. A comparison and analysis of anisotropy of the alloying level in the investigated systems are made. The report contains a discussion of the consequences arising from the studies made, and the conclusion is drawn of the necessity of considering additional parameters when calculating the anisotropy of the growth rate in such systems.

LAVRENT'YEVA, L. G.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

USSR UDC 621.315.592

LAVRENT'YEVA, L. G.

"Mechanism of Growth of Epitaxial Layers During Chemical Transport"

V sb. Protessy rosta kristallov i plnsok poluprovodn. (Procedures for the Growth of Semiconductor Crystals and Films — Collection of Works), Novosibirsk, 1970, pp 118-136 (from RZh-Elektronika i yeye primeneniye, No 7, July 1971, Abstract No 7B63)

Translation: The question is studied of the possibility of using the theory of the growth of crystals from vapor for a description of the process of crystal growth in gas-transport systems. The distinctive features introduced into the growth mechanism by the combined composition of the gaseous phase and the binaryness of the crystal were considered. The experimental data available were compared with the model of growth under consideration. During growth of a crystal, the composition of the vapor and the growing crystal are different because of the gas-transport reaction, and this leads to the appearance of a number of specific distinctive features in the growth mechanism. 27 ref. I.Sh.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

1/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--EPITAXIAL GALLIUM ARSENIDE PN JUNCTIONS GROWN IN A CLOSED IODIDE SYSTEM WITH VARYING IODINE CONCENTRATIONS -U-

AUTHOR-(04)-VILISOVA, M.D., LAVRENTYEVA, L.G., GAYDAREVA, S.P., IVLEVA, O.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(2), 31-5

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYSTAL GROWING, EPITAXIAL PN JUNCTION, GALLIUM ARSENIDE SEMICONDUCTOR, IODIDE, IMPURITY LEVEL, CRYSTAL DEFECT, CRYSTAL DISLOCATION, X RAY ABSORPTION, ABSORPTION EDGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0195 STEP NO--UR/0139/70/013/002/0031/0035

CIRC ACCESSION NO--AT0105271

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 031

CIRC ACCESSION NO--AT0105271

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EPITAXIAL GAAS LAYERS WERE GROWN BY I TRANSPORT IN A SEALED AMPUL. THE FOLLOWING PROPERTIES WERE STUDIED AS A FUNCTION OF THE I CONCN.: TRANSPORT RATE, AV. EPITAXIAL GROWTH RATE, PACKING DEFECT D., DISLOCATION D., INTEGRAL X RAY INTENSITY AT THE GA K AUSORPTION EDGE, CONCNS. AND MOBILITIES OF CHARGE CARRIERS, EPITAXIAL IMPURITY DISTRIBUTION, AND RELATIVE POSITION OF THE P-N JUNCTION WITHIN THE LAYER. ELEC. P-N JUNCTIONS ARE DISPLACED AS FAR AS 40 MU INTO THE EPITAXIAL LAYERS WHEN A ZN DOPED SOURCE IS EMPLOYED IN CONJUNCTION WITH A TE DOPED SUBSTRATE. THIS IS DISCUSSED IN TERMS OF CURRENT AUTODOPING THEORIES. THE CRYST. PERFECTION IS AN INVERSE FUNCTION OF THE GROWTH RATE. FACILITY: SIB. FIZ. TEKH. INST. IM. KUZNETSOVA, TOMSK, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

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JPRS 570 08

6-73

VII-9. EFFECT OF THE CRYSTALLIZATION CONDITIONS ON THE PROPERTIES OF THE TRANSIENT LAYERS IN AUTOEPITAXIAL STRUCTURES OF GALLIUM ARSENIDE

[Article by L. G. Lavrent'yeva, L. P. Porokhovnichenko, L. V. Ivonin, L. H. Kraatl'nikova, N. N. Ivanova, Tomsk; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Kunstan, 16-17 June, 1972, p. 97]

This paper is devoted to the discovery of the causes of the appearance of transient layers in epitaxially grown GaAs. For this purpose a study was made of the effect of the type of substrate, the surface quality and the crystallization conditions in the initial stage of the process on the properties of the transient region.

The epitaxial layers were grown in the $Ga-AsCl_3-H_2$ system. The process was realized for ordinary preparation of the substrates and, in addition, with annealing and gas etching. The duration of the experiment varied from several minutes to two hours. The uniformity of the distribution of the admixtures with respect to thickness of the epitaxial layer was estimated by the breakdown voltage of the point contact on a low-angle section and by layer by layer measurement of the Hall effect. The micromorphology of the surface was studied under an electron microscope.

By using the electron microscope, a new type of growth defect was discovered. The density of these defects is connected with the method of treating the substrates directly before epitaxial growth. It was found that the growth rate and the level of alloying the epitaxial layers depends on the density of these defects. By regulating the process conditions in the initial stage of growth, the widths of the transient region can be varied. Possible mechanisms of the formation of the transient layers are discussed.

LAVRENT'YEVA, L.G.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED PROCESSING DATE--23OCT70

1/2 022

TITLE--MECHANISM OF ANTIPHLOGISTIC PROPERTIES COMMON TO SOME C SUB4 SUBSTITUTED ACYL AMINOPYRAZOLONES -U-

AUTHOR-(05)-PRISHCHEP, T.P., LAVRENTIYEVA, L.N., LOPUKHOVA, V.V., CHERNOVA, N.A., CHERDYNTSEV, S.G.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 78-81

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIINFLAMMATORY DRUG, AMINE DERIVATIVE, ORGANIC AZOLE COMPOUND, LESION, ALKALOID, SKIN PHYSIOLOGY, ABSORPTION, THYROID GLAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0390/70/033/001/0078/0081

PROXY REEL/FRAME--1997/0090

CIRC ACCESSION NO--AP0119086

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 022

CIRC ACCESSION NO--AP0119086

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STEARIC ACID ANTIPYRILAMIDE AND 3,5,DINITROBENZOIC ACID ANTIPYRILAMIDE INCREASED THE RATE OF RESORPTION OF STRYCHNINE NITRATE INTRODUCED TO MICE ON THE SURFACE OF A 24 HR TURPENTINE ABSCESS. BUTADIONE N,METHYL,N,ANTIPYRILAMIDE AND P,AMINOBENZOIC ACID N,METHYL,N,ANTIPYRILAMIDE INHIBITED WHILE STEARIC ACID ANTIPYRILAMIDE INCREASED FUNCTIONING OF THE THYROID GLAND. THE ANTIPHLOGISTIC EFFECT OF THE AMINOPYRAZOLONE ACYL DERIVS. SEEMS TO REQUIRE A NORMAL FUNCTIONING OF THE THYROID GLAND. FACILITY: TOMSK. MED. INST., TOMSK, USSR.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201720010-6"