USSR

DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

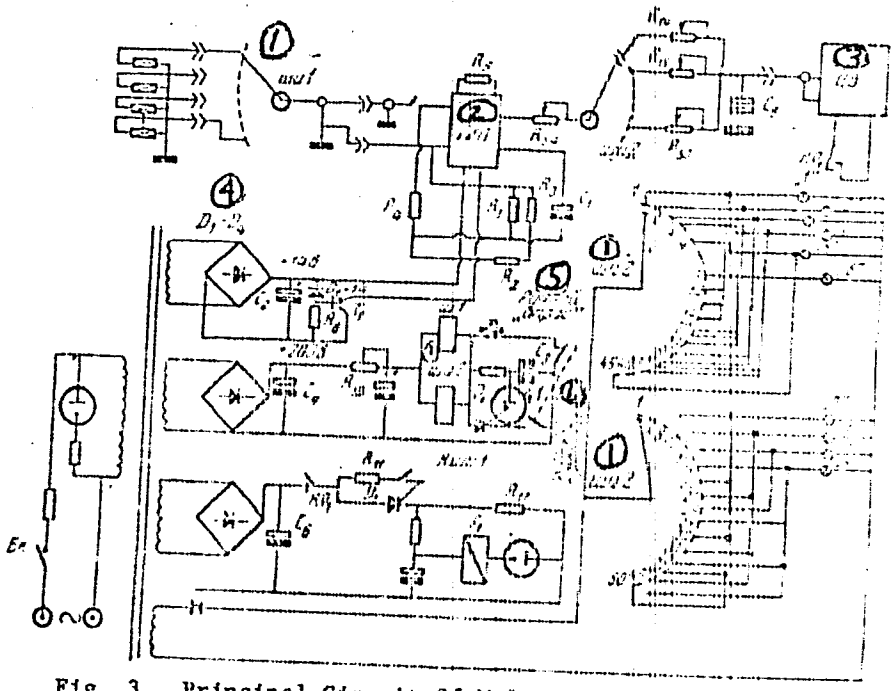

Fig. 3. Principal Circuit Of Multichannel Dosimeter

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

Key to Fig. 3.

1. (SH)-1, -2 Step-by-step switch
2. Galvanometric induction converter
3. Digital voltmeter
4. Detectors
5. Manual interrogation
6. Manual-automatic

ShI-50/4 step-by-step switches were used as K_1 and K_2 commutators. Their triggering was accomplished by the thyristorized generator L_1, operating in a regime of energy pileup in the interval between pulses. The possibility is provided for of manual or automatic interrogation with frequency control. After the commutator K_1 the signal enters a Type I-310 d-c amplifier which contains a Type 131M/3 galvanometric induction converter (GIP) an a-c amplifier, and a synchronous demodulator. The input resistance of the GIP does not exceed 1-2 ohm which makes it possible to assure realization of a short-circuit regime. From the GIP the signal proceeds via the commutator K_2 to the correcting network which contains the variable resistors R_{14}-R_{53}. Resistor R_{54} (100

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

percent R) is used during relative measurements. For an indication of the number of a detector being questioned, indicator digital panels were used, connected with the aid of the ShI-50/4 contacts, and giving in digital form the number of the detector being questioned. The results of the measurements were recorded with the aid of a Type ShCh1411M digital voltmeter, with which an output to digital printing in the code 2-4-2-1 was provided.

Structurally the multichannel dosimeter is made in the form of the block of detectors, the block of the commutator K_1, a principal block in which are located the commutator K_2, the d-c amplifier (UPT), the correcting network, and the control general G, the power supply block, and the digital voltmeter block.

The commutator K_1 is located in the immediate vicinity of the phantom. The signals are transmitted with the aid of a coaxial cable approximately 20 m long. For convenience, in the principal block there was a supplementary pointer-type recorder (SR) (See Fig. 1) of the power of the radiation dose, connected to the output of the GIP.

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

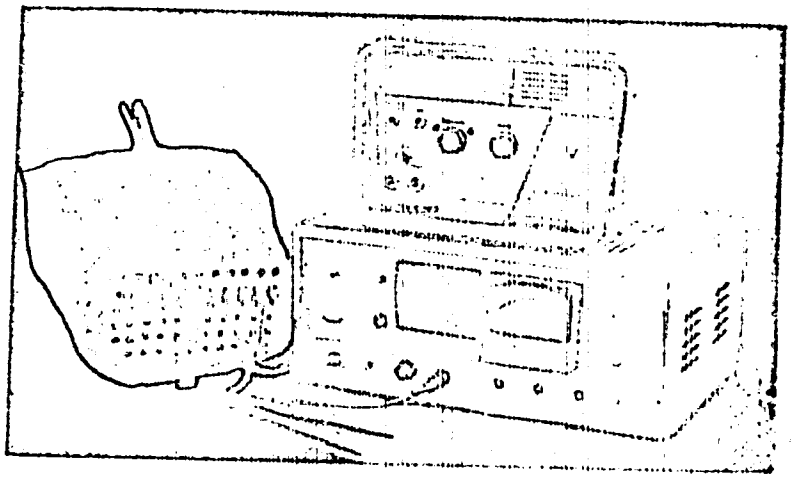

Fig. 4. Exterior View Of Multichannel Dosimeter

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DENISENKO, O. N., et al., Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

The multichannel dosimeter can be used with any phantom, both liquid and solid. In our investigations a dosimetric phantom of a human thorax was used, prepared on the basis of this part of the skeleton fixed in Formalin. The thorax wall, the heart, liver, and diaphragm are fulfilled from the M-3 phantom mass (M. Tyubiana and coauthor). The trachea and esophagus are simulated with vinyl chloride tubes. The spinal column canal is a natural cavity with vinyl chloride tubes lead into it. In place of the arrangement of the lungs, a cavity is provided, with the anatomy and dimensions of the skeleton taken into account. The cavity can be filled with various tissue-like materials and ionizing radiation detectors can be introduced into it. On the side of the distal end of the phantom there are 50 cylindrical channels 1 cm in diameter in which rods with detectors can be placed. The direction of the channels coincides with the longitudinal axis of the phantom.

Thus the dosimetric phantom of a human thorax makes it possible wholly or partially to vary the composition of the substance filling the "lungs" cavity and to place detectors at any point of the phantom, including the "esophagus," "trachea," and the "spinal column channel."

Measurements performed on this phantom with the aid of the multichannel dosimeter showed that introduction of detectors into the phantom did not affect the dose field within the limits of error of the measurement.

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DENISENKO, O. N., et al., Meditsinskaya Radiolcgiya, Vol 18, No 2, 1973, pp 40-45

With the electronic stages taken into consideration the over-all error of measurements did not exceed 5 percent.

Conclusions A 50-channel dosimeter with semiconductor detectors of the "solar cell" type was developed. The principle of time sharing of the detector communication channels with the recording device is placed at the basis of the block diagram. The multichannel dosimeter makes it possible to conduct measurements on any phantom with the application of static methods of irradiation. It would be possible to use a block diagram with parallel "interrogation" of detectors for recording of the dose field with mobile methods of irradiation; however, for a large number of channels its creation encounters considerable difficulties. In spite of this it is possible to stress that transition to multichannel methods of recording dose fields is very promising and the development in question is only the first step in this direction.

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Received 16 December 1971

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USSR UDC 681.323

RAYKHMAN, Ya. A., RUDKO, V. A., BUTKOV, Yu. G., FURMAN, N. A., and KOZLOV, V. A.

"A Specialized Digital Computer for Calculating the Interconnections of Integrated Systems"

Moscow, Oktrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 22, Aug 72, Author's Certificate No 298936, filed 8 Aug 68, published 14 Jul 72, p 249

Translation: This Author's Certificate introduces: 1. A specialized digital computer for calculating the interconnections of integrated systems. The computer contains a memory device, address registers for given and current coordinates, comparison circuits, registers for points, an analysis circuit, a recording circuit, and an input/output module. As a distinguishing feature of the patent, speed is increased and the device is simplified by adding a block for transfers along X and Y and a circuit grouping block with its output connected to the first inputs of the address register for current X and Y coordinates, whose second inputs are connected to the first outputs of the blocks for transfers along X and Y respectively. The first outputs of the current coordinate registers are connected through a converter

USSR UDC: 537.226+537.311.33:537+535

LIDORENKO, N. S., Corresponding Member of the USSR Academy of Sciences; KOZLOV, V. A.; NAGAYEV, E. L.

"Two-Stage Attraction of Electrons by Ions"

Moscow, Doklady Akademii Nauk SSSR, vol 204, No 4, 1972, pp 820-827

Abstract: The thermo-emf of nondegenerate semiconductors under conditions of hydrodynamic flow of phonons under the action of an applied temperature gradient is considered in this article. Under these conditions, the phonon flow attracts charge carriers and the system becomes a quantum analog of the electrohydrodynamic generator; the charge carriers are attracted by quasi-particles of essentially quantum origin rather than by the flow of neutral particles. The authors begin their analysis with a statement of the kinetic equations for thermal and electronic phonons, in which it is assumed the dominant role belongs to the mutual collisions of the thermal phonons while the effect of the electronic phonons on them may be neglected. It is shown that the attraction of electrons by the phonons may cause unusually high thermo-emf values in the case of very well formed crystals. The authors express their gratitude to R. N. Gurzhi, V. M. Kontorovich, and I. B. Rabashov for their helpful comments.

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USSR

UDC 621.3.055

KOZLOV, V.A., PISKAREV, V.I. [Scientific-Research Radiophysics Institute]

"Concerning Frequency Multiplication In The Millimeter Range In N-InSb"

Izv.VUZ:Radiofizika, Vol XV, No 2, Feb 1972, pp 300-304

Abstract: The effect is investigated of tripling the frequency of the electromagnetic field in the semiconductor n-InSb at 77° K in the millimeter range. A comparison is made of the experimental results and the calculated, fulfilled under the assumption that the nonlinear susceptibility for tripling is caused by a nonparabolic conduction band. In this connection the effect is taken into account of a strong pumping field at the omission condition of the third harmonic. The experimental equipment used in the work is described. The authors thank A.M. Belyantsev and V.N. Genkin for discussion of the results of the work and for a number of valuable comments. 2 fig 12 ref. Received by editors, 17 March 1971.

1/1

USSR

UDC 669.3.048

KOZLOV, V. A., DUSHIN, L. N., OLESOVA, A. I.

"Vacuum Distillation of a Polymetal Alloy"

Tr. Ural'sk. n.-i. i proyekt. in-ta medn. prom-sti (Works of the Ural'sk Scientific Research and Planning and Design Institue of the Copper Industry), 1971, vyp. 14, pp 201-206 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G303)

Translation: When reducing silicate slag from a melt of slurry from copper electrolytic production with the addition of CaO and Na_2CO_3, a polymetal alloy is obtained. The separation of the components of this alloy is possible by vacuum distillation. The process can be two stage or three stage. In the case of 3-stage distillation of the polymetal alloy, Pb and Sb are extracted in the commercial products, and Cu, Ag, and Ni are obtained in the form of intermediate products suitable for further refining. The degree of extraction of the metal in individual products by the scheme is 100% Pb, 84% Sb, and 94% Cu. In the case of the 2-stage process, the Pb and Sb are obtained in the form of an alloy: high-temperature distillation for driving off Pb, Sb, and Ag and low-temperature distillation for separating Pb and Sb from Ag.

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USSR

UDC 621.315.2.054.3

KLIMOV, M.A., KOZLOV, V.A.

"Compensation Of High-Frequency And Low-Frequency Voltage Of Interference In A Wide Frequency Spectrum"

Elektrosvyaz', No 2, 1972, pp 55-59

Abstract: The problem is considered of protecting communication channels from the effects of exterior low-frequency and high-frequency electromagnetic fields. The causes and location of the onset of noise currents in two-conductor coupling circuits are discussed as well as the conditions for compensation of noise currents in one amplifier section, and compensation of noise currents with the presence of an effective signal. A method is presented of automatic wide-band compensation which is free from a number of defects found in other compensation systems. The principal circuit is shown of a model of a wide-band noise-suppressing device. Data obtained from tests of this model on operative cable long lines of communication are presented. 5 fig. 1 tab. 3 ref. Received by editors, 31 March 71.

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USSR

UDC 615.849.1.015.25.015.4

KULAGIN, A. N., KOZLOV, V. A., and GORSHKOV, V. I., Scientific Research Laboratory of Experimental Immunobiology, Academy of Medical Sciences USSR, Moscow

"Changes in the Radiosensitivity of CAVE Line Cells Following Multiple Action of beta-Mercaptopropylamine"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 72, No 9, Sep 71, pp 53-56

Abstract: A variant of cells resistant to high concentrations of radioprotectors was obtained and their radiation resistance studied. CAVE line cells (obtained in 1961 from the epithelium of stomach cancer in woman) were used because of least adhesiveness and slower fragmentation after destruction. The radioprotector selected was beta-mercaptopropylamine (MPA) the most effective of the aminothiol compounds used in the prophylaxis of radiation damage. The cells were subjected to constant contact with the MPA preparation, multiplied, and were again processed with the preparation, a total of ten times. After multiple processing the cells differed from the original line and were designated as $CAVE_{k-10_v}$. Compared to the CAVE line, they con-

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USSR

KULAGIN, A. N., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 72, Nl 9, Sep 71, pp 53-56

tained a greater number of cells resistant to high concentrations of MPA and lesser sensitivity to ionizing radiation. These indexes were maintained during two years of cultivation of the cells under routine conditions. This suggests a possible use of pharmacochemical protection for increasing the resistance of body tissues to the effect of radiation.

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USSR UDC 577.1:615.7/9

DAVYDOV, B. I., and KOZLOV, V. A.

"Effect of Monosodium Salt of β-Aminoethylthiophosphoric Acid on Animals' Resistance to Transverse Overloads"

V sb. Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 14, Moscow, "Nauka" (Science), 1971, pp 25-32 (Russian) (from RZh-Biologicheskaya Khimiya, No 20, 25 Oct 71, Abstract No 20F1716 from summary)

Translation: Mice were injected intraperitoneally with cystaphos (I; 100-450 mg/kg), and from 30 min to five days later the animals were subjected to overload (centrifugation, 44 units). An equation was obtained describing the dependence of the animals' resistance to overload, 30 min after I on the dose of I. It is shown that the deathrate of the animals did not differ from control when exposed to overloads four hours to five days after injection of I in a dose of 300 mg/kg.

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USSR

UDC 547.241.341

NOVIKOVA, Z. S., GALITSKOVA, N. F., KOZLOV, V. A., and LUTSENKO, I. F.,
Moscow State University imeni M. V. Lomonosov

"Reaction of Diphenylphosphine and Potassium Diphenylphosphide With α-Mercurylated Aldehydes and Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 4, Apr 71, pp 831-838

Abstract: Reaction of diphenylphosphine with mercuribisacetaldehyde and the reaction of potassium diphenylphosphide with chloromercuryacetaldehyde in a solution of dimethoxyethane takes place with a transfer of the reactive center yielding vinyl ester of diphenylphosphinous acid. In contrast, α-mercurylated ketones react with these reagents in two ways, yielding α,β-substituted vinyl esters of the diphenylphosphinous acid (O-phosphorylation) and α-phosphorylated ketones (C-phosphorylation). The course of the reaction depends on the electron density at the phosphorus atom, on the structure of organomercury compound and on the type of solvent used. The reaction course involving the transfer of the reactive center with the formation of O-isomers is favored by higher electron density on the phosphorus atom, higher basicity, and coordination ability of the solvent. The opposite factors favor the reaction without a transfer of the reactive center to the 1,2-position, leading to the formation of C-isomers.

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USSR UDC: 621.396.6-181.5(088.8)

GLAZKOV, I. M., ZAYTSEV, V. A., KOZLOV, V. A., RAYKHMAN, Yu. A., TRYAKOV, E. N.

"A Microphoto Assembly Device for Making Phototemplates"

USSR Author's Certificate No 263414, filed 3 Jan 68, published 9 Jun 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V209 P)

Translation: This Author's Certificate introduces a microphoto assembly device for making phototemplates. The device contains a stand with illuminator and shutter, a coordinate table with linear displacement data units, a composing diaphragm with sliding screens, an interchangeable objective in the form of a lens raster or high-resolution lens, and a program control unit. To improve accuracy (resolution) and increase productivity, a removable holder with a projection lens is mounted in a horizontal base on the coordinate table which rests on the upper surface of the stand. The table is equipped with an aperture for the lens and a receptacle for holding a photographic plate. The composition diaphragm with sliding screens hangs under the coordinate table on columns which pass through the stand. Fastened on the columns between the composition diaphragm and the lens is a ring for the phototemplate blank.

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UDC 577.1:615.7/9

USSR

DOBROV, N. N., KOZLOV, V. A., PARSHIN, V. S., and SAKSONOV, P. P.

"Effect of Cystamine in a Mixture With Sympathomimetic Amines on Repair Processes After Exposure to Radiation and Overloads"

V sb. Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works), Vol 14, Moscow, "Nauka" (Science), 1971, pp 285-288 (Russian) (from RZh-Biologicheskaya Khimiya, No 20, 25 Oct 71, Abstract No 20F1718 from summary)

Translation: Mice were subjected to gamma-irradiation (250 roentgens) and the effect of acceleration on a centrifuge (15 and 30 units, 5 min) 50 min before and 30 min after irradiation. The radioprotector cystamine (100 mg/kg) in a mixture with amphetamine (1.5 mg/kg) and adrenaline (0.15 mg/kh) was injected intraperitoneally 55 min before irradiation, and in the event of combined exposure 5 min before overload. The rate of repair of the reversible portion of radiation damage, as determined from the half-recovery period of the animals' radioresistance, was used as the criterion of protective action. The authors established that the protective action of cystamine is approximately equal for combined exposure and for irradiation alone.
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USSR

UDC 612.374.4.029.6

KOZLOV, V. A., NAVROTSKIY, V. I., and VIZEL', A. A.

"Study of the Operation of a Varactor Frequency Doubler at the Temperature of Liquid Nitrogen"

Moscow, Radiotekhnika i Elektronika, Vol XVI, No 3, March 1971, pp 441-443

Abstract: This paper contains the results of an experimental study of the operation of a germanium diffusion diode frequency doubler with an output of 20 gigahertz at 77°K. The frequency doubler was designed as a cross wave guide overlapping a diode operating under no-load conditions. The amplitude characteristics of an ordinary diode frequency doubler and one made of diodes operating at low temperatures are compared, and the output power of the frequency doubler is presented as a function of temperature. From these data it is clear that no improvement of the characteristics of the ordinary doubler is observed on lowering the temperature to 77°K. The conclusion is drawn that ordinary parametric germanium diodes can be used to develop cooled signal sources if the frequency multiplier can be tuned at 77°K, and their efficiency in this case is approximately equal to the efficiency of a multiplier at room temperature. The efficiency of the frequency doubler with diodes designed

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KOZLOV, V. A., et al., Radiotekhnika i Elektronika, Vol XVI, No 3, March 1971, pp 441-443

for operation under cooling conditions increases by 4-5 times at 77°K by comparison with the efficiency for these diodes at room temperature; further tuning is not required in this case. In addition, it is theoretically possible to supply more power to the frequency multiplier submerged in liquid nitrogen.

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USSR

UDC 621.316.001.1

KOZLOV, V. A.

"Basic Problems of Developing Municipal Distribution Networks"

V sb. Tekhn. progress v elektrosnabzh. gorodov (Technical Progress in Electric Power Supply of the Cities -- collection of works), Leningrad, Energiya Press, 1970, pp 141-146 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye272)

Translation: The different administrative subordinacy, financial limitations, inadequate coordination of scientific research work and other deficiencies complicating efficient development of municipal electric power networks are noted. Recommendations are made with respect to further improvement of such networks. [Leningrad Cable Network of Leningrad Power Administration, Leningrad]

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UDC 615.849.015.3

USSR

DENISENKO, O. N., IL'ICHEV, B. V., and KOZLOV, V. A., Department of Roentgenology and Radiobiology, Institute of Medical Radiology, Academy of Medical Sciences USSR

"Effect of the Size of the Detectors on the Accuracy of Dose Field Determination"

Moscow, Meditsinskaya Radiologiya, No 1, 1970, pp 67-71

Abstract: The authors examine cases of different ratios $\frac{l}{x_2 - x_1}$, where l is the length of the detector and $x_2 - x_1$ is the length of the investigated area of charge in function of the dose field D(x). They show that using a detector in which $l > x_2 - x_1$ is equivalent to using a detector with an infinitely small length. The error is greater in the case of a detector with $l < x_2 - x_1$ than with the infinitely small detector. The size of the detector is unimportant for several fields. The authors emphasize that in choosing the size of a detector, one must take into account both the error arising from its limited resolving power and the error caused by its limited sensitivity. They present an expression that takes into account the combined effect of these errors.

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Acc. Nr: AP0034769 K Ref. Code: UR 0241

PRIMARY SOURCE: Meditsinskaya Radiologiya, 1970, Vol 15, Nr 1, pp 67-73

THE EFFECT OF THE DETECTORS' SIZE ON THE ACCURACY OF THE DOSE FIELD DETERMINATION

Denisenko, O. N.; Il'ichev, B. V.; Kozlov, V. A.

Summary

An analysis of the effect produced by the detector's size on the resolution capacity of the measuring device for different dose distributions is given. An expression for the optimal choice of the detector's size is presented, which takes account of the effect of the error due to the limited sensitivity.

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KOZLOV V.A.

Acc. Nr: AP0046553 Ref. Code: UR 0216

PRIMARY SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, 1970, Nr 1, pp 38-42

Rybakov, N. I.; Guberniyev, M. A.; Chimirov, G. B.; Drozhennikov, V. A.; Aniskin, Ye. D.; Kolobov, A. V.; Kozlov, V. A.

INFLUENCE OF SOME RADIOPROTECTORS ON THE PROCESSES CONNECTED WITH LYSOGENIZATION OF THE BACTERIA AND INDUCTION OF INTERCELLULAR λ-EXONUCLEASE

The influence of the radioprotector finam on the processes of lysogenization of the bacteria with the λ phage and induction of λ-exonuclease was studied in the course of experiments with E. coli SF-14 (λ- try-S').

It was shown that this preparation tangibly suppresses the frequency of E. coli lysogenization and oppressesses synthesis of the induced λ-exonuclease.

The results concerning activity of this enzyme definitely correlate with the data related to the influence of finam on the lysogenization process of the same bacterial strain.

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REEL/FRAME 19781816

1/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--TRANSISTORIZED DOSIMETER OF LONG WAVE ROENTGEN RADIATION -U-

AUTHOR-(03)-KOZLOV, V.A., DENISENKO, O.N., ILICHEV, B.V.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 4, PP 61-63

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIATION DOSIMETER, TRANSISTOR, X RAY DETECTION, X RAY MEASUREMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0957 STEP NO--UR/0241/70/015/004/0061/0063

CIRC ACCESSION NO--AP0109114

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0109114

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS DESCRIBE A DOSIMETER WITH TRANSISTORIZED MONITORS ENDOWED WITH DIFFERENT ENERGY DEPENDENCES. THE ENERGY DEPENDENCE OF THE DOSIMETER DOES NOT EXCEED PLUS OR MINUS 3PERCENT IN THE RANGE FROM DELTA ONE HALF EQUALS 0.2 MMAL UP TO DELTA ONE HALF EQUALS 1.8 MMAL. FACILITY: OTDEL RENTGENOLOGII I RADIOLOGII INSTITUTA MeDITSINSKOY RADIOLOGII AMN SSSR.

UNCLASSIFIED

AA0043453

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

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241109 A VOLTAGE COMPARATOR, for comparing two voltages in analogue-digital conversion in telemetry applications and the like, possesses extra sensitivity and steep-fronted output signal. The device (see diagram) is based on a differential cascade of amplifier elements 1,2 connected to a differentiating circuit of diodes 3,4 and RC network 5. As soon as the input voltage on 6 exceeds that on 7, diode 3 closes and 4 conducts, operating the circuit as an ordinary differential cascade with an emitter-coupled trigger. The result is an avalanche switching action of unit 1 into saturation; the output is a steep-fronted voltage of opposite sign.

29.4.66 as 1073424/18-24. V.A. KOZLOV & V.K.BELOV. (12.8.69) Bul 13/1.4.69. Class 42m3. Int.Cl.G 06f.

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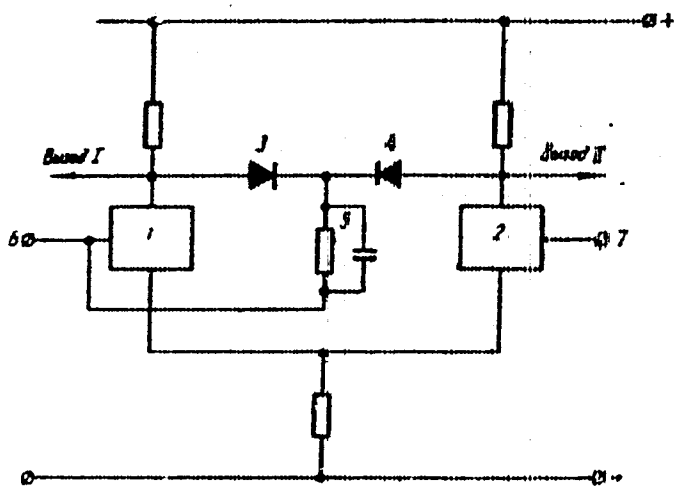

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19761807

UDC 576.8

USSR

RYBAKOV, N. I., GUBERNIYEV, M. A., CHIMIROV, O. B., DROZHZHENNIKOV, V. A., KOLOBOV, A. V., ANISKIN, Ye. D., and KOZLOV, V. A., Institute of Experimental Biology, Academy of Medical Sciences USSR

"The Effect of Some Radioprotectors on Processes Associated With Lysogenization of Bacteria and Induction of Intracellular λ-Exonuclease"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 1, 1970, pp 38-42

Abstract: The radioprotector finam (an aminothiol inhibited the frequency of lysogenization of E. coli SF-14 ($\lambda^{-}try^{-}S^{r}$) by λ-phage and inhibited the synthesis of induced λ-exonuclease at different times after infection. The effect was most pronounced in early stages of infection. After thirty minutes the inhibiting effect of the radioprotector on λ-exonuclease activity decreased sharply. Results of determination of the activity of λ-exonuclease are consistent with data on the effect of finam on lysogenization of the same bacterial strain. This suggests that enzyme systems play a part in the development of lysogenicity in bacterial cells. These enzymes may be DNAses of the endonuclease type.

1/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF AN ELECTRIC FIELD AND ILLUMINATION ON THE KINETICS OF THE PHOTOCONDUCTIVITY OF LEAD OXIDE LAYERS -U-

AUTHOR-(04)-GASANOV, O.K., IZOVOZCHIKOV, V.A., KOZLOV, V.A., TIMOFEYEV, O.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 558-60

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--LEAD OXIDE, ELECTRIC FIELD, PHOTOCONDUCTIVITY, LAMINATED STRUCTURE, CRYSTAL ORIENTATION, PN JUNCTION, TIN OXIDE, SILVER, RELAXATION PROCESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0099 STEP NO--UR/0449/70/004/003/0558/0560

CIRC ACCESSION NO--AP0105185

UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105185

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PBO LAYERS WITH AG STRIPE ELECTRODES WERE INVESTIGATED IN THE TRANSVERSE REGIME (LIGHT BEAM PERPENDICULAR TO THE ELEC. FIELD) ANS SNO SUB2-PBO-AG $ANDWICH LAYERS IN THE LOGITUDINAL REGIME. THE PBO LYAERS WERE 1-10 MU THICK AND WERE EVAPD. IN VACUO AT LESS THAN 10 PRIME NEGATIVE2 MM HG. DURING THE VACUMMN ANNEAL, A P-N JUNCTION WITH A HIGH OHMIC INTRINSIC REGION WAS FORMED IN THE SANDWICH SAMPLES. APART FROM THE NORMAL PHOTOCOND. RELAXATION MECHANISM AFTER SWITCHING OFF THE LIGHT, THERE WAS A TYPICAL "OVERSHOOTING" IN THE INITIAL PART OF THE RELAXATION CURVES. IN THE TRANSVERSE SAMPLES, THIS OVERSHOOTING INCREASED WITH INCREASING VOLTAGE, WHILE IN THE LOGITUDINAL ONES IT DECREASED; IN STRONG FIELDS, THIS OVERSHOOTING BECAME S SHAPED. IN THE TRANSVERSE SAMPLES, THE OVERSHOOTING IS DUE TO CHARGE REDISTRIBUTION AMONG THE IMPURITY CENTERS DURING THE ILLUMINATION, AND THE S SHAPE IS A CONSEQUENCY OF TRAPING EFFECTS DURING THE GENERATION PROCESS. THE VOLTAGE DEPENDENCE OF THE EFFECT IS DUE TO THE VOLTAGE DEPENDENCE OF THE SPACE CHARGE D. AROUND THE ELECTRODES. IN THE LOGITUDINAL SAMPLES, THE MECHANISM IS EXPLAINED BY THE PECULIARITIES OF THEIR P-I-N STRUCTURE. FACILITY: LENINGRAD. GOS. PEDAGOG. INST. IM. GERTSENA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--BRINES IN CRYSTALLINE ROCKS OF THE BALTIC SHIELD -U-

AUTHOR-(03)-GREYSER, YE.L., KOZLOV, V.B., PAVLOV, A.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. GEOL. 1970, (3), 141-9

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOGRAPHIC LOCATION, MINERAL DEPOSIT, SODIUM CHLORIDE, CALCIUM, SALT WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1439 STEP NO--UR/0011/70/000/003/0141/0143

CIRC ACCESSION NO--AP0130373
UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0130373

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BRINES, HAVING A TOTAL MINERAL CONTENT OF GREATER THAN 100 G-L., WERE FOUND RECENTLY IN THE TITLE ROCKS. THE WATERS WERE RELATED TO ZONES OF RELATIVELY ELEVATED FRACTURING WHERE FRACTURES WERE THIN AND EVIDENTLY DEVELOPED LOCALLY. THIS FEATURE WAS INDICATED BY A LOW DISCHARGE FROM THE DRILL HOLES. IN ALL DRILL HOLES, THE WATERS HAD PREDOMINANTLY OR ENTIRELY CHLORIDE COMPN. WITH HIGH CONTENTS OF NA AND CA. THE BALTIC SHIELD IS A PART OF THE CRYST. BASEMENT OF THE RUSSIAN PLATFORM. THEREFORE, ITS BRINES WERE COMPARED WITH SUBSURFACE WATERS OF THE BASEMENT. THE TOTAL MINERAL CONTENT OF WATER IN CRYST. ROCKS INCREASED WITH INCREASED DEGREE OF BASEMENT SUBMERGENCE, WITH THE COMPN. OF WATER BELOW THE 800-M DEPTH REMAINING ESSENTIALLY THE SAME AND PREDOMINANTLY OF NACL TYPE. IT IS DIFFICULT TO DET. THE MAGNITUDE OF SALINE WATER AND BRINE DISTRIBUTION IN THE ENTIRE CRYST. BASEMENT AND WITHIN THE BALTIC SHIELD IN PARTICULAR. IT IS POSSIBLE THAT SALINE WATERS AND BRINES WITH HIGH TOTAL MINERALS CONTENT ARE PRESENT ONLY IN THE WEATHERING PROFILE ON CRYST. ROCKS AND IN THE ZONE OF ELEVATED FRACTURING UNDER THE SEDIMENTARY MANTLE OF THE PLATFORM. IN THE BALTIC SHIELD, SALINE WATERS AND BRINES WERE PRESERVED PROBABLY ONLY IN AREAS ISOLATED HYDRODYNAMICALLY AS RELICTS OF ANCIENT STAGES. FACILITY: LENINGRAD. GIDROMETEOROL. INST., LENINGRAD, USSR.

UNCLASSIFIED

USSR

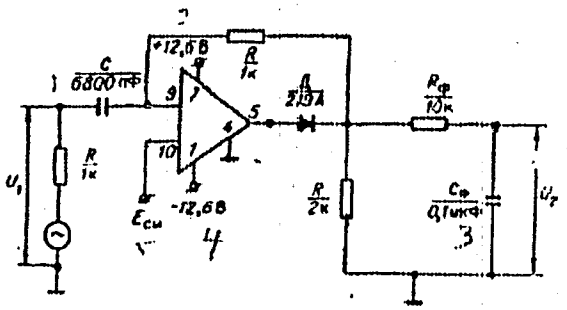
UDC 621.376.234

KOZLOV, V. D., Moscow

"Detection Device"

Novosibirsk, Avtometriya, No 3, 1971, pp 104-105

Abstract: A detection device for amplitude modulated and unmodulated signals is described. The device contains a 1UT401B microcircuit (operation amplifier) with a diode detector. Its circuit diagram follows:



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USSR

KOZLOV, V. D., Avtometriya, No 3, 1971, pp 104-105

Key: 1. 6800 picofarads, 2. +12.6 volts, 3. 0.1 microfarad, 4. -12.6 volts, 5. E_{bias}

The device has an expanded dynamic range of the detection characteristic with increased temperature stability. The operating theory of the signal detection device was investigated previously [V. D. Kozlov, Sbornik trudov EKB, No 1, 1970]. The device has a range of linearly detectable unmodulated signals of 10 millivolts to 5 volts measured at a frequency of 30 kilohertz. The zero drift of the output voltage in the low signal range is no more than 1 millivolt in the temperature range from +20 to +60° C. The indicated parameters are stored for variation of the feed voltages by ±10%. To eliminate the zero bias of the microcircuit, the power supply E_{bias} was connected to the second input of the operation amplifier.

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USSR

UDC 621.317.32:621.374.35

YEVSEYEV, V. V., KOZLOV, V. D., Moscow

"Microcircuit Analog Memory"

Novosibirsk, Avtometriya, No 3, 1971, pp 103-104

Abstract: A microcircuit analog memory is described which samples instantaneous voltages and stores them. The circuit diagram of the device follows:

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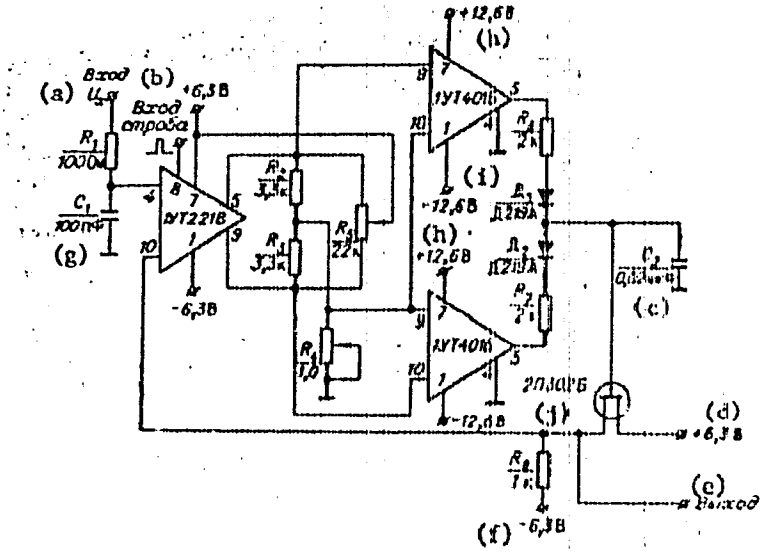
USSR

YEVSEYEV, V. V., et al., Avtometriya, No 3, 1971, pp 103-104



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USSR

YEVSEYEV, V. V., et al., Avtometriya, No 3, 1971, pp 103-104

Key: a. input, b. gate input, c. microfarads, d. +6.3 volts, e. output, f. -6.3 volts, g. picofarads, h. +12.6 volts, i. -12.6 volts, j. 2P302B

In the temperature range from +20 to +60° C, the described device had the following parameters: a direct current error of 3 millivolts, a storage time of 0.3 milliseconds, an input signal range of ±1 volt, a sample time of 10 microseconds, an admissible rate of variation of the input voltage 0.2 volts/ /microsecond and an input impedance of 100 kilohms.

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K

USSR

PISTRYAK, V. M., GNAP, A. K., KOZLOV, V. F., GARBER, R. I., FEDORENKO, A. I., FOGEL', Ya. M., Physico-Technical Institute, Academy of Sciences, Ukr SSSR, Kar'kov.

"Distribution Profile of 30 and 100 KEV Boron Ions Intersticed in Silicon"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 4, April 1970, pp 1281-1283

Abstract: Monocrystalline specimens of n-type silicon with (111) and (110) crystallographic orientations were investigated after alloying with ions of boron with energies of 30 and 100 kev in an accelerating unit with mass separations. Determination of the distribution profile of the boron ions intersticed in silicon during ion alloying was performed by a method of secondary ion-ionic emission on a mass--spectrometric device. Laminar sputtering of the specimens of ion-alloyed silicon (speed of sputtering ~ 0.0015 micron/sec) was produced by a beam of primary ions with energies of 14 kev and a current density of 0.1 ma/cm^2. The secondary ions B_{11}^+ isolated by the magnetic analyzer were registered by an ion counter. The distribution profiles have satisfactorily narrow maxima embedded at depths of 0.3 micron (30 kev) and 0.43 micron (100 kev) for the (111) plane, and 0.33 micron (30 kev) and 0.49 micron (100 kev) for the (110) plane. The difference in the depths of the maxima of the distribution profile of the impurity at

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PISTRYAK, V. M., et al, Fizika Tverdogo Tela, Vol 12, No 4, April 1970, pp 1281-1283

the same energies of the incident ions, but different crystallographic orientations of the targets, is explained by the better conditions of channeling of the incident particles in crystals with (111) orientations as compared with those of (111) orientations. The authors thank I. G. Gverdtsitel and A. I. Guldmashvil for the specimens submitted and for useful discussions. 1 fig. 6 ref. Received by editors 19 December 1969.

2/2

USSR

UDC 541.182.2/3:628.511.4

USHAKOVA, E. N., KOZLOV, V. I., PETRYANOV, I. V., Physical Chemistry Institute imeni L. Ya. Karpov

"Regularities of Aerosol Capture by FP Filtering Material"

Moscow, Kolloidnyi Zhurnal, vol 35, No 5, September-October 73, pp 993-995

Abstract: Experimental and calculated values for the dependence of the capture coefficient of stearic acid aerosols by FP filter material fibers on the average hydrodynamic radius (0.4-3.8 μm) of the fibers, filtration rate (0.5-10 cm/sec), and particle radius (0.16-0.4 μm) agreed when the interception parameter was greater than 0.1 and the Stokes number less than 0.2. With an interception parameter less than 0.5 and a Stokes number less than 0.2, the capture coefficient could be calculated from the fan filter model formulas.

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KOZLOV, V. I.

UDC: 612.13-611.[illegible]

ORGANIZATION OF THE MICROCIRCULATORY VASCULAR BED AND SOME ISSUES PERTAINING TO HEMODYNAMICS

[Article by V.V. Kupriyanov, V.I. [illegible] (Moscow); Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 11, 1971, pp [illegible]]

The science about the structure of the terminal vascular bed constitutes a section of morphology in which structural and functional aspects are [illegible] [illegible]. The architectonics of the terminal vascular bed and the structure of its different components are functionally labile, and the appearance of the vascular bed in life is extremely variable. In such conditions it is impossible to furnish an unequivocal adequate description of hemodynamic correlations formed in the terminal vascular bed. Of course, traditional morphological methods of investigating fixed preparations permit description of the static picture of the phenomena observed. Yet the problem is to form an idea about circulation in a living organism.

The very earliest investigations in microangiology (Dale and Richards, 1918; Dale, 1920; A.I. Nesterov, 1925, 1929; Krogh, 1927; E.R. Clark, E.L. Clark, 1932, 1939, and others) revealed that intraorganic distribution of blood is usually controlled independently of the general circulation by means of autonomization of the behavior of the components of the terminal vascular bed. According to the conception of Krogh (1927) of a capillary motor mechanism of local circulation, the main role in hemodynamics is attributed to the individual contractility of capillaries which, as the author assumed, is related to the function of Rouget's cells. Although it was not subsequently confirmed that capillaries have their own contractile systems (A.I. Nesterov, 1924; Clark et al., 1932, 1939; Chambers and Zweifach, 1940, 1944, 1946; T.A. Grigor'yeva, 1954), nevertheless the idea of Krogh's about the exceptional significance of capillaries in peripheral hemodynamics turned out to be very fruitful.

The introduction of vital microscopy methods to investigation of capillaries (Sandison, 1928; Clark et al., 1930, 1931, 1939; vonWiller, 1932; Chambers and Zweifach, 1940, 1946; G.I. Mchedlishvili, 1957, 1958, 1968; Bloch, 1963, and others) played an important part in development of the teaching on blood circulation on the microscopic level. It was established that each element of the vascular pool plays a specific part in peripheral circulation,

USSR UDC 539.3.534.1

KOZLOV, V. I., Institute of Mechanics of the Academy of Sciences of the Ukrainian Soviet Socialist Republic

"Thermal Shock on the Surface of a Circular Plate With Regard for the Interaction of Deformation and Temperature Fields" (Presented by Kovalenko, A. D., Academician, Academy of Sciences of the Ukrainian SSR)

Kiyev, Dopovidi Akademii Nauk, Seriya A, Ukrainian SSR, No 10, 1971, pp 923—926

Abstract / Ukrainian article / : The problem of a thermal shock on the surface of a free supported circular plate is analytically discussed on the basis of a system of differential equations of thermoelasticity. The solution is found in form of a series of eigen-functions. The effect of the inertial parameter of the plate on the value of the dynamic deflection is analyzed and illustrated. Two illustr., 26 formulas, five biblio. refs.

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USSR UDC: 51:330.115

YANBYKH, G. F., GASANOV, S. S., KOZLOV, V. I.

"Optimizing the Structure of an Automated System for Selling Airplane Tickets"

V sb. Tekhn. kibernetika. Vyp. 16 (Technical Cybernetics--collection of works, No 16), Kiev, 1970, pp 57-65 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V671)

[No abstract]

USSR

UDC 621.372.837(088.8)

KOZLOV, V. I., STAVITSKAYA, G. S., KHOTENOVSKAYA, T. S., DVORKIN, O. E.

"Fast Superhigh Frequency Switch"

USSR Author's Certificate No 253880, Filed 23 Jul 69, Published 3 Mar 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B150P)

Translation: The proposed superhigh frequency switch is executed in the form of a T-junction on two arms of which varactor diodes with tuning loops are installed. In order to expand the operating frequency band, the external voltage is fed out of phase to two groups of diodes installed on each arm of the switch. The diodes of the first group are tuned to series resonance with a negative bias on the lower frequencies of the operating range, and the diodes of the second group, with positive bias on the upper frequencies of the operating range. There is one illustration.

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AA0038342 Kozlov, V.I. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3/70

237668 SLAG from steel production is prepared for use in structural materials by coarsely comminuting the slag, removing the residual metal by means of a magnet; keeping the slag in damp state for 3-5 days by moistening it with water; finely communuting the material; and repeating the magnetic separation of the metal. The storage in the damp state presents a subsequent self-disintegration of the slag to powder, and thus improves its properties as a structural material. 2.10.67. as 1188558/29-33. N N OVCHINKIN et alia Chelyabinsk Metallurgical Plants Design Inst. (16.6.69.) Bul.8/12.2.69. Class 80c. Int.Cl. C04b.

LD

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19731456

AA0038342

AUTHORS: Ovchinkin, N. N.; Kislitsin, Ye. M.; Kozlov, V. I.; Likhacheva, T. F. and Kaygorodova, T. A.

Chelyabinskiy Gosudarstvennyy Institut Proyektirovaniya Metallurgicheskikh Zavodov

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19731457

USSR

UDC 612.135-06:576.851.555.097.29

KOZLOV, V. I. and ISPOLATOVSKAYA, M. V., Chair of Normal Anatomy, Second Moscow Medical Institute imeni N. I. Pirogov and Laboratory of Biochemistry of Microbial Metabolism Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR

"Effect of Glostridium perfringens Type A Toxin and Its Lethal Factor Lecithinase on the Microcirculation"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 11, 1972, pp 22-25

Abstract: Microscopic study of blood vessels of the mesentery, small intestine, and cremaster of rats injected in different ways (intravenously, intramuscularly, intraperitoneally) with Cl. perfringens toxin or lecithinase revealed circulatory disorders within 3 to 5 minutes. Disorders consisted of periodic contraction of the smooth muscles of the arteries and arterioles followed by relaxation along the entire length of the vessel. The brief increases and decreases in precapillary resistance disrupted the regular rhythm of the blood entering the microvascular bed, resulting in a general slowing of the peripheral blood flow in 10 to 15 minutes. After 30 to 60 minutes the arteries became markedly constricted while the veins were dilated and hyperemic. Stasis set in as shown

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USSR

KOZLOV, V. I. and ISPOLATOVSKAYA, M. V., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 11, 1972, pp 22-25

by the entry of RBC into the lymphatics and capillaries) along with impairment of the permeability of the histohematic barrier caused by injury to the vascular walls. The above changes in the microcirculatory hemodynamics are similar to those induced by E. coli endotoxin and other toxins.

Methodology

KOZLOV, V.K.

CHAPTER 1

DETERMINATION OF THE TRANSPARENCY OF THE ATMOSPHERE

The possibility for the measurement of the transparency of the atmosphere or the meteorological visibility associated with it systems are used which consist of a light source and a receiver located at opposite ends of the optical path. The distance separating the radiation source from the receiver is fixed according to the limit of visibility for the poorest atmospheric conditions. This does not make it possible for one instrument to record the transparency of the atmosphere in long tracks. Another shortcoming of such systems is the possibility of practical measurements only on horizontal tracks.

The development of laser locators determining the transparency of the atmosphere and the development of the corresponding methods of measurements, make it possible to perform measurements on any track. An advantage of laser systems also is the possibility of the determination of the visibility at quite long distances and the recording of the variation of the transparency of the atmosphere with a high degree of spatial resolution.

The basic difficulty in the determination of transparency by the method of optical location lies in the correct selection of the forward scattering indicatrix in each specific case and in consideration of multiple scattering in sounding of optically dense media.

In references [24--26] for various models of mists and fogs calculated data of the intensity of forward scattered radiation are given. The calculations of the intensity of light scattered ahead once in the irradiation of fogs by a narrow light beam were performed by V. E. Kozlov and Ye. O. Fedorova [27]. K. S. Shifrin and I. L. Zel'manovich calculated in detail the quantities necessary for the determination of the forward scattering factor [28].

Source: JPRS #58312 28 Feb 73

Experimental investigations of forward scattering of [illegible] OKG, generated on various wavelengths, were performed in artificial fogs and smokes, and also in natural conditions on misty and smoky days. These measurements made it possible to obtain certain preliminary estimates of the magnitude of reverse scattering.

Information concerning the transparency of the medium is also contained in the variation of the form of a short laser pulse in its propagation in the medium. This phenomenon was observed in natural fogs, where the increase in the attenuation factor from [illegible] changed the duration of the pulse arriving at the lidar receiver from 0.1 to 0.5 microseconds [11].

In experiments performed at the IOA of the Siberian Division of the USSR Academy of Sciences [12] it was established that with a decrease in the optical density of the medium the duration of the forward front of a reflected pulse increases, and the steepness of its drops. As a radiation source, a semiconductor GaAs of gallium arsenide (wavelength 0.850 angstrom units) with a modified pulse duration of 8 nanoseconds was used. In scattering in artificial water fogs and in smokes, the reflected pulse duration decreases with an increase in the attenuation factor and tends toward the duration of the radiated pulse. This is explained by the fact that with a decrease in the transparency of the medium the length of the layers in which the reflected signal is formed dropped. It was also established that the difference in the scattering indicatrices of the media has an essential effect on the formation of the signal. A pulse reflected in fogs is formed in layers more distant from the OKG than in smokes.

The results of the measurements of the form (shape) of the pulse performed agree well with the calculations obtained in the use of the Monte-Carlo method [11].

The deformation of the pulse of the OKG in the scattering medium makes it possible to use this effect for realization of a lidar intended for the measurement of the meteorological range of visibility. Such a lidar, patented in France [14], must determine the visibility at airports. In this system, measurements of the time of appearance of the maximum intensity of a forward scattered signal in comparison with a radiated signal is provided, as well as measurement of the duration of an arriving pulse at a level of 0.5 from the maximum, and the steepness of the rear front of the pulse.

1/2 026 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--RADIATION SAFETY OF THE POPULATION IN THE DISTRICT OF AN ATOMIC POWER PLANT -U-

AUTHOR--KOZLOV, V.M., ZYKOVA, A.S., ZHAKOV, YU.A., YAMBROVSKIY, YA.M.

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA I SANITARIYA, 1970, NR 4, PP 54-56

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NUCLEAR SAFETY, NUCLEAR POWER PLANT, INDUSTRIAL HYGIENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1679 STEP NO--UR/0240/70/000/004/0054/0056

CIRC ACCESSION NO--AP0101734

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0101734

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ATOMIC POWER PLANTS BELONG TO RAPIDLY DEVELOPING BRANCHES OF INDUSTRIES. CONSEQUENTLY A STUDY OF RADIATION SAFETY OF THE POPULATION IN THE DISTRICT OF AN ATOMIC POWER PLANT (APP) IS AN IMPORTANT HYGIENIC PROBLEM. THE PAPER CONTAINS INVESTIGATION DATA ON THE NOVOVORONEZHSKAYA AND BELOYARSKAYA APP, PROVING THE LATTER TO HAVE NO EFFECT ON THE SANITARY RADIATION CONDITION OF THE DISTRICT OF THEIR LOCATION. ON THE BASIS OF THESE DATA IT IS PERMITTED TO USE SANITARY PROTECTION ZONE AROUND APP FOR AGRICULTURAL PURPOSES.

USSR UDC 669.71.053.2

KOZLOV, V. M., GUSEVA, N. S., VERETINSKIY, V. N.

"Reduction of Kaolin With Carbon"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 71, pp 191-200. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, G130, by the authors).

Translation: The reduction of kaolin by carbon from a briquetted charge in the 1300-2000° temperature interval is studied. A reduction mechanism is suggested. Reduction is performed for mullite and SiO_2, produced in the process of mullitization of kaolin before the beginning of reduction. The reason for limiting the content of Al in alloys of Al with Si not containing Al_4O_3 is stated. 2 figs; 2 tables; 7 biblio. refs.

1/1

1/2 041 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--CALCULATION OF LOCAL VALUES FOR THE MEAN THICKNESS OF A TURBULENT FILM OF LIQUID FLOWING DOWN A VERTICAL SURFACE -U-

AUTHOR-(03)-GANCHEV, V.G., KOZLOV, V.M., LOZOVETSKIY, V.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA VYSSHIKH UCHEBNYKH ZAEDENIY, MASHINOSTROYENIYE, NO. 1, 1970, PP 112-116

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--TURBULENT FLOW, PLANAR FLOW, GRAVITATION FIELD, BOUNDARY LAYER THICKNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0535 STEP NO--UR/0145/70/000/001/0112/0116

CIRC ACCESSION NO--AT0100949

UNCLASSIFIED

2/2 041 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0100989

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS PROPOSE A METHOD FOR CALCULATING THE LOCAL VALUES FOR THE MEAN THICKNESS OF A TURBULENT FILM OF FLUID FLOWING ALONG A VERTICAL SURFACE UNDER THE INFLUENCE OF GRAVITY. THE TECHNIQUE USED IS BASED ON A METHOD OF CALCULATING THE BOUNDARY LAYER. THE MATHEMATICAL TOOLS ARE DERIVED WHICH MAKE IT POSSIBLE TO DETERMINE HOW THE MEAN THICKNESS OF THE FILM VARIES WITH LENGTH ALONG A VERTICAL CHANNEL UNDER TURBULENT FLOW CONDITIONS. A GRAPH IS GIVEN WHICH COMPARES THE COMPUTATIONAL RELATIONSHIP AND THE RESULTS OF EXPERIMENTAL INVESTIGATIONS. THE AUTHORS CONCLUDE THAT THE AGREEMENT BETWEEN THE TWO IS EXCELLENT.

USSR

UDC 532.59:536.242

GANCHEV, B. G., KOZLOV, V. M., LOZOVETSKIY, V. V.

"Study of Descending Flow of Liquid Film on Vertical Surface and Heat Transfer to Film"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol. 20, No. 4, Apr. 71, p. 674-682.

Abstract: A theoretical and experimental study is presented of the measurement of local values of mean film thickness along the length of the film, and theoretical dependences are found for its determination in the laminar-wave (Re_δ<400) and turbulent (Re_δ>400) areas. Empirical formulas are derived for calculation of local values of the thickness of a continuous liquid layer. The velocity field in a continuous layer is determined and it is shown that the mean velocity is determining for flows of this type. The local heat transfer coefficient to the initial liquid film is studied experimentally. The experimental conditions show that α increases as the film flows down over a channeled surface. A formula is produced which describes the experimental points well.

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1/2 . 029 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--HYDRODYNAMICS OF FALLING LIQUID FILMS ON VERTICAL SURFACES -U-

AUTHOR-(04)-GANCHEV, B.G., KOZLOV, V.M., LOZOVETSKIY, V.V., NIKITIN, V.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., MASHINOSTR. 1970, (2), 75-80

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HYDRODYNAMIC PROPERTY, SURFACE FILM, DISTILLED WATER, METAL TUBE, SURFACE WAVE, THERMAL MEASURING INSTRUMENT, FLOW PROBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1639 STEP NO--UR/0145/70/000/002/0075/0080

CIRC ACCESSION NO--AT0133544

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AT0133544
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF FALLING DISTD. H SUB2 O FILMS ON THE OUTER SURFACE OF A VERTICAL STEEL TUBE. THE MAX., MIN. AND AV. THICKNESS OF THE FILM, THE FREQUENCY AND AMPLITUDE OF WAVES ON ITS SURFACE AND ITS RATE OF FALL WERE MEASURED BY USING AN ELEC. MICROPROBE COMBINED WITH AN OSCILLOGRAPH AND A THERMAL ANEMOMETER WITH A W WIRE.

UNCLASSIFIED

Acc. Nr: AP0050721 Abstracting Service: INTERNAT. AEROSPACE ABST. Ref. Code: 5-70 4R0170

A70-23869 # Solution of heat conduction problems with a variable heat-exchange coefficient (Reshenie zadach teploprovodnosti pri peremennom koeffitsiente teploobmena). V. N. Kotlov (Vsesoiuznyi Nauchno-Issledovatel'skii Institut, Moscow, USSR). *Inzhenerno-Fizicheskii Zhurnal*, vol. 18, Jan. 1970, p. 123-128. 12 refs. In Russian.

Analysis of the heat conduction equation for a plane body with a boundary condition of the third kind and with a time-variable heat exchange coefficient. The function describing the variation of the heat exchange coefficient contains in its transform a bilinear function which turns to zero at an infinitely remote point. An exact solution is obtained using a method ordinarily applied to the analysis of automatic control systems described by equations with variable coefficients. T.M.

REEL/FRAME
19810719

USSR

UDC 536.4.015:669.018.2

TRAVINA, N. T., TYAPKIN, YU. D., NIKITIN, A. A., and KOZLOV, V. P., Institute of Metal Science and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"The Influence on Mechanical Properties of the Spatial Distribution of Second-Phase Separations in Nickel-Base Aging Alloys "

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 803-807

Abstract: A study was made of the effect of spatial distribution of second-phase separations on the characteristics of strength and plasticity of single crystals of aging alloys of the following compositions: Ni - 14.0 at%Al, Ni - 16.5 at%Al, and Ni - 19.0 at%Al. From the stress-strain diagram plotted from tensile tests of flat specimens made at a rate of $2.5 \cdot 10^{-3}$ sec^{-1} calculations were made of the curves "reduced shear stress τ_i - reduced shearing strain γ_i " for the $\{111\} \langle 110 \rangle$ slip system. The measured mechanical characteristics (critical shearing stress τ_s, strain hardening factor θ_{II}, maximum shearing strain γ_m) are compared with parameters η which characterize the correctness of the spatial distribution of γ'-phase particles. It was found that the plasticity of the investigated alloys improves with growing η, not only without decrease in strength, but even at some increase in strength. The importance, from the viewpoint of practical use, of the effect of the

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TRAVINA, N. T., et al., Fizika Metallov i Metallovedeniye, Vol 36, No 4, Oct 73, pp 803-807

correct spatial distribution of 2nd phase particles for the improvement of the plasticity of alloys at simultaneous increase in strength is emphasized. Two figures, one table, nine bibliographic references.

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USSR

UDC 539.27

TYAPKIN, YU. D., TRAVINA, N.T., and KOZLOV, V. P., Institute of Metal Science and Physics of Metals, Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin

"Electron Microscopic Study of Space Distribution Parameters of the Second-Phase Precipitates in Aging Nickel-Based Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 577-583

Abstract: The thin-film electron microscopy method suggested in this work for the study of ordering and distribution of precipitates is based on the statistical treatment of the electron microscope images. Single crystals of two-phase Ni - Al alloys with different volumetric precipitation (from 20 to 60 volumetric percent) of the type Ni_3Al γ' phase were used. The density numbers of γ' precipitates along [100], [110], and [230] directions are given on histograms plotted on the basis of electron microscope images. Precipitates of Ni - Al alloys were distributed among nodes of a simple cubic macrolattice with [100] axes. The order of this distribution depended on many factors. The size of the precipitated γ' phase was 110-120 Å for the alloy containing 14 at% Al and aged at 700°C for 5 hours. It increased to 140-160 Å for the same alloy aged at 750°C for 1 hour. For the alloy containing 16.5 at% Al the size of

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TYAPKIN, YU. D., et al, Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 3, 1973, pp 577-583

the precipitated γ' phase was 180-200 Å after aging at 750°C for 1 hour, and it increased to 200-220 Å for the alloy containing 19 at% Al and aged at 750°C for 30 min. The three alloys contained 20, 40, and 60 volumetric percent of the γ' phase, respectively.

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USSR

UDC 621.382.002

GARBER, R.I., GNAP, A.K., KOZLOV, V.F., PISTRYAK, V.N., POREL', Ya.M., FEDORENKO, A.I.

"Mass Spectrometric Determination Of Impurity Profile Of Boron In Ion-Doped Single Crystals Of Silicon"

V sb. Radiats. fiz. nemet.kristallov. (Radiations Physics Of Nonmetallic Crystals--Collection Of Works), Vol 3, Part 2, Kiev, "Nauk.dumka," 1971, pp 143-148 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B438)

Translation: The impurity profile of atoms of boron implanted in monocrystalline silicon with various orientations was determined by the method of secondary ion-ionic emission. The scheme of the mass spectrometic arrangement is presented, as well as typical impurity profiles of barium in Si specimens. 3 ill. 7 ref. I.M.

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USSR

UDC: 536.46

YUKHVID, V. I., MAKSIMOV, E. I., MERZHANOV, A. G., and KOZLOV, V. S., Moscow

"Formation of a Semi-Liquefied Layer During the Combustion of Condensed Systems With Solid Non-agglomerating Admixtures in a Field of Mass Forces"

Novosibirsk, Fizika Goreniya i Vzryva, Vol 9, No 4, Jul-Aug 73, pp 496-501

Abstract: The authors conduct an experimental study to explain the regularities associated with the pseudo-liquefied layer and its effect on combustion. This study is based on an earlier work by V. I. Yukhvid et al., Fizika Goreniya i Vzryva, Vol 9, No 2, 1973, where the authors observed that the rate of combustion of ammonium perchlorate with a refractory metal admixture (titanium) increases as the overload is increased where the overload is set up by centrifugal acceleration. On the basis of the results of that study, a mechanism is proposed for the combustion of the composition under the effect of mass forces. In the current study, inert refractory particles were used in the form of aluminum oxide. The test was conducted on a centrifuge. The combustion rate was measured by photoregistration. The overload vector in all of the tests was directed along the normal to the combustion surface, in the front propagation direction. The specimens were in the form of cylindrical tablets 0.8 cm in diameter and 2.4-2.5 cm high. These had been pressed to the point of maximal density. The results show that the motion of the com-

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YUKHVID, V. I., et al, Fizika Goreniya i Vzryva, Vol 9, No 4, Jul-Aug 73, pp 496-501

bustion front is uniform and that the effect of mass forces is complex in nature. A fall in the rate of combustion follows the combustion rate increase segment. These results can be explained by the properties of the pseudo-liquefied layer and the effect that they have on the combustion process.

USSR

UDC: 662.612.3

YUKHVID, V. I., MAKSIMOV, B. I., MERZHANOV, A. G., KHAYKIN, B. I., and KOZLOV, V. S.

"Combustion Mechanism of Condensed Systems With Solid Admixtures in a Mass Force Field"

Novosibirsk, Fizika goreniya i vzryva, No 2, 1973, pp 235-240

Abstract: This paper presents the results of experiments to study the rarely examined case of the combustion of systems with non-agglomerating admixtures. The experiments were conducted in a mass force field on compositions of ammonium perchlorate and titanium. The assumption of non-agglomeration is based on the fact that the melting point of Ti is, at 1700°, much higher than that of the perchlorate, at 1100° C. A diagram of the centrifuge in which the experiments were conducted is given together with a description of the experimental method. The rate of combustion was measured by film photography. The reader is referred to an earlier paper (B. B. Serkov, et al, FGV, 1968, 4, 4) for a more detailed description of the apparatus and methodology. The combustion rate was measured as a function of accelerations in the interval of 36 to 1200 g at room temperature. A model of the combustion process is devised to explain the experimental results.

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USSR

UDC: 541.64:678.76

KOZLOV, V. T., GUR'YEV, M. V., YEVSEYEV, A. G., KASHEVSKAYA, N. S., MEDOV, P. I., Scientific Research Institute of the Rubber Industry, Moscow, State Committee for Chemistry; Scientific Research Physico Chemical Institute imeni L. Ya. Karpov, Moscow, State Committee for Chemistry

"Investigation of the Mechanism of Radiation Cross-Linking Processes in Hard Rubber"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol XII, No 3, Mar 70, pp 593-601

Abstract: The mechanism of radiation cross-linking was studied at 77°K in 22 elastomer compounds of various structure -- saturated, unsaturated, aromatic and halogen substituted hydrocarbons and polysiloxanes with side groups $-CH_3$, $-CH=CH_2$, $-C_6H_5$ in various combinations and ratios. In nearly all elastomers studied, the cross-link yield was considerably greater than half the radical yield, based on the assumption that two radicals may form a cross link. An exception to this rule is the case of alkyl halide elastomers in which the radical yield is approximately twice the cross-link yield. In many hydrocarbon elastomers, an increase in the capacity of the side groups to form radicals leads to a reduction in the cross-link yield, the rate of

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KOZLOV, V. T., et al, Vysokomolekulyarnyye Soyedineniya, Vol A12, No 3, Mar 70, pp 592-601

the radical yield to twice the cross-link yield varying from 1/20 to 1/2. In a number of polysiloxanes these ratios vary depending on the presence of isolated double bonds lowers the radical yields and increases the cross-link yields. Both radical and cross-link yields are considerably reduced by aromatic groups, the cross-link yield being reduced to a greater degree. Radiation cross-linking is attributed to a mechanism which takes place during exposure and goes through a number of electron processes. These include rapid processes (of the order of 10^{-10} second) immediately following ionization or excitation of regions in close proximity and oriented for molecular cross linking; the sequence also includes processes which are slowed down by transfer of an exciton or excited charge into these regions. A contribution is also made by processes of the interaction of free radicals and the ions produced when radicals capture charges. The molecular structure of the elastomer determines the relative contribution made by each of these processes to the overall cross-link yield.

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1/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--MECHANISM OF THE RADIATION CROSSLINKING OF SOLID RUBBERS -U-

AUTHOR-(05)-KOZLOV, V.T., GURYEV, M.V., YEVSEYEV, A.G., KASHEVSKAYA, N.G., ZUBOV, P.I.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 592-601

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--GAMMA RADIATION, POLYMER CROSSLINKING, FREE RADICAL, EPR SPECTROMETRY, GEL, NATURAL RUBBER, POLYISOPRENE, POLYCHLOROPRENE, POLYBUTADIENE, BUTADIENE STYRENE RESIN, COPOLYMER, POLYSILOXANE, CHLOROFLUOROCARBON COMPOUND, FLUORINATED ORGANIC COMPOUND, SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1207 STEP NO--UR/0459/70/012/003/0592/0601

CIRC ACCESSION NO--AP0116672

UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116672

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SAMPLES OF 22 DIFFERENT RUBBERS WERE IRRADIATED BY A PRIME60 CO SOURCE. THE FREE RADICAL YIELDS (G SUBR) WERE DETD. BY EPR SPECTROMETRY. THE CROSSLINK YIELDS (G SUBC) WERE DETD. BY THE SWELLING DEGREE OF THE SAMPLES AND(OR) THE GEL FRACTION CONTENTS. FOR MOST OF THE SAMPLES (NATURAL RUBBER, POLYISOPRENES, POLYCHLOROPRENES CONTG. S BONDS, POLYBUTADIENES, BUTADIENE STYRENE COPOLYMERS, BUTADIENE METHYLSTYRENE COPOLYMER, ETHYLENE PROPYLENE COPOLYMERS, POLY(DIMETHYLSILOXANE), POLY(DIMETHYLMETHYLVINYLSILOXANES, POLY (DIMETHYLMETHYLPHENYLSILOXANES), POLY(DIMETHYLDIPHENYLSILOXANE)) G SUBC GREATER THAN G SUBR-2. THE HALOGEN CONTG. RUBBERS (POLY(TRIFLUOROCHLOROETHYLENE), VINYLIDENE FLUORIDE HEXAFLUOROPROPYLENE COPOLYMER, OR VINYLIDENE FLUORIDE TRIFLUOROMETHYL PERFLUOROVINYL ETHER COPOLYMERS) HAD G SUBR-2G SUBC SIMILAR TO 1. THE RADIATION CROSSLINKING OF RUBBERS CONSISTS OF FAST PROCESSES (SIMILAR TO 10 PRIME NEGATIVE 16 SEC) WHICH FOLLOW THE ACTIVATION OR IONIZATION AT LOCATIONS CLOSE TO POTENTIAL CROSSLINKS, AND SLOWER PROCESSES INVOLVING THE TRANSFER OF EXCITONS OR CHARGES.

FACILITY: NAUCH.-ISSLED. INST. REZ. PROM., MOSCOW, USSR.

UNCLASSIFIED

Thermomechanical Treatment

USSR UDC 669.35'5'296:621.78

DOROGEYEVA, A. S., KOZLOV, V. V., and FEDOROV, V. N.

"Thermomechanical Treatment of Bronze with Elevated Zirconium Content"

Moscow, Tsvetnyye Metally, No 2, Feb 74, pp 63-65

Abstract: Bronze containing 0.8% Zr and 0.6 Cr is recommended for the sliding contacts of high-voltage apparatus. An optimal plan of thermomechanical treatment of this bronze is developed and recommendations given for the technology of manufacture of semifinished goods from it. The thermomechanical treatment recommended includes: hardening at 940-960° C, holding 30 minutes; intermediate deformation of 30-60%; tempering at 450° C for 4-6 hours. This treatment provides the following properties σ_b = 46-50 kg/mm^2; HB = 145-160 kg/mm^2; δ = 16-18%; γ = 42-44 m/ohn·mm^2. The conductivity is 72-75% of the conductivity of copper.

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USSR

UDC: 621.378.325

KOZLOV, V. V.

"Emission Spectrum and Long-Pulse Pumping Mode in Lasers With a Polyhedral Cavity"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 30-36

Abstract: An experimental investigation is made into the energy and time characteristics of lasers with an active element in the form of a neodymium glass polyhedron in the long-pulse pumping mode. The emission spectrum was 0.023 nm wide. The maximum duration of emission was found to be 16.2 ms for a pumping duration of approximately 23 ms. The threshold stimulation power when cavities of this type are used in the continuous mode was established from the relation between the pulse mode and the continuous mode. For a 19-face cavity of neodymium glass with a volume of 105 cc, the threshold stimulation power is about 14.3 kW. It is shown that this figure can be reduced to 280-300 watts with retention of a fairly long effective emission path

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USSR

KOZLOV, V. V., Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 30-36

(approximately 520 mm). A comparison is made between certain characteristics of lasers with a polyhedral cavity and with a rod. The author thanks Corresponding Member of the Academy of Sciences of the USSR Professor R. V. Khokhlov for his interest in the work, Ye. I. Kamenskiy and A. I. Portnyagin for constructive criticism, and G. V. Milova for assistance in processing the results of the experiment. Five illustrations, three tables and bibliography of ten titles.

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USSR

UDC: 621.396.2:551.510.52

BERNOSKUNI, Yu. V., VAYZBURG, G. M., GUSYATINSKIY, I. A., KOZLOV, V. V., NEMIROVSKIY, A. S., PLEKHANOV, V. V.

"Experimental Research on a New Method of Combatting Signal Fading on Long-Range Tropospheric Transmission Lines ('Accord')"

Tr. NII radio (Works of the Scientific Research Institute of Radio), 1972, No 1, pp 55-62 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8A342)

Translation: The paper presents the results of experimental studies of the "Accord" system on a long-range ultrashort-wave tropospheric transmission line. The gain over standard quadrupled reception is determined. Resumé.

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USSR

UDC 621.375.82

KOZLOV, V. V.

"Oscillation Spectrum and the Long-Pulse Mode of Pumping a Laser With a Polyhedral Resonator"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2, Moscow, "Sov. radio," 1972, pp 30-36 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D914)

Translation: The energy and time characteristics of a laser with an active element in the form of a polyhedron of Nd glass in a long-pulse mode of pumping were investigated experimentally. A width of the oscillation spectrum of 0.23 Å was obtained. The maximum oscillation duration for a pumping duration of ~23 msec was equal to 6.2 msec. The threshold excitation power was determined from the relationship between pulsed and continuous oscillation modes using a similar type of resonator in the continuous mode. It should be ~14.3 kw for a 19-sided element of Nd glass of volume 105 cm^3. The possibility of lowering it to 280-300 w while preserving a fairly high effective path length of the radiation (~520 mm) is shown. Certain characteristics of a laser with a polyhedral resonator and a rod are compared. 10 ref. Authors abstract.
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USSR UDC 621.396.621.59:621.391.812.7(088.8)

VAYSBURG, G. M., GUSYATINSKIY, I. A., KOZLOV, V. V., NEMIROVSKIY, A. S., PLEKHANOV, V. V., BERNOSKUNI, YU. V.

"Device for Signal Reception with Equivalent Frequency Spacing"

USSR Author's Certificate No 296221, filed 21 Jul 1969, published 8 Apr 1971 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D78P)

Translation: A device is introduced for signal reception with equidistant frequency spacing containing heterodynes and two frequency converters connected in series to it, the input signal to the first of which is fed directly and the input signal to the second of which is fed via a delay line. The device also includes a phase detector one of the inputs of which is connected to the output of the first converter via a band filter. For reception of N - 1 signals with equidistant frequency spacing by one device, for a decrease in distortions, a phase modulator the control input of which is connected to the output of the phase detector is included between the output of the mentioned heterodyne and the other input of the phase detector. The delay of the delay line is selected equal to the inverse of the frequency separation, and the pass band of the band filter is selected not exceeding twice the magnitude of the frequency separation.

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USSR UDC 621.375.826

KAMENSKIY, Ye. I., KOZLOV, V. V.

"Lasers With Polyhedral Energy Guide"

Moscow, Kvantovaya Elektronika, Sbornik, Statey, No 4, "Sovetskoye Radio", 1971, pp 77-86

Abstract: New types of cavities are proposed for lasers and laser amplifiers -- energy guides in which the overall dimensions are kept small while providing a long path of interaction between the emission and the active material. The proposed design reduces overall dimensions, and improves the operational reliability and parameters of laser systems. A method is developed for designing the energy guides, examples are given to illustrate the design of such cavities, a description is given of a polyhedral energy guide made of neodymium glass, and the results of preliminary experiments are presented. It is shown that the new miniature laser cavity provides an active emission path up to 2.5 meters long while reducing the activation threshold, improving the mode structure and minimizing laser beam divergence. Cavities of the proposed type with concentric arrange-

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KAMENSKIY, Ye. I., KOZLOV, V. V., Kvantovaye Elektronika, No 4, "Sov. Radio", 1971, pp 77-86

ment of flash tubes provide efficient utilization of optically stimulated emission, in addition to low electric thresholds. The long optical path improves transverse mode selectivity and provides peakless emission at energy levels exceeding the threshold pumping energy by a factor of 1.5. The improvement in transverse mode selectivity without adding optical equipment provides the possibility of stable emission on a single transverse mode and concentration of the emission energy in an angle close to the diffraction limit. In conclusion, the authors thank R. V. Khokhlov for constant interest in the work, and V. P. Vasil'yev, L. P. Pliyev, L. Ye. Rytikov and M. S. Belov for making the polyhedron for the model laser. Eight figures, bibliography of ten titles.

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USSR

UDC 547.556.07

SILAYEVA, T. D., and KOZLOV, V. V., Moscow Institute of National Economy Imeni G. V. Plekhanov

"Studies in the Area of Diazo Compounds. XXXIX. Pyrophosphates of Aromatic Amines and Diazo Compounds"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 6, No 9, Sep 70, pp 1861-1865

Abstract: Diazotization of aromatic amines by means of sodium nitrite in aqueous solutions of pyrophosphoric acid was studied. The rate of diazotization decreased with the decrease of basicity constants of the amines in water. The reactions took place upon combining the reagents. The products had a composition of 2:1 of the amine to pyrophosphoric acid. When the amines were dissolved in 65% formic acid prior to mixing -- the products had a 1:1 composition. After repeated recrystallization the 1:1 product converted to the 2:1 material. Diazotization of these compounds gave pyrophosphates of the diazocompounds $XC_6H_4N_2^+H_3P_2O_7^-$. Also salts of aromatic amines with orthophosphoric acid of a 1:1 composition were obtained, which upon diazotization gave orthophosphates of the diazocompounds $XC_6H_4N_2^+H_2PO_4^-$.

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USSR

UDC 577.155.3

KOVALENKO, N. A., KOZLOV, YE. A., GERASIMOVA, A. V., and MARDASHEV, S. R., Chair of Biochemistry, First Moscow Medical Institute imeni I. M. Sechenov, and Institute of Biological and Medical Chemistry, Academy of Medical Sciences USSR, Moscow

"Kinetic Characteristics of Clostridium Welchii SR-12 Glutaminase and the Effects of Some Ions of Its Activity"

Moscow, Biokhimiya, Vol 36, No 6, Nov/Dec 71, pp 1198-1203

Abstract: In the absence of ions, Cl. welchii SR-12 glutaminase exhibits a very low activity. Chlorides and other monovalent anions activate the enzyme and shift its optimum pH to lower values. A plot of reaction rate against substrate concentration yields an S-shped curve in the absence of monovalent anions and the Michaelis-Menten curve in their presence. The sigmoid shape of the above curve may be more or less pronounced, depending on Ph. The energy of activation is 16,960 cal/mole in the absence and 12,950 cal/mole in the presence of chlorides. In low concentrations, acetate, citrate, succinate, and other components of the tricarboxylic acid cycle activate the anzyme, but inhibit it when their concentration exceeds 10 mmoles/liter.

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USSR

UDC: None

KOZLOV, Ye. A. and SLUTSKOVSKIY, A. I.

"A Means of Identifying Multiple Waves in Seismic Prospecting"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnye znaki, No 4, 1973, p 105, No 363949

Abstract: Use is made here of the general deep point method, distinguished by the determination of the velocity and inclination angle of small boundaries to predict the expension point of the multiple waves. The efficiency of the procedure is thus improved.

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UDC 577.155.2

USSR

KOVALENKO, N. A., KOZLOV, Ye. A., and GERASIMOVA, A. V., Institute of Biological and Medical Chemistry, Academy of Medical Sciences USSR, Moscow, and Chair of Biochemistry, 1st Moscow Medical Institute imeni I. M. Sechenov

"Changes in the Glutaminase Activity of Clostridium welchii SR-12 Under the Influence of Some Glutamine Analogs and Some Substances Reacting with Sulfhydryl Groups"

Moscow, Biokhimiya, Vol 35, No 4, Jul/Aug 70, pp 670-674

Abstract: Unlike other bacterial glutaminases, that of Cl. welchii has a high specificity with respect to the substrate. The effect of 24 analogs of the substrate (i.e., of L-glutamine) on the glutaminase activity of Cl. welchii Sr-12 was studied. A strong inhibiting effect was produced only by the beta-benzyl ester of N-carbobenzoxy-D,L-aspartic acid, while isoglutamine, L-asparagine, L-aspartic acid, N^{α}-carbobenzoxy-D,L-asparagine, the gamma-methyl ester of N-carbobenzoxy-L-glutamic acid, p-nitrobenzoyl-L-glutamic acid, α-benzoyl-L-asparagine, and p-toluenesulfonyl-L-glutamic acid had a weak inhibiting effect. The effect of substances reacting with the SH group, i.e., of mercuric acetate (I), p-chloromercuribenzoate (II), and monoiodoacetic acid (III), on the glutaminase activity of Cl. welchii was also studied. I and II inhibited the activity of the

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KOVALENKO, N. A., et al, Biokhimiya, Vol 35, No 4, Jul/Aug 70, pp 670-674

glutaminase almost completely, while III exerted no effect. L-Glutamic acid, the substance formed from L-glutamine by glutaminase, had only a weak inhibiting effect on the activity of the glutaminase, while glutaminases of E. coli, Saccharomyces ceravisiae, and Pseudomonas GG13 are strongly inhibited by this amino acid.

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USSR

UDC 639.311:663.632.8

YENGASHEV, V. G., Candidate of Veterinary Sciences, Central Laboratory of the Ichthyopathological Service, Ministry of Fish Economy RSFSR, KOZLOV, Ye. I., Candidate of Technical Sciences, VNIISKhSPGA All Union Scientific Research Institute of Agricultural and Special Use of Civil Aviation, and AFANAS'YEV, V. I., Candidate of Veterinary Sciences, Krasnodarskiy Scientific Research Institute of Pond Fishery, Ministry of Fish Economy RSFSR

"Disinfection of Fish Ponds From Airplanes"

Moscow, Rybnoye Khozyaystvo, No 3, Mar 71, pp 29-30

Abstract: In 1967, fisheries in the Moscow region began to use agricultural AN-2 airplanes for disinfecting ponds with lime. In 1969, fisheries in Krasnodarskiy Kray equipped an AN-2 plane with a different spray mechanism and obtained much better results. The rate of spray reached 40 kg of lime per second (previously, 18-20 kg/sec), and the strip covered per run was also considerably wider: 8-10 meters at an altitude of 4 m; 12-13 m from an altitude of 10m; and 15-16 m from an altitude of 15 m. For most purposes, an altitude of 10-15 m is recommended; it should be lowered to 5 m on windy days or when it is desirable to deliver a larger amount of the disinfectant per unit surface area. The spray mechanism was designed by the VNIISKhSPGA, and it can be easily installed in the AN-2 plane.

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USSR

UDC 656.7.073.2:621.86

KOZLOV, Ye. I., LEGKOSTUP, S. S., and KUNASHEV, M. N.

Mekhanizatsiya Zagruzki Samoletov Khimikatami (Mechanization of the Chemical Loading of Aircraft), "Transport" Press, 1970, 103 pp,

Translation:

Annotation of the book: The book generalizes the experience gained in kolkhozes, sovkhozes and agricultural aviation units from the use and operation of various types of equipment for mechanizing the preparation and loading of planes and helicopters with chemical fertilizers, toxic chemical dusts, solutions and emulsions. A description is given of new machinery and attachments, as well as the most interesting machines made by efficiency experts. Material is presented on calculating the principal parameters of the operating devices of loaders, and there is a listing of operating and safety rules for the use of chemical loaders.

The book is designed for engineering and flight personnel of agricultural aviation units, as well as for kolkhoz and sovkhoz specialists and mechanizers. Forty-seven illustrations. Twelve tables. Bibliography with eight titles.

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USSR

KOZLOV, Ye. I., et al., Mekhanizatsiya Zagruzki Samoletov Khimikatami, "Transport" Press, 1970, 103 pp.

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KOZLOV, Ye. I., et al., Mekhanizatsiya Zagruzki Samoletov Khimikatami, "Transport" Press, 1970, 103 pp

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KOZLOV, Ye. I., et al., Mekhanizatsiya Zagruzki Samoletov Khimikatami, "Transport" Press, 1970, 103 pp

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USSR

UDC: 621.316.721

KOZLOV, Yu. A. and RAKHMANOV, V. F. /Moscow Aviation Institute/

"Device for Controlling the Magnitude and Direction of an Electric Current Flowing Through a Load Element"

USSR Author's Certificate No 274497, filed 15 Jul 68, published 29 Sep 70 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1971, Abstract No 12A186P)

Translation: The invention described is concerned with the area of controlling a current flowing through an element and, particularly, with devices through which, by means of external control action, the intensity and direction of the current can be changed and which also permit setting up a common position for the device and the external controlling action. Devices for the control of the magnitude and direction of electric current flowing through a load element through the use of an external controlling action are known. The proposed device differs in that the lines conducting the current are made in the form of physical spatially closed nodes: e.g., pentagrams, which are symmetrical with respect to the plane intersecting the conducting lines in at least one point of their spatial crossing and are opposite 2 vertices to which are connected external incoming and outgoing feed lines,

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USSR

UDC: 621.316.721

KOZLOV, Yu. A., et al, USSR Author's Certificate No 274497

while the source and sink of the load element are connected at the points of their spatial crossing. The external controlling action may be a light flux, a magnetic field, or a temperature, depending on the form of controlling action to which the material used for making the chain of nodes is sensitive. This permits regulating the magnitude and direction of the electric current flowing through an element, through the use of an external controlling action affecting the current-conducting lines -- by varying their resistance, for example. Resume

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USSR

UDC 541.15+66.05

BREGER, A.KH., GOL'DIN, V. A., DOBROVOL'SKIY, S. P., and KOMLOV, YU. D.

"Radiation-Chemical Construction of Instruments -- the Principles for the Establishment of Material-Technical Basis of Applied Radiation Chemistry"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. I. Mendeleyev, Vol 18, No 3, 1973, pp 312-322

Abstract: A review with 127 references devoted to the problem of principal goals and current status in the area of radiation-chemical construction of instruments -- one of the more important components of radiation-chemical technology. The review covers experimental anddesign results of the construction of radiation-chemical instruments using: 1) γ-irradiation of long life radioactive isotopes (Co^{60}) as well as of the short lived ones in the nuclear power reactors (complex energy-chemical use of nuclear fule); 2) electron streams generated by the accelerators. Areas have been pointed out in which the potential of the utilization of various radiation sources was the highest, considering both the radiation-technological parameters of these processes and their economic indicators. The state of the art satisfies the requirements originating in the realization of these results in agriculture.

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UDC 621.382.3

GUSEV, V.M., SHCHIGOL', F.A., NAUMENKO, V.G., LEVITSKIY, K.B., SHCHELCHKOV, B.I., KOZLOV, YU. G., ZAKHAROV, V.I.

"Silicon Planar n-p-nn$^+$ Microwave Transistor Obtained By The Method Of Ion Implantation"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 155-158 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B221)

Translation: The method of ion implantation in conjunction with planar technology makes it possible to obtain n-p-nn$^+$ microwave transistors with a critical frequency of amplification with respect to the current of f_T = 2 GHz. Specimens were obtained and investigated with a diffusion base and an ion-implantation emitter, and devices in which both the collector and emitter junctions were produced by the method of ion implantation. Basic static and frequency parameters of the devices are presented and also the dependences $V_{ct} = f(I_e)$, $\beta_T = f(I_k)$. 3 ill. 6 ref. Summary.

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KOZLOV, Yu. G.

UDC 537.525.1+535.417

"Interferometric Investigation of Sonic Oscillations in a Pulse Discharge Afterglow"

Leningrad, Optika i Spektroskopiya, Vol 29, No 1, 1970, pp 8-10

Abstract: The author discusses further experimentation he performed to follow up his discovery of standing radial sound waves resulting from the passage of a current pulse through a gas at a pressure of 1-20 mm Hg. In work conducted by other experimenters since then, the waves were recorded by oscillations of the charged particle density under the assumption that the concentration of the particles varies as the density of the normal gas. The author discusses what he judges to be a superior method of detecting the waves: he used a piezoelectric sensor fastened to the wall of the discharge tube, a simpler and more sensitive method. He also conducted measurements of the gas density oscillations by means of a Rozhdestvenskiy interferometer. Comparison of the results obtained by these two methods enabled him to determine the normal gas temperature very simply by a sensitive method. Another advantage of the interferometer method is that it permits determination of the absolute density change and, consequently, the

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KOZLOV, Yu. G., Optika i Spektroskopiya, Vol 29, No 1, 1970, pp 8-10

limits of the applicability of the condition $\Delta\rho \ll \rho$, where $\Delta\rho$ is the amplitude of the density oscillation and ρ is the unperturbed gas density.

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UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent, 1-70

243786 KIDNEY MACHINE, containing dialyzer, recirculation device for dialyzer solution, where on the feed pipe of the recirculation device there is mounted a cylindrical sealed chamber 8 with inlet and outlet tubes, inside which is a rotating shut-off valve consisting of a moving section 11 on a shaft 12 that is connected to an electric motor 13. This periodically changes the flow speed of the dialyzer solution and increases efficiency of the mass transfer. 17.5.68. as 1240216/31-16. U.G.KOZLOV and G.N.BENYASH. Surgical Equipment Res. Inst. (3.10.69) Bul. 17/ 14.5.69 . Class 34k. Int. Cl.A61m.

Kozlov, Yu G.; Ben'yash, G. N.
Vsesoyuznyy Nauchno--Issledovatel'skiy Institut
1/2 Khirurgicheskoy Apparatury i Instrumentov V

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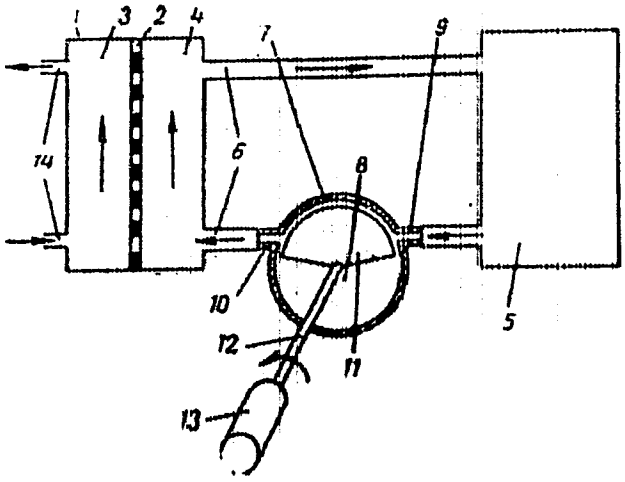

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