

USSR

UDC 621.382.3

AVAK'YANTS, G. M., KARAYAN, G. S., DZHEREDZHYAN, A. A., Institute of Radio Physics and Electronics, Armenian SSR Academy of Sciences

"Inversion Phenomenon in Five-Layer Structures"

Yerevan, Izvestiya Akademii Nauk ArmSSR: Fizika, Vol 8, No 3, 1973, pp 205-212

Abstract: The authors find the current-voltage characteristic of a PNPNP structure when  $\beta_2 + \beta_3 > 1$ , and they study the condition of formation of sections with negative resistance on the current-voltage characteristic. It is shown that inversion of the sign of voltage displacement occurs on the central collector junction. Formulas are derived for the extremum points of the function  $V(I)$ , and the existence of an intermediate interval with positive differential resistance is demonstrated. A new mechanism is suggested for the formation of negative resistance on the current-voltage characteristic of the fourth junction.

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UDC 621.382.27

AVAK'YANTS, G. M., Acad. Sci. Armenian SSR, ADAMYAN, Z. N., ARUTCHNYAN, V. M., BARSEGYAN, R. S. and OGANESYAN, S. V,

"Some Studies of Zinc-Doped Silicon Diodes as Optron-Pair Elements"

Yerevan, Doklady Akademii Nauk Armyanskoy SSR, Vol 57, No 3, 1973, pp 152-157

Abstract: This article describes an investigation of the light-sensitivity of the time characteristics of the diode structures described in the title in order to determine the possibility of using them as photoreceptors in optron pairs. The volt-ampere characteristics were measured in a couple with a light-emitting diode over a broad range of temperatures. The diodes retained their light sensitivity throughout the entire range of temperatures, from  $-196^{\circ}$  to  $+80^{\circ}$  C. In contrast to many other devices, these diodes can be switched both from the low-conductivity to the high-conductivity state and from the high-conductivity to the low-conductivity state simply by changing the level of illumination.

1/1

1/2 023

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--DIODES WITH NEGATIVE RESISTANCE BASED ON NICKEL COMPENSATED SILICON

-U-

AUTHOR--(03)-AVAKYANTS, G.M., MINASYAN, S.V., URGANESYAN, G.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK ARM. SSR, 1970, 50(1), 20-2

DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--DIODE, NICKEL, SILICON, ALUMINUM NICKEL ALLOY, RESISTIVITY,  
ELECTRIC FIELD, VOLT AMPERE CHARACTERISTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1998/2060

STEP NO--UR/0252/70/050/001/0020/0022

CIRC ACCESSION NO--AT0122239

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0122289

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CURRENT VOLTAGE CHARACTERISTICS,  $I(V)$ , WERE STUDIED OF P PRIME POSITIVE-I-N PRIME POSITIVE DIODES (AL-NI DOPED SI WITH RESISTIVITY 2-20 KILOHM,CM,AU PLUS 0.01PERCENT SB; BASE THICKNESS 150-250 MU) AT 228-353DEGREEK. THE CHARACTERISTICS ARE S SHAPED; THE 1ST PART OF THE CURVE OBEYS THE FORMULA  $I$  EQUALS  $BV$  PRIMEN, WHERE 1.5 IS SMALLER THAN OR EQUAL TO N IS SMALLER THAN OR EQUAL TO 2.5 AND B IS A CONST. THE POTENTIAL DISTRIBUTION ALONG THE BASE WAS DETD.; THE MAX. ELEC FIELD INTENSITY OCCURRED NEAR N PRIME POSITIVE AND P PRIME POSITIVE CONTACT, IN P PRIME POSITIVE-N-N PRIME POSITIVE AND P PRIME POSITIVE-P-N PRIME POSITIVE, RESP.

UNCLASSIFIED

USSR

UDC 621.382.2

AVAK'YANTS, G. M., Corresponding Member of Academy of Sciences Armenian SSR,  
Institute of Radiophysics and Electronics, Academy of Sciences Armenian SSR

"Semiconductor Devices With Switching Properties"

Yerevan, Doklady Akademii Nauk Armyanskoy SSR, Vol 54, No 3, 1972, pp 147-153

Abstract: A new principle is proposed for three-layer semiconductor switching devices which are controlled in the same way as four-layer dynistors and thyristors. On the basis of a p-n-p transistor structure with tunneling in the emitter junction, a current-controlled device able to transfer from a high-voltage low-current state to a low-voltage high-current state is obtained due to the N-shaped characteristic of one of its elements. The emitter junction tunneling, excess, and above-barrier currents and collector hole and generated currents are balanced mathematically, and the minimum above-barrier current value is found for which the voltampere characteristic differential resistance is not everywhere positive, which allows the switching property to be realized. It is shown that despite an excess current which increases with the voltage and exceeds the current over the barrier when the emitter junction current equals the maximum tunnel diode current, the switching property holds. Any other device with the same switching properties must have at least 2 elements with  
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AVAK'YANTS, G. M., Doklady Akademii Nauk Armyanskoy SSR, Vol 54, No 3, 1972, pp 147-153

the current of the second controlled by the voltage across the first, the first element having an N-shaped voltampere characteristic, and other properties. For a sufficiently narrow transistor base, a switch may be obtained having very fast response and low cutoff voltage temperature dependence for a sizable ratio of the peak voltage to residual voltage. Thus, for a 1 micron base and hole diffusion constant of approximately 10, the maximum switching frequency should be about 1000 MHz. This type of device will switch without recourse to avalanche multiplication. A large peak-to-residual voltage ratio can be obtained by shorting the collector with any element having a characteristic such that the current saturation depends on the applied voltage or by using a collector junction with a relatively uniform impurity distribution. Instead of employing emitter junction tunneling, various elements with N-shaped voltampere characteristics can be connected in parallel with the emitter.

2/2

- 93 -

Acc. Nr: **AP0036976**

**A**

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i  
Immunobiologii, 1970, Nr 1, pp 98-102

LABORATORY STUDIES OF STRESSOR AND SENSITIZING  
ACTION OF HUMAN GAMMA-GLOBULIN

Leytes, F. L.; Spõtarenko, S. S.; Avaliani, Z. S.;  
Semashko, M. I.; Karon, B. I.

The authors applied determination of biochemical urinary excretion of 17-ketosteroids to the study of stressor effect of homologous gamma-globulin in man. The possible sensitizing action of this preparation was investigated by testing degranulation of mast cells of mouse subcutaneous connective tissue in their contact with the serum mixture of immunized children and gamma-globulin. It was found that gamma-globulin (10%) possessed a weak stressor effect, not manifested clinically. Gamma-globulin produced a desensitizing effect, which was evidently associated with the competition of gamma-globulin with allergic antibodies at the territory of connective tissue cells.

REEL/FRA  
19721904

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1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EFFECT OF A COMBINED PREPARATION OF GANGLERON AND PAPAVERINE -U-  
AUTHOR-(02)-MACHAVARIANI, A.S., AVALISHVILI, M.G.  
COUNTRY OF INFO--USSR  
SOURCE--SGOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57(1), 237-40  
DATE PUBLISHED--70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--PROCESSED PLANT PRODUCT, ALKALOID, CARDIOVASCULAR DRUG, BLOOD CIRCULATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/1979 STEP NO--UR/0251/70/057/001/0237/0240  
CIRC ACCESSION NO--AP0127374  
UNCLASSIFIED



2/2 014  
CIRC ACCESSION NO—AP0127374

UNCLASSIFIED

PROCESSING DATE—30OCT70

ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. GANGLERON AND PAPAVERINE  
ADMINISTERED I.V. AT 1 MG EACH-KG IN COMBINATION INCREASED THE BLOOD  
VOL. FLOWING FROM THE CORONARY SINUS OF CATS BY 60-90PERCENT LARGER THAN  
2 HR. THE ABILITY OF THE COMPS. APPLIED TOGETHER IN SMALL DOSES TO  
INCREASE AND ACCELERATE THE EFFECT OF THE OTHER WITHOUT PRODUCING ANY  
SIDE EFFECTS SUGGESTS POSSIBLE COMBINED CLIN. USE. FACILITY:  
TBILIS. GOS. INST. USOVERSH. VRACH., TBILISI, USSR.

UNCLASSIFIED

USSR

UDC 547.752+547.759.32

AVANESOVA, D. A., and TATEVOSYAN, G. T., Institute of Fine Organic Chemistry, Yerevan, Academy of Sciences Armenian SSR

"Indole Derivatives. XXXI. Dialkylaminoethyl Esters of Isomeric 1,4-Dimethoxy-5,6-dihydro-7H-benzo(c)carbazole-carboxylic Acids"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 3, 1970, pp 280-284

Abstract: Amino esters of isomeric 1,4-dimethoxy-5,6-dihydro-7H-benzo(c)carbazole-carboxylic acids (I) are produced using 5,8-dimethoxy- $\beta$ -tetralone (II) as a raw material. The products of Fischer condensation of Ketone II with phenylhydrazine and isomeric carboxy-phenylhydrazines have the structure of 1,4-dimethoxy-5,6-dihydro-7H-benzo(c)-carbazole and its carbethoxy derivatives (III). As distinct from the products of condensation of ortho- and para-carboxyphenylhydrazines with ketone II, the product obtained with meta-carboxyphenylhydrazine was a mixture of two isomeric esters (III) ( $R = CO_2C_2H_5$ ) with carbethoxyl groups in positions 9 and 11. Thin-layer chromatography revealed that one of the isomers was present in trace quantities. Dehydration of compound III ( $R = H$ ) with a palladium catalyst yielded aromatic 1,4-dimethoxy-7H-benzo(c)carbazole. Alkali hydrolysis of isomeric 1/2

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AVANESOVA, D. A., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 3, 1970, pp 280-284

esters III ( $R = CO_2C_2H_5$ ) produced the corresponding acids while ester exchange in the presence of catalytic quantities of sodium resulted in synthesis of the desired products (I). The results of an investigation of the biological properties of these amino esters will be published in a separate paper.

USSR

UDC 616.153.1:577.158.7].04-092.9:616.981.452-092

AVANYAN, L. A., and SOSNIKHINA, T. M., Scientific Research Antiplague Institute of the Caucasus and Transcaucasus, Stavropol'

"Biochemical Characteristics of Erythrocytes of Guinea Pigs With Hypocatalasemia and the Sensitivity of These Animals to Plague Bacteria"

Moscow, Voprosy Meditsinskoy Khimii, Vol 17, No 4, 1972, pp 371-376

Abstract: Because hypo- and acatalasemia have been associated with higher susceptibility to plague among wild rodents, the biochemical characteristics of this deficiency and sensitivity of laboratory guinea pigs to *P. pestis* were studied. First it was shown that such a deficiency is transmitted genetically as an autosome-recessive trait, and normally appears in offspring of parents with a catalase activity less than 30 mg  $H_2O_2$ /mg Hb. Deficient guinea pigs were found to have a blood catalase activity 6 times lower than that of normal animals and composed 15.44% of the sampled population. While erythrocyte counts, Hb levels, and total glutathione were identical in both groups, reduced glutathione was lower and oxidized glutathione was higher in erythrocytes of deficient animals, probably due to suppressed glutathione reductase activity. In fact, such activity was observed to be over 3 times lower in deficient animals. Erythrocyte hemolysis tests indicated that erythrocytes of deficient animals have higher

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AVANYAN, L. A. and SOSNIKHINA, T. M., Voprosy Meditsinskoy Khimii, Vol 17, No 4, 1972, pp 371-376

sensitivity to HCl and  $H_2O_2$ . Infection of guinea pigs with *P. pestis* resulted in 54% survival for normal animals and only 20% for hypocatalasemic animals. Thus it is hypothesized that wild rodents with hypocatalasemia or other deficiencies that impair  $H_2O_2$  detoxification would be more susceptible to plague, and that one of the effects of plague bacteria is to inhibit catalase activity and increase  $H_2O_2$  formation.

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USSR

UDC 531.781(088.8)

ZHAMKOCHYAN, A. KH., AVANZYAN, K. O.

"Magnetoelastic Dynamometer"

USSR Author's Certificate No 238833, filed 14 Jun 67, published 27 Jul 69  
(from RZH-Metrologiya i Izmeritel'naya Tekhnika, No 1, Jan 70, Abstract No  
1.32.310 P)

Translation: The proposed magnetoelastic dynamometer consists of toroidal magnetic circuit, pressure cylinders, and excitation and measuring windings. For the purpose of increasing measuring accuracy, sensitivity and design simplification, the end surfaces of the pressure cylinders have slots which contain the windings.

Molecular Physics

USSR

LYUBOV', REBANE, SAARI, P. and AVARMAA, R.

"Oscillatory Relaxation and Radiationless Transitions in Certain Molecular Luminescence Centers"

Tallin, Izvestiya Akademii Nauk Estonskoy SSR, Fizika, Matematika, No. 1, 1970, pp 44-56

Abstract: The authors' work on oscillatory relaxation and radiationless transition processes in molecular luminescence centers of  $O_2^-$ ,  $S_2^-$ , and  $NO_2^-$  in alkali-halide crystal matrices is reviewed. Emphasis is given to finding the parameters of radiationless transitions and the oscillator relaxation times; i.e., the time for decay of local (intramolecular) oscillations into phonons of crystal oscillations. The studies showed that radiationless transitions in impurity centers formed by  $O_2^-$ ,  $S_2^-$ , and  $NO_2^-$  molecules are similar to tunnel transitions but that the processes do not conform to the classical Franck-Condon principle. In the case of  $NO_2^-$  centers, for example, it was shown that competition between radiationless transitions and transitions accompanied by oscillatory relaxation leads to a drop in the luminescence output as the frequency of the exciting light increases. So-called optical quenching was also observed in  $NO_2^-$  centers. Several quantities and relationships describing the oscillatory relaxation process at an  $NO_2^-$  center in a KCl crystal lattice were determined experimentally at the local oscillation stage.

1/3 025 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ROTATIONAL RELAXATION OF IMPURITY NO SUB2 PRIME NEGATIVE IN A  
POTASSIUM CHLORIDE CRYSTAL -U-  
AUTHOR-(02)-SAARI, P., AVARMAA, R.  
COUNTRY OF INFO--USSR  
SOURCE--EESTI NSV TEAD. AKAD. TOIM., FUUS., MAT. 1970, 19(1), 115-18  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--LUMINESCENCE SPECTRUM, SPECTROSCOPIC ANALYSIS, POTASSIUM  
CHLORIDE, NITRITE, ROTATION SPECTRUM, RELAXATION PROCESS, EXCITED  
ELECTRON STATE, CRYSTAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAAME--1998/1120 STEP NO--UR/0456/70/019/001/0115/0118  
CIRC ACCESSION NO--AP0121681  
UNCLASSIFIED



2/3 025

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121681

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTENSITY DISTRIBUTION IN THE ROTATIONAL FINE STRUCTURE OF THE LUMINESCENCE SPECTRUM WAS FOLLOWED IN THE KCL-NO SUB2 PRIME NEGATIVE SYSTEM AS A FUNCTION OF THE EXCITATION FREQUENCY. THE POPULATION RATIOS  $(\rho_{SUB1} / \rho_{SUB0})_{K PRIME}$  FOR THE ROTATIONAL SUBLEVELS K PRIME WERE DETD. IN THE (0,0) GROUP AT 4.2DEGREESK, THE  $(\rho_{SUB1} / \rho_{SUB0})_{SUB0}$  VALUE IS SLIGHTLY LOWER AND THE  $(\rho_{SUB1} / \rho_{SUB0})_{SUB2}$  VALUE SLIGHTLY HIGHER THAN THE EQUIL. VALUE BAR  $(\rho_{SUB1} / \rho_{SUB0})$  EQUALS 0.43. IN CONTRAST,  $(\rho_{SUB1} / \rho_{SUB0})_{SUB1}$  EQUALS 2.7. THE CHARACTER OF THE VALUES AT 1.9DEGREESK APPROACHES THAT OBTAINED AT 4.2DEGREESK;  $(\rho_{SUB1} / \rho_{SUB0})_{SUB1}$  EQUALS 35 BAR  $(\rho_{SUB1} / \rho_{SUB0})$ . IN THE (0,1) GROUP AT 4.2DEGREESK,  $(\rho_{SUB1} / \rho_{SUB0})_{K PRIME}$  IS ONLY SLIGHTLY DEPENDENT ON K PRIME AND APPROACHES THE VALUE OBTAINED ON NONMONOCHROMATIC EXCITATION. THE RATIO OF THE TIME OF DECAY OF THE 1ST ROTATIONAL SUBLEVEL  $\tau_{SUB10}$  TO THAT OF THE EXCITED ELECTRONIC STATE  $\tau_{SUB0}$  WAS EVALUATED; THE  $(\rho_{SUB1} / \rho_{SUB0})_{SUB1}$  VALUES AT 4.2 AND 1.9DEGREESK GIVE  $\tau_{SUB10} / \tau_{SUB0}$  EQUALS 2.3 AND 2.4, RESP.; THUS,  $\tau_{SUB10}$  IS CONGRUENT TO 3 TIMES 10 NEGATIVE PRIME8 SEC. THE RELATION BETWEEN THE  $(\rho_{SUB1} / \rho_{SUB0})_{SUB1}$  AND  $(\rho_{SUB1} / \rho_{SUB0})_{SUB2}$  VALUES GIVES THE PROBABILITY RATIO OF 2 WAYS OF DECAY OF THE K PRIME EQUALS 2 LEVEL. THE TIMES  $\tau_{SUB21}$  AND  $\tau_{SUB20}$  ARE OF THE SAME ORDER OF MAGNITUDE; THE ABSENCE OF THE LINES OF THE TRANSITIONS FROM THE K PRIME EQUALS 2 LEVEL IMPLIES  $\tau_{SUB21}$ ,  $\tau_{SUB20}$  IS SMALLER THAN 10 NEGATIVE PRIME8 SEC.

UNCLASSIFIED

3/3 025

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121681

ABSTRACT/EXTRACT--THE RESULTS CONFIRM THE NON EQUIL. DISTRIBUTION OF THE CENTERS IN THE EXCITED ELECTRONIC STATE. THUS, THE DEPENDENCE OF THE LUMINESCENCE SPECTRUM ON THE FREQUENCY OF THE EXCITING RADIATION, AND THE RELATED HIGH PORTION OF THE HOT LUMINESCENCE IN THE SECONDARY EMISSION ARE DUE TO THE SLOW DECAY OF THE 1ST ROTATIONAL SUBLEVEL OF THE 0 VIBRATIONAL LEVEL IN THE EXCITED ELECTRONIC STATE. FACILITY:  
INST. FIZ. ASTRON. TARTU, USSR.

UNCLASSIFIED

USSR

UDC 681.3.06:51

KHISAMUTIDNOV, V. R., LEGON'KOV, V. I., AVARMENKO, V. S., TARASOV, V. I.

"The "ASIOR" Automated Development Information Support System"

Avtomatizirovannaya Sistema Informatsionnogo Obespecheniya Razrabatok "ASIOR", [English Version Above], Moscow, 1970, 93 pages, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V632 K, unsigned).

Translation: A description is presented of the "ASIOR" automatic engineering information support system, based on the BESM-6 and BESM-4 (M-220) computers. Trends are studied in the development of automated information systems, and the reason for the selection of the "Kristall" information language for automation of information processes is presented. A description is presented of the technological plan for processing of semantic information, types of input and output information, algorithms and programs for processing of information on the BESM-6 and BESM-4/M-220 computers; instructions are presented for processing of documents and requests, indexing and punching, as well as specimens of documents and requests. Problems of coordination of ASIOR with other information systems, including foreign systems, are studied. Recommendations are presented for standardization of formats and the content of input information in order to allow information exchange on magnetic tape. Experimental operation of ASIOR during 1968 in the modes of selective distribution and retrospective retrieval of information showed the ability of the system to perform a broad range of information tasks. ASIOR has been in productive operation since January of 1969. The prospects for improvement of the system are studied.

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AVAYEV, N. A.

Microelectronics

MI CROELECTRONICS

JPRS 57333  
25 October 1972

Excerpts from Russian-language book edited by F. V. Lukin:  
Mikroelektronika, No 5, 1972, Sovetskoye Radio Publishing House,  
Moscow, UDC 621.382:621.396.6-181.5.

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[1 - USSR - F]

UDC 621.375.65

Analysis of the Operation of a Logic Element Type SLTL on a Transmission Line, Gurin, Ya.A., in the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 253, Sovetskoye Radio Publishing House, 1972.

The article analyzes the interaction between a high-speed logic element type SLTL (transistor logic on circuits with connected emitters) and length of the lines. In view of the complexity of the system its investigation is done by a numerical method using a computer.

The article gives the results of numerical computation indicating the influence of the parameters of the circuit on the distortion of the transmitted signals. On the basis of this analysis the author gives recommendations for selecting the allowable length of the matched and unmatched connections in several specific cases.

The article contains 10 figures and 5 bibliographic references.

UDC 621.397.8-0.9.4

The Question of Interblock Bonds of Digital Equipment on Integrated Circuits of Transistor-Transistor Type Avayev, N.A. in the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 267, Sovetskoye Radio Publishing House, 1972.

The author cites data on the parameters of lattice-type impulse noises generated in the interblock communication lines of digital equipment on integrated circuits of transistor-transistor logic (TTL). He examines a circuit with elevated noise stability, intended for reception from communication lines constructed on the basis of standard integrated circuits appearing in the TTL series.

The article contains 5 figures and 7 bibliographic references.

UDC 621.392.6

Selection of a Constant Current Source in Logic Circuits for Current Switches, Nemudrov, V.G., Strukov, V.M., and Shishkevich, A.A., in the Collection Mikroelektronika, edited by F.V. Lukin, No 5, p 275, Sovetskoye Radio Publishing House, 1972.

To ensure the required noise stability in integrated circuits for current switches, especially in multi-level cir-

culite, an important role is played by the choice of a constant current source.

The article analyzes the dependence of instability of the logic differential of the integrated circuits for the current switches on change in the destabilizing factors (supply voltage, temperature, and technological scatter in the component parameters) by using different modifications of the constant current source.

Recommendations are given for the optimal selection of the constant current source.

The article contains 4 figures, 1 table, and 5 bibliographic references.

UDC 539.186.3.211.27

Distribution of Thermoelastic Deformations in the Surface Region of Thermally Oxidized Silicon. Vasilyev, K.A., Kozlov, B.I., Lukin, A.A., Malov, A.G., and Pakov, A.V. In the Collection *Mikroelektronika*, edited by F.V. Lukin, No 5, p 282, Sovetskoye Radio Publishing House, 1972.

The article theoretically analyzes the distribution of elastic deformations in the surface region of thermally oxidized silicon. The authors examine the case of a dense oxide film on a semiconductor and the case of termination of its denseness. The value obtained agrees with the theoretical computation. The authors discuss the results of experiments testifying to the localization of the deformations in the surface layer of silicon at the sites of termination of denseness of the oxide. They show the influence of thermoelastic deformations on the chemical activity and volt-feraday characteristics of the MDP structures.

The article contains 3 figures and 11 bibliographic references.

UDC 621.353.42:546.48.22/23

Investigation of the Longitudinal Operating Mode of Cds-CdSe Film Photoresistors. Vdovenkov, A.A., Krolevets, K.M., Koshko, V.A., and Skarzhinskaya, I.P. In the Collection *Mikroelektronika*, edited by F.V. Lukin, No 5, p 296, Sovetskoye Radio Publishing House, 1972.

The article describes a manufacturing method and the parameters of the Cds-CdSe photoresistors, operating in a longitudinal mode. The authors mention their high specific sensitivity (0.5-1 A/V<sup>1/2</sup>) and the weak dependence of the

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UDC 547.185

AVAYEVA, S. M., and SKLYANKINA, V. A., Moscow State University

"Certain Characteristics of the Hydrolysis of O-Phosphoserine Methyl Ether"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 2081-2085

Abstract: The object of this study was the hydrolytic behavior of O-phosphoserine methyl ether in order to elucidate the functioning of phosphoproteins and enzymes of phosphorus metabolism. The study of the hydrolysis of O-phosphoserine methyl ether in water and buffer solutions revealed the unusual lability of the phosphate-ester bond and the very high decomposition rate of this compound at pH 5-8. The hydrolysis rate constants have been calculated and are given in tabular form for various buffers. The decomposition rate constants of the ester in the presence of acids and bases are shown to be 10-100 times higher than its hydrolysis rate in water; in this case the decomposition rates are determined by the pK of the acid or the base. The decomposition of O-phosphoserine methyl ether yields phosphoric acid, serine methyl ether and O-phosphoserine. A detailed analysis of the hydrolysis rate indicates two different directions of the reaction depending on the presence of either hydroxylamine or the presence of phosphoric acid.

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AVAYEVA, S. M., and SKLYANKINA, V. A., Zhurnal Obshchey Khimii, Sep 71, Vol 41,  
No 9, pp 2081-2085

The quantitative ratio of the decomposition products of the ester is determined  
by the conditions of hydrolysis.

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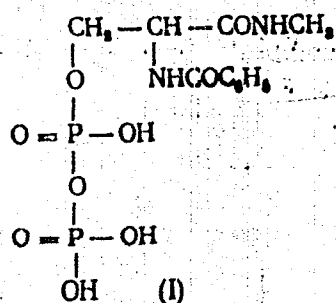
UDC: 547.466

AVAYEVA, S.M., RAS'KOVA, N.V., BOTVINIK, M.M., Laboratory of Bio-Organic Chemistry  
Moscow State University imeni M.V. Lomonosov, Moscow, Ministry of Higher and  
Secondary Specialized Education RSFSR

"Hydrolysis of N-Benzoyl-O-Pyrophosphoserine Methylamide"

Moscow, Vestnik Moskovskogo Universiteta, Seriya II, Khimiya, Vol 11, No 1, Jan/  
Feb 70, pp 96-99

Abstract: The authors investigated the limits of stability of N-benzoyl-O-  
pyrophosphoserine methylamide

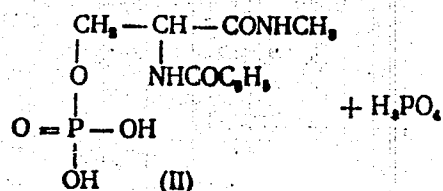


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AVAYEVA, S.M., et al, Vestnik Moskovskogo Universiteta, Seriya II, Khimiya, Vol 11, No 1, Jan/Feb 70, pp 96-99

at various pH values and studied hydrolysis of the compound in the presence of a number of metal ions. It was found that the pyrophosphoric bond in compound (I) is stable for 4 hrs at 50°C for pH of 2-11, but is readily hydrolyzed in an acid solution. Analysis of the reaction products showed only N-benzoyl-O-phosphoserine (II) and phosphoric acid:



It was found that a change in the structure of the serine part of the pyrophosphoric acid ester has practically no effect on the stability of the pyrophosphoric bond. The rate of hydrolysis of the bond increases appreciably in a neutral medium (pH - 7) in the presence of a number of metal ions -thorium, cerium, lanthanum and iron which act as catalysts. Catalytic hydrolysis at pH values other than

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AVAYEVA, S.M., ET AL, Vestnik Moskovskogo Universiteta, Seriya II, Khimiya, Vol 11, No 1, Jan/Feb 70, pp 96-99

7 was not as great. Hydrolysis of the compound is not catalyzed at pH 4, 7 and 9 by magnesium, manganese, cobalt, calcium, beryllium or nickel ions. It was also found that only the pyrophosphoric bond is decomposed by hydrolysis at pH 7 in the presence of thorium or iron ions.

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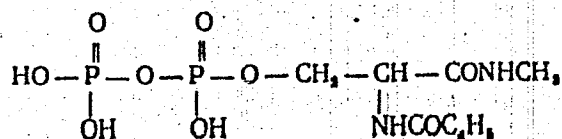
UDC: 547.466

*A*  
~~AYAYEVA~~, S.M., RAS'KOVA, N.V., MEVKH, A.T., Laboratory of Bio-Organic Chemistry,  
 Moscow State University imeni M.V. Lomonosov, Moscow, Ministry of Higher and  
 Secondary Specialized Education RSFSR

"Synthesis of N-Benzoyl-O-Pyrophosphoserine Methylamide"

Moscow, Vestnik Moskovskogo Universiteta, Seriya II, Khimiya, Vol 11, No 1, Jan/  
 Feb 70, pp 100-105

Abstract: Three methods of synthesizing N-benzoyl-O-pyrophosphoserine methyl-  
 amide



were investigated. A method is also described for synthesizing this serylpyrophosphate  
 with radioactive tracer atom  $^{32}\text{P}$  for studying the mechanism of interaction of the  
 compound with enzymes.

1/1

1/2 011 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--INTERACTION OF YEAST INORGANIC PYROPHOSPHATASE WITH  
CARBOXYPEPTIDASE A -U-  
AUTHOR-(02)-AVAYEVA, S.M., AKHMEDOV, G.I.  
COUNTRY OF INFO--USSR *A*  
SOURCE--BIOKHIMIYA 1970, 35(1), 31-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--PEPTIDE HYDROLASE, PHOSPHATASE, YEAST, AMINO ACID  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1988/0008 STEP NO--UR/0216/70/035/001/0031/0034  
CIRC ACCESSION NO--AP0105108  
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--160CT70

CIRC ACCESSION NO--AP0105108

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. CARBOXYPEPTIDASE A RELEASED  
LEUCINE, PHENYLALANINE, AND TYROSINE FROM YEAST INORG. PYROPHOSPHATASE  
AFTER A 30 MIN INCUBATION, ALANINE AFTER 1 HR, ISOLEUCINE AND VALINE  
AFTER 2 HR AND THREONINE AND SERINE AFTER 4 HR, INDICATING THAT THE  
AMINO ACID PATTERN OF INORG. PYROPHOSPHATASE WAS (SER,  
THR)-(VAL, ILE)-ALA-TYR-PHE-LEU-OH. TWO MOLES OF AMINO ACIDS WERE  
CLEAVED-MOLE OF PROTEIN, INDICATING THAT THE MOL. OF INORG.  
PYROPHOSPHATASE CONSISTED OF AT LEAST 2 APPARENTLY IDENTICAL SUBUNITS.  
FACILITY: LAB. BIOORG. CHEM., MOSCOW STATE UNIV., MOSCOW, USSR.

UNCLASSIFIED

1/3 035 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--ELECTROCARDIOGRAM OF A DOG UNDER CONDITIONS OF PROGRESSIVE HYPOXIA  
-U-  
AUTHOR--(02)-AVAZBAKIYEVA, M.F., RYMZHANOV, K.S. A  
COUNTRY OF INFO--USSR  
SOURCE--IZVESTIYA AKADEMII NAUK KAZAKHSKOY SSR, SERIYA BIOLOGICHESKAYA,  
1970, NR 1, PP 60-62  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ELECTROCARDIOGRAPHY, DOG, HYPOXIA, RESPIRATION, CARBON  
DIOXIDE, GAS ANALYZER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3007/0377 STEP NO--UR/0404/70/000/001/0060/0062  
CIRC ACCESSION NO--AP0135865  
UNCLASSIFIED

373 035

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135865

ABSTRACT/EXTRACT--THE RATE OF CARDIAC CONTRACTION INCREASED WITH ALTITUDE:  
96 BEATS-MIN AT 3,000 M; 140 AT 6,000 M; 175 AT 8,000 M; AND 162 AT  
9,000 M.

FACILITY: KAZAKH STATE UNIVERSITY IMENI S. M. KIROV.

UNCLASSIFIED



USSR

KHAMIDOVA, M. Kh. and AVAZMATOVA, F. K., Chair of Eye Diseases, Tashkent Medical Institute

"Toxoplasmosis and Associated Eye Diseases"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 11, 1971, pp 35-38

Abstract: Eye diseases following toxoplasmosis are fairly common in Uzbekistan and the diagnosis is quite difficult. Toxoplasmosis may be congenital or acquired. The complement fixation test with toxoplasmin was used to examine 120 children and adults with a variety of eye disorders of unknown etiology. In 56 children suspected of congenital toxoplasmosis, it was positive in 31 or 55.3%. In adults with untreated acute or chronic eye diseases, it was positive in 22, or 34.3%. Thus, the complement-fixation test was positive in 53, or 43.2% of the 120 individuals suspected of having toxoplasmosis. The most effective therapy is administration of chloridine combined with sulfadimezin, but only in the earliest stages of the diseases.

1/1

1/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--NEW ISOTOPES FLUORINE 23, FLUORINE 24, NEON 25, AND NEON 26,  
PRODUCED IN NUCLEAR REACTIONS WITH HEAVY IONS -U-  
AUTHOR--(05)-ARTUKH, A.G., AVDEYCHIKOV, V.V., GRIDNEV, G.F., MIKHEEV, V.L.,  
VOLKOV, V.Y. A  
COUNTRY OF INFO--USSR  
SOURCE--PHYS. LETT. B 1970, 31(3), 129-30  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--ION BOMBARDMENT, HEAVY NUCLEUS, THORIUM, NEON ISOTOPE, ISOTOPE  
SEPARATION, MASS SPECTROSCOPY, PULSE AMPLITUDE, FLUORINE ISOTOPE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1982/0675 STEP NO--NE/0000/70/031/003/0129/0130  
CIRC ACCESSION NO--AP0052134  
UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0052134

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BOMBARDING OF A 4.4-MG-CM PRIME2 PRIME232 TH TARGET WITH 174-MEV PRIME22 NE IONS PRODUCED N RICH PRIME23 F, PRIME24 F, PRIME25 NE, AND PRIME26 NE. MAGNETIC RIGIDITY (BR) SPECTROMETRY COMBINED WITH PULSE HEIGHT (DELTA E AND E-DELTA E) ANAL. OF 2-SI DETECTORS DETD. THE MASS AND CHARGE OF THE DETECTED IONS. ISOTOPIC YIELDS WERE DETD. AT BR-B SUBEL R EQUALS 1.159 AND 1.138 AND PRIME22 NE PARTICLE FLUXES OF (9.2 AND 2.3) TIMES 10 PRIME15, RESP.; THE B SUBEL R IS THE MAGNETIC RIGIDITY OF THE ELASTICALLY SCATTERED PRIME22 NE IONS. FACILITY: JOINT INST. NUCL. RES., DUBNA, USSR.

UNCLASSIFIED

USSR

UDC 547.567.5+547.26'118

TUTOV, YE. A., AVBEYENKO, A. P., and MEKH, A. YA.

"The Reaction of Substituted p-Quinonmonoamines with Di(chloralkyl) Phosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2577-2578

Abstract: The title reaction occurs by the 1-6 addition and leads to the formation of dichloralkyl [4-arensulfonamidophenyl(naphthyl)] phosphates. The reaction of the unsubstituted dialkylphosphates occurs with more difficulty and at a higher temperature than the analogous reaction with the substituted compounds. IR spectra of the products showed bands at 3160, 1349, 1176, 1248, and 1033  $\text{cm}^{-1}$ , characteristics of the  $\text{NH}$ ,  $\text{SO}_2$ ,  $\text{P}-\text{O}-\text{Ar}$ ,

$\text{P}-\text{O}-\text{Alk}$  groups respectively.

1/1

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--LIMITING ENERGY RESOLUTION OF THIN DETECTORS OF THE DE-DX TYPE IN  
THE E SUBALPHA EQUALS 5-9 MEV RANGE -U-  
AUTHOR--(04)-AVDEYCHIKOV, V.V., GRIDNEV, G.F., LOZHKIN, O.V., PERFILOV,  
N.A.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 210-17  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--SEMICONDUCTOR DETECTOR, SILICON SEMICONDUCTOR, ALPHA PARTICLE  
DETECTOR, ALPHA SPECTRUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1991/1045 STEP NO--UR/0048/70/034/001/0210/0217  
CIRC ACCESSION NO--AP0110735  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0110735

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. STUDIES OF 10.8, 13.3, 23.1, 26.2, AND 39.2 MU THICK SI DETECTORS OF THE DE-DX TYPE WERE CARRIED OUT WITH STD. ALPHA PARTICLE SOURCES. A FORMULA FOR THE LIMITING ENERGY RESOLN. IS GIVEN.

UNCLASSIFIED

USSR

UDC 911.3.616.988.72(571.13)

AVDEYCHIKOVA, N. I., and LARIONOVA, L. I.

"Serological Research Materials on Ornithosis in Omsk"

V sb. Vopr. infekts. patol. (Problems of Infection Pathology -- collection of works) Vyp. 2. Omsk, 1970, pp 133-135 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.82)

[No abstract]

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USSR

UDC 547.567.5 + 547.26'118

TITOV, Ye. A., and AVDEYENKO, A. P., Dnepropetrovsk Chemical-Technological Institute Imeni F. E. Dzerzhinskiy

"Reaction of N,N'-bis-Aren(alkane)sulfonyl-1,4-quinonediimines With Dialkyl Phosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, pp 1686-1691

Abstract: Reaction of N,N-bis-aren(alkane)sulfonyl-1,4-quinonediimines (I) with dialkyl phosphites leads to the formation of dialkyl (N-4-arensulfone-amidophenyl-N-arensulfonyl)amidophosphates. The structures of these products were proposed on the basis of IR and PMR spectra as well as from the number of labile hydrogens. It was established that along with the phosphorylation of (I) there occurs a competing oxidation-reduction process, which is possible because of higher redox potentials of quinonediimines in comparison to quinone-monoimines. The ability of the dialkyl phosphites to react via the phosphorylation reaction increases in the following order:  $(\text{MeO})_2\text{POH} < (\text{EtO})_2\text{POH} < (\text{BuO})_2\text{POH} < (\text{AmO})_2\text{POH}$ .

1/1

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USSR

UDC 547.567.5+547.26'118

TITOV, Ye. A., and AVDEYENKO, A. P., Dnepropetrovsk Chemical Technological Institute

"Reaction of N-Arenesulfonylbenzoquinoneimines With Dialkyl Phosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 4, Apr 71, pp 797-799

Abstract: To 30 g diisopropyl phosphite heated to 110-120°, 13.05 g N-p-toluenesulfonyl-1,4-benzoquinoneimine was added portionwise. The reaction was continued with heating as long as a positive indophenol test could be observed. After cooling the reaction mixture was dissolved in 100 ml benzene and chromatographed on alumina. The portion eluted with benzene was concentrated, the solid crystallized after few days yielding diisopropyl 4-(p-toluylsulfonamido)phenyl phosphate, m.p. 102-103.5°. Analogously the diethyl 4-benzylsulfonamido-2,6-dichlorophenyl phosphate -- an oil --  $d_4^{20}$  1.2733,  $n_D^{20}$  1.5561 and diethyl 4-benzylsulfonamidophenyl phosphate, m.p. 73-74.5° were obtained. When diisopropyl phosphite and N-benzylsulfonyl-2-chloro-1,4-benzoquinoneamide were allowed to react in chloroform at 20°, diisopropyl 4-benzylsulfonamido-2-chlorophenyl phosphate,  $d_4^{20}$  1.644,  $n_D^{20}$  1.5373 was obtained after 2 months.

1/1

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USSR

UDC 547.183;547.655.4;547.655.6

TITOV, E. A., AVDEYENKO, A. P., Chair of Basic Technology of Organic and Petrochemical-Synthesis, Dnepropetrovsk Chemical Technology Institute

"Reaction of N-Arenesulfonylnaphthoquinoneimines with Dialkyl Phosphites"

Ivanovo, Khimiya i Khimicheskaya Tekhnologiya, Vol 14, No 4, 1971, pp 565-567

Abstract: In continuing the study of the newly synthesized N-arenesulfonyl-1,4-naphthoquinoneimines, N-benzenesulfonyl-2-chloro-1,4-naphthoquinoneimine was allowed to react with dialkyl phosphites. Replacement of the chlorine atom was not observed. IR spectral data and elemental analysis indicated that the products are O, O'-dialkyl O"-4-arenesulfonamido-1-naphthyl phosphates.

Graphite

USSR

UDC 621.3.035.2

AVDEYENKO, M. A., and LARIONOV, V. V.

"Technology of Refining Graphite Up to a High Degree of Purity"

Moscow, Tsvetnyye Metally, No 2, Feb. 73, pp 48-50

Abstract: A new method of refining graphite has been developed whereby the refining process is reduced from days to hours with the use of a newly designed apparatus in which the graphite is placed in a graphite crucible and the crucible is placed in a water cooled metallic container which is sealed and freon-12 and an inert gas are pumped into the container. A hoist mechanism lifts the container into the furnace, where it is heated; the reaction products are then pumped out and neutralized. The purification process is done at 2300°C and takes 45-60 minutes. Two containers with the crucibles can be placed on a rotating table so that when one container has been processed it is taken from the furnace and the table rotated for processing the next container while a third container is loaded onto the table, thus making the process almost continuous. The crucible with the purified graphite part remains in the metallic container in a vacuum or inert gas atmosphere. With this new apparatus, graphite parts measuring 320 mm in diameter and 650 mm long can be purified. 2 figures, 1 table.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--INVESTIGATION OF REPRODUCTION OF VIRUS OF HEMORRHAGIC  
NEPHROSONEPHRITIS, HEMORRHAGIC FEVER WITH RENAL SYNDROME BY MEANS OF THE  
AUTHOR--(04)-NOSKOV, F.S., GAVRILYUK, B.K., YERMAKOV, N.V., AVDEYENKO, M.M.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 225-231

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEMORRHAGIC FEVER, FLUORESCENT ANTIBODY, TISSUE CULTURE, BLOOD  
SERUM, GAMMA GLOBULIN, SYNDROME, NEPHRITIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1990/0739

STEP NO--UR/0402/70/000/002/0225/0231

CIRC ACCESSION NO--AP0108945

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108945

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DYNAMICS OF REPRODUCTION OF VIRUS OF HEMORRHAGIC NEPHROSENEPHRITIS, HEMORRHAGIC FEVER WITH RENAL SYNDROME (HNN-HFRS) IN HUMAN EMBRYO KIDNEY CELL CULTURES WAS STUDIED BY MEANS OF INDIRECT AND DIRECT FLUORESCENT ANTIBODY TECHNIQUE WITH COUNTERSTAINING OF THE BACKGROUND. SPECIFIC FLUORESCENT GAMMA GLOBULINS AGAINST HNN-HFRS VIRUS HAVE BEEN PREPARED FOR THE FIRST TIME FROM HYPERIMMUNE RABBIT SERA; THEY ARE HIGHLY SPECIFIC, HAVE GOOD STAINING ACTIVITY AND MAY BE USED FOR LABORATORY DIAGNOSIS OF HNN-HFRS.

UNCLASSIFIED

USSR

UDC 546.821:541.135

AVDEYEV, A. L., DANILYUK, YU. L., and ROZENBERG, L. A.

"Mechanism of Electrical Aging of Titanium Dioxide"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 8,  
No 2, 1972, pp 263-267

Abstract: Ionic processes were studied during electrical aging of titanium dioxide. During electrical aging, oxygen is liberated from the specimen, and the primary influence on the change in electrical characteristics is that of the area of increased nonstoichiometry near the cathode. The regularities of aging titanium dioxide are studied on the basis of a model of oxygen vacancies unevenly distributed and redistributed through the specimen under the influence of the electrical field. The duration of the first stage of aging is determined by the time of accumulation of a concentration of oxygen vacancies near the cathode sufficient for the beginning of injection. The rise in current during the second and fourth stages is related to the increase in concentration of oxygen vacancies near the cathode. Redistribution by the end of the second stage of decreasing voltage along the length of the specimen results in a limitation of current in the third stage as a result of interruption of the increase in the concentration of oxygen vacancies near the cathode.

1/1

USSR

UDC 621.397

AVDEYEV, B. YA., ANTONYUK, YE. M., BELYAYEV, V. YE., SEMENOV, YE  
I., FREMEKE, A. V., Leningrad Electrotechnical Institute imeni V.  
I. Ul'yanov (Lenin)

Leningrad, IVUZ Priborostroyeniye, Vol XIII, No 3, 1970, pp 60-62

Abstract: It is shown that the method of adaptive quantization can be used when signal characteristics are right in multichannel telemetry systems to narrow the frequency band in each channel without a buffer memory. Expressions are given for the coefficients of contraction of redundant information and frequency band compression for the case of independent signals. The proposed procedure can be used to advantage in simplifying multichannel telemetry systems, improving reliability, and providing readings in real time.

1/1

- 51 -

AA0044792- Avedeyev, I. I.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

243716 DETERMINING THE INDUCTANCE OF COILS WITH  
MAGNETIC CORES where the measuring circuit,

2/70

consists of connected in series: the coil being tested and standard capacitor, is fed with a.c. voltage. The amplitude of voltage oscillations and magnitude of standard capacitance should be selected so as to ensure operating range similar to the working range of the coil being tested. By changing the frequency of supply voltage, values  $f_1$  and  $f_2$  of frequency can be found which correspond to maxima of potentials on inductance and capacitance. Frequencies  $f_1$  and  $f_2$  are on opposite sides of the circuit resonance frequency, but their asymmetry is small and does not exceed 2% for circuits with Q of the order of 10.

Required inductance L can be calculated from equation

$$L = \frac{1}{\pi^2 (f_1 + f_2)^2 C}$$

4

where C is standard capacitance.

26.5.66 as 1078612/18-10.I.I.AVDEEV. (RIGA)

MANAGERIAL ENGINEERING SCHOOL. (26.9.69) Bul 17/

14.5.69. Class 21a. Int.Cl.G 01r.

19771615



AA0044792

AUTHOR: Avdeyev, I. I.

Rizhskoye Vyssheye Komandno - Inzhenernoye Krasnoznamennoye  
Uchilishche im. Marshala S. S. Biryuzova

2/2

19771616

LC

USSR

UDC 669.71.48

BRUSAKOV, YU. I., SIROTKIN, N. N., RZHAVIN, S. A., AVDEYEV, M. P., ALIVOVVODICH, M. KH., KUCHERENKO, A. G.

"Processing Metal-Containing Slags in the Production of Silicon Aluminate Alloys

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrod. prom-sti  
(Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 71, pp 177-183 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G197)

Translation: Test results with respect to ore recovery processing of metal slags formed when obtaining and defining aluminum alloys with silicon are discussed. The technical possibility and expediency of recovery of crushed slags in the indicated alloy production process are confirmed. The specific consumption indexes of the alloys in large 120 and 16,500 kilowatt-ampere laboratory and industrial furnaces are presented. The extraction of alloy from the slags exceeded the content of metal phase in them. This indicates additional extraction of metal from the carbides and oxides contained in the slags in the amount of up to 55% in a large laboratory furnace and 27% in an industrial furnaces. There are 5 tables.

1/1

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USSR

UDC 669.71'782.046(088.8)

ZHEREBNOY, I. A., GUZ', D. S., AVDEYEV, M. P., and BRUSAKOV, Yu. I.

"Method of Charge Pelletizing"

USSR Author's Certificate No 267913, Filed 28/03/68, Published 24/07/70  
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract  
No 2 G163 P)

Translation: A method of charge pelletizing by moistening, mixing with a binder, forming, and drying is presented. To produce pellets with high porosity, the initial charge is moisturized to 18-30%, and drying is performed at 170-200°.

1/1

Acc. Nr:

**AP0036184**

Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1,  
pp 28-31

CHARACTERISTIC OF THE COALESCENCE KINETICS  
OF DROPS AT THE LIQUID-LIQUID INTERFACES

Volarovich, M. P.; Avdeyev, N. Ya.

Summary

An analytical method of obtaining a statistical characteristic of the coalescence kinetics of drops at liquid-liquid interfaces from minimum experimental data is considered. The calculated and experimental determinations of the coalescence kinetics of benzene and other substances are shown to be in good agreement.

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REEL/FRAME

19721003

USSR

UDC 681.325.65

AVDEYEV, V. A., Scientific Research Institute of Nuclear Physics, Electronics,  
and Automation of Tomsk Polytechnic Institute

"Inhibitor"

USSR Author's Certificate No 311402, Cl. H 03k 19/00, filed 23 Feb 70,  
published 30 Nov 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya  
Tekhnika, No 5, May 72, Abstract No 5B139F)

Translation: The purpose of the invention is to create a circuit to perform the logical "inhibit" operation for pulse signals in the nanosecond duration range with high time resolution and with a large dynamic spread in pulse height. To achieve this purpose, the element used to discriminate the "inhibit" is a two-input, controlled current switch in which the control elements are TDs shunted by a silicon diode. To achieve maximum operating speed, the TDs are sent bias current in a reverse direction, which assures accelerated flipping of the TDs to the initial state after the action of an input pulse. One illustration.

1/1

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USSR

UDC 533.6.011

AVDEYEV, V. B.

"One Dimensional Ideal Incompressible Fluid Flow Past Arbitrary Shaped Profiles With Strongly Cambered Mean Chord"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 3, 1971, pp 5-14

Abstract: A solution of a direct stationary problem of a flow in a layer of constant thickness for profiles of high degree of curvature, arbitrary in shape and thickness, obtained on an electronic computer is presented. It is assumed that fluid is ideal and incompressible, while the flow is irrotational. A complex distribution function of singularities  $\gamma$  is set on a square parabola (or any other curve in parametric form) in the form of a trigonometric series, whose coefficients are determined from two interconnected singular integral equations. These equations are reduced to infinite systems of linear equations with coefficients expressed through Fourier series coefficient and are effectively solved by the method of successive approximations. The determination of relative velocities on the profile contour is reduced to quadratures using the expansion of integrals into Fourier series with respect to cosines. The convergence of the method considered here was substantiated by solving a special problem of direct determination of the  $\gamma$  function and its components, by numerical method on a "Ural-2" computer.

1/1

USSR

UDC 621.438.011.2

AVDEYEV, V. B.

"Experimental Investigation of the Energy Losses of the Radial Stream in a Rotating Circular Cascade of Cylindrical Profiles of a Centrifugal-Turbine Impeller"

Kazan, Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 3, 1970, pp 75-85

Abstract: A method is set forth for experimental determination of the energy losses of the stream in circular rotating cascades of cylindrical profiles of centrifugal turbines at low subsonic velocities of the radial stream ( $M < 0.2$ ). On the basis of this method a loss balance on the basis of the height of the cascade under investigation has been constructed, and the relationship of the profile losses and the outflow angle  $\beta_2$  to the onflow angle  $\beta_1$  was determined. Graphs of total losses (profile and secondary) with respect to cascade height are presented. Comparison of the experimental characteristics of the circular rotating cascade under investigation and the initial straight-line curve of 1/2

USSR

AYDEYEV, V. B., Izvestiya Vysshykh Uchebnykh Zavedeniy,  
Aviatsionnaya Tekhnika, No 3, 1970, pp 75-85

the blade cascades confirms the expediency of using centrifugal radial turbines as the initial best profiles of axial turbines when profiling the blades of circular profiles of centrifugal radial turbines. 2 tables, 4 illustrations, 6 bibliographic entries.

2/2

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USSR

UDC 62-50:66-93.012-52

KAFAROV, V. V., Corresponding Member USSR Academy of Sciences, LAZAREV, G. B., and AVDEYEV, V. I., Moscow Chemico-Technological Institute imeni D. I. Mendeleyev, Northern Donets Branch of the Experimental Design Office of Automation

"A Method for Solving Multicriterial Problems of Control in a Composite Chemicotechnological System"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 1, 1 May 71, pp 62-63

Abstract: Control of composite chemicotechnological systems, when a number of goals are involved, is often an intuitive process based on experience. This article seeks ways to solve this problem mathematically and lists several factors which illustrate the diversity of the basic problem: maximal output of production (in conditional units), maximal gain, maximal volume output, and maximal productivity.

The authors divide the multicriterial problems into four categories:

1. Solution on the basis of ranking the criteria of optimality, including summation with weight factors.

1/3

USSR

KAFAROV, V. V., et al., Doklady Akademii Nauk SSSR, Vol 198, No 1, 1 May 71, pp 62-63

2. Solution involving choice of one main criterion and limitation of the other goals.
3. Solution based on certain intuitive arguments prompted by the nature of the problem itself for constructing a generalized criterion, depending on the investigator.
4. This category, which is most amenable to mathematical treatment, involves the use of normalized criterial space to seek a solution that will ensure minimal distance of the specific function ( $F_i$ ) from the individual optima.

It is this latter category which the authors use in the experiment, although it has wider application than just that discussed in the article.

Rosen's method of projectible gradients was used in solving the problems, and testing was done at the Northern Donets Chemical Complex using a Minsk-22 computer. The program used permits solving multicriterial problems containing up to 40 variables.

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USSR

KAFAROV, V. V., et al., Doklady Akademii Nauk SSSR, Vol 198, No 1, 1 May 71,  
pp 62-63

The article contains three equations and a bibliography of four titles.

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USSR

UDC 62-50:66-93.012-52

KAFAROV, V. V., Member Correspondent of the USSR Academy of Sciences,  
LAZAREV, G. B., and AVDEYEV, V. I., Moscow Chemico-Technological Institute  
imeni D. M. Mendeleev and The Experimental Design Office of Automation  
in Severodonetsk

"Operational-Production Planning and Control of a Composite Chemicotechno-  
logical System"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 2, 1971, pp 303-306

Abstract: A composite chemicotechnological system (CTS) is defined as a  
chemical enterprise with technological branches constructed on a raw-  
material and power-production base; it is concerned with the composite  
processing of raw materials and intermediate products and involves the  
utilization of raw material and power wastes.

This paper treats the CTS not only as a dynamic component but also as  
heuristic and logical components. Three variations of the problem are  
posed: (1) The position of point M, into which the object from the  
initial state ( $t_0, M_0$ ) is transformed for the time T, is given; (2) the  
position of point M requires determination based on a certain criterion  
1/2

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USSR

KAFAROV, V. V., et al., Doklady Akademii Nauk SSSR, Vol 198, No 2, 1971, pp 303-306

or set of criteria; and (3) the position of point M is a random function of time and must be determined by prediction.

The authors present and solve the problem mathematically, giving the appropriate equations and one table.

The investigations show the possibility of expanding formulation of the problem with fixed ends for a new class of objects of control and solution to the problem for a composite CTS with continuous production processes.

The article contains 1 table, 9 equations, and a bibliography of 2 titles.

2/2

1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--CALCULATION OF THE ULTRAVIOLET AND VISIBLE ABSORPTION SPECTRA OF A  
NICKEL, II 1,5-DIPHENYLFORMAZAN COMPLEX -U-  
AUTHOR--(05)-YURCHENKO, E.N., KUKUSHKINA, I.I., YERMAKOVA, M.I., AVDEYEV,  
V.I., LATOSH, N.I.  
COUNTRY OF INFO--USSR

SOURCE--TEOR. EKSP. KHIM. 1970, 6(1), 47-54

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--UV SPECTRUM, ABSORPTION SPECTRUM, NICKEL COMPLEX, CALCULATION,  
MOLECULAR ORBITAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3002/1720

STEP NO--UR/0379/70/006/001/0047/0054

CIRC ACCESSION NO--AP0129088

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129088

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FREQUENCIES OF THE MAX. AND THE OSCILLATOR STRENGTHS ARE GIVEN OF BANDS OF THE ABSORPTION SPECTRA OF 1,5-DIPHENYLFORMAZAN I, AND ITS NI(II) COMPLEX (II), RESOLVED INTO INDIVIDUAL GAUSSIAN COMPONENTS, IN THE SOLNS. OF CCL SUB4, ME SUB2 CO, AND ETOH. IN VIEW OF THE INTERPRETATION OF THE BANDS, THE CALC. OF THE MOLS. I AND II, BY USING THE MO LCAO METHOD OF MULLIKEN HELMHOLTZ WOLFSBERG, WAS PERFORMED. THE SINGLE ELECTRON SCHEMES OF THE ENERGY LEVELS OF I, AND II, AND THE ASSIGNMENTS OF THE TRANSITIONS ARE GIVEN. THE INTENSITY OF THE LONGWAVE ABSORPTION OF I RISES IN GOING FROM CCL SUB4 TO ETOH, WHEREAS THE INTENSITY OF THE TRANSITIONS AT SHORTER WAVELENGTHS DID NOT CHANGE. THE OSCILLATOR STRENGTHS OF THE 1ST TRANSITION AND OF THE TRANSITIONS AT SHORTER WAVE LENGTHS DECREASED IN THE SPECTRUM OF II WITH THE INCREASING INTERACTION OF THE SOLVENTS IN THE ABOVE SEQUENCE. THIS INTERACTION CAUSES THE DECREASE OF THE NEG. CHARGE OF THE N ATOMS AND THE DECREASE OF THE OSCILLATOR STRENGTHS OF THE TRANSITIONS BETWEEN THE MO WHICH INCLUDED THE AO OF N. THE BAND OF II WHICH LIES IN THE IR REGION AT 4500 CM PRIME NEGATIVE WAS ASSIGNED, ON THE BASIS OF THE CALCNS., TO THE ELECTRONIC TRANSITION 9A SUBG-6A SUBU. ALL TRANSITIONS WERE INTERPRETED AS PI PI SEXTILE TRANSITIONS.

FACILITY: IZHEVSK. MEKH. INST., IZHEVSK, USSR.

UNCLASSIFIED

1/2 C18 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ULTRAVIOLET AND VISIBLE ABSORPTION SPECTRA OF COMPLEXES OF  
TRIVALENT METALS WITH ACETYLACETONATE AND ITS ANALOGS -U-  
AUTHOR--(G3)--YURCHENKO, E.N., AVDEYEV, V.I., SHUGAM, YE.A.  
COUNTRY OF INFO--USSR  
SOURCE--TEGR. EKSP. KHIM. 1970, 6(1), 84-90  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--UV SPECTRUM, METAL COMPLEX COMPOUND, ACETYLACETONATE, TITANIUM  
COMPOUND, CHROMIUM COMPLEX, COBALT COMPLEX, ABSORPTION SPECTRUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/1168 STEP NO--UR/0379/70/006/001/0084/0090  
CIRC ACCESSION NO--AP0128590  
UNCLASSIFIED



2/2 018

UNCLASSIFIED

PROCESSING DATE—20NOV70

CIRC ACCESSION NC--AP0128590

ABSTRACT/EXTRACT--(U) GP-G- ABSTRACT. THE SPECTRA OF ACETYLACETONATES (ACAC) OF TI, CR, AND CO WERE CALCD. BY USING THE MO LCAO METHOD OF MULLIKEN-HELPHOLZ-WOLFSBERG IN THE SCF APPROXN. ACCORDING TO THE ORBITALS OF THE METAL, AND THE COORDINATED O ATOM. THE SINGLE ELECTRON ENERGY LEVEL SCHEMES OF TI(ACAC) SUB3, CR(ACAC) SUB3, AND CO(ACAC) SUB3 AND THE ASSIGNMENTS OF THE TRANSITIONS ARE GIVEN. THE CALCD. WAVENOS. OF THE TRANSITIONS AND THE OSCILLATOR STRENGTHS ARE COMPARED WITH THE EXPTL. VALUES. THE COMPARISON OF THE SPECTRA OF THE 3 COMPLEXES ENABLED A MORE OBJECTIVE INTERPRETATION OF THE BANDS. SIMILARLY THE COMPLEXES OF TI, CR, AND CO WITH DIBENZOYLMETHANE (DBM) WERE CALCD. IN THE SINGLE ELECTRON ENERGY LEVEL SCHEMES OF THE COMPLEXES TI(DBM) SUB3, CR(DBM) SUB3, AND CO(DBM) SUB3 THE LEVELS OF THE CORRESPONDING ACETYLACETONATES ARE RETAINED. ALL PECULIARITIES IN THE LONGWAVE TRANSITIONS OF ACETYLACETONATES WERE CHARACTERISTIC FOR THE DBM COMPLEXES. THE SPECTRA OF THE DIBENZOYLMETHANES DIFFER MAINLY FROM THAT OF ACETYLACETONATES BY THE OCCURRENCE OF THE BENZENE LEVELS, NAMELY BY THE TRANSITION PHI SUB1 PHI, WHICH DISPLAYS A BAND OF HIGH INTENSITY AT 45,000 CM PRIME NEGATIVE1. FACILITY: IZHEVSK. MEKH. INST., IZHEVSK, USSR.

UNCLASSIFIED

AVDEYEV, V.T.

hydrology

PROBABILITY ESTIMATE OF THE EFFECT OF KNOWN HEADS ON THE ACCURACY OF CALCULATING THE WATER FLOW RATE IN A RIVER BY THE STATISTICAL METHOD

[Article by Candidate of Technical Sciences V. T. Avdeyev, Department of Hydrology of the Institute of Hydrology and Meteorology, Leningrad, Russian, No 6, 1972, submitted 9 November 1971, pp 10-22]

A study was made of the procedure for calculating the water flow rate in a river with known heads and data based on using the method of statistical error propagation.

The statistical method of predicting water flow rates in a river of rare recurrence is based, as is known, on equalization of the empirical distribution of the highest annual floods by means of a theoretical distribution curve. If the appropriate model is selected, the error flow rate of the required probability of excess is calculated as the corresponding distribution quantiles.

However, it is known that any predictions based on using statistical material cannot be considered exact. Indeed, the statistical series used as the basis for the model is a random sample which is in itself subject to statistical fluctuations. Inasmuch as the number of observations, as a rule, is small and they can be nonrepresentative, the question arises whether or not the given sample is in the sense of reliability of the information about the event which it represents. In addition, the initial data can be obtained only with a defined degree of accuracy.

Both of the noted circumstances generate errors in the calculation of quantiles: the frequency errors are a consequence of the limited nature of the number of observations, and the inexactness of the initial data, the measurement errors. Therefore, even if the selected model is satisfactory, it does not follow that its application guarantees useful results.

Obviously, at the present time it is impossible to answer the question whether the divergences in the case of final computations are the result of the limited nature of the sample or they are caused by insufficient accuracy of the initial data; the indicated divergences are a consequence of the joint

USSR

UDC: 621.396.96:681.142.5

AVDEYEV, V. V. and BERGEL'SON, M. N.

"Technical Realization of Final Radar Station Devices"

Kiev, Izvestiya VUZ SSSR--Radioelektronika, No 6, 1972, pp 712-716

Abstract: Noting that the practical realization of digital systems for processing radar information presents many problems that have as yet not been fully solved, the authors consider devices for detecting and estimating target azimuth. The method to be used by these devices is that of maximum probability in binary amplitude quantization of the radar pulse signals scanning through a single angular coordinate, the azimuth, in a symmetrical beam with constant velocity. The distance to the target is considered known. The authors begin their analysis by considering an algorithm in accordance with which the device for detection and estimation of the target and its azimuth in binary weight processing of the signals should act. This algorithm is rewritten in the form of two equations for the weighted sum, representing the measured azimuth, and the block diagram of a digital device for realizing this rewritten algorithm and computing the target azimuth is shown. The authors note that the device is made of standard digital elements and can easily be readjusted for changes in azimuth detection and computation criteria. A variation of this device is also shown.

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USSR

UDC: 621.396.96:681.32

AVDEYEV, V. V.

"Experimental Study of a Digital Azimuth-Measuring Instrument"

Tr. Ryazan. radiotekhn. in-ta (Works of the Ryazan Radio Engineering Institute), 1972, vyp. 33, pp 227-232 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8G15)

Translation: A study was made of the operation of a digital azimuth measuring instrument with "K out of P" logic with respect to signals from an incoherent pulse surveillance radar. The study was done on a mock-up containing an azimuthal radar scanning simulator, a device for detection and estimation of azimuth and a display, using the Monte-Carlo method (modeling of the process of signal handling, multiple repetition of the experiment, and stipulation of the results). The resultant characteristics of the device are presented. It was established that there is an optimum quantization threshold which depends only on the input signal level. Two illustrations, bibliography of three titles. N. S.

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USSR

UDC: 621.396.96:681.32

POPOV, D. I., AVDEYEV, V. V., FEDOROV, V. A., SHESTAKOV, N. D.

"Effectiveness of a Device for Digital Two-Dimensional Filtration of Radar Images"

Tr. Ryazan. radiotekhn. in-ta (Works of the Ryazan Radio Engineering Institute), 1972, vyp. 33, pp 203-209 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8G16)

Translation: The necessity for two-dimensional filtering arises, for instance, when objects are to be recognized on two-dimensional radar images of a locality. When image scanning is present, i. e. as a result of conversion of the two-dimensional image to a one-dimensional image, the problem reduces to recognition of a pattern consisting of individual points; it can be solved by reckoning the number of pulses which fall into the next formation, whose position on the subsequent line is determined by the pulse of the previous line. A device which realizes this method is described. The results of calculation of the characteristics of the device are presented. Bibliography of five titles. N. S.

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USSR

UDC 621.396.679

AVDEYEV, Ye. V., POTAPOVA, V. I., Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"Determination of the Parameters of Open Strip Waveguides"

Moscow, Radiotekhnika, Vol 26, No 8, Aug 71, pp 56-64

Abstract: Open strip transmission lines are quite extensively used in microwave technology, chiefly because of their technological and structural simplicity. Requirements for miniaturization combined with low losses make it necessary to use a high-permittivity dielectric as the substrate. In this paper, universal families of graphs and nomograms are presented for determining the parameters of open strip transmission lines. The graphic results were obtained by a sufficiently accurate and flexible method of analysis with no limitations on the geometry and electromagnetic parameters of the problem. The characteristics of the quasi-TEM mode are considered in an open asymmetric infinitely long strip waveguide which is homogeneous longitudinally and has a nonhomogeneous cross section. The authors thank A. P. Shpakov, Yu. K. Aleksandrov and E. L. Chegla for constructive criticism during discussion of the manuscript.

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USSR

UDC 621.372.21.001.24

AVDEYEV, Ye. V., CHEGIS, I. L.

"Calculation of Meander-Twisted Sections of Strip Lines With a Nonhomogeneous Dielectric"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1808-1815

Abstract: The paper describes a method of calculating meander-twisted sections of strip transmission line with a two-layer dielectric filler in the absence of losses in the TEM-approximation. A simplified model of a meander-like structure is compiled which lends itself to approximate calculation with regard to capacitive coupling between its elements. The structural singularities of the strip line which forms the meander are accounted for in calculating the matrix of capacitances and parameters of propagation. The problem of finding the matrix of capacitances of a system of coupled strip lines which completely defines the parameters of propagation in the structure reduces to solving a system of nonhomogeneous Fredholm's integral equations of the first kind for charge distributions. The results of computer calculation of the resonance frequencies

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USSR

AVDEYEV, Ye. V., CHEGIS, I. L., Radiotekhnika i Elektronika, Vol 16, No 10, Oct 71, pp 1808-1815

of a meander section are compared with the results of an experiment which confirms the applicability of the proposed computational procedure. Three figures, bibliography of six titles.

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USSR

UDC 621.372.851

*A*  
AVDEYEV, Ye. V., VOSKRESENSKIY, G. V., YERMILOV, V. T.

"Study of the Properties of the Characteristic Waves in Iris Wave Guides"

Tr. Vses. soveshchaniya po uskoritelyam zaryazhen. chastits, 1968, T 2 (Works of the All-Union Conference on Charged Particle Accelerators, 1968, Vol 2), Moscow, VINITI Press, 1970, pp 188-193 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8B134)

Translation: This article contains an investigation of propagation of natural waves of the  $HE_{11}$  type in a round wave guide periodically loaded with diaphragms. A calculation of the dispersion relations of the natural waves is presented. The geometry of the natural wave fields is analyzed, and their energy characteristics are obtained. There are seven illustrations and a four-entry bibliography.

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USSR

UDC: 681.3.06:51

AVDEYEV, Yu. A.

"On the Problem of Defining, Designing and Developing Automated Control Systems (Based on a Construction Industry Example)"

Sb. tr. In-t gidrodinam. Sib. otd. AN SSSR (Collected Works. Institute of Hydrodynamics. Siberian Department. Academy of Sciences of the USSR), 1970, vyp. 3, pp 7-22 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V824)

Translation: As a result of discussion of the "automated control system" concept, the following definition is presented: an automated control system is a man-machine structure set up in an organization with application to a closed control loop and designed for planning and development of optimum projects. Possible schemes of series connection of computers in the closed control loop are described. The mechanism of decision making with the aid of the automated control system is studied. The stages in development of the system are discussed.

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AA0046991-

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UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,  
Derwent, 2.70

244026 ROTARY DRIVING GEAR THROUGH A HERMETICALLY  
SEALED PARTITION consisting of cranked

shaft 1 connected through blind-end socket 2  
to shaft 3, with flexible sleeve 4 sealed at one  
end to socket 2 and the other to casing 5 to  
seal off chamber A from the surrounding medium.  
In order to reduce energy losses on the defor-  
mation of the flexible sleeve, stop 6, e.g. in  
the form of a spiral spring, prevents socket 2  
from rotating relative to casing 5. The walls  
of sleeve 4 then only undergo flexing stresses,  
which are slight. 28.4.67. as 1153129/25-27.

Iu. E. AVDEEV, (26.9.69.) Bul.17/14.5.69. Class  
47c. Int.Cl. F16d.

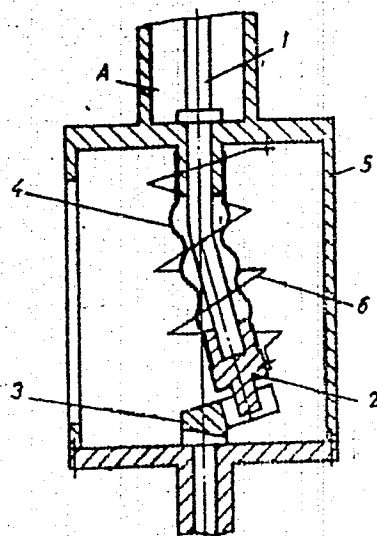
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18

19790401

AA0046991



19790402

1/2 017 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--SODA FREE PROCESS FOR REMOVING SCALE FROM EVAPORATORS -U-

AUTHOR--(C5)-SHCHEGOLEV, V.N., CHERNEGOVA, I.K., SUPRUNCHUK, V.K.,  
AVDEYEVA, A.V., VDOVENKO, I.D.

COUNTRY OF INFO--USSR

SOURCE--SAKH. PRGM. 1970, 44(5), 16-19

DATE PUBLISHED-----70

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

TOPIC TAGS--CORROSION INHIBITOR, HYDROCHLORIC ACID, SODA ASH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605046/D12 STEP NO--UR/0339/70/044/005/0016/0019

CIRC ACCESSION NO--AP0143163

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0143163

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE PROCESS CONSISTS OF CIRCULATING AQ. 5-10PERCENT HCL CONTG. 0.5-1PERCENT OF AN INHIBITOR, E.G., A DIALKYLDIMETHYLAMMONIUM CHLORIDE, THROUGH THE EVAPORATOR IN A SPECIAL WAY FOR LESS THAN OR EQUAL TO 5 HR AT 60DEGREES. THIS METHOD REMOVES MORE SCALE AND DRASTICALLY REDUCES THE AMT. OF CORROSION. AN APP. IS DIAGRAMMED AND ITS OPERATION IS DESCRIBED, INCLUDING THE OPTIMUM CONDITIONS FOR CARRYING OUT THE PROCESS. THE PROCESS IS BEING USED IN MANY SUGAR FACTORIES. FACILITY: INST. OBSHCH. NEORG. KHIM., KIEV, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--METHOD OF PREPARATION OF 2,C PRIME14,CYTIDINE AND URIDINE  
NUCLEOTIDES WITH THE USE OF ENZYME PREPARATION FROM M-1 RAT SARCOMA -U-  
AUTHOR--SILAYEVA, S.A., AVDEYEVA, L.V., DEBOV, S.S.  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 207-210  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RAT, SARCOMA, PROTEIN, ENZYME, NUCLEOTIDE, NUCLEOSIDE, CARBON  
ISOTOPE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1986/0645 STEP NO--UP/0301/70/016/002/0207/0210  
CIRC ACCESSION NO--AP0102631  
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102631

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF PREPARATION OF C PRIME14 LABELLED CMP, UMP, CDP, UDP, CTP AND UTP FROM CORRESPONDING C PRIME14 NUCLEOSIDES WITH THE USE OF PROTEIN FRACTION OBTAINED FROM M-1 RAT SARCOMA WAS DESCRIBED. THE SUPERNATANT OBTAINED AFTER CENTRIFUGATION OF TUMOR HOMOGENATE AT 105.000 G, OR PROTEIN CONTAINING SOLUTIONS PREPARED FROM FRACTIONS ISOLATED FROM CELL FREE EXTRACTS AT 25-50PERCENT, 25-60PERCENT, AND 25-80PERCENT OF SULPHATE AMMONIA SATURATION WERE USED AS THE ENZYME SOURCE. DURING THE INCUBATION OF C PRIME14 CYTIDINE AND URIDINE WITH SUPERNATANT C PRIME14 CTP AND UTP (WITH 40-50PERCENT OF YIELD) WERE OBTAINED. THE USE OF THE FIRST PROTEIN FRACTION GAVE C PRIME14 CDP AND UDP (THE YIELD 70-85PERCENT). THE SECOND FRACTION GAVE C PRIME14 CDP AND UDP (THE YIELD 50-60PERCENT), AND THE LATTER C PRIME14 CTP AND UTP (WITH 70-85PERCENT OF YIELD). THE SAMPLES OF NUCLEOTIDES OBTAINED WERE HOMOGENOUS AT SPECTROPHOTOMETRIC AND CHROMATOGRAPHIC ANALYSIS, POSSESSED THE SPECIFIC RADIOACTIVITY OF PARENT NUCLEOTIDES, AND WERE USED AS SUBSTRATES IN FOUR ENZYMATIC SYSTEMS.

UNCLASSIFIED



USSR

UDC 576.851(Providencia)+616.935-039-0

AVDEYEVA, T. A., SMIRNOVA, L. A., TIKTINA, Ye. G., and  
KAPKOVA, A. G., Leningrad Institute of Epidemiology and Micro-  
biology imeni Pasteur, Leningrad City Sanitary Epidemiological  
Station, and Leningrad Neva District Sanitary Epidemiological  
Station, Leningrad

"Biological Characteristics of Providencia Bacteria in Connection  
with Their Possible Etiological Role in Group Outbreaks of  
Dysentery-Like Diseases"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii,  
Vol 48, No 2, Feb 71, pp 120-123

Abstract: Strains of Providencia (Enterobacteriaceae) isolated  
in the summer of 1968 from children 7-14 years old in connection  
with a study of dysentery-like diseases with a single alimentary  
source of infection were subjected to serological typing. A  
study of 88 isolated strains of Providencia indicated that these  
strains had common cultural and enzymatic characteristics, but

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USSR

AVDEYEVA, T. A., et al, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 48, No 2, Feb 71, pp 120-123

could be subdivided into six serological types on the basis of reactions with rabbit OH-immune sera. Five of the six serological types, comprising the majority of the strains, were closely related with respect to O- or H-antigens. Within each of the six O-groups, independently of the number of strains in the group, the strains had an identical H-antigen, i.e., they belonged to the same serotype. These serological characteristics differed considerably from those established for Providencia cultures of diverse origin.

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USSR

UDC 669.71.053.4

NOVOLODSKAYA, A. A., AVDEYEVA, T. I.

"Conditions of Formation of Cancrinite-Like Sodium Hydroalumosilicates in Alumina Production Solutions and Their Physical-Chemical Characteristics"

Sb. tr. Vses. mezhvuz. nauch. konferentsii po teorii protsessov tsvetn. metallurgii (Collected Works of the All-Union Interuniversity Scientific Conference on the Theory of Processes in Nonferrous Metallurgy), Alma-Ata, 1971, pp 431-439 (from RZh-Metallurgiya, No 7, Jul 1971, Abstract No 7G201)

Translation: In low-module aluminate solutions containing  $\text{Na}_2\text{CO}_3$  or  $\text{Na}_2\text{SO}_4$  along with silica, the formation of hydrocancrinite aluminate is possible during the crystallization of the aluminum silicate residue for 45 hours at  $175^\circ$  in a sulfate-containing solution and for 72 hours at  $220^\circ$  in a carbonate-containing solution. The cancrinite-like sodium hydroalumosilicate can be distinguished from the sodalite-like hydroalumosilicate by means of crystal-optical and thermal analyses and also infrared spectroscopy. There are 7 illustrations and a 10-entry bibliography.

1/1

USSR

UDC: 621.378.325

AVDEYEVA, V. I., AL'PEROVICH, M. A., VANYUKOV, M. P., ISAYENKO, V. I.,  
LEVKOYEV, I. I., SEREBRYAKOV, V. A., STARIKOV, A. D.

"Use of Translucent Liquid and Thin-film Gates in the GOS-1000 Laser"

Moscow, Kvantovaya Elektronika, No 2, 1971, pp 69-73

Abstract: The authors present data on a translucent laser gate based on a thin polymer film to which polymethyne dye has been added, and it is shown that such a film gate can be used along with a liquid gate to obtain high-power monopulse emission in the GOS-1000 laser. It is found that film and liquid gates can be used for Q-switching neodymium glass lasers with a large output beam aperture (45 mm or more). The described gates are fairly simple and can be used in serially produced industrial lasers type GOS-1000, in the analogous type GOS-300 unit and others without any appreciable change in the construction of the device or in the power supply circuit. The highest energy and emission power on the GOS-1000 laser in the monopulse mode (80 J and 2.5 GW) can be attained by using a gate which is a cell filled

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USSR

AVDEYEVA, V. I. et al., Kvantovaya Elektronika, No 2, 1971, pp 69-73

with polymethyne dye solution. The new film gate described in this paper, which is a thin polymer film with polymethyne dye added to the film base, is most simple in use and provides comparatively high emission parameters in the GOS-1000 laser (50 J and 1.5 GW), has no optical components in its design, is suitable for use for long periods (8-10 months), and can be used repeatedly at comparatively low energies in the monopulse (20 J).

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USSR

UDC 621.373:530.145.6

AVDEYEVA, V. I., AL'PEROVICH, M. A., VANYUKOV, M. P., ISAYENKO, V. I.,  
LEVKOYEV, I. I., SEREBRYAKOV, V. A., STARIKOV, A. D.

"Use of Liquid and Film Transmission Gates in a GOS-1000 Laser"

V sb. Kvant. elektronika (Quantum Electronics--collection of works),  
No 2, Moscow, 1971, pp 69-73 (from RZh-Radiotekhnika, No 7, Jul 71,  
Abstract No 7D114)

Translation: Data are presented on a transmission gate based on a thin  
polymer film into which polymethyne dye is introduced, and on the use  
of this gate in a GOS-1000 laser as a Q-switch. Four illustrations,  
bibliography of five titles. Resumé.

1/1

Entomology

USSR

UDC 614.449.577.51-084.484:615.285.7

ALEKSEYEV, A. N., AVDEYEVA, YE. V., TUROV, I. S., and TOKAREVA, T. G., All-Union Scientific Research Institute of Disinfection and Sterilization, Ministry of Health USSR, and Moscow State University imeni M. V. Lomonosov, Moscow

"The Chemosterilizing Effect of Organofluorine Compounds on Larvae and Imagoes of Fleas That Are Ectoparasites of Rodents"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 1, Jan/Feb 71, pp 28-32

Abstract: Sodium fluoroacetate and fluoroacetanide in sublethal doses were administered to imagoes of the fleas *Ceratophyllus consimilis* and *Xenopsylla cheopsis* by feeding them on an apparatus previously described by A. N. Alekseyev (Med. parazitol., No 4, 467, 1965). Larvae of the fleas were given these compounds by feeding them on excrement from imagoes that received the poison by being fed wither through a membrane or on the blood of poisoned mice used as hosts. The F-containing poisons in doses of approximately  $0.5 \times 10^{-3}$  gamma inhibited reproduction and reduced the fertility of fleas, when administered to either male or female adult fleas. They also reduced to a marked extent the fertility of imagoes grown from larvae that had received poison, besides having a toxic effect on the larvae. Inhibition of fertility was more pronounced

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USSR

ALEKSEYEV, A. N., et al., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni,  
Vol 40, No 1, Jan/Feb 71, pp 28-32

when larvae received the poison at an early stage (the 1st or 2nd vs. 3rd  
instar). Imagoes and larvae of *X. cheopsis* were less sensitive to the effect  
of the organofluorine compounds than those of *C. consimilis*.

2/2



USSR

UDC 51:330.115

AVDIYSKIY, V. N.

"One Problem of Control of Reserves"

Sovrem. Probl. Kibernet., [Modern Problems of Cybernetics--Collection of Works], Moscow, Nauka Press, 1970, pp 179-184, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V581, unsigned).

Translation: The problem is reduced to determining the minimum solution of a system of extreme algebraic equations (RZHMat. 1964, 3A142).

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Scientific Research  
AND PLANNING.

AVDONIN, N.A.

EFFECT OF TEMPERATURE AND THERMAL STRESS FIELDS ON THE FORMATION  
OF THE DISLOCATION STRUCTURE IN SINGLE CRYSTALS OF GALLIUM  
GROWN BY THE CECORALSKI METHOD

JPRS 54673

10 December 1971

Article by N. A. Avdonin, S. S. Vakhrameyev, N. G. Milyutskiy, V. B. Osypenko,  
Corresponding Member of the USSR Academy of Sciences, S. A. Sokolovskiy, V. A.  
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sian, Vol 200, No 2, 1971, published 30 April 1971, pp 316-319.

Dislocations in single crystals grown from a melt are formed basically  
under the effect of thermal stresses arising during cooling of the ingot during  
the process of its growth. If these stresses exceed the critical shear of the  
material at the corresponding temperature, they cause plastic flow which  
partially or completely removes the thermal stresses. Consequently, the den-  
sity distribution of the dislocations in the crystal must be determined by the  
thermal stress field in the temperature range of the plastic material.

However, up to now analysis of the conditions of formation of the dis-  
location structure of single crystals grown from a melt has reduced essentially  
to establishment of the empirical relation of the dislocation density to the  
magnitude of the temperature gradients in the vicinity of the crystallization  
front. Here, the defining role was attributed either to the radial [1] or  
the axial [2-4] components of the temperature gradient. The problem of the  
volumetric stresses in the crystal was not considered in these works as  
a result of the great mathematical difficulties of solving it.

In this paper, a new approach to solving the problem has been used the  
schematic of which consists in the fact that the temperature field is calcu-  
lated on a computer considering the boundary conditions obtained experimentally  
after which the thermoelastic stress field is calculated. The volumetric dis-  
tribution of the thermoelastic shear stresses obtained in this way compare  
with the corresponding values of the yield stresses for gallium arsenide de-  
termined from independent experiments. This approach permits analysis of the  
conditions of formation of dislocations in the crystal growth process.

Single crystals of gallium arsenide were grown from under a layer of  
molten bismuth in the [111] direction. The temperature distribution  
in the crystal was fixed by tungsten-rhenium thermocouples 0.2 mm in diameter

- 1 -  
[1 - USSR - 1]

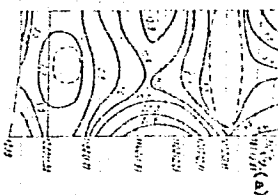
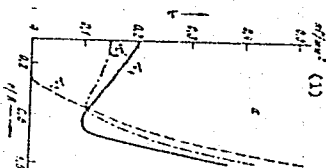


Figure 1. Isotherms and topography of tangential stresses in a single crystal of gallium arsenide. The numbers on the curves indicate the values of  $10^2 \text{ kg/cm}^2$  corresponding to the constant voltage lines. The dotted lines outline the regions in which the active stresses  $\tau_a$  are less than the calculated yield stress. The numbers in parentheses along the y-axis corresponds to the reduced critical stresses  $\times 10^2$ .

Key: a. ( $\tau_{cr}$ )



Key: 1.  $\text{kg/cm}^2$



Figure 2. Distribution of the tangential stresses  $\tau_1, \tau_2, \tau_3$  (a) and the dislocation density (b) in the transverse cross section of a single crystal of gallium arsenide.

1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--EUROPIUM (II) CENTERS IN POTASSIUM IODIDE -U-  
AUTHOR--(04)--VARENKO, G.D., AVDONIN, V.P., ZAZUBOVICH, S.G., PLACHENOV,  
B.T.  
COUNTRY OF INFO--USSR  
SOURCE--OPT. SPEKTROSK. 1970, 28(2), 284-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--SINGLE CRYSTAL, LUMINESCENCE, EUROPIUM, CRYSTAL LATTICE  
STRUCTURE, BETA IRRADIATION, POTASSIUM IODIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1984/0087 STEP NO--UR/0051/70/028/002/0284/0288  
CIRC ACCESSION NO--AP0054884  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054884

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LUMINESCENCE OF KI SINGLE CRYSTALS CONTG. EU SUB3 WAS INVESTIGATED. THESE CRYSTALS EXHIBIT A WEAK BAND AT 480 NM, IN ADDN. TO THE MAIN BAND AT 428, WHEN THE CONCN. OF EU DOES NOT EXCEED 10 PRIME NEGATIVE4 MOLE PERCENT. CONVERSION OF 1 BAND INTO ANOTHER WAS INVESTIGATED AS A FUNCTION OF THE CONCN. OF THE F CENTERS, TEMP., AND BETA IRRADN. POLARIZATION CHARACTERISTICS OF THE LUMINESCENCE WAS ALSO DETD. THE 480 NM LUMINESCENCE IS DUE TO THE PRESENCE OF EU(II) IN THE LATTICE AND IS ASSOCD. WITH POINT DEFECTS, PROBABLY ANIONIC VACANCIES. POLARIZATION STUDIES INDICATE THAT DEFECTS ARE IN THE DIRECTION OF THE C SUB4 CRYST. AXIS.

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Acc. Nr:

AP0041694

Abstracting Service:  
CHEMICAL ABST.

4-90

Ref. Code:

UR0456

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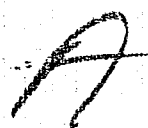
85273a Light products of the destruction of benzene by tritium recoil atoms. Avdonina E. N. (Mosk. Gos. Univ. im. Lomonosova, Moscow, USSR). *Khim. Vys. Energ.* 1970, 4(1), 83-4 (Russ). Liq.  $C_6H_6-Li_2CO_3-I_2$  was irradiated by thermal  $n$  ( $1.2 \times 10^{13}$   $n/cm^2$ -sec) for 15 min at  $\sim 70^\circ$ , and the labeled products  $C_2H_4$  and  $HT$  were detd. by gas liq. chromatog. (5-m column packed with silica gel). Content of labeled ethylene and butadiene was independent of  $I_2$  concn., and the yield of labeled acetylene increased with  $I_2$  concn. up to  $5 \times 10^{-2} M I_2$  and then remained const. Similar results were obtained with  $C_6H_6$ -cyclohexane. Mechanism of the process is discussed.

J. Panchartek

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REEL/FRAME  
19751571

1/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--REACTIONS OF TRITIUM RECOIL ATOMS IN PI HEXANE-BENZENE BINARY  
MIXTURES -U-  
AUTHOR--AVDONINA, E.N., ELZAKHIR, A., NESMEYANOV, A.N.   
COUNTRY OF INFO--USSR  
SOURCE--VESTN. MOSK. UNIV., KHIM. 1970, 11(1), 42-5  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--HEXANE, BENZENE, TRITIUM, NEUTRON RADIATION, CHROMATOGRAPHY,  
CHEMICAL LABELING  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/0151 STEP NO--UR/0189/70/011/001/0042/0045  
CIRC ACCESSION NO--AP0106811  
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106811

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE INTERACTIONS OF T RECOIL ATOMS WITH HEXANE AND C<sup>1</sup> SUB6 H SUB6 IN THEIR MIXTS. WITHOUT I AND IN THE PRESENCE OF I (5 TIMES 10 PRIME NEGATIVE3 MOLE-L.) WERE STUDIED BY IRRADIATING THE MIXTS. IN QUARTZ AMPULS FOR 15 MIN WITH A N FLUX OF 1.2 TIMES 10 PRIME13 N-CM PRIME2 SEC AT 70DEGREES AND FOR 2 HR WITH A N FLUX OF 9 TIMES 10 PRIME19 N-CM PRIME2 SEC AT MINUS 170DEGREES. THE WALLS OF THE AMPULS WERE COATED WITH LI SUB2 CO SUB3 POWDER TO ACT AS THE SOURCES OF T RECOIL ATOMS. THE COMPS. OF THE REACTION PRODUCTS WERE DETD. BY GAS LIQUID CHROMATOG. AND BY ACTIVITY MEASUREMENTS. THE MAIN PRODUCT OF THE REACTION OF T RECOIL ATOMS WITH HEXANE WAS HT (SIMILAR TO 55PERCENT). THE HIGH BOILING FRACTIONS AND THE PRODUCT OF HEXANE CLEAVAGE CONSTITUTE 7 AND 11PERCENT, RESP., OF THE TOTAL ACTIVE PRODUCTS. THE INTRODUCTION OF I HAS NO EFFECT ON ACTIVITY DISTRIBUTIO AMOG THE PRODUCTS OF THE T HEXANE REACTION, BUT DECREASES THE YIELD OF THE HIGH BOILING FRACTION AND INCREASES THE YIELD OF ACTIVE C SUB6 H SUB6 IN ITS REACTION WITH T RECOIL ATOMS. THE RECOIL T ATOMS ARE STABILIZED IN THE FOLLOWING REACTION PRODUCTS: HT, THE SUM OF LABELED GASES FORMED BY THE CLEAVAGE OF HEXANE BY THE RECOIL T ATOMS, AND PRODUCTS CONTG. T ATOMS IN THE COMPONENTS OF THE INITIAL MIXT. AND IN COMPLEX PRODUCTS FORMED DURING THE REACTION. THE TOTAL YIELD OF GASEOUS PRODUCTS IS LINEARLY DEPENDENT ON THE MIXT. CONCN. THE CONCN. DEPENDENCE OF THE YIELD OF LIQ. AND HIGH BOILING REACTION PRODUCTS IS ALSO CLOSE TO LINEAR AND IS ALMOST INDEPENDENT OF THE PRESENCE OF I; HOWEVER, THE ACTIVITY DISTRIBUTION IS MARKEDLY DEPENDENT ON THE PRESENCE OF I.

UNCLASSIFIED



173 027 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ZIRCONIUM AND HAFNIUM PHOSPHITES -U-  
AUTHOR--(02)-AVDUYEVSKAYA, K.A., MIRONOVA, V.S.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 391-2  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--ZIRCONIUM, HAFNIUM, LUMINESCENCE SPECTRUM, PHOSPHATE,  
ABSORPTION SPECTRUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/CC88 STEP NO--UR/0363/70/006/002/0391/0392  
CIRC ACCESSION NO--AP0125919  
UNCLASSIFIED

2/3 027

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125919

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ZR AND HF PHOSPHITES WERE PREPD. BY THE INTERACTION OF MOCL SUB2 (M EQUALS ZR, HF) WITH AN ORTHOPHOSPHORIC ACID SOLN. IN ORDER TO DET. THE COMPN. OF THE COMPS., THE MOCL SUB2 H SUB3 PO SUB3 H SUB2 O SYSTEM WAS INVESTIGATED AT A CONST. CONC. OF MOCL SUB2 OF 0.1M AND AT A VARIABLE CONC. OF H SUB3 PO SUB3. THE RATIO H SUB3 PO SUB3:M EQUALS N IN THE STARTING MIXTS. VARIED FROM 0.5 TO 10; EXPTS. WITH A HIGHER CONC. OF THE ACID WERE ALSO PERFORMED. THE PPTN. OF A COLORLESS FLOCCULENT RESIDUE TOOK PLACE IN ALL THE PREPD. MIXTS. THIS RESIDUE WAS ANALYZED FOR THE ZR AND HF CONTENT, RESP. THE PHOSPHITE ION WAS DETD. BY THE IODOMETRIC METHOD. THE WATER CONTENT IN THE OXYPHOSPHATES WAS DETD. FROM THE DIFFERENCE; IN THE MEDIUM PHOSPHITES, IT WAS DETD. FROM THE SYM. AZA SUBSTITUTION AND METALATION AFFECTED THE PI ELECTRON DISTRIBUTION IN THE MOL., ALTERED THE OSCILLATOR ORIENTATION AND, CONSEQUENTLY, RESULTED IN SIGNIFICANT CHANGES IN THE SPECTRUM AS COMPARED WITH I OR SYM. SUBSTITUTED IV. MAX. POLARIZATION OF ZN,II AND ZN,III MOLS. WAS AS HIGH AS 40PERCENT WHEREAS THE POLARIZATION OF THE MORE SYM. MG IV MOLS., SIMILARLY TO THAT OF METALLOPORPHYRINS, DID NOT EXCEED 14PERCENT AND WAS CONST. ALONG THE SPECTRUM. ACCORDINGLY, A SYM. FLAT OSCILLATOR STRUCTURE OF MG IV WAS ASSUMED. AS A RESULT OF THE AZA SUBSTITUTION OF THE PORPHINE SKELETON AND METALATION, THE LONG WAVE OSCILLATOR IN THE MOL. OF THE METAL PORPHYRINS IS ORIENTED ALONG THE AXIS CONNECTING THE PERIPHERAL N ATOMS ACROSS THE CENTRAL ATOM OF THE METAL.

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3/3 027

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125919

ABSTRACT/EXTRACT--THE POLARIZATION OF THE LUMINESCENCE SPECTRUM PROVED..  
MORE SENSITIVE TO THE MOL. STRUCTURE ALTERATIONS THAN THE ABSORPTION  
SPECTRUM. FACILITY: INST. OBSHCH. NEORG. KHIM. IM. KURNAKOVA,  
MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 632.954

SAMOSVAT, L. S., AVDYUSHKINA, S. I., VESELOVSKIY, I. V., and MAN'KO, YU. P.,  
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Pesticides, Polymers and Plastics and Ukrainian Agricultural Academy

"Aftereffect of Linuron and Its Residues in Soil and Plants"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 3, Mar 70, pp 55-56

Abstract: The authors in 1966-1967 studied under field conditions the effectiveness of linuron on corn plantings and its aftereffect on other agricultural crops, and also determined residues of the chemical in the soil and plants. The experiments were conducted at the Mytnitskaya Agronomical Station of the Ukrainian Agricultural Academy. The soil is deep low-humic medium-loamy chernozem. The linuron was applied during preplant cultivation or preemergence harrowing in doses of 2,4 and 8 kg/ha. The linuron residues in the soil were determined by two methods, viz. biologically with white mustard as the indicator plant and by thin-layer chromatography. It was found that linuron in a dose of 3-4 kg/ha never penetrated deeper than 10 cm from the soil surface during the corn vegetation period, with 5-7 percent of the initial quantity found in this layer four months after application. The  
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