"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC 8.74

BUTRIMENKO, A. V., GINZBURG, S. L.

"Simulation of Communication Networks on Digital Computers"

V sb. Avtomati i upr. (Automata and Control--collection of works), Moscow, Nauka, 1972, pp 77-92 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V509)

Translation: A description of a program simulating the operation of a communications network is given, and some simulation results are presented.

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1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--UNITARITY CONDITIONS FOR THE MANY BODY SYSTEM AT ZERO TEMPERATURE -U-

AUTHOR-(02)-GINZBURG, S.L., MALEYEV, S.V.

G

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 3, PP 420-434

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GREEN FUNCTION, TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1248 STEP NO--UR/0646/70/003/003/0420/0434

CIRC ACCESSION NO--AP0124900

UNCLASSIFIED

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UNCLASSIFIED PROCESSING DATE--20NOV70

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CIRC ACCESSION NO--AP0124900

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE UNITARITY RELATIONS FOR GREEN FUNCTIONS AND VERTEX PARTS FOR THE CASE OF ZERO TEMPERATURE ARE DEDUCED AND INVESTIGATED. THE PROBLEM WHETHER THE INTERMEDIATE STATES CAN BE DESCRIBED BY MEANS OF QUASIPARTICLES IS DISCUSSED IN DETAIL.

FACILITY: FIZIKO-TEKHNICKESKIY INSTITUT IMENI A. F. IOFFE.

FACILITY: AKADEMII NAUK SSSR.

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC: 669.28.017

ABABKOV, V. T., GINZBURG, V. I., and VOLKOV, YU. K.

"Corrosion Resistance of Molybdenum Alloys in Certain Corrosive Media"

Spetsial'nyye Stali i Splavy (Special Steels and Alloys -- Collection of Works), No 77, Metallurgiya Press, 1970, pp 72-76

Translation: It is demonstrated that domestically produced molybdenum alloys have high corrosion resistance in inorganic acids, iodide media, and certain special media. They are superior to nickel alloys such as hastelloy and certain refractory metals in this respect. 6 tables; 4 biblio. refs.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC 523.165

GINZBURG, V. L., PTUSKIN, V. S., and TsYTOVIch, V. N., Physical Institute imeni P. N. Lebedev, Academy of Sciences of the USSR

"On the Role of Plasma Effects in the Propagation and Isotropization of Cosmic Rays in the Galaxy"

Moscow, Izvestiya Akademii Nauk SSSR, Vol 37, No 6, 1973, pp 1150-1154

Abstract: This work is based on FIAN Preprint No 161, 1972, by the same authors, which contains more detailed calculations and discussion. The present article communicates only some basic results of this work. The basic purpose of this study is to consider the waves developed in the movement of charged particles; the interaction of those waves with the particles; the effects of other waves, externally generated; and the interactions among the waves. The overall result is to introduce consideration of plasma effects in the standard diffusion model of cosmic radiation.

Three basic types of waves are considered: magnetohydrodynamic, whistlers, and Langmuir waves. When cosmic rays move with an average velocity exceeding the phase velocity of the waves, instabilities arise and there is a "maser" expansion of the oscillation due to anisotropy in the angular distribution function of cosmic rays.

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USSR

GINZBURG, V. L., et al., Izvestiya Akademii Nauk SSSR, Vol 37, No 6, 1973, pp 1150-1154

To develop waves in interstellar plasma, the increment must exceed the decrement due to damping. Damping of MHD waves is due to collisions between ions and neutral particles, while the other two types are damped by electron-ion collisions.

Formulas are given in the article for calculating the change in direction of particles subject to these turbulent waves. These results can be used, in turn, to make an approximate determination of the coefficient of diffusion.

Preliminary evaluations show that nonlinear processes cannot be ignored in the relaxation of the anisotropic distribution of cosmic rays of a single order. Further, there is still no rigorous theory of MHD turbulence, particularly in a collision plasma. However, analysis indicates that whistlers and Langmuir waves are not likely to arise when the anisotropy of the radiation is low, so that MHD waves must be most significant in reducing low anisotropy, except for cases in which whistlers and Langmuir waves may develop due to external sources.

On the other hand, analysis shows that the spectrum that is attained cannot be established solely by effects due to the cosmic rays themselves, and that external sources of sufficient power to provide the necessary MHD waves

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GINZBURG, V. L., et al., Izvestiya Akademii Nauk SSSR, Vol 37, No 6, pp 1150-1154

are not available. Other mechanisms, such as circulation in magnetic fields or scattering in magnetic anomalies, must be assumed. A theoretical study of MHD turbulence in collision plasmas and the possibility of shock wave formation would be valuable. There may also be new types of waves in a mixture of relativistic and nonrelativistic gases.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC: None

GINZBURG, V. L. and TSYTOVICH, V. N.

"Theory of Transition Radiation in a Nonstationary Medium"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No 1(7), vol 65, 1973, pp 132-144

Abstract: This paper is based in part on an earlier article (V. L. Ginzburg, et al, ZhETF, 16, 15, 1946) in which transition radiation was first considered for the case of a uniformly moving, charged particle intersecting the abrupt boundary of an interface between two media. In the present paper, the problem of transition radiation in a nonstationary medium is considered for an abrupt change in the index of refraction with time, and the applicability region of an approximation in the change of index of refraction in a dispersing medium is discussed. The time of formation of the radiation is evaluated , and the radiation effects of an ultra-relativistic particle are examined in detail. The work done by the radiation force on the radiating particles is computed and the effect of mass renormalization of the particle in a medium with varying parameters is discussed. A comparison is made of this type of radiation with ordinary transition radiation for this interface.

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USSR

UDC 523.8

GINZBURG, V. L., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Pulsars (Theoretical Ideas)"

Moscow, Uspekhi Fizicheskikh Nauk, Vol. 103, No. 3, Mar 71, pp 393-429

Abstract: The current state of the theory of pulsars is reviewed. Pulsars are connected with the following objects: neutron stars, white dwarfs, double systems or double stars, or objects of a new type. Topics discussed include rotating magnetized neutron stars, the structure of neutron stars and pulsars, the electrodynamics of rotating magnetized stars, mechanisms of pulsar radiation, models of the radiating regions of pulsars, and the uses of pulsars in astronomy and physics. It is noted that appropriate observations on pulsars could be used to test the general theory of relativity but that the use of an artificial planet with an onboard radio transmitter is more promising for these purposes. The appearance of astronomical discoveries since World War II is termed the fruit of the process of converting astronomy from optical to all-wave; this process should be completed in the next decade. It is predicted that neutrinos from the sun will be detected in

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GINZBURG, Uspekhi fizicheskikh Nauk, Vol. 103, No. 3, Mar 71, pp 393-429

the near future and that neutrino astronomy will be one of the future fields of astronomy. Neutron stars are classified as among the most powerful potential sources of cosmic neutrinos and gravitational waves; it is predicted that pulsars will remain at the center of attention of astronomy for many more years and even for decades. This paper was prepared for the XIV General Assembly of the International Astronomy Union in Brighton, 18-27 August 1970. The paper is also published in English in Highlights of Astronomy.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC 535.1+535.225

BOLOTOVSKIY, B. M., and GINZBURG, V. L., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"The Vavilov-Cerenkov Effect and the Doppler Effect in the Motion of Sources at a Velocity Greater Than the Velocity of Light in a Vacuum"

Moscow, Uspekhi Fizicheskikh Nauk, Vol 106, No 4, Apr 72, pp 577-592

Abstract: The view has been widely held that the Vavilov-Cerenkov effect and the anomalous Doppler effect can be observed only for waves with the refractive index $n(\omega) > 1$ (the condition $c/n < v < c$) and that corresponding phenomena are impossible in a vacuum. Meanwhile there are faster-than-light sources moving at the velocity $v > c$. These sources within wide limits can be regarded on the same bases as "ordinary" sources moving at the velocity $v < c$. Faster-than-light sources can generate Vavilov-Cerenkov radiation in any medium, including a vacuum or subject to the condition $n(\omega) < 1$. Faster-than-light sources of the general type as a whole possess the same peculiarities which are known for sources moving at the velocity $c/n < v < c$ (anomalous Doppler effect etc.). An example is

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BOLOTOVSKIY, B. M., and GINZBURG, V. L., Uspekhi Fizicheskikh Nauk, Vol 106, No 4, Apr 72, pp 577-592

the light spots created on a remote screen by a rotating spotlight or beacon. If the angular velocity of the beacon is Ω, then on a screen whose distance from the source is R a spot will travel at the velocity

$$v = \Omega R.$$

The beacon model is now universally adopted for pulsars, with the velocity of a spot on earth for all known pulsars exceeding the velocity of light c.

From the standpoint of radiation theory, an important difference between faster-than-light sources ($v > c$) and those which are slower than light ($v < c$) is the fact that a faster-than-light source cannot consist of an individual "elementary" particle and therefore always is extended. It is the dimensions of a faster-than-light source which primarily determine,

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BOLOTOVSKIY, B. M., and GINZBURG, V. L., Uspekhi Fizicheskikh Nauk, Vol 106, No 4, Apr 72, pp 577-592

especially during radiation in a vacuum, the short-wavelength limit of the radiated frequency spectrum. Therefore, the use of faster-than-light sources say for the generation of x-rays-would seem unlikely. However, it would not be surprising to find some interesting applications for faster-than-light sources in the future. In addition, faster-than-light sources can occur in astronomy. Regardless of such possibilities, there is definite physical interest in the radiation of faster-than-light sources of electromagnetic and gravitational waves (and possibly also neutrinos) and all related questions.

The present article is based on a paper presented at a scientific session of the Department of General Physics and Astronomy and the Department of Nuclear Physics of the Academy of Sciences USSR on 25 November 1971.

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USSR

AGRANOVICH, V. M. and GINZBURG, V. L., Institute of Spectroscopy, Academy of Sciences USSR and Institute of Physics imeni P. N. Lebedev, Academy of Sciences USSR

"Theory of Combination Scattering of Light With the Formation of Polaritons (Real Excitons)"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 61, No 3, September 1971, pp 1243-1253

Abstract: The authors discuss the question of combination scattering of light with the formation of polaritons (real excitons) in using this method for obtaining information concerning the dispersion curves by allowing for absorption and spatial dispersion. They pay special attention to the detection of "new" waves as well as to the scattering by surface polaritons. The classical method of studying excitons is to obtain the absorption spectra. In this article the authors first discuss the combination scattering of light with the formation of excitons using a mathematical treatment. The second part of the article involves combination scattering and a "new" wave in gyrotropic crystals, the findings of which are supported mathematically and

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AGRANOVICH, V. M. and GINZBURG, V. L., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 61, No 3, September 1971, pp 1243-1253

graphically. Finally, the third section is concerned with combination scattering of light by surface polaritons. Here also the authors support their findings by the use of equations and a graphic illustration. The problem of surface excitons is of interest both in studying certain mechanisms of superconductivity and in studying collective exciton effects. The article contains 2 illustrations and 18 bibliographic entries.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

GINZBURG, V. L., and KOGAN, SH. M., Institute of Physics imeni P. N. Lebedev, Academy of Sciences USSR and Institute of Radio Engineering and Electronics, Academy of Sciences USSR

"Electron-Inertia Experiments"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 61, No 3, Sep 71, pp 1177- 1180

Abstract: The authors discuss the question of the influence of deformations of a metal in the case of electron-inertia tests. In experiments already carried out, the role of the deformations had to be insignificant, which fact is in agreement with the test. Under certain conditions, however, it is absolutely essential to allow for the deformations. In the ordinary formulations of electron-inertia experiments the scientist either measures the current which is generated in the circuit by accelerating the conductor that is a part of this circuit or he finds the acceleration of the conductor by varying the current flowing across it. The experimental results can be easily expressed in terms of the "non-electro-magnetic field" E^{ei} that is associated with acceleration of the conductor a. Using quite broad arguments it is possible to see that regardless of the size of the effective mass or the current carriers in the conductor or of the sign of the Hall effect,

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USSR

GINZBURG, V. L., and KOGAN, SH. M., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 61, No 3, Sep 71, pp 1177-1180

the field $E^{ei} = ma/e$, where m is the mass and e is the free electron charge. The authors attack the problem as to the degree to which the above equation is applicable for describing the electron-inertia experiments. In order to solve this problem, they analyze an expression for the current density in a normal metal by allowing for the acceleration and deformation. They are not sure as to the cause of compensation of the electric field generated by the deformation of the metal in the field of the force of gravity. The article contains 11 bibliographic entries.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

1/2 028 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--SOME ASPECTS OF THE THEORY OF COSMIC RAY ORIGIN -U-

AUTHOR-(02)-GINZBURG, V.L., SYROVATSKIY, S.I.

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COUNTRY OF INFO--USSR, HUNGARY

SOURCE--INTERNATIONAL CONFERENCE ON COSMIC RAYS, 11TH, BUDAPEST, HUNGARY, AUGUST 25-SEPTEMBER 4, (A70-38076 19-29) CONFERENCE SPONSORED BY THE

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS, ATMOSPHERIC SCIENCES

TOPIC TAGS--COSMIC RAY, METAGALAXY, X RAY ASTRONOMY, PULSAR, SUPERNOVA, COSMIC RADIO SOURCE, RADIO EMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605061/808 STEP NO--HU/2506/70/029/000/0009/0016

CIRC ACCESSION NO--AT0144436

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

2/2 026 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AT0144436

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SEVERAL QUESTIONS WILL BE DISCUSSED WHICH HAVE BEEN MORE FULLY INVESTIGATED SINCE THE LAST CONFERENCE (CANADA, 1967). THE MAIN QUESTIONS ARE: (1) METAGALACTIC COSMIC RAYS (NEW ESTIMATES WHICH FOLLOW FROM DATA OF X RAY AND GAMMA ASTRONOMY); (2) CHARGE COMPOSITION OF COSMIC RAYS (NEW DATA AND CALCULATIONS); (3) SPECTRA OF GALACTIC ELECTRONS AND RADIOEMISSION (COMPARISON OF DATA AND CALCULATION): (4) GALACTIC SOURCES OF COSMIC RAYS (SUPERNOVAE, PULSARS). FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

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1/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--PULSARS -U-

AUTHOR--GINZBURG, V.L.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ZNANIYE, 1970, 29 PP (BROSHURY; SERIYA FIZIKA ASTRONOMIYA; NR 2)

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS

TOPIC TAGS--PULSAR, STAR, ASTRONOMIC OBSERVATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0277 STEP NO--UR/0000/70/000/000/0001/0029

CIRC ACCESSION NO--AM0132531

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

2/2 013 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AM0132531
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PULSARS 3. SUPPLEMENT (JUNE 1969) 24. SUPPLEMENT (NOVEMBER 1969) 28. BIBLIOGRAPHY 31.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

1/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--HIGH TEMPERATURE SUPERCONDUCTIVITY -U-

AUTHOR--GINZBURG, V.L.

COUNTRY OF INFO--USSR

SOURCE--J. POLYM. SCI., PART C 1970, NO. 29, 3-16

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SUPERCONDUCTIVITY, TRANSITION TEMPERATURE, EXCITON, LAMINATED STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1350 STEP NO--US/0000/70/000/029/0003/0016

CIRC ACCESSION NO--AP0124999

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

2/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124999

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRIT. TEMP., T SUBC, FOR ALL PRESENTLY KNOWN SUPERCONDUCTORS DOES NOT EXCEED 21DEGREESK. THIS FACT OBVIOUSLY LIMITS THE RANGE OF APPLICATIONS OF SUPERCOND. IN TECHNOLOGY IN A VERY FUNDAMENTAL WAY. ON THE WHOLE, THE REASON WHY THE VALUE OF T SUBC FOR "ORDINARY" SUPERCONDUCTORS WOULD NOT EXCEED 20-40DEGREESK IS FAIRLY WELL UNDERSTOOD. AT THE SAME TIME, THERE APPARENTLY COULD EXIST HIGH TEMP. SUPERCONDUCTORS FOR WHICH T SUBC WOULD REACH LIQ. AIR TEMP. OR EVEN ROOM TEMPS. POSSIBLE MEANS OF PRODUCING HIGH TEMP. SUPERCONDUCTORS ARE CONSIDERED. SPECIAL ATTENTION IS PAID TO WHAT CAN BE CALLED THE EXCITON MECHANISM OF SUPERCOND. AND ITS APPLICATION TO SYSTEMS OF THE "SANDWICH" TYPE AND METALLIC CONDUCTORS WITH LAYER STRUCTURES. FACILITY: P. N. LEBEDEV PHYS. INST., MOSCOW, USSR.

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APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

Optics & Spectroscopy

USSR

UDC 548.52:535.4

GINZBURG, V. M., GUSEVA, I. N., KRAMARENKO, V. A., SEMENOV, E. G., SONIN, A. S., and STEPANOV, B. M.

"The Use of Holographic Interferometry to Observe the State of a Solution During the Growth of Single Crystals"

Moscow, Kristallografiya, Vol 17, No 5, Sep-Oct 72, pp 1012-1014

Abstract: The article shows that holographic interferometry can be used to study the state of a solution during the growth of KH_2PO_4 single crystals. The method used is that of bringing the object into coincidence with its virtual image, in which the recorded wave front interferes with the real wave front. The method makes it possible to obtain real-time holographic interferograms for any stage of the growth process and to take photographs and motion pictures of them. The use of diffused illumination of the crystallizer makes it possible to record the interferograms from various aspects, which permits an analysis of the volumetric distribution of the refractive index of the solution and from the known relation between variations in the

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

GINZBURG, V. M., et al., Kristallografiya, Vol 17, No 5, Sep-Oct 72, pp 1012-1014

refractive index and the concentration, diffusion coefficient, etc. an analysis of the spatial distribution of the principal parameters of the solution.

The authors thank D. YE. TEMKIN, A. A. CHERNOV, N. N. SHEFTAL', and A. A. SHTERNBERG for discussing the results, and V. N. KIRILLOVA for her help in the experiment.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

Pulse Technique

USSR

UDC 621.327.001.5

GINZBURG, V. M., STEPANOV, B. M., FILENKO, YU. I.

"Study of Discharge in Pulse Tubes by the Holographic Method"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2219-2220

Abstract: A study was made of the discharge of a pulse tube with an inside diameter of 7 mm, electron spacing of 80 mm, filled with xenon to a pressure of 400 mm Hg by the holographic method. The double exposure method was employed to obtain the holographic interferograms. The holograms were recorded on photographic plates with a sensitivity of 10^{-4} joules/cm^2 ($\lambda = 7 \cdot 10^{-5}$ cm) and a resolution of > 200 lines/mm. The effect of the thermal deformations of the shell during the first 200-300 microseconds of discharge on the interference pattern is insignificant. At later times the separation of the contribution of the plasma and the thermal deformations of the shell to the interference pattern presents great difficulty. During the first several tens of microseconds the discharge occupies an insignificant part of the shell cross section and it has higher electron concentration and temperature. Then it expands to the walls, but the total number of electrons in the cross section changes insignificantly. In the presented discharge interferograms with distribution of the index of refraction close to axisymmetric, the distribution is close to the type of $\Delta n_1 = \Delta n_{01} [1 - (r^2/r_1^2)]$ and $\Delta n_2 = \Delta n_{02} [1 - (r/r_2)]$ where Δn_{0i} is

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

GINZBURG, V. M., et al., Radiotekhnika i Elektronika, Vol 17, No 10, pp 2219-2220

the variation of the index of refraction on the discharge axis and r_i is the radius of the plasma region. A numerical example is considered in which the effect of forcing the neutrals out of the discharge region is estimated. The basic errors in the quantitative estimates are connected with deviation of the distributions from axial symmetry.

The results obtained for a quasistationary discharge agree with the results obtained using a three-mirror interferometer under the assumption of uniform distribution of the electron concentration with respect to the tube cross section. The advantage of the introduced method is the possibility of investigating the initial discharge stages in pulse tubes where the three-mirror interferometer is inapplicable.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC: 621.395.34

GINZBURG, V. M., IS'YANOV, V. M., Leningrad "Krasnaya Zarya" Production Union

"A Gerkon Electronic Automatic Telephone Exchange"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331500, Division H, filed 14 May 70, published 7 Mar 72, p 184

Translation: This Author's Certificate introduces: 1. A gerkon electronic automatic telephone exchange which has line switches, a switchboard and cord sets, line-switch and cord-set reference decoders, and a central control device which includes interconnected generators of line-switch and cord-set codes, an analyzer of the state of line switches and cord sets, and an actuating device. As a distinguishing feature of the patent, the volume of equipment is reduced and the interference suppression of the telephone exchange is improved by connecting the outputs of the line-switch code generator through the reference decoder to the reference inputs of the line switches, and through an interrogation circuit provided in the switchboard to the reference inputs of the cord sets connected at the given moment to

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GINZBURG, V. M., IS'YANOV, V. M., USSR Author's Certificate No 331500

the line switches through the switchboard. The interrogation circuit is connected in parallel with the main information circuit, and the outputs of the cord-set code generator are connected through the reference decoder to the cord-set reference inputs. The outputs of the analyzer and actuating device are connected to the command inputs of the line switches and cord sets, whose outputs are connected through OR gates to the inputs of the analyzer. 2. A modification of this telephone exchange distinguished by the fact that the line switches and cord sets are simplified by connecting the outputs of the receivers and storage devices through interrogation diodes to the outputs of the line switches and cord sets. The inputs of the storage devices and of the hold and ringoff devices are connected through command diodes to the corresponding command inputs of the line switches and cord sets. The controlling inputs of all interrogation and command diodes are connected directly or through an OR gate to the reference inputs of the line switches and cord sets.

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USSR UDC 548.4

GINZBURG, V. M., GUSEVA, I. N., SEMENOV, E. G., SONIN, A. S., STEPANOV, B. M.

All-Union Scientific Research Institute of Opticophysical Measurements, Moscow

"On the Possibility of the Application of Holographic Interferometry to the Investigation of Crystals"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 11 Oct 71, pp 1092-1094

Abstract: The possibility of using the method of holographic interferometry for the investigation of crystals was shown by the authors on the basis of the example of fluorite. Used for obtaining holographic interferograms was the UIG-2 installation, developed at the All-Union Scientific Research Institute of Opticophysical Measurements. Data show that holographic interferometry makes it possible to obtain several different integral values for different observation angles of a single crystal. Due to the presence of an intensive coherent light source, the UIG-2 holographic installation makes it possible, in addition to interfereograms, also to obtain a defraction-shadow pattern of inhomogeneity of the refraction index of the sample. It is comparable in sensitivity to a light pattern obtained by means of a special pro-

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GINZBURG, V. M., et al, Doklady Akademii Nauk SSSR, Vol 200, No 5, 11 Oct 71, pp 1092-1094

jection type shadow installation. Thus, holographic methods may be used for complex research on growth defects: establishment of the shape of the crystallization isotherm, shape changes of the light wave under the influence of admixtures, stresses, etc. 3 figures, 1 table, 4 references.

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GINZBURG, V. M., GUSEVA, I. N., SEMENOV, E. G., SONIN, A. S., and STEPANOV, B. M., All-Union Scientific Research Institute of Optical and Physical Measurements, Moscow

"Use of Holographic Interferometry For Crystal Studies"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1092-1094

Abstract: An UIG-2 holographic device was used to study the morphology of crystal structures by obtaining interferograms of synthetic fluorite. The UIG-2 unit was developed at the All-Union Scientific Research Institute of Optical and Physical Measurements and its Operating principle is as follows: a laser beam passes through a collimating system and is split by two mirrors into two equal intensity beams. Beam 1 is reflected by a third mirror to form a reference wave front and beam 2 is reflected by a fourth mirror and strikes a diffuser to form a signal wave front. Beams forming the reference and signal wave fronts intersect at a photographic plate to register the hologram. By comparing holograms obtained with the above UIG-2 unit with holograms taken on a Michelson interferometer it was evident that holographic interferometry makes it possible to evaluate heterogeneity of refraction

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GINZBURG, V. M., et al., Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1092-1094

indices in the volume of a crystal sample. It is mentioned that with the use of an intensive coherent light source one can obtain diffraction-shadow pictures of diffraction index heterogeniety. With the use of holographic methods it is possible to study growth defects in crystals by establishing shapes of crystallization isotherms and the change in light wave forms under the influence of impurities, stresses, etc. The authors expressed their thanks to B. I. FEODOROVSKIY and Ye. N. LEKHTSIYER for their assistance. Three figures, one table, four bibliographical references.

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GINZBURG, V. M., and FILENKO, YU. I.

"Effect of Light Beam Refraction in Holographic Interferometry of Phase Objects"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 40, No 10, Oct 70, pp 2217-2220

Abstract: The article analyzes the effect of beam refraction on the interference pattern obtained by the holographic method for phase objects with axial symmetry. The results indicate that in the interpretation of holographic interferograms of phase objects, within whose limits expected variations in the refractive index exceed 5-10 percent, allowance must be made for beam refraction inside the object. In the diagnosis of a plasma in gas-discharge devices by the method of holographic interferometry, failure to make allowance for beam refraction in the plasma does not lead to errors if the electron concentration within the limits of the entire discharge satisfies the condition $\lambda^{-3} \ll N \leqslant 0.1\, N_{cr}$.

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GINZBURG, V. M., and FEDOROVSKIY, B. I.

"Resolution of Holograms for Real Photographic Materials"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 40, No 10, Oct 70, pp 2221-2224

Abstract: The article describes results of an experimental study of the dependence of the resolution of a hologram on its size and the angle between the reference and the signal radiation flux for three types of Soviet photographic materials used in holography; viz., Mikrat-VR plate, type-18, and Mikrat-300 film. The results indicate that variation with angle in hologram resolution (given a fixed hologram size) is substantially less for real than for ideal holograms. Conversely, the curve for the variation in hologram resolution with hologram size (given a fixed angle) is steeper in the real than in the idealized case. There is little change in hologram resolution as a result of a significant difference in the resolution of the photographic material ($\sim$2.5-fold) over a wide range of variation in the angle between the reference and the signal flux; i.e., variations in the resolution of the material in the linear sector of the hologram resolution curve have comparatively little effect on holographic resolution. The authors thank E. G. SEMENOV and A. V. MOROZOV for their part in the experiment and in analysis of the results.

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TITLE--POSSIBLE USE OF LIQUID CRYSTALS FOR PHOTOGRAPHING SINGLE PULSES OF THERMAL RADIATION -U-

AUTHOR-(05)-GINZBURG, V.M., SMIRNOV, V.I., SONIN, A.S., STEPANOV, B.M., CHISTYAKOV, I.G.

COUNTRY OF INFO--USSR

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A 2-DIMENSIONAL IMAGE WAS OBTAINED OF A THERMAL FIELD GENERATED BY A SINGLE PULSE RADIATION ND LASER (PULSE ENERGY SIMILAR TO 0.5 J, PULSE DURATION 2 TIMES 10 PRIME NEGATIVE8 SEC) USING A LIQ. CRYSTAL MIXT. OF 70PERCENT CHOLESTEROL PELARGONATE AND 30PERCENT CHOLESTEROL OLEATE. THE SELECTIVITY OF THE SCATTER OF THE MIXT. RANGES FROM 59.8 TO 62.2DEGREES. FACILITY: VNII OPT.-FIZ. IZMER., USSR.

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USSR

UDC: 533.9.08:621.373.530.145.6

MARIPOV, A., BULKIN, P. S., SOLNTSEV, G. S., GINZBURG, V. M.

"Singularities of Diagnosing a Superhigh-Frequency Plasma by the H_{01} Mode in a Circular Waveguide"

V sb. Vopr. fiz. nizkotemperaturn. plazmy (Problems of Low-Temperature Plasma Physics--collection of works), Minsk, "Nauka i tekhn.", 1970, pp 75-78 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D131)

[No abstract]

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USSR UDC 621.373.029.67:77

GINZBURG, V. M. and MESHCHANKIN, V. M., Academy of Sciences of the USSR in Moscow

"Holography in the UHF Band With an Artifically Generated Reference Wave"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No. 4, April 1970, pp. 778-781

Abstract: The use of a separately generated reference wave in UHF holography, rather than directly copying the techniques used in optical holography, permits a significant improvement in the quality of the hologram. In addition, it is possible to utilize a cross multiplier apparatus rather than a quadratic detector.

The change makes it possible to record holograms in which the angle of incidence of the reference beam is relatively low, permitting the object to be considerably closer to the hologram; this leads to higher resolution in the restored image. This advantage is due to the use of the cross multiplier recording apparatus, which does not involve a diffraction grating.

The article includes a schematic of the apparatus, a mathematical derivation of the basic formula, a description of an experiment performed and photographic representations of the results. There are 6 references, 5 in English.

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TITLE--HOLOGRAPHY IN THE MICROWAVE BAND WITH ARTIFICIAL FORMATION OF THE REFERENCE WAVE -U-

AUTHOR-(02)-GINZBURG, V.M., MESHCHANKIN, V.M.

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COUNTRY OF INFO--USSR

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SUBJECT AREAS--PHYSICS

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CIRC ACCESSICN NO--AP0118641

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF MICROWAVE HOLOGRAPHY WITH AN ARTIFICIALLY FORMED REFERENCE WAVE AND A RECEIVER MULTIPLIER APPARATUS THAT MAKES IT POSSIBLE TO RECORD A HOLOGRAM AT REFERENCE WAVE ANGLES OF INCIDENCE MUCH SMALLER THAN THOSE IN OPTICAL SYSTEMS. HOLOGRAMS WERE RECORDED AT A FREQUENCY OF 9.37 GHZ, AND LASER RECONSTRUCTED IMAGES ARE GIVEN FOR ILLUSTRATION. THE PROPOSED METHOD MAKES IT POSSIBLE TO BRING THE OBJECT CLOSER TO THE HOLOGRAM AND THUS IMPROVE THE LINEAR RESOLUTION IN THE IMAGE.

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GINZBURG, V.N.

radio engineering / diode switching devices

RADIO ENGINEERING / DIODE SWITCHING DEVICES

JPRS 54764

22 December 1971

NONLINEAR AND MICROWAVE RADIO ENGINEERING SYSTEMS

Selected articles from the Russian-language book edited by L. D. Bakhrakh, corresponding member of the USSR Academy of Sciences and V. I. Smoylenko, candidate of engineering sciences: Nelineynye i Sverkhvysokochastotnye Radiotekhnicheskiye Sistemy, Trudy Moskovskogo Ordena Lenina Aviatsionnogo Instituta imeni Sergo Ordzhonikidze, Vol 2, No 215, 1976, signed to press 14 October 1976, Machine Building Press, Moscow.

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GINZBURG, V.N.

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UDC 629.7.051:621.396.6001

A STUDY OF SOME CHARACTERISTICS OF DIODE SWITCHING DEVICES IN THE DECIMETER RANGE

Engineers G. A. Bukhonina, G. F. Vasil'yev,
V. A. Galkovskiy, I. Ye. Gol'berg, and
Candidate of Engineering Sciences V. N. Ginzburg pp. 284-310

In this collection [reference 9] the results of an investigation of discrete switching devices in the decimeter range controlled by semiconductor p—n-junctions have been explained. The basic electric parameters of the models of changeover switches (losses and phase-frequency characteristics) turned out to be in good agreement with the calculated data.

This work is devoted to an investigation of certain parameters of diode switching devices that are important in practice. An analysis has been performed of the limitations which are imposed on the quick operation of such devices by the reaction of the high-frequency circuits. Some limitations in the band width of diode switching devices (commutators) in the decimeter range associated with this fact have been analyzed. The features of the operation of these devices at the power levels of the microwave signal close to limiting value for the controlling diodes have been considered.

Quick Operation

The quick operation of diode switching devices may be limited by three factors:

(a) the speed of operation of the electronic mechanism of the controlling semiconductor element;

(b) the processes in the element control circuits;

(c) the processes in the high-frequency circuits of the commutator.

A number of works [references 2, 3, 4] have been devoted to investigation of the quick operation of the electronic mechanism of semiconductors. As a result, we may consider it established that the natural time of point-contact and diffusion germanium diodes is considerably less than 10^{-9} seconds. According to some data [reference 4] it is no worse than 0.1 nanosecond. In other words, in the decimeter waverange the operation of such diodes as the 1A501 may be considered as practically inertia-free.

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CONCLUSIONS

An analysis of the circuits of diode switching devices demonstrated that a number of their properties, such as quick operation, bandwidth, noises, and limiting magnitude of controlled power, depend upon the selection of an additional reactivity entering into the circuit of the diode on-off switch. If the reactivity is selected, these parameters turn out to be unambiguously defined. At the same time, because of other characteristics of these switching devices, these parameters may be changed within known limits. For example, it has been theoretically and experimentally demonstrated that we may achieve a quick action of diode switching devices in the decimeter band assembled from germanium diodes of type 1A501 of the order of three high-frequency periods. The magnitude of the limiting controlled power may also be varied precisely thus within definite limits and, in particular, may exceed those values which are guaranteed for the diodes by the supplier. For a widening of the working frequency band additional circuit solutions are required, such as, for example, hooking up detuned diode on-off switches in cascade, with these switches spaced along the line at a distance of a quarter wave length from each other.

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9. Vasil'yev, G. F., Yevdokimenko, Yu. A., and Ginzburg, V. N., "Calculation and designing of diode switching devices, etc.", page 265 of this collection.

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CALCULATION AND DESIGN OF DIODE SWITCHING DEVICES IN THE DECIMETER RANGE

Engineers G. F. Vasil'yev and
Yu. A. Yevdokimenko and
Candidate of Engineering Sciences
V. N. Ginzburg

pages 265-284

This work is devoted to the investigation of discrete switching devices in the microwave range, controlled by p—n-diodes. A circuit diagram of point-contact and diffusion semiconductor diodes which is valid in the microwave range is represented in Figure 1 [reference 1], where the p—n-junction is represented by the variable capacitance C_R, the magnitude of which may vary from tenths of a picofarad at negative biases to tens or even hundreds of picofarads with positive bias. An active resistance is connected in parallel to the capacitance of the p—n-junction, and the magnitude of this resistance also varies strongly under the effect of the control voltage. However, in the decimeter and centimeter wave ranges, the capacitative reactance of the p—n-junction is much less than the active resistance and the latter may be ignored in the analysis of the switching circuits. The inductivity of the cat whisker L and the spreading resistance-r are connected in series with the capacitance of the p—n-junction. The capacitance of the socket and the leads C_p[$C_n = C_p = C_{socket}$] is connected in parallel to the leads. The magnitude of the last three parameters does not vary under the effect of the control voltage.

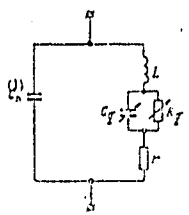

Figure 1. Circuit diagram of the diode. (1) C_p.

The problem of obtaining the optimum parameters of diode microwave switches was solved for the first time in reference [2], where it was demonstrated that the optimum parameters of switching devices controlled by the capacitance of a p—n-junction are realized in circuits in which two resonances correspond to two states of the switch: a parallel resonance to one state, and a series resonance to the other. The input resistance of the on-off switch in the resonance frequency is purely active. It is great in one state and small in the

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The standing wave ratios of all these models does not exceed 1.15 in the ten percent frequency band for both states of the phase inverter.

On the basis of the models described, two models of multi-position phase inverters with a discrete value of $\pi/8$ were assembled. One of these models was optimized by the delay method, and the other by phase. Each multi-position phase inverter consisted of four cascade-connected elements. In all positions of the phase inverter, the deviation of the experimental points from ideal curves does not exceed eight degrees. The maximum value of attenuation in the use of diodes of type 1A504 reaches 1.1 decibel, but, however, on the average the losses amount to about 0.8 decibel. The maximum standing wave ratio reaches 1.5. However, this figure may apparently be improved if the joints and junctions between the elementary phase inverters are made more carefully.

CONCLUSIONS

For construction of diode switching devices in the decimeter range, it has turned out to be necessary to use on-off switches in the circuits, together with additional reactive elements controlled by diodes. The theoretical and experimental investigation of a diode on-off switch circuit containing a distributed inductivity has confirmed the assumption that such a circuit opens new opportunities for controlling the properties of an on-off switch. Because of the fact that one of the additional elements is distributed, the possibility of optimization of the on-off switch appears, with a consideration of its use in a more complex device.

Analysis of the characteristics of such devices has demonstrated that optimization of changeover switches with respect to losses is possible, and optimization of phase inverters with respect to losses or phase frequency characteristics. In all these cases, optimization is provided by selection of additional reactive elements of the circuit of the diode on-off switch.

Analysis of the requirements imposed upon circuit elements of an on-off switch has made it possible to develop methods of engineering calculation of such circuits with respect to the selected optimization conditions. In accordance with these calculation methods, experimental models of diode switching devices were designed. The parameters of the devices measured satisfactorily coincided with the calculated parameters, and turned out to be quite high. For example, for a diode changeover switch with one input and two outputs, assembled from 1A501 diodes, and optimized by the loss method, losses in the open arm turned out to be of the order of 0.1 decibel, and the decoupling of the blocked arm about 45 decibels. For phase inverters optimized with respect to the minimum of phase distortions in the frequency bands, the deviation of the phase from ideal turned out to be not more than two degrees in a ten-percent frequency band. In this case, losses in the two states of the phase inverter differed from the calculated values by not more than 0.2 decibels, and in the worst case did not exceed 0.5 decibel. At the same time, the phase error in the same frequency band, for a phase inverter optimized with respect to losses, reaches 20 degrees, and losses in both states

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amount to about 0.15 decibel (with a calculated value of 0.14 decibel). On the basis of the approach developed in this work, diode switches were developed which have found application in radioastronomical installations operating in the decimeter band at the Serpukhov radiotelescope at the State Astronomical Institute imeni P. K. Shternberg and the Main Astrophysical Observatory of the USSR Academy of Sciences (at Pulkovo).

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VASIL'YEV, G. F., YEVDOKIMENKO, YU. A., GINZBURG, V. N.

"Calculation and Design of Decimeter-Range Diode Commutation Devices"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 197, vyp. 215, pp 265-284 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4D327)

Translation: Some circuits of decimeter range commutation devices are analyzed in which resonance diode breakers with distributed inductance are used. It is demonstrated that connecting the distributed reactive elements (inductive loop) to the p-n diode circuit permits realization of the optimal parameters of the diode breaker on low frequencies far from the natural resonance frequency of the commutation diode, and the parameters of the auxiliary inductance can be selected to optimize the switches and phase converters constructed on the basis of these breakers. A procedure is presented for engineering calculation of the diode breakers and more complex commutation devices. Descriptions of models of the decimeter wave range switches and phase converters and their experimental characteristics are presented. The bibliography has 6 entries.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC 621.396.61.029.64

BUKHONINA, G. A., VASIL'YEV, G. F., GALKOVSKIY, V. A., GOL'BERG, I. YE.
GINZBURG, V. N.

"Study of Some Characteristics of Decimeter-Range Diode Commutation Devices"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 1970, vyp. 215, pp 284-310 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4D328)

Translation: A study is made of the effect of the high-frequency circuits of decimeter-range diode breakers on their speed, bandwidth, noise and behavior at microwave levels close to limiting for control p-n diodes. It is demonstrated that the speed of all the commutation devices with p-n diodes in the decimeter range is on the order of units of nanoseconds with the exception of the maximum decoupling setup time in the blocked arm of the switch which is on the order of hundreds of nanoseconds. One method of expanding the operating band of the switches is presented. The bibliography has 8 entries.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

1/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--INVESTIGATION OF THE RENAL BLOOD CIRCULATION IN CLINICAL PRACTICE -U-

AUTHOR-(04)-GINZBURG, V.S., GRINSHPUN, S.M., DIMANT, I.N., MURATKHODZHAYEV, N.K.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 26-28

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RENAL BLOOD CIRCULATION, GOLD ISOTOPE, LIVER, CIRRHOSIS, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0698 STEP NO--UR/0504/70/042/005/0026/0028

CIRC ACCESSION NO--AP0126410

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

2/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0126410

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO COMPARE AND FIND OUT THE DIAGNOSTIC POSSIBILITIES OF THEMETHODS OF RHEOHEPATOGRAPHY AND INVESTIGATION OF RENAL BLOODFLOW BY MEANS OF AU PRIME198 THE AUTHOR EXAMINED 52 PATIENTS WITH LIVER CIRRHOSIS AND 14 WITHOUT PATHOLOGY OF HEPATOLIENAL SYSTEM. THE DATA OBTAINED SHOWED THAT THE SHAPE OF RHEOHEPATOGRAPHIC CURVE CHANGED AND THE FRACTIONAL RENAL BLOODFLOW GREATLY REDUCED IN PATIENTS WITH LIVER CIRRHOSIS. THE BEST RESULTS WERE OBTAINED WHEN COMPARING BOTH METHODS. FACILITY: N-I INSTITUT RENTGENOLOGII, RADIOLOGII I ONKOLOGII MINISTERSTVA ADRAVOOKHRANENIYA UZBEKSKOY SSR, TASHKENT.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC 621.372.061

GINZBURG, V. V.

"Calculating the Statistical Characteristics of a Synchronization Device"

Materialy nauchno-tekhn. konferentsii Leningr. elektrotekhn. in-t svyazi. Vyp. 2 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 2) Leningrad, 1970, pp 49-54 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A144)

Translation: In this article a procedure is proposed for approximate calculation of open cycle synchronizing devices operating with respect to the envelope of the output signal of a band filter. Two examples of independent interest are investigated.

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Soviet Inventions Illustrated, Section II Electrical, Derwent,

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244424 SYNCHRONIZING MULTICHANNEL TELECOMMUNICATION SYSTEM with no separate synchronization channel where the generator of synchronizing pulses is controlled by an out of phase pulse obtained by special processing of two pairs of readings obtained by means of four commutating filters matched with a given channel signal. The commutating filters are switched in pairs with a displacement equal to a fraction of the basic transmission. The amplitudes of free oscillations of the filters are used as a basis. The conversion is based on detecting first the absolute difference between the readings of each pair of channels and then the two resultant values are compared again. The result is an out of phase signal which is applied to the generator of synchronising pulses.
4.11.66 as 1110508/26-9. V.V.GINZBURG & YU.B. OKUNEV. (9.10.69) Bul 18/28.5.69. Class 21a. Int.Cl.H 04j.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC 621.385.63 (083.8)

GINZBURG, V.YE.

"Electron Beam Collector"

USSR Author's Certificate No 267761, filed 3 Nov 67, published 14 July 71 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A168P)

Translation: The construction is proposed of an electron beam collector which, with the object of suppressing secondary emission, is made of magnetic material and contains sign-changing magnetic pole shoes mounted one parallel to another and perpendicular to the surface of the collector. The ends of the pole shoes can be placed above the surface of the collector or in its body. In the latter case the surface of the collector turned to the electron beam has projections [vystup]. One side of the projections is made in a shape similar to the trajectory of the primary electrons and the other is the collector. Such a system can be used in O-type power microwave devices. R.B.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC 621.385.624(088.8)

GINZBURG, V.YE., LEBEDINSKIY, S.V., MIKHALEV, A.K., OVCHAROV, V.T.

"Collector Of Microwave Electron Device"

USSR Author's Certificate No. 271661, filed 30 Dec 67, published 31 May 71 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12A264P)

Translation: The collector proposed for a Type O microwave electron device contains two isolated electrodes arranged in series with respect to the direction of movement of the electron beam. One of them is supplied at the side adjacent to the other with a nonsymmetrical element, e.g., a projection [vystup] in the form of a half cylinder. With the object of increasing the maximum power and efficiency of the device, the electrodes of the collector are supplied with a means for forced cooling and are arranged one with respect to the other in such a manner that the projecting half cylinder, which is a continuation of the cylindrical bushing [vtulka] attached to the electrode with the lower potential, is surrounded by the internal cylindrical surface of the second electrode equal to it in height, which serves as a precollector.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC 621.385.6

GINZBURG, V.YE.

"Retardation Of Plane-Symmetrical Electron Beams At the Collector"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1971, Issue 5, pp 61-73 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10A27)

Translation: With the object of increasing the efficiency of modulator tubes and microwave electron tubes with cut-off of the current by a reduction of the potential of the collector and an increase of the amplification factor by means of a removal of the counter flow of the electrons from the collector, a hollow collector, a collector with a suppressor and a collector with a repeller are calculated. It is shown that the minimum potential of the collector depends on the width of the electron beam preceding the collector. The form is calculated of electrodes which assures a small beam width. The possibility is shown experimentally of repelling a beam of small width from the potential of the mirror in the collector without formation of a counter flow of electrons. 9 ref. Summary.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

UDC 621.385.6

USSR

GINZBURG, V. Ye.

"On a Counter Electron Stream in Type 0 Microwave Devices"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1971, Issue 1, pp 14-26 (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5A23)

Translation: A method is discussed for calculation of the trajectories of a counter electron stream, the source of which is the collector of a Type 0 microwave device. It is shown theoretically and experimentally that the magnitude of the counter electron stream depends on the "degree of blackness" of the collector and the extent of shielding of it from the magnetic field. In actual devices the counter electron stream can form tenths of a percent of the magnitude of the forward stream. The possibility of suppression of the counter electron stream by means of a transverse magnetic field is considered. 9 ref.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--COMPOSITION AND SOME PROPERTIES OF LIPIDS OF YEASTS GROWN IN TOP PEAT HYDROLYZATES -U-

AUTHOR-(04)-ZALASHKO, M.V., ABRAZTSOVA, N.V., PIDOPLICHKO, G.A., GINZBURG, YA.I.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. BIYAL. NAVUK 1970, (2), 76-81

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOSYNTHESIS, LIPID, YEAST, GLUCOSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0226 STEP NO--UR/0440/70/000/002/0076/0081

CIRC ACCESSION NO--AP0135722

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135722

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPARATIVE GROWTH AND BIOSYNTHESIS OF LIPIDS BY YEAST (2 STRAINS OF LIPOMYCES AND ONE STRAIN OF CRYPTOCOCCUS) GROWING ON PEAT HYDROLYZATES AND SYNTHETIC MEDIUM CONTG. GLUCOSE WERE STUDIED. THE RATE OF YEAST LIPID BIOSYNTHESIS IN PEAT HYDROLYZATES IS APPROX. THE SAME AS IN GLUCOSE MEDIUM. REGARDLESS OF THE SUBSTRATE ON WHICH THEY WERE GROWN, THE YEAST LIPIDS CONTAIN PRIMARILY TRIGLYCERIDES (71.3-78.1PERCENT) AND PHOSPHOLIPIDS (4.2-5.5PERCENT). IN THE CASE OF PEAT HYDROLYZATE A CHANGE IN THE RATIO OF SOME LIPID FRACTIONS WAS OBSD. THIS CAN BE ATTRIBUTED TO THE SOURCE OF NUTRIENT C PRESENT IN THE HYDROLYZATE.

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USSR UDC 669.14:548.7

LYSAK, L. I., VEKSLER, YE. YA., and GINZBURG, YE. S., Institute of Metal Physics, Academy of Sciences UKrSSR

"Investigation of the Relationship Between the Structure and Properties of Heat-Resistant 12Kh1MF Steel"

Kiev, Metallofizika, No 32, 1970, pp 69-79

Translation: This paper presents the results of an investigation of the metal of steam pipes made of 12KhIMF steel in the as-delivered condition to study the relationship of the structure and properties of this steel, as well as in connection with a discussion of the possibility of a reliable operation of chromium-molybdenum-vanadium steels in power installations of high pressure and of high-unit capacity.

The investigation was conducted on the material of more than 600 hot-rolled pipes and showed the inhomogeneity of the metal of pipes from 12KhIMF steel in the microstructure and properties, which was connected with the deviations of the actual conditions of the heat treatment of pipes from those recommended.

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USSR

LYSAK, L. I., et al., Metallofizika, No 32, 1970, pp 69-79

A relationship of the microstructure, as well as of the thin crystal structure, with the short-term mechanical and heat-resistant steel properties, was established. It was shown that the optimum combination of heat-resistant and mechanical steel properties in tests of short duration corresponds to a homogenous structure of the products of intermediate transformation and ferrite, and that the embrittlement of pipe metal upon heat treatment observed in a number of cases was due to the reversible reduction in the impact toughness of steel over the range of tempering temperatures of 600°C.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

Acc. Nr: AP0052070 Ref. Code: UR0396

PRIMARY SOURCE: Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, 1970, Vol 14, Nr 1, pp 71-72

PARTICIPATION OF HISTAMINE IN THE REFLEX REGULATION OF PULMONARY METABOLISM

A. I. Veprintseva, F. L. Ginzburg-Gusakova

The role of histamine in the reflex regulation of the pulmonary volume was studied on various animals. It appeared that the highest sensitivity of the neuromuscular apparatus of the lungs to histamine was possessed by guinea pigs, the least — by rats, cats and dogs occupying an intermediate position. Dimedrol, blocking the histaminergic innervation, failed to eliminate the pleuro-pulmonary reflex, but bilateral vagotomy depressed this reflex in the majority of the guinea pigs and cats. A combination of bilateral vagotomy with administration of dimedrol depressed the pleuro-pulmonary reflex in all the guinea pigs.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC 621.3/3.42.64:621.385.6(088.8)

GINZBURG-PRESNOV, V. S., DEVYATKIN, I. I., ZUSMANOVSKIY, A. S., TSEYTLIN, A. M.

"Superhigh Frequency Magnetron Generator"

USSR Author's Certificate No 251016, Filed 23 May 67, Published 5 Nov 70 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D295P)

Translation: In order to improve the reliability of a superhigh frequency magnetron generator (see RZh-Radiotekhnika, 1968, 4D366), it is proposed that the primary winding of the heater transformer of the first magnetron be connected in series to the primary winding of the heater transformer of the second magnetron.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC 621.438-226.3-71.001.5

GINZBURGSKIY, L.L., PODOBUYEV, YU.S., and RODIN, K.G.

"The Effect of Cooling Air on Aerodynamic Characteristics of Turbine Nozzle Rings"

Tr. Leningr. Politekhn. In-ta [Works of the Leningrad Polytechnic Institute], 1972, No 323, pp 51-54 (from Referativnyy Zhurnal, No 6, Jun 72. 49. Turbostroyeniye. Abstract No 6.49.124)

Translation: Gas turbines use only blades with cooling air outflow near the exit edge of the nozzle. The cooling air streams, outflowing from the orifices, affect the aerodynamic characteristics of the nozzle ring lattice. In order to investigate this effect, the Chair of Turbine Construction devised an experimental unit with a ring shaped lattice. A natural nozzle ring of a gas turbine was mounted on this unit. The flow velocity field behind the lattice was investigated according to the pitch and height of the blades when changing the relative flow rate of cooling air. The effect of the relative flow rate of cooling air on the efficiency of the turbine stage has to be defined later on more accurately by investigating the nozzle ring at real temperatures of gas and cooling air. Two illustr.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC 519.2

GIORGADZE, A. KH., KLOCHKO, A. V.

"Expandability of Stochastic Matrices into Elementary Matrices"

Soobshch. AN GruzSSR (Reports of the Georgian SSR Academy of Sciences), 1972, Vol 67, No 3, pp 561-563 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V47)

Translation: Asymptotic lower and upper bounds were found for the number of elementary matrices on expansion of a stochastic matrix. The result is valid for the class of stochastic matrices with efficient transition probabilities for different asymptotic relations of the parameters characterizing the investigated class.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC 535.215.1

GIORGADZE, M.P., TURDIANI, N.I.

"Low-Frequency Noise Of Photocurrent In Gallium Arsenide Irradiated By Neutrons"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics Of Nonmetallic Crystals--Collection Of Works), Vol 3, Part 2, Kiev, "Nauk.dumka," 1971, pp 26-32 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B235)

Translation: Some data are communicated concerning the noise oscillations of a photocurrent originating in the volume of GaAs after its irradiation by fast neutrons. The investigations were conducted at the temperature of liquid nitrogen with an initial concentration of current carriers of $4 \cdot 10^{17} cm^{-3}$ and a mobility of $3 \cdot 10^{3} cm^{2}/v.sec$. The specimens were irradiated by fast neutrons with a $5 \cdot 10^{17} cm^{-2}$ dose at a 50-60° temperature. During illumination of the irradiated specimens of GaAs by white light at 77° K in a circuit consisting of series-connected power supplies, the specimen, and a load resistance on the order of 1 M.ohm, the low-frequency continuous noise oscillations of the photocurrent appeared. Their amplitude and frequency with d-c voltage vary with the intensity of the light I according to the law of $\sim I^{3}$ and are increased with growth of the intensity of the electrical field in the crystal. It is established that the noise observed does not result from phenomena at the contacts, but with generation by light in the crystal volume of the nonequilibrium current

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USSR

GIORGADZE, M. P., and KURDIANI, N. I., Radiats. fiz. nemet. kristallov (Radiation Physics of Nonmetallic Crystals -- Collection of Works), Vol 3, Part 2, Kiev, "Nauk. dumka," 1971, pp 26-32 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B235)

carriers from the energy levels of radiation defects. In order to determine the role of various radiation defects in the formation of noise oscillations of the photocurrent, isochronous annealing was conducted in the temperature interval 200--300° C for 3 min at each specified temperature. After annealing at 200° C a section of the voltampere characteristic of the specimen was observed with an incremental negative resistance in the 90--150 v interval. The amplitude and frequency of the noise attains maximum value at this section. Annealing at 300° C leads to a complete disappearance of the noise. It is assumed that two mechanisms are responsible for generation of the noise: 1)Formation of a different type of deep traps with substantially differing nonequilibrium electron and hole capture cross sections which are generated by light. Dispersion of the capture cross sections of different recombination centers is a possible cause of the photocurrent noise. 2) As the annealing proceeds the definite recombination centers responsible for noise become moving electrical domains which are formed by capture of nonequilibrium electrons at the negatively charged radiation defects with an increase of the electrical field intensity. 4 ref. I.I.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC 51:621.391

GIORKHELIDZE, T. D.

"Application of the Branch and Bounds Method for Solving a Problem of Integral Programming"

Tr. Problem, lab, avtomatiki i vychisl, tekhn. Gruz. politekhn in-t (Proceedings of the Problem Laboratory for Automation and Computer Technology, Georgian Polytechnical Institute), No 3, 1972, pp 178 - 184 (from RZh Matematika, No 11, Nov 73, abstract No 11 V672)

Translation: In determining the optimal mode of a power station and power system, one of the most complex problems is choosing the optimal state of the operating equipment; i.e., determining the most profitable moments to start and stop units. The problem is formulated as follows. There are n units. The cost characteristics of each of them is in the form:

$$f_i(Q_i) = \begin{cases} A_iQ_i^3 + B_iQ_i^2 + C_iQ_i + D_i, & Q_i > 0, \\ 0, & Q_i = 0. \end{cases} \quad (1)$$

Here $D_i > 0$. It is necessary to maximize the functional

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USSR

GIORKHELIDZE, T. D., Tr. Problem. lab. avtomatiki i vychisl. tekhn. Gruz. Politekhn in-t, No 3, 1972, pp 178 - 184

$$z = \sum_{i=1}^{n} f_i(Q_i) \qquad (2)$$

under the conditions

$$\sum_{i=1}^{n} Q_i = Q_0, \qquad (3)$$

$$Q^i_{min} \le Q_i \le Q^i_{max}, \quad \text{where } Q_i = 0. \qquad (4)$$

A branch and bounds algorithm is suggested to solve the problem (2) - (4).

Abstract by Yu. Finkel'shteyn.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

KVITASHVILI, A. A., DZHAVAKHISHVILI, I. N. and GIORGOBIANI, Z. G.

"The Convergence of the Process of Learning of Recognition When the Method of Stochastic Approximation is Used"

Soobshch. AN GruzSSR [Reports of Acad. Sci., Georgian SSR], 1973, Vol 69, No 3, pp 561-564 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V788)

Translation: The application of the Robbins-Monroe method to a nonparametric procedure of learning recognition of patterns is studied. The dependence of the length of the search for the optimal discriminant function with two methods of learning on the order of presentation of images during the process of learning is experimentally studied. The first -- the method of formalized learning -- assumes that the position of the weight vector changes in each step of iteration. In the second learning method -- the method with error correction, the change in the weight vector occurs only upon false assignment of an image to the wrong class. The results make the advantages of the second method obvious, consisting in a significant reduction of learning time and independence of this time on the sequence of presentation of images.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC: 621.317.335:621.317.374

KOKSHAROV, A. M., GIPPE, A. P.

"Errors in Measurement of the Permittivity and Loss Tangent of Electrical Engineering Materials on Superhigh Frequencies"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 99-100 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A349)

Translation: Formulas are derived for determining the random errors in measurement of loss tangent and permittivity by the coaxial resonator method with "standard" and "nonstandard" specimens (standard specimens are distinguished by the fact that their radius and thickness are equal to the radius of the central conductor of the resonator and the height of the gap respectively). A similar calculation is done for measurements by the circular capacitor method. It is shown that the principal source of errors is variability of contact resistance between the cover and the housing of the resonator. N. S.

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USSR

GIPPIUS, A. A., VAVILOV, V. S., PANASYAN, Zh. R. and USHAKOV, V. V.

"Exciton Luminescence Line Reversal and the Fine Structure of Exciton Absorption in CdTe"

Kratkiye Soobshcheniya po Fizike (Brief Communications in Physics), No. 7, July 1970, pp 8-14

Abstract: Detailed measurements were made of photoluminescence, cathode luminescence, and reflection spectra at temperatures between 4.2 and 77°K. Spectral resolution was 10^{-4} ev. The reflection data was processed on the BESM-4 digital computer of the Physics Institute of the USSR Academy of Sciences. The spectral dependence of the absorption coefficient and the refraction index, found with the aid of the Kramers-Kronig relation, were used to calculate the luminescence spectrum. Certain features of self-absorption which were formerly ignored are taken into account. A layer of approximately 10^{-4} cm is excited during photo- and cathode luminescence. At 77 and 4.2°K the absorption coefficient is 5×10^4 and 2×10^5 cm^{-1}. The optical density of the excited layer is therefore extremely large (5 to 20) and the luminescence intensity is greatly weakened by self-absorption. Conditions, therefore, exist for reversal of the exciton lines, and such reversal was obtained both theoretically and experimentally. The

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

GIPPIUS, A. A., et al, Kratkiye Soobshcheniya po Fizike, No 7, July 1970, pp 8-14

reversal is slightly to one side of the center of the luminescence line, shifted in the direction of larger energies. The negative absorption observed at low temperature disappears at higher temperature. The temperature-dependent doublet structure observed in the absorption spectrum is not clearly understood. It is suggested that the observed features may be due to the fact that the Kramers-Kronig relation does not account for the spatial dispersion of optical constants and special boundary conditions at the crystal surfaces. An unknown new effect may be in operation. Comparison of absorption and emission spectra shows that both absorption maxima coincide with the emission minimum, and, thus, self-reversal appears to exist in this case as well. Orig. art. has 2 figs. and 7 refs.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

1/2 016 UNCLASSIFIED

TITLE--POLTAVA PLANT OF SYNTHETIC DIAMONDS -U- PROCESSING DATE--11DEC70

AUTHOR--GIRCHENKO, F.

COUNTRY OF INFO--USSR

SOURCE--SOTSIALISTICHESKAYA INDUSTRIYA, OCTOBER 11, 1970, NR 238 (393), P 2, COLS 5-7

DATE PUBLISHED--11OCT70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--DIAMOND TOOLING TECHNOLOGY, INDUSTRIAL PLANT, METAL DRAWING, WIRE, LASER MACHINING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/005036/F01 STEP NO--UR/0533/70/000/000/0002/0002

CIRC ACCESSION NO--AN0142412

UNCLASSIFIED

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

2/2 016 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AN0142412

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PLANT,S FIRST OUTPUT WAS READY BY THE DAY OF THE 23RD CONGRESS OF THE APRTY. THE PLANT MANUFACTURES DIAMOND GRINDING WHEELS, DIAMOND POWDER, AND DIAMOND DRAWING DIES. SUCH TECHNIQUES AS ELECTRO SPARK, ULTRASONIC, AND LASER DRILLING ARE EMPLOYED. A PHOTOGRAPH OF A LASER TOOL IS SHOWN.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC: 681.337.1

BAKSHIS, B. P., BACHULIS, R. I., GIRDZIYAUSKAS, S. I., ZARETSKAS, V.-S. S., RAGUL'SKAS, K. M., Kaunas Polytec~~hnical Institute~~

"A Photoelectric Input Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 8, Mar 71, Author's Certificate No 296132, division G, filed 11 Aug 69, published 12 Feb 71, p 158

Translation: This Author's Certificate introduces a photoelectric input device which contains a series hook-up comprised of a source of light flux, a condenser lens, a specimen table with the object to be studied, and an objective lens and photovoltaic cells. As a distinguishing feature of the patent, in order to facilitate focusing of the light flux and adjustment of the sensitive layers of the photovoltaic cells with respect to the object to be studied, the photovoltaic cells in the device are held in a coordinate-positioning unit. Mounted in front of the positioning unit is a beam-splitting element, an objective lens, and a device for visual tracking fitted with a screen with a coordinate grid.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC: 681.333.519.2

BUTSEVICHYUS, S. G., ~~GIRDZIYAUSKAS, S. I.~~, ZARETSKAS, V.-S. S., RAGUL'SKIS, K. M., RACHELUS-RACHKAUSKAS, A.-I. I., Kaunas Polytechnical Institute

"A Random Pulse Recorder"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 29, 1970, Soviet Patent No 281910, Class 42, filed 5 Jun 69, p 134

Abstract: This Author's Certificate introduces a random pulse recorder which contains an optical system with a device for compensating image rotation, and a medium which supports a photosensitized recording layer. As a distinguishing feature of the patent, scanning precision is improved and optical and assembly errors are reduced by incorporating a rotating penta prism into the device in the path of the image formed by the light. The stationary annular medium which supports the photosensitized film is installed concentrically with the axis of rotation of the penta prism.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC 576.858.9

GAL'VYDIS, Y. Yu., RUBIKAS, Y. P., and GIRDZIYAUSKAS, V. I., Institute of Biochemistry, Academy of Sciences Lithuanian SSR

"Action of Alkylating Compounds on Bacteriophages in Vitro"

Vil'nyus, Trudy Akademii Nauk Litovskoy SSR, Seriya Biologicheskaya, No 1, 1970, pp 15-23

Abstract: In vitro bacteriophages (T4, $T4O_3$, C_d, lambda) were subjected to the mutagenic and inactivating action of 16 bifunctional alkylating compounds of the di(2-cloroethyl)amine type with various substituents. In all of the experiments, 0.005M concentrations of the compounds were used. Survival of the bacteriophages was reduced to 1% by all compounds. Bacteriophage lambda was most unstable with respect to the compounds studied. The effects of the various substituents in the compounds were compared. The hydrolysis rate of the Cl atom in some of the compounds could not be related to the toxicity of these compounds.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC: 621.791.754

ZAGREBENYUK, S. D., GIREVICH, S. M., BLASHCHUK, V. Ye.,
Electric Welding Institute imeni Ye. O. Paton

"Heat Treatment of Welded Joints in VTZ-1 Alloy"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 73, pp 69-70.

Abstract: A study is presented of the influence of heat treatment on the properties of joints in VTZ-1 alloy. Argon-arc welding with infusible electrodes was used to produce butt joints in the alloy in the following mode: δ = 3 mm, I_w = 300 a, U_d = 10 v, v_w = 31 m/hr; δ = 7 mm, I_w = 500 a, U_d = 12 v, v_w = 29 m/hr. The studies showed that the seams in VTZ-1 alloy had a primarily needle-like α' structure. Heating of seams to 800° C has no significant influence on the phase composition. The results of mechanical testing after hardening and aging showed that the strength of the seams was maximal after hardening from 860° C with aging at 500° C for 3 to 5 hours. Increasing aging time decreases the seam strength due to coagulation of the finely dispersed phases.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC 632.95

GIRENKO, D. B.

"Relation Between the Signal of the Electron Capture Detector and the Structure of Pesticides"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Feeds and Environment), Tallin, 1971, pp 54-56 (from RZh-Khimiya, No 14, Jun 72, Abstract No 12N419)

Translation: In studying the interrelation between the amplitude of the signal of the electron capture detector and the structure of the pesticide molecule, an analysis was run on a Tsvet-5 chromatograph with Pu^{239} radioactive source. The column is filled with chromosorb W, with 5% SE-30. The gas carrier was N_2. For organochlorine pesticides, a significant increase in the detector signal is observed for compounds containing a double bond, a phenyl ring with Cl atoms in the adjacent position and a sulfonyl group. For organophosphorus pesticides, the highest relative sensitivity is observed for esters of dithiophosphoric acid with a carbonyl group (anthio, rogor, cydial), and the smallest detector signal is observed for esters of thiophosphoric acid (bitex, thiophos). For herbicides of the anilide group of carboxylic acids, the greatest detector

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USSR

GIRENKO, D. B., Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy, Tallin, 1971, pp 54-56

signal is observed for dicryl. When analyzing phenyl ureas, a column is used with 5% SE-30 and 0.1% epikot 1001; the least detector signal is observed for diurone, linerone and cotorane. For organophosphorus pesticides, anilides of carboxylic acids and phenyl ureas no direct relation is observed between the LD_{50} and the electron affinity.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC 532.72;669.015.23

GIRGIDOV, A. D.

"Diffusion With Finite Velocity in Two and Three Directions"

V sb. Materialy IV Vses. simpoz. po sovrem. probl. samoochisch. i regulir. kachestva vody, 1972. I. Sekts. fiz. aspekty samoochisch. rek. i vodoyemov (Materials of the IV All-Union Symposium on Current Problems of Self-Cleaning and Quality Control of Water, 1972. I. Section on Physical Aspects of Self-Cleaning of Rivers and Reservoirs -- Collection of Works), Tallin, 1972, pp 14-17 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B997)

Translation: The equation for mass transfer in a spatially heterogeneous and nonisotropic turbulent flow is derived within the framework of the theory of discrete-continuous random Markov processes. The derivation is based on the hypothesis that the rate of mass transfer in the direction of turbulent flow is commensurable with pulsation components of the velocity in the direction transverse to the flow. The limiting case of infinitely large transverse velocity pulsations is investigated when the mass transfer equation has the traditional form of a parabolic equation with an effective constant turbulent diffusion coefficient. V. S. Krylov.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

Organometallic Compounds

USSR

UDC 547.244.245

MIRONOV, V. F., GIRGOS, V. I., PECHURINA, S. YA., and ZHIGACH, A. F.

"Synthesis of a New Class of Silicon Containing Carboranes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, p 2583

Abstract: Up to now, it has been possible to prepare only the C-substituted silicon carboranes. However, the vinylchlorosilanes and the cinylalkylchlorosilanes may be added to o-, m-, and p-carboranes and their derivatives in the presence of aluminum chloride. As shown below, this occurs at the B-H bond of the carborane nucleus with the formation of new B-substituted silicon-containing carboranes.

$$HCB_{10}H_{10}CH + H_2C{=}CHSiCl_3 \xrightarrow[t^\circ]{AlCl_3} HCB_{10}H_{10-n}(CH_2CH_2SiCl_3)_nCH$$

$n = 1, 2, 3.$

Structures were confirmed by IR and NMR spectra in mass spectroscopic data.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC 621.372.061

KOFANOV, Yu. N., GIREL, P. M.

"Construction of Band Filters from DC Amplifiers"

Metody razrab. radioelektron. apparatury, No 1 (Methods of Developing Radio-electronic Equipment. No 1), Moscow, 1970, pp 36-41 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A125)

Translation: This article contains a discussion of a method of calculating narrow band filters from DC amplifiers with a double T-type RC-bridge in a feedback circuit. The conditions of obtaining the maximum amplification coefficient and optimal selectivity are derived. It is demonstrated that for rapid tuning of the filter it is necessary to maintain bridge parameters with an accuracy up to 0.01% or have fine and rough regulation of the resistance. There are three illustrations and a two-entry bibliography.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC 621.396.6.019.3

KOFANOV, Yu. N., GIREL, P.M., ZHIV, M. I.

"Mathematical Expectation and Investigation of the Parametric Sensitivity of Converter Circuits with Modulation"

Metody razrab. radiotelektron. apparatury. Materialy Seminara. Sb. 2 (Methods of Developing Radioelectronic Equipment. Materials of the Seminar. Collection 2), Moscow, 1970, pp 60-65 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A183)

Translation: This article contains a study of a multiphase converter using a mathematical model described by a system of linear differential equations with aperiodic coefficients. As an example, a single phase autonomous parallel inverter is considered. There are two illustrations and a three-entry bibliography.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC 615.285.7.074:543.544

GIRENKO, B. D. and KLISENKO, M. A., All Union Scientific Research Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastics, Kiev

"Gas Chromatography of Organophosphorus Pesticides"

Moscow, Gigiyena i Sanitariya, No 5, 1970, pp 77-79

Abstract: Results of gas chromatography of five organophosphorus compounds (phosphamide, antio, metafos, thiofos, 5-chlorometafos-3) widely used as pesticides are presented. The analysis was conducted on a 2-column Shimadzu GC-IC chromatograph with an electron capture detector. The chromatograms showed symmetrical peaks with a definite holdup time. Chromatography of a mixture of the substances did not result in the separation of all five components. The peaks partly overlapped but the characteristic maximum was retained, so that the preparations could be individually identified. The substances were identified by the holdup time, which was combined in some cases with additional identification by thin-layer chromatography. The article concludes with a description of the procedure used to determine the concentration of phosphamide in air.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC: 632.95

GIRENKO, D. B., KLISENKO, M. A.

"Determination of Certain Pesticides in Surrounding Objects by Gas-Liquid Chromatography"

Probl. analit. khimii [Problems of Analytic Chemistry -- Collection of Works], Vol 2, Moscow, Nauka Press, 1972, pp 39-43 (Translated from Referativnyy Zhurnal Khimiya, No 24(II), 1972, Abstract No 24N578, by T. A. Belyayeva)

Translation: The method of GLC is used to determine organic chlorine and phosphorus-containing pesticides in water, air and food products. Analysis is performed on a chromatograph with an electron-capture detector and a stainless steel column filled with chromasorb W with 10% nonpolar silicone oil type DS-200. The temperature of the column and detector is 200°, of the specimen evaporation chamber 220°, N_2 carrier gas rate 120 ml/min. The temperature was reduced by 20° for organophosphorus pesticides. Identification of components is performed by relative delay time in comparison to Aldrin. Compounds are extracted from specimens being analyzed with n-hexane. Extracts of specimens containing no waxes were purified by TLC on Al_2O_3 in the THF-MeCN system (1:1), then in MeCN. Extracts of specimens containing large quantities of waxes were eluted from a layer of petroleum ether adsorbent, purified in a

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Girenko, D. B., Klisenko, M. A., Probl. analit. khimii, Vol 2, Moscow, Nauka Press, 1972, pp 39-43

column with Al_2O_3 with pH 4.5-5.5, eluted with a mixture of hexane and ether (9:1). The sensitivity of the determination is 0.005 mg/kg.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

1/2 033 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--HEPTACHLOR METABOLISM IN THE BODY -U-

AUTHOR-(03)-GIRENKO, D.B., KURCHA, G.V., KLISENKO, M.A.

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA I SANITARIYA, 1970, NR 6, PP 19-22

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PESTICIDE, CHLORINATED ORGANIC COMPOUND, METABOLISM, HUMAN PHYSIOLOGY/(U)HEPTACHLOR PESTICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0828 STEP NO--UR/0240/70/000/006/0019/0022

CIRC ACCESSION NO--AP0126505

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

2/2 033 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0126505

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEPTACHLOR PROVED TO ACCUMULATE IN THE TISSUES OF INTERNAL ORGANS (FATTY TISSUES) AND TO BE ELIMINATED FROM THE BODY IN FECES BOTH IN ITS UNALTERED FORM AND IN THE FORM OF METABOLITE 1 AND 2 OF HEPTACHLOR EPOXY. THE METABOLITE 1 MAY AS WELL CHANGE TO THE HEPTACHLOR EPOXY FORM. THE DATA OBTAINED ARE IMPORTANT FOR INVESTIGATING THE PROBLEM OF ACCUMULATION, DISTIRBUTION AND ELIMINATION OF CHLORORGANIC PESTICIDES FROM THE BODY. FACILITY: VSESOYUZNYY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT GIGIYENY TOKSIKOLOGU PESTITSIDOV, POLIMERNYKH PLASTICHESKIKH MASS, KIYEV.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

1/2 019 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--GAS CHROMATOGRAPHY IN ANALYZING RESIDUAL AMOUNTS OF ORGANOCHLORUS PESTICIDES -U-

AUTHOR-(02)-GIRENKO, D.B., KLISENKO, M.A.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PITANIYA, 1970, NR 2, PP 62-66

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--GAS CHROMATOGRAPHY, PESTICIDE, CHLORINATED ORGANIC COMPOUND, DDT INSECTICIDE, CHEMICAL DETECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1039 STEP NO--UR/0244/70/000/002/0062/0066

CIRC ACCESSION NO--AP0109190

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

2/2 019 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109190

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GAS CHROMATOGRAPHY WAS EMPLOYED TO MEASURE RESIDUAL AMOUNTS OF ORGANOCHLOROUS PESTICIDES (HEXACHLOROCYCLOHEXANE, HEPTACHLORE, DDT, DDE, ETC). THE EFFECTIVENESS OF UTILIZING THE COLUMN AND GOOD QUALITY OF PARTITION FOR A NUMBER OF THE MOST WIDELY USED PESTICIDES WERE ASCERTAINED. A DOUBLE STAGE PURIFICATION OF THE DAIRY SAMPLES EXTRACTS, I.E. DISTRIBUTION OF THE COMPONENTS BETWEEN TWO NONMIXING LIQUIDS AND ADSORPTION CHROMATOGRAPHY ON ACID ALUMINUM OXIDE ARE SUGGESTED. MEAN DETECTION OF THE PREPARATION IS 65-76PERCENT, DETERMINATION SENSITIVITY, 0.005 MG-KG.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR

UDC: 613.2-07:615.28-074:543.544

GIRENKO, D.B. and KLISENKO, M.A., Laboratory of the Analytical Chemistry of Pesticides, All Union Scientific Research Institute of the Hygiene and Toxicology of Pesticides, Polymers, and Plastics

"Using Gas Chromatography to Analyze Residual Amounts of Organochlorine Pesticides"

Moscow, Voprosy Pitaniya, No 2, 1970, pp 62-66

Abstract: Residual amounts of DDT, Lindane, and other organochlorine pesticides in milk, cream, etc. were determined by gas chromatography with detection by electron capture. The relative volume trapped, number of theoretical plates, and height equivalent to the theoretical plate were determined from the chromatograms. The column and quality of separation of the substances analyzed were found to be quite effective. A two-stage process for purifying extracts of dairy products is suggested -- separation of the components between two nonmixing liquids, and adsorption chromatography on acid aluminum oxide. Sensitivity of determination was 0.005 mg/kg, and mean detection 65-76%. Analysis of samples of food in which no traces of organochlorine pesticides are permitted by law revealed not only the original compounds but also degradation products, formed under the influence of different factors in the course of accumulation of the toxic chemicals.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC 621.791.011.019

GIRENKO, V. S., DEYNEGA, V. A., KHOLOLEYEV, A. M., Kiev

"Change in Ductility of Structural Steels at Rupture Under the Influence of Cyclical Loading"

Problemy Prochnosti, No 11, 1971, pp 16-22.

ABSTRACT: Experimental data are presented on the influence of preliminary cyclical loading and subsequent ageing on the resistance of low-carbon and low-alloy steels to brittle rupture. It is pointed out that it is useful to determine the ductility at rupture on the basis of the criterion of critical crack development. It is demonstrated that when structural materials are evaluated from the standpoint of rupture mechanics, the change in ductility of metal during the formation of actual cracks must be considered.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1

USSR UDC 547.341.139.81 + 547.391

PUDOVIK, A. N., BATYYEVA, E. S., and GIRFANOVA, Yu. N.

"Reactions of Trivalent Phosphorus Acid Amides With Maleinimides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, pp 1696-1701

Abstract: Anilides of dialkylphosphorous acids react with maleinimides forming phosphoric ylides, i.e., the amide group proton is less labile than the proton of the heteroring, so that the stabilization of the intermediate bipolar ion occurs through the participation of this proton. N-Phenyl, N-acetyl and N,N-dialkylamides of dialkylphosphorous acids react with substituted and unsubstituted maleinimides forming respective succinimidylidene-0,0-dialkyl-N-amidophosphoranes. It was shown that the hydrolysis of N-arylsuccinimidylidene-0,0-dialkyl-N-arylamidophosphoranes leads to the formation of N-aryl-4-0,0-dialkylphosphonesuccinimide.

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USSR

GIRGENS, G.

"Underwater Farm"

Moscow, Izvestiya, 19 Feb 1970, p 4

Translation: Associates of the Azov-Black Sea Scientific Research Institute of Marine Fishing and Oceanography, in cooperation with specialists from the Ukrainian Institute "Gidrorybproyekt," are working toward the creation of a large-scale oyster industry.

Such a farm is projected for artificial lagoons of the Kinburnskaya sandbar, in the northwest part of the Black Sea. The first experiment, which laid the biological foundation for the industrial culturing of the sea delicacies, was successful. A total of 15 thousand oysters were sent to the Ochakovskiy fishery. Now, when the tests have moved from laboratory conditions to industrial scale, a proposed annual yield of up to a million oysters from the beds is projected. Fishermen are interested in the work of the scientists. Recently representatives from the fish collective of the Karkinitskiy gulf came for consultation to the laboratory of ASChERNIRO [Azov-Black Sea Scientific Research Institute of Marine Fishing and Oceanography]. Oyster beds will soon appear also on Crimean shores.

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JPRS 59208
6-73

XI-6b. BEHAVIOR OF ALLOYING ADMIXTURES IN THE PRESENCE OF LIQUID EPITAXY OF GALLIUM ARSENIDE IN CONNECTION WITH THE DIAGRAMS OF STATE OF THE TERNARY SYSTEMS Ga-As-ADMIXTURE

[Article by O. V. Pelevin, M. G. Mil'vidskiy, B. G. Girich, M. I. Nikolayev, Moscow; Novosibirsk, III Simpozium po Protsessam Rosta i Sintera Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 156]

A study was made of the diagrams of state of the ternary systems of gallium arsenide and admixture. The standard alloying elements were selected as the admixtures -- tin-donor, germanium-acceptor and iron-deep acceptor. In the investigated systems, within the framework of the quasichemical representations of the theory of solutions, the liquidus isotherms were calculated in the region of primary crystallization of gallium arsenide.

The characteristic features of the behavior of the alloying admixtures are discussed in connection with triangulation of the diagrams of state of the corresponding systems.

The alloyed epitaxial films of gallium arsenide were grown from liquid solutions the compositions of which corresponded to the liquidus isotherms.

The study of the epitaxial layers by methods of radioactive indicators and Hall measurements permitted investigation of the nature of the isothermal cross sections of the solidus surface in the region of primary crystallization of gallium arsenide.

GIRICH, B.G.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920005-1"

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115479s Heterogeneity of iron-doped gallium arsenide crystals. Gimel'farb, F. A.; Girich, B. G.; Mil'vidskii, M. G.; Omel'yanovskii, E. M.; Pelevin, O. V. (USSR). *Kristallografiya* 1970, 15(1), 112-18 (Russ). The distribution of Fe in Fe-doped GaAs crystals was studied by various methods. At impurity concns. of $\sim 10^{18}/cm^3$, a 2nd structural component with a const. molar ratio of $GaAs:Fe_2As$ = 23.4:76.6 appears. A model describing the mechanism of appearance of this component is proposed. It consists of capture by the crystn. front of a drop of the melt which eventually crystallizes when its compn. becomes identical to that of the eutectic mixt. The dislocation concn. of the matrix crystal is higher in the vicinity of the inclusion. The 2nd structural phase, however, has practically no effect on the elec. properties of the semi-insulating GaAs crystals. B. Soptrajanov

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AUTHOR-(03)-GIRIN, O.P., LIBOV, V.S., BAKHSHYEV, N.G.

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