1/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--FORMATION OF A PULSED UHF, ULTRAHIGH FREQUENCY, DISCHARGE UNDER ELECTRON CYCLOTRON RESONANCE CONDITIONS -U-

AUTHOR-(03)-ABRAMOVA, T.S., GOLANT, V.YE., STARIK, A.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. TEKH. FIZ. 1970, 40(5), 982-6

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CYCLOTRON RESONANCE, HIGH FREQUENCY DISCHARGE, ULTRAHIGH FREQUENCY, GAS DISCHARGE, GAS PRESSURE, DIFFUSION COEFFICIENT, MAGNETIC FIELD EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0926 STEP NO--UR/0057/70/040/005/0982/0986

CIRC ACCESSION NO--AP0131512

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0131512

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRIT. FIELD, E SUBCR, CORRESPONDING TO THE FORMATION OF A UHF DISCHARGE IS CONSIDERABLY DECREASED AT CYCLOTRON RESONANCE. THE FORMATION OF SUCH A DISCHARGE WAS STUDIED EXPTL. IN HE, NE, AR, KR, AND XE AT 3 CM WAVELENGTH UNDER RESONANCE CONDITIONS, E SUBCR WAS DETD. AT DIFFERENT PRESSURES BY MEASURING THE POWER TRANSMITTED THROUGH A WAVEGUIDE HAVING A GAS CONTAINER. BY CONSIDERING DIFFERENT DIFFUSION COEFFS. CORRESPONDING TO FREE AND AMBIPOLAR DIFFUSIONS AND BY USING THE THEORY OF FORMATION OF A UHF DISCHARGE (1957), E SUBCR WAS CALCD. AS A FUNCTION OF PRESSURE FOR HE, NE, AND AR. THE EXPTL. AND THEORETICAL CURVES AGREE FAIRLY WELL. COMPARISON OF RESULTS WITH THOSE IN THE ABSENCE OF THE MAGNETIC FIELD SHOWED THAT THE CYCLOTRON RESONANCE REGION IS CHARACTERIZED BY A MIN. VALUE OF E SUBCR 4-5 TIMES LOWER. THE PRESSURE CORRESPONDING TO MIN. E SUBCR IS ALMOST 2 ORDERS OF MAGNITUDE LESS THAN THAT IN THE ABSENCE OF THE MAGNETIC FIELD.

UNCLASSIFIED

USSR

UDC 681.3.007

ABEZGAUZ, M. I., GOLANT, Yu. A., TERESHKO, E. P., Engineers, and GRINBERG, A. S., Candidate of Technical Sciences

"Method of Representing Information in Automated Control Systems of Discrete Production"

Moscow, Pribory i Sistemy Upravleniya, No 7, July 1971, pp 10-12

Abstract: The article examines the organization of the structure of document arrays in automated control systems which is based on a single concept of the production situation -- a conceptual model. The suggested version for representing information is based on the following principles: utilization of a specific model of object operation, application of the "information resources" concept along with the "material resources" concept, interpretation of the process of operational selection of the controlling actions, selection of groups of interacting events, examination of data utilization by the personnel, selection of the staff, compilation of a set of algorithms, placement of code diagrams in documents and standardization of operational documents for all administrative workers with an individual composition of code diagrams. The composition of the code diagrams depends on the set of

1/2

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920017-8"

USSR

ABEZGAUZ, M. I., et al., Pribory i Sistemy Upravleniya, No 7, July 1971, pp 10-12

interrelated events of the sphere of the individual administrative worker and the number of elementary controlled events reflected by the specific set of documents. The workers are periodically supplied with the standard document forms, including a specification-key with a complete set and structure of code diagrams and other information. The advantages of this method include the possibility of organizing information required by the particular worker and control of information resources, establishing prerequisites for the formulation of a single conceptual model, accelerating the process of rapidly selecting the necessary data from a set of documents, and the possibility of a formal description and quantitative evaluation of the perception of data by the personnel.

2/2

GOLANT, Yu. A.

JPRS 54171
01 OCT 1971

UDC 681.3.007

PROBLEM OF EVALUATING THE ACTIVITY OF A GROUP OF OSCILLATORS IN CONTROL SYSTEMS

[Article by Engineer Yu. A. Golant; Moscow, Pribory i Sistemy Upravleniya, Russian, No 10, 1970, pp 20-21]

Modern control systems encompass not only individual units and sections, but also shops and whole enterprises. In this case, it is necessary to consider the systems made up of the units and groups of people.

By a group we mean a defined contingent of individuals controlling the technological process (bounded from below) obtaining the initial "raw material" and manufacturing the "product" (restriction "with bounds") and exchanging information among each other and with superior directors during the process of their activity (bounded "from above"). The group uses a single "language," that is, the specific characteristics of the subject and results of their activity.

The group must carry out its assignment efficiently. In the given case this is connected with keeping the technological process within the given conditions. By the efficiency of group activity we mean the success of performing the tasks with which it is entrusted with known restrictions.

The study of groups is a subject of sociology and social psychology, and it is connected with discovery of the relations inside the group, determination of the factors affecting the nature of activity, leadership in the group, social and psychological compatibility of various people in it.

This article contains a study of some of the criteria for evaluating group activity as a function of restricting the interaction of the members of the group. The basis for operation is the results of the new discipline -- group dynamics -- which studies the effectiveness of group activity.

In reference [1] a study is made of the activity of several groups of different structure (Figure 1), and two characteristics are introduced for each member of the group:

The centralness coefficient

USSR UDC: 621.317.37

GOL'BA, V. A.

"A Circuit for Measuring Attenuation and Phase Shift in the SHF Band With High Resolution and With Elimination of Mismatch Error"

Tr. VNII fiz.-tekhn. i radiotekhn. izmereniy (Works of the All-Union Scientific Research Institute of Physicotechnical and Radio Engineering Measurements), 1970, vyp. 2(32), pp 72-82 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5A219)

Translation: The article discusses a circuit which utilizes a continuous polarization phase shifter to increase the resolution of the instrument by a definite factor. It is shown that mismatch error can be eliminated in measuring attenuation and phase shift. Three illustrations, bibliography of three titles. Resumé.

1/1

USSR

UDC: 621.372.852.2

GOL'BA, V. A.

"On the Problem of Mismatch in a Polarization Waveguide Phase Shifter"

Tr. VNII fiz.-tekhn. i radiotekhn. izmereniy (Works of the All-Union Scientific Research Institute of Physicotechnical and Radio Engineering Measurements), 1970, vyp. 2(32), pp 91-101 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5B150)

Translation: The representation of a differential section of waveguide polarization phase shifter in the form of an eight-pole is considered, and its scattering matrix is found. An expression is derived for the elements of the scattering matrix of the phase shifter as a whole when the sections are mixmatched but tuning is ideal with respect to the other parameters. Resumé.

1/1

USSR UDC: 621.372.852.2

GOL'BA, V. A., DOROGOVA, S. I.

"Determination of the Scattering Matrix of a Waveguide Polarization Phase Shifter With a Complex Delta 180-Degree Section"

Tr. VNII fiz.-tekhn. i radiotekhn. izmereniy (Works of the All-Union Scientific Research Institute of Physicotechnical and Radio Engineering Measurements), 1970, vyp. 2(32), pp 84-90 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5A220)

Translation: Scattering matrix elements are determined for a waveguide polarization phase shifter with complex delta 180-degree section. Four illustrations, bibliography of six titles. Resumé.

1/1

USSR 6 UDC: 621.372.852.2

GOL'BA, V. A., DOROGOVA, S. I.

"Determination of the Scattering Matrix of a Polarization Phase Shifter With a Compound 180-Degree Section"

Dokl. Nauchno-tekhn. seminara "Metrol. v radioelektron." Tezisy. Ch. 1 (Reports of the Scientific and Technical Seminar on Metrology in Radio Electronics. Summaries, Part 1), Moscow, 1970, pp 14-19 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6B212)

Translation: The scattering matrix of the phase shifter described in the title is determined in order to investigate the effect of mismatches on its transfer coefficient and reflection coefficient. It is shown that the magnitude of the reflected signal in such a phase shifter is an order greater than that in a phase shifter with a simple half-wave section, which limits its practical applicability. The feasibility of using double filters is discussed. Four illustrations, bibliography of five titles. N. S.

1/1

- 76 -

1/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--EFFECT OF SEX HORMONES ON THE SYNTHESIS OF NUCLEAR AND CYTOPLASMIC RNA IN THE LIVERS OF GROWING RATS -U-

AUTHOR-(02)-GOLBER, L.M., TISHENINA, R.S.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 1001-3

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--REPRODUCTIVE SYSTEM, SURGERY, TESTOSTERONE, LIVER, TISSUE PHYSIOLOGY, RNA, DNA, MOLECULAR BIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0937 STEP NO--UR/0020/70/190/004/1001/1003

CIRC ACCESSION NO--AT0105806

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70
CIRC ACCESSION NO--AT0105806
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CASTRATION OF MALE RATS REDUCED THE SYNTHESIS OF HIGH POLYMER RIBOSOMAL RNA IN RAT LIVER, BUT SYNTHESIS WAS RESTORED TO GREATER THAN NORMAL LEVELS BY SUBSEQUENT ADMINISTRATION OF TESTOSTERONE PROPIONATE (4 MG I.M.). ESTRONE (0.1 MG I.M.) TREATMENT FOLLOWING OVARIECTOMY OF IMMATURE FEMALE RATS RESTORED RNA SYSTNESIS ALMOST TO NORMAL LEVELS. AURANTIN (15 G, I.P.) ADMINISTERED TO GROWING RATS BEFORE TESTOSTERONE ADMINISTRATION REDUCED THE HORMONAL EFFECT ON NUCLEAR RNA SYNTHESIS IN THE LIVER OF DEVELOPING MALE RATS. HIGH POLYMER RIBOSOME RNA NEWLY SYNTHESIZED IN LIVER NUCLEI UNDER THE EFFECT OF SEX HORMONES ENTERS THE CYTOPLASM WHERE PROTEIN SYNTHESIS OCCURS UNDER THE EFFECT OF THIS MACROMOL. PLUS DNA LIKE RNA. THE ACTION OF THE SEX HORMONES ON PROCESSES OCCURRING IN THE LIVER AS WELL AS IN ORGANS INDEPENDENT OF DIRECT HORMONE ACTION APPARENTLY ARE BASED ON THE SAME MECHANISMS AS THOSE IN THE TARGET ORGAN. FACILITY: INST. EKSP. ENDOKRINOL. KHIM. GORMONOV, MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920017-8"

1/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ELECTROPHYSIOLOGICAL ANALYSIS OF THE STATE OF VEGETATIVE NERVES IN EXPERIMENTAL THYROTOXICOSIS -U-

AUTHOR-(03)-GOLBER, L.M., KANDROR, V.I., SHAKHNAROVICH, V.M.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 5, PP 35-38

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--THYROID GLAND, ENDOCRINE SYSTEM DISEASE, GANGLION, BIOPOTENTIAL, NERVOUS SYSTEM, ELECTROPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0065 STEP NO--UR/0219/70/069/005/0035/0038

CIRC ACCESSION NO--AP0120765

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120765

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROLONGED ADMINISTRATION OF THYRODINE TO RABBITS IS ATTENDED BY INTENSIFIED EXCITATION OF VEGETATIVE NERVES AND SUPERIOR CERVICAL SYMPATHETIC GANGLION. THE AMPLITUDE OF ACTION POTENTIALS, AS WELL AS THE LIABILITY AND FUNCTIONAL RESISTANCE OF THE GANGLION DECREASE. WITH THE PROGRESS OF THE SEVERITY OF THYROTOXICOSIS IN ANIMALS ONE COULD MORE FREQUENTLY INDUCE THE PHENOMENON OF POST TETANIC POTENTIATION OF THE SYMPATHETIC GANGLION, HOWEVER THE DEGREE OF THIS POTENTIATION IS LESSER THAN IN CONTROL ANIMALS. THE AUTHORS POSTULATE THE DEPENDENCE OF THE REFERRED TO CHANGES UPON SHIFT OF THE MEMBRANE POTENTIAL OF EXCITATION FORMATIONS AT THE BASIS OF WHICH LIE INADEQUATE ENERGY SUPPLY OF PROCESSES OF CREATION OF TRANSMEMBRANOUS CATION GRADIENTS. FACILITY: INSTITUTE OF EXPERIMENTAL ENDOCRINOLOGY AND HORMONAL CHEMISTRY OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, MOSCOW.

UNCLASSIFIED

Acc. Nr: AP0050815 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR 0502

97094f **Indexes of lipid metabolism in the liver in experimental thyroidin toxicosis (pathogenesis of thyrotoxic liver).** Gol'ber, L. M.; Negovskaya, A. V. (Inst. Eksp. Endokrinol. Khim. Gormonov, Moscow, USSR). *Probl. Endokrinol.* 1970, 16(1), 67-71 (Russ). Thyroidin administered orally to rats at 0.2-0.7 g (gradually increasing doses) daily for 15 or 30 days increased the level of total lipids and decreased the content of glycogen, β-lipoproteins, and phospholipids in the liver and reduced autolipolysis of hepatic tissue. Fat accumulation in the liver during thyroidin toxicosis seems to be caused by disruption of the formation and release of β-lipoproteins and phospholipids from the liver and is accompanied by increased mobilization of fat deposits as measured by increased lipolytic activity of adipose tissue, elevation of nonesterified fatty acids in the serum, and insufficient splitting of fat in the liver. Changes in lipid metabolism during thyroidin-induced toxicosis were reversible. BJJR

REEL/FRAME
19810817

USSR

UDC 576.882.8095.38:576.895.77

SHCHERBAN', Z. P., and GOL'BERG, A. M., Laboratory of Parasitology, Institute of Zoology and Parasitology, Academy of Sciences Uzbek SSR, and Division of Medical Entomology, Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy, Ministry of Health USSR, Moscow

"Pathogenic Fungi Coelomycidium (Phycomycetes, Chytridiales) and Coelomomyces (Phycomycetes, Blastocladiales) on Mosquitoes of the Genera Culex and Aedes (Family Culicidae, Diptera) in Uzbekistan"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 1, Jan/Feb 71, pp 110-111

Abstract: In 1968-69 a parasitic fungus of the genus Coelomycidium was found on 2.4% and 3.6%, respectively, of female Culex modestus and C. pipiens mosquitoes collected in the summer and fall in the Fergana Valley. The infected mosquitoes fed readily on man animals, but died one week after feeding on the blood. Aedes caspius female mosquitoes in the same area were infected with the fungus Coelomomyces psorophora to the extent of 5.8%. The infected females were collected from vegetation and had no blood in their stomachs. Apparently, the infected mosquitoes that were not infected with the fungus were attracted by prey used as bait in capturing them. The data obtained are of interest in

USSR

SHCHERBAN', Z. P., and GOL'BERG, A. M., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 40, No 1, Jan/Feb 71, pp 110-111

view of the successful use on an experimental basis of Coelomomyces fungi to control mosquitoes on islands in the Pacific and in Zambia.

2/2

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.

1/1

Entomology

USSR

UDC 576.895.771.095.38:576.882.8

GOL'BERG, A. M., Institute of Medical Parasitology and Tropical Medicine imeni Ye. I. Martsinovskiy, USSR Ministry of Public Health, Moscow

"Experimental Infection of Mosquitoes of the Eulicidae Family with Entomophthora: Report III: The Use of Mold Cultures of the Entomophthoraceae Family"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 42, No 5, Sep/Oct 73, pp 616-618

Abstract: Three species of fungi of the Entomophthoraceae family: Entomophthora species and E. culicis isolated by the author and E. destruens isolated by Weiser and Batko were used to infect C. pipiens molestus Forsk mosquitoes. Adults were infected using disks of agar medium containing fungal mycelia while 72 hour larvae were infected with a suspension of mycelia. While none of the fungi affected the larvae or their subsequent development into adults E. destruens and E. Culicis did cause a small increase in the mortality of adults. A powder of the former was slightly more effective. It is suggested that the results with E. destruens are due either to conditions not optimal for infective ability or to a loss of virulence with long culturing, while the others may be due to the fact that these fungi do not form reproductive spores on media.

1/1

USSR

UDC 621.316.722.1(088.8)

GOL'BERG, V.A., LEZHAVA, V.V.

"Source Of Regulated Voltage"

USSR Author's Certificate No 253173, Filed 30 Aug 68, Published 24 Feb 70 (from RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10B378P)

Translation: The circuit is patented for a regulator with pulse control in which, with the object of sustaining the level of the output voltage at not less than a fixed value, an added parametric regulator is used, connected in parallel and operating on the principle of linear control. The parametric regulator has an output voltage (less than the voltage of a regulator with pulse control) such that in a normal regime its transistor cuts off. During the transient process connected with throwing the load to the pulse regulator, the voltage drops at the output of the pulse regulator. At this time the parametric regulator is opened which maintains the output voltage of the power supply at a given level. S.D.

1/1

USSR

UDC 616.932-092

GOL'D, E. Yu., MARCHUK, L. M., and MOGILEVSKIY, L. Ya., Ministry of Health USSR, Moscow

"On the Genesis of El-Tor Cholera"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973, pp 122-127

Abstract: A theory is suggested for the development of El-Tor cholera to its recent pandemic proportions. First it is argued that El-Tor cholera cannot have originated in the Celebes, Indonesia as a disease endemic to that island. El-Tor cholera agents had been isolated together with classical cholera agents prior to its detection in the Celebes in India and Thailand. Moreover El-Tor vibrios may have been misidentified in other parts of the world as classical vibrios due to a misconception about differences in the vibrios' hemolytic properties. Instead, it is suggested that El-Tor vibrios developed in India in the first half of the 20th Century as an offshoot of the Koch vibrio in response to environmental changes, following improvements in living conditions, which provided a selective advantage to the El-Tor vibrio. Thereafter its spread throughout the world was facilitated by increasing mobility of populations. In the first stage of its existence it was rare enough in other parts

1/2

USSR

GOL'D, E. Yu., et al., Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 3, 1973, pp 122-127

of Asia and Europe that it was unable to cause epidemics and was detected only sporadically. With international epidemic control measures ineffective against this form, by the 1950's it accumulated in secondary endemic foci, caused local epidemics there, and finally after being concentrated to critical levels it spread to develop the seventh cholera pandemic. The authors discount the theory that significant changes occurred during this period in the pathogenicity of El-Tor vibrios and favor socio-economic factcrs as dominant in the rise of El-Tor cholera.

USSR

UDC 539.181.1

GOL'DANSKIY, V. I., Corresponding Member of the USSR Academy of Sciences, DZHURAYEV, A. A., YEVSEYEV, V. S., OBUKHOV, Yu. V., ROGANOV, V. S., FRONTAS'YEVA, M. V., KHOLODOV, N. I., Institute of Chemical Physics, USSR Academy of Sciences

"Atomic Capture of Negative Mesons in Compounds Containing Hydrogen"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 2, 11 Jul 73, pp 316-318

Abstract: An attempt is made to find possible underlying regularities in the distribution of negative muons between the individual groups Z_mH_n and atoms Z' in substituted hydrogen-containing organic compounds and in hydrogen-containing compounds in general of the type $Z_mH_nZ'_k$ or $Z_mH_vZ'_kH_v$. A table is given summarizing the relative probabilities of capture of μ^--mesons by hydrocarbon and hydrogen-containing groups and by aromatic rings in compounds with ionic bonds, in alkyl chlorides, and in phenyl halides.

1/1

USSR

IMSHENNIK, V. K., AFANAS'YEV, A. M., GOL'DANSKIY, V. I., MAKAROV, Ye. F., PLACHINDA, A. S., SUZDALEV, I. P., Institute of Chemical Physics, USSR Academy of Sciences

"Investigation of the Dynamic and Static Distortions of Complexes by Using Gamma-Resonance Spectroscopy"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 9, Sep 73, pp 2656-2660

Abstract: Gamma-resonance spectroscopy is used to study dilute paramagnetics -- a frozen aqueous solution of $FeCl_3$ (0.1 M $FeCl_3$ and 8.3 M HCl) and a hydrated iron-containing sulforesin at a temperature of 90°K in an external magnetic field of 450 oersteds. A computer was used to separate three relaxation times τ_{S_z} corresponding to the Kramers doublets, $S_z = \pm 5/2, \pm 3/2, \pm 1/2$, and also to determine the parameter λ describing departure of the crystal field from the axially symmetric. An attempt is made to relate the quantity λ to static distortion of the complex. From the fact that the three relaxation times are related through two parameters P_1 and P_2, it is concluded that spin-lattice relaxation is a two-phonon

1/2

USSR

IMSHENNIK, V. K. et al., Fizika Tverdogo Tela, Vol 15, No 9, Sep 73, pp 2656-2660

phenomenon. It is also shown that the relation between P_1 and P_2 gives information on the anisotropy of oscillations of the ligands in the complex.

The authors thank Yu. F. Krupyanskiy for valuable advice and comments.

IN THE COMMITTEE FOR INVENTIONS AND DISCOVERIES
UNDER THE COUNCIL OF MINISTERS USSR

[Announcements; Moscow, Vestnik Akademii Nauk SSSR, Russian, No 7, July 1973, pp 132-133]

The Committee has registered the following scientific discoveries:

V. P. KAZNACHEYEV, S. P. SHURIN and P. P. MIKHAYLOVA, "The effect of intercellular distant electromagnetic interactions in a system of two tissue cultures."

Formulation of the discovery: Experimentally established was the previously unknown effect of distant intercellular electromagnetic interactions between two tissue cultures during the action on one of them of factors of biological, chemical or physical nature with characteristic reaction of the other (intact) culture in the form of a "mirror" cytopathic effect, which determines the cell system as a detector of modulation peculiarities of electromagnetic radiation.

Priority of invention: 15 February 1966

Certificate No 122. Application No OT-7097

By this discovery the paths of experimental evaluation of the role of quantum effects in biological systems are designated. It can help practice in finding means of effect on pathological processes by the coordination of noises arising in a photon channel of information transmission.

S. N. BARANOV, "The effect of change of structure and properties of alloys."

Formulation of the discovery: Experimentally established was the previously unknown effect of change of the structure and

GOL'DANSKIY V.I.

properties of alloys based on iron, caused by the presence of trace impurities of compounds containing oxygen of the type of silicon monoxide.

Priority of invention: 7 June 1951

Certificate No 124. Application No OT-3717

Established was the identity of processes taking place during the crystallization of solutions of mineral salts in the presence of a surface-active colloidal admixture, and secondary crystallization of iron-based alloys containing an admixture of silicon monoxide. The discovered effect permits creating a new theory connecting the properties of steel and iron-based alloys. Scientific principles of new technological processes have also been elaborated which assure, in combination with rational alloying, obtaining alloys with prescribed properties.

G. A. ADADUROV, V. I. GOL'DANSKIY, T. N. IGNATOVICH, V. L. TAL'ROZE, P. A. YANPOL'SKIY, I. M. BARKALOV, A. N. BRENIN, and A. N. MIKHAYLOV. "The effect of formation of polymers in a shock wave."

Formulation of the discovery: Experimentally established was the previously unknown effect consisting in the fact that, as a result of passage of a shock wave through monomers present in a condensed phase polymers are formed, the characteristics of which depend on the amplitude of the shock wave.

Priority of invention: 23 June 1964

Certificate No 125. Application No OT-3849

Investigation of this effect intensifies the understanding of processes taking place behind the front of a shock wave under the specific conditions of instantaneous unilateral immersion of a substance on the front. It substantially expands the area of application of shock waves and their technological use to obtain polymers whose characteristics can be varied by changing the conditions of effect of those waves.

YE. S. MASHKOVA, V. A MOLCHANOV, D. D. ODINTSOV, V. G. TEL'KOVSKIY, AND V. M. CHICHEROV. "The effect of anisotropy of ion-electron emission of single crystals."

Formulation of the discovery: Established was the previously unknown effect of anisotropy of the ion-electron emission of single crystals, consisting in reduction of the number of emitted electrons when the incident ions are directed along the crystallographic axes of the target.

USSR UDC: None

GOL'DANSKIY, V. I., KAGAN, Yu., and NAMIOT, V. A.

"Two-Stage Excitation of Nuclei to Obtain Stimulated Emission of Gamma Quanta"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 18, No 1, 5 July 1973, pp 61-63

Abstract: This letter is based, at least in part, on earlier articles by the first two authors named above (ZhETF, 64, 1973, p 90; a report presented at the scientific sessions "Otdeleniye obshchey fiziki i astronomii" and "Otdeleniye yadernoy fiziki" -- Division of General Physics and Astronomy and Division of Nuclear Physics -- of the USSR Academy of Sciences, 28 December 1972, UFN, 110, 1973, p 445) in which the possibility of creating a laser for nuclear gamma transitions (a gaser) was analyzed. In those articles, it was concluded that pulse pumping of the Mössbauer levels by the capture of neutrons is necessary. In the present letter, the authors report a two-stage method of reducing the intensity of the neutron beam required to provide the specified density of excited nuclei. In the first stage, the neutrons are captured in a target with a Mössbauer-level population having a mass number close to 1/2

USSR

UDC: None

GOL'DANSKIY, V. I., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 18, No 1, 5 July 1973, pp 61-63

that of the nucleus. In the second stage, the radiated gamma quanta are captured by the nuclei in a second target. The targets in both stages are solids.

USSR

GOL'DANSKIY, V. I., KORYTKO, L. A., Institute of Chemical Physics, Academy of Sciences of the USSR

"Concerning the Development of Asymmetry in Mössbauer Spectra as a Consequence of Diffusion Anisotropy"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 17, No 6, 20 Mar 73, pp 317-320

Abstract: It is shown that anisotropic diffusion of Mössbauer atoms under certain conditions may lead to a new type of asymmetry in the γ-resonance spectra of polycrystalline specimens -- differences in broadening of the lines of the quadrupole doublet or the components of the magnetic hyperfine structure. This effect may be of use in studying the diffusion of surface atoms, motion in zeolite channels, Brownian movement of nonspherical particles in liquids, diffusion of protein globules, and so forth. In addition, this effect must be taken into consideration when calculating the coefficients of diffusion in such systems from experimental spectra.

1/1

USSR

GOL'DANSKIY, V. I., Institute of Chemical Physics, Academy of Sciences of the USSR

"Concerning High Isospin States of Nuclei, Multineutrons, and the Second Region of Nuclear Stability"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 17, No 1, 5 Jan 73, pp 56-58

Abstract: The author discusses conditions of existence of multineutrons and the second region of nuclear stability. It is shown that even if a second region of nuclear stability does exist, it could in no case interlock with the presently known region, but could only form more or less of an "island" of superheavy isotopes of light elements. The author thanks A. I. Baz', Ya. B. Zel'dovich, and I. S. Shapiro for constructive criticism.

1/1

Radiation Chemistry

UDC 541(64+8):547.281.1

USSR

KIRYUKHIN, D. P., KAPALAN, A. M., BARKALOV, I. M., GOL'DANSKIY, V. I., Institute of Chemical Physics of the USSR Academy of Sciences

"Study of the Mechanism of Radiation Polymerization of Solid Formaldehyde"

Moscow, Vysokomekulyarnyye soyedineniya -- Vol 14, No 10, 1972, pp 2115-2119

Abstract: A study was made of the radiation solid phase polymerization of formaldehyde using the calorimetric procedure which permits direct observations of the polymerization kinetics by the heat release (A. M. Kaplan, et al., Khimiya vysokikh energiy, No 3, 460, 1969; D. P. Kiryukhin, et al., Vysokomolek, soyed., No B12, 491, 1970; I. M. Barkalov, Kinetics and Mechanism of Polyreactions, Vol VI, Budapest, 850, 1971) Chain polymerization takes place in solid formaldehyde at 15-140°K. The chain nature of the process proves the very high radiation yields (G (-M) $\simeq 10^3$ at 15° K). The chain processes were observed at such low temperatures for the first time. The temperature dependence of the polymierization rate of the formaldehyde corresponds to the formal activation energy of 2 $\pm$ 0.6 kcal/mole for the 80-140° K interval. At lower temperatures the process takes place without activation. The process of decrease in the formaldehyde polymerization rate at constant temperature becomes noticeable even for low degrees of conversion ($\sim$0.2-0.5%). It is connected with a decrease in the growth constant on development of the

1/2

USSR

KIRYUKHIN, D. P., et al., Vysokomekulyarnyye soyedineniya, Vol 14, No 10, 1972, pp 2115-2119

polymer chain in the solid crystal. Two different processes take place in solid formaldehyde: the rate of the first process depends sharply on the temperature and it is exhibited primarily at relatively high temperatures (80-140°K); the second process which is in practice thermally independent becomes predominant at low temperatures (80-15°K). This indicates that at low temperatures the chain propagation mechanism connected with tunnel proton transfer becomes predominant in solid formaldehyde.

2/2

USSR UDC:

BARDYSHEV, I. I., GOL'DANSKIY, V. I., and MOKRUSHIN, A. D., Institute of Chemical Physics of the USSR Academy of Sciences, Moscow

"The Effect of Illumination on the Lifetime of Positrons in Silver Halide Crystals"

Leningrad, Fizika Tverdovo Tela, Vol 14, No 3, Mar 1972, pp 935-937

Abstract: The authors present and discuss the results of measuring the lifetime of positrons in AgCl and AgBr crystals before and after illumination at 300 and 77°K. Generally accepted methodology was used for measuring positron lifetime using an Ortec unit with a 437-A model, time-amplitude converter. The halfwidth of the peak of instantaneous coincidence from Co^{60} is $0.4 \cdot 10^{-9}$ sec. and the logarithmic slope of the sides of the peak is $0.07 \cdot 10^{-9}$ sec. A $Na^{22}Cl$ precipitate is used as a positron source and placed between two mica foils 1 mg/cm^2 thick. Curves are given of the lifetime spectra of positrons in AgCl at room temperature along with a table of the duration and intensity values of the components of the time spectra. The results show that the τ_2 component in ion crystals is related to the formation of A-centers, while τ_3 is caused by the annihilation of positrons in F-centers. Original article: One figure, one table, and 10 bibliographic entries.
1/1

USSR

UDC 54-162.2

GOL'DANSKIY, V. I., and SHANTAROVICH, V. P., Institute of Chemical Physics, Academy of Sciences USSR

"Positron Annihilation as a New Method of Studying the Structure and Properties of Various Materials"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye materialy, Vol 8, No 4, Apr 72, pp 601-619

Abstract: The possibilities of using the positron method for studying various materials are discussed. The use of positrons for studying the electron structure and transformation of a substance is based on the positron's capacity to annihilate with electrons of ambient atoms followed by emission of hard annihilation quanta which may be recorded by appropriate equipment. Presented are a schematic diagram to show the distribution of annihilation acts with time relative to the moment of incidence with the substance, a block diagram for equipment to analyze this distribution, and a schematic diagram of the angular distribution of annihilation radiation. The three basic mechanisms of positron annihilation are: formation of the positronium of the bound electron-positron system; by quasi-free collisions with the atomic electrons of the medium; through the formation of a bound positron state in

1/2

USSR

GOL'DANSKIY, V. I., et al., Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 8, No 4, Apr 72, pp 601-619

multielectron systems. Each of these versions of annihilations carries specific information on the properties of the medium. The features of each of these versions are detailed on the basis of Soviet and foreign reference sources, mathematically analyzed, and treated to derive new relations which are illustrated with appropriate curves. (12 illustrations, 1 table, 89 bibliographic references.)

2/2

USSR

GOL'DANSKIY, V. I. and PROKOP'YEV, Ye. P.

"Positron States in Ideal Ionic Crystals"

Leningrad, Fizika Tverdogo Tela, vol. 13, No. 10, October 1971, pp 2955-2964

Abstract: The positron states in ideal ionic crystals are considered in this article. It has been reliably established that annihilation from quasi-positronium must be taken into account along with the annihilation of positrons, connected with anions, in ionic crystals. The authors therefore begin their theoretical analysis by considering the positron annihilation characteristics and using the Schrödinger equation describing positron motion by analogy with the equation for the electron. Comparing the experimental and computed lifetimes and half-widths of the correlation curves, they find that the annihilation of positrons unconnected in the positronium atom contributes to the component with the lifetime τ_0 in those ionic crystals in which three components, each with its lifetime, are observed. Tables of these experimental and computed values are given. The kinetics of the annihilation process is also discussed. The work was done in the Institute of Chemical Physics, Moscow.
1/1

UDC: 539.92.04

USSR

GOL'DANSKIY, V. I., DZANTIYEV, B. G., POPOV, V. N., and GAVRILOV, K. A.

"Chemical-Radiation Action of Accelerated Multicharge Ions on Gaseous Nitrogen-Containing Systems"

Moscow, Atomnaya Energiya, No. 3, 1971, pp 262-266

Abstract: The purpose of this paper is to help clarify the effect of changes in the linear energy transmission on the chemical-radiation output in chemiconuclear synthesis. An experiment designed to fulfill this purpose is explained in the article; it involves heavy accelerated multicharge ions such as C^{+6}, N^{+7}, and O^{+8} with a full energy in the range of 84-280 Mev, acting on such gases as NO_2 in a system of $N_2 + O_2$, N_2H_4 in ammonia, and HCN in a system of $N_2 + CH_4$. The gases were in motion, flowing at a rate of 100-500 liters per hour. The volume of the ion beam was substantially smaller than the volume of the reactor. Details of the experiment are given, together with drawings of the entire apparatus in schematic form and a cross-section of the reactor. The ions were ac-

1/2

GOL'DANSKIY, V. I., et al, Atomnaya Energiya, No. 3, 1971, pp 262-266

celerated in the cyclotron of the Joint Institute of Nuclear Research laboratory, and curves of the chemical-radiation output as a function of the ion charge, the temperature, and the gas flow velocity are given. The authors express their gratitude to G. N. Flerov for his interest in the work.

1/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ON POLARIZATION PHENOMENA, ABSOLUTE PROBABILITIES AND ANISOTROPY OF THE MOSSBAUER EFFECT IN SIDERITE -U-

AUTHOR-(04)-GOLDANSKIY, V.I., MAKAROV, YE.F., SUZDALEV, I.P., VINOGRADOV, I.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 3, PP 760-765

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LIGHT POLARIZATION, ANISOTROPY, MOSSBAUER EFFECT, PROBABILITY, GAMMA QUANTA, IRON ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1733 STEP NO--UR/0056/70/058/003/0760/0765

CIRC ACCESSION NO--AP0103497

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0103497

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTS WHICH ARE SIMILAR TO OPTICAL POLARIZATION EXPERIMENTS HAVE BEEN CARRIED OUT FOR THE FIRST TIME WITH MOSSBAUER GAMMA QUANTA FROM FE PRIME57; UNIAXIAL SIDERITE (FECO SUB3) SINGLE CRYSTALS SERVED AS THE POLARIZER AND ANALYZER. ASYMMETRY OF THE TWO QUADRUPOLE DOUBLET PEAKS WAS FOUND TO DEPEND ON THE AZIMUTHAL ANGLE (A) OF ROTATION OF THE CRYSTAL AXIS OF THE ANALYZER RELATIVE TO THE POLARIZER. ON THIS BASIS THE ABSOLUTE MAGNITUDE OF THE PROBABILITY FOR THE MOSSBAUER EFFECT, F PRIME, IN FECO SUB3 AT ROOM TEMPERATURE AND FOR AN ANGLE BETWEEN THE SIDERITE CRYSTAL AXIS AND THE GAMMA QUANTUM BEAM THETA EQUALS 90DEGREES HAS BEEN DETERMINED. FOR THETA EQUALS 15, 30, 45 AND 90DEGREES THE PROBABILITIES F PRIME WERE ALSO DETERMINED FROM ASYMMETRY OF THE DOUBLETS AND ON BASIS OF THE TOTAL AREA OF THE TWO GAMMA RESONANT ABSORPTION SPECTRUM PEAKS.

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137654

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE REACTION OF THE DIPHENYLPICRYLHYDRAZYL STABLE RADICAL AND 2,2,6,6 TETRAMETHYL-4-OXOPIPERIDINOOXY STABLE RADICAL IN C SUB8 H SUB17 OH OR ME SUB2 O WITH POSITRONIUM, THE ACTIVATION ENERGIES WERE 1.3 KCAL-MOLE AND 1.0 KCAL-MOLE, RESP., IN THESE SOLVENTS FOR BOTH RADICALS AND THE RATE CONSTS. AT 25DEGREES WERE 5.1 TIMES 10 PRIME8 AND 6.6 TIMES 10 PRIME7 L.-MOLE SEC DEGREE. USING THESE SOLVENTS, WHICH ARE GREATLY DIFFERENT IN VISCOSITIES, RESULTED IN THE POSSIBILITY OF ROUGH APPROXN. OF THE ROLE OF KINETIC AND DIFFUSION FACTORS IN DETN. OF ACTIVATION ENERGY IN CHEM. REACTIONS, BY VARYING EITHER THE TEMP. OR THE SOLVENT VISCOSITY. THE APPARENT ACTIVATION ENERGY IS MUCH GREATER OWING TO THE ACTIVATION ENERGY OF DIFFUSION; THUS THE QUENCHING REACTION WAS SHOWN TO PROCEED IN THE DIFFUSIONAL KINETIC REGION. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

Nuclear Physics

USSR

GOL'DANSKIY, V. I., et al

"Electronuclear Method of Neutron Production and the Production of Fissionable Materials"

Moscow, Atomnaya Energiya, September 1970, pp 151-158

Abstract: The possibilities of using an electronuclear method for free neutron production in nuclear power technology are considered. In this method neutrons are emitted and multiplied as the result of the absorption of protons (deuterons) accelerated to high energies by the atomic nuclei of heavy elements. The article includes a short survey of experimental data concerning the emission of neutrons by highly excited nuclei and the multiplication of the former in targets and a discussion of some well-known designs of electronuclear facilities based on proton or deuteron accelerators with beam powers on the order of 100 Mw. The main difficulties which arise in the development of high-current accelerating systems capable of providing accelerated particle currents ($\sim$0.1 amp at energies on the order of 1 Mw) sufficient for the electronuclear method are analyzed briefly. The article details a number of considerations concerning the inherent features of such electronuclear reactors and neutron generators,

USSR

GOL'DANSKIY, V. I., et al, Atomnaya Energiya, September 1970, pp 151-158

their possible role in applied and scientific endeavors, as well as their use in conjunction with ordinary nuclear reactors: in particular, fast breeder reactors.

There are 39 bibliographic references.

1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--USE OF GAMMA RESONANCE SPECTROSCOPY TO STUDY COORDINATION IN SOLUTIONS OF ORGANOTIN MONOHALIDES -U-

AUTHOR-(05)-GOLDANSKIY, V.I., ROCHEV, V.YA., KHRAPOV, V.V., KRAVTSOV, D.N., ROKHLINA, YE.M.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 134-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOSSBAUER EFFECT, ORGANOTIN COMPOUND, COORDINATION CHEMISTRY, POLYNUCLEAR HYDROCARBON, HALIDE, CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0017 STEP NO--UR/0020/70/191/001/0134/0137

CIRC ACCESSION NO--AT0125857

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0125857

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOESSBAUER EFFECT WAS USED TO STUDY THE COORDINATION OF PH SUB3 SNF, PH SUB3 SNCL, PH SUB3 SNBR, PH SUB3 SNI, AND THEIR ET AND ME ANALOGS IN SOLVENTS SUCH AS HEPTANE, ET SUB2 O, CHCL SUB3, PYRIDINE, TETRAHYDROFURAN, ME SUB2 NCHO, ME SUB2 SO, (CH SUB2 OME) SUB2. THE SPECTRAL CHARACTERISTICS ARE TABULATED. COORDINATION WAS DETECTED FOR THE ORGANOTIN HALIDES IN STRONGLY SOLVATING SUBSTANCES AND COORDINATION WAS OBSERVABLE IN CRYSTALS IN THE INDIVIDUAL SUBSTANCES. THIS WAS CAUSED BY THE FACT THAT IN PASSAGE FROM INDIVIDUAL HALIDES TO THEIR SOLNS. IN STRONGLY SOLVATING SOLVENTS THE CHANGE IN QUADRUPOLE SPLITTING IS DETD. BY THE DIFFERENCE IN INTENSITY OF COORDINATIONAL INTERACTIONS IN THE CRYSTALS OF THE INDIVIDUAL SUBSTANCE AND ITS SOLN. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--GAMMA RESONANCE SPECTROSCOPIC STUDY OF THE ELECTRON EXCHANGE BETWEEN FE PRIME2 POSITIVE AND FE PRIME3 POSITIVE IONS IN ICE -U-

AUTHOR-(03)-GOLDANSKIY, V.I., STUKAN, R.A., TOLMACHEV, A.N.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 380-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTROSCOPIC ANALYSIS, ACTIVATION ENERGY, CHEMICAL REACTION KINETICS, ICE, ELECTRON TRANSITION, IRON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1273 STEP NO--UR/0020/70/191/002/0380/0383

CIRC ACCESSION NO--AT0128687

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0128687

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTRON EXCHANGE BETWEEN FE PRIME2 POSITIVE AND FE PRIME3 POSITIVE IN ICE WAS STUDIED AT MINUS 195 TO MINUS 78DEGREES BY USING THE METHOD OF GAMMA RESONANCE SPECTROSCOPY ANALYSIS IN THE TRACER ATOM METHOD. THE EXCHANGE WAS STUDIED BY USING FE(CLO SUB4) SUB2 SOLNS. HAVING A NORMAL CONCN. OF PRIME57 FE AND FE SEXTILE (CLO SUB4) SUB3 SOLNS. ENRICHED TO 91PERCENT WITH RESPECT TO PRIME57 FE. THE EXCHANGE TAKES PLACE WITH A NOTICEABLE RATE AT MINUS 114DEGREES. THE KINETICS OF THE EXCHANGE REACTION WERE STUDIED AT DIFFERENT TEMPS. AND THE REACTION RATE CONSTS. WERE DETD. AND TABULATED. THE ACTIVATION ENERGY FOR THE EXCHANGE REACTION IS 7.6 PLUS OR MINUS 0.5 KCAL-MOLE. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--FORMATION OF POSITRONIUM IN 1S AND 2S STATES IN OXIDES -U-

AUTHOR-(03)-GOLDANSKIY, V.I., LEVIN, B.M., MOKRUSHIN, A.D.

COUNTRY OF INFO--USSR

SOURCE--JETP LETERS (USA), VOL. 11, NO. 1, P. 8-42 (JAN. 1970)

DATE PUBLISHED----JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--POSITRONIUM, BORON OXIDE, POSITRON, SPECTRUM, FORBIDDEN BAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1750 STEP NO--US/0000/70/011/001/0008/0042

CIRC ACCESSION NO--AP0133655

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0133655
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACTS. MEASUREMENTS OF THE POSITRON LIFETIME SPECTRUM OF GRANULATED B SUB2 O SUB3 POWDER REVEALED POSITRONIUM PRODUCTION. THIS ACCORDS WITH A PORPOSED SCHEME TO CORRELATE POSITRONIUM FORMATION WITH FORBIDDEN BAND WIDTH IN OXIDES. A CRITERION FOR POSITRONIUM FORMATION IS FORMULATED. FACILITY: USSR ACAD. SCIS.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--FORMATION OF POSITRONIUM IN 1S AND 2S STATES IN OXIDES -U-

AUTHOR-(03)-GOLDANSKIY, V.I., LEVIN, B.M., MOKRUSHIN, A.D.

COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EDSP. TEOR. FIZ. 1970, 11(1), 38-42

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--POSITRONIUM, FORBIDDEN BAND, ANTIMONY, LANTHANUM OXIDE, MERCURY, METAL OXIDE, EXCITED STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0999 STEP NO--UR/0386/70/011/001/0038/0042

CIRC ACCESSION NO--AP0115020

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0115020

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POSITRONIUM (I) FORMATION REPORTED IN VARIOUS OXIDES IS LIMITED TO OXIDES WITH A FORBIDDEN ENERGY BAND (E SUBG) OF LARGER THAN OR EQUAL TO 6.8 EV. FOR THE FORMATION OF I IN THE 1S STATE IT IS NECESSARY THAT 6.8 EV SMALLER THAN OR EQUAL TO E SUBG SMALLER THAN OR EQUAL TO 13.6 EV, AND FOR THE FORMATION OF I IN THE 2S STATE, 1.7 EV SMALLER THAN OR EQUAL TO E SUBG SMALLER THAN OR EQUAL TO 3.4 EV. THE SPECTRUM OF LIFE TIMES OF POSTIRONS IN B SUB2 O SUB3 (E SUBG EQUALS 9.0 EV) SHOWED A LONG LIVED COMPONENT (1.7 TIMES 10 PRIME NEGATIVE9 SEC). THE SPECTRA FOR POSITRONS IN HGO (E SUBG EQUALS 1.0-1.2 EV), LA SUB2 O SUB3 (E SUBG EQUALS 2.6 EV), AND SB SUB2 O SUB3 (E SUBG EQUALS 4.2 EV) SHOW NO I (1S) IS FORMED BUT MAY SHOW THE FORMATION OF I (2S) IN LA SUB2 O SUB3 AND SB SUB2 O SUB3. FACILITY: INST. KHIM. FIZ., USSR.

UNCLASSIFIED

Ion Exchange

USSR

UDC: 541.1238/.9

GOL'DANSKIY, V. I., Corresponding Member Academy of Sciences USSR, LEVIN B. M., MOKRUSHIN, A. D., KALIKO, M. A., and PERVUSHINA, M. N., Institute of Chemical Physics, Moscow, Academy of Sciences USSR: All Union Scientific Research Institute of Oil Refining, Ministry of Petroleum USSR

"Effect of the Chemical State of the Surface on Annihilation Characteristics of Positronium in Porous Systems"

Moscow, Doklady Akademii Nauk, SSSR, Vol 191, No 4, Apr 70, pp 855-858

Abstract: The authors studied annihilation of positronium atoms localized in the pores of medium porous samples of silica gel, alumina and aluminum-silicon catalyst in an attempt to develop a method for determination of the volume and surface of the pores, since in such pores positronium exists much longer. The life span of positronium was measured by observing delayed coincidence of one of the annihilating γ -quanta and the nuclear γ-quantum in series with the positron which yielded a time tag for the emission of a positron by the Na^{22} source. Because of instrumental limitation the τ_2 component of the time spectrum could not be determined. Only

1/2

USSR

GOL'DANSKIY V. I., et al, Doklady Akademii Nauk, SSSR, Vol 191, No 4, Apr 70, pp 855-858

the characteristics of the longest component connected with the loss of positronium atoms could be obtained -- average life span (τ_3) and intensity (I_2).

At the pressure $p=p_s$ (pressure of saturated water vapor at room temperature) τ_3 was absent and I_2 was zero. In the range $p/p_s=1-0.3$ I_2 increases sharply while τ_3 remains quite unchanged. At pressures $p/p_s<0.3$ the situation becomes different. In the case of the aluminum-silicone catalyst there occurs a strong quenching of positronium and along with τ_3 time a drop in I_2 occurs with the decrease of p/p_s. No quenching of positronium occurs in silica gel while only slight quenching occurs in alumina accompanied by a small change in I_2. A relationship exists between the strength of Bronsted acid centers and the changes in τ_3 and I_2.

2/2

USSR

GOL'DANSKIY, V. I.; et al (Institute of Chemical Physics, USSR Academy of Sciences)

"Polarization Phenomena, Absolute Probabilities, and Anisotropy of the Mössbauer Effect in Siderite"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki; March, 1970; pp 760-5

Abstract: Experiments which are similar to optical polarization experiments were carried out for the first time with Mossbauer γ quanta from Fe^{57}; uniaxial siderite ($FeCO_3$) single crystals served as the polarizer and analyzer. Asymmetry of the two quadrupole doublet peaks was found to depend on the azimuthal angle (δ) of rotation of the crystal axis of the analyzer relative to the polarizer. On this basis the absolute magnitude of the probability for the Mossbauer effect, f', in $FeCO_3$ at room temperature and for an angle between the siderite crystal axis and the γ quantum beam $\theta = 90^\circ$ was determined. For θ = = 15, 30, 45, and 90° the probabilities f' were also determined from asymmetry of the doublets and on the basis of the total area of the two γ-resonant absorption spectrum peaks.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--EFFECT OF THE CHEMICAL STATE OF THE SURFACE ON POSITRONIUM ANNIHILATION CHARACTERISTICS IN POROUS SYSTEM -U-
AUTHOR-(05)-LEVIN, B.M., MUKHUSHIN, A.D., KALIKO, M.A., GOLDANSKIY, V.I., PERVUSHINA, M.N.
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 855-

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SPECTROSCOPIC ANALYSIS, POROSITY, PHYSICAL CHEMISTRY PROPERTY, SILICA GEL, ALUMINA, SODIUM, ISOTOPE, POSITRON, PARTICLE ANNIHILATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0774 STEP NO--UR/0020/70/191/004/0855/0858

CIRC ACCESSION NO--AT0131369
UNCLASSIFIED

2/2 025 UNCLASSIFIED

INC ACCESSION NO--AT0131368 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A RELATIVE STUDY WAS MADE OF THE TIME SPECTRA FOR POSITRON ANNIHILATION IN MEDIUM SIZED POROUS SAMPLES OF SILICA GEL, ALUMINA GEL, AND ALUMNIOSILICATE CATALYST. THE LIFETIME OF THE POSITRONIUM WAS MEASURED BY OBSERVING THE DELAYED COINCIDENCES OF ONE OF THE ANNIHILATION (0.5 MEV) GAMMA QUANTA AND THE 1.3-MEV NUCLEAR GAMMA QUANTA WHICH IS IN A CASCADE WITH THE POSITRON, WHICH GIVES A MEASURE OF THE TIME FOR THE EMISSION OF A POSITRONIUM BY THE PRIME22 NA SOURCE. THE OBSD. DIFFERENCE IN THE QUENCHING OF THE LIFETIME FOR THE ORTHOPOSITRONIUM, TAU SUB3, IN 2 SAMPLES OF THE CATALYST DEPENDING ON THE DEGREE OF DEHYDRATION OF THEIR SURFACE ALLOWS THE ORDER OF MAGNITUDE OF THE RATE FOR THE REACTION H PRIME POSITIVE EQUALS P SUB3 YIELDS H PLUS E PRIME POSITIVE PLUS E SUBE PRIME POSITIVE IS THE EXCESS ENERGY REMOVED BY THE POSITRON, TO BE EVALUATED FOR POSITRONIUM ATOMS WHICH ARE LOCALIZED IN THE PORES. IN THE RANGE OF RELATIVE PRESSURES, P-P SUBS EQUALS 0.2-0.014, THE SP. RATE OF QUENCHING OF THE POSITRONIUM IS (.05-1.0) TIMES 10 PRIME7-SEC. BECAUSE OF THE REPEATED COLLISION OF THE POSITRONIUM WITH THE WALLS OF THE PORES, THIS RATE OF QUENCHING CAN ENSURE A NOTICEABLE DECREASE IN THE POSITRONIUM'S LIFETIME FOR VERY SMALL SURFACE CONCNS. OF H PRIME POSITIVE IONS IN THE PORES.

FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

GOL'DANSKIY, V. I.; et al (Moscow State Pedagogical Institute im. V. I. Lenina)

"Atom of Positronium in an Imperfect Solid"

Leningrad, Fizika Tverdogo Tela; December, 1970; pp 3454-60

ABSTRACT: In the study of the angular distribution of annihilation quanta in silicon dioxide it was discovered that the half-width of the narrow component of the correlation curves depends on the state of the substance (monocrystal, powder, glass). This circumstance can be related to a change in the character and parameters of the defects (vacancies, pores, regions of reduced density) which serve as unusual traps of positronium atoms. The dimensions of the defects in certain substances (fused quartz; teflon; water; ice; and beryllium oxide, magnesium, and aluminum powders) were evaluated by means of experimental values for the half-width of the narrow component and lifetime of the long-lived component.

1/1

Acc. Nr: AP0038034 G Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 115-123

AN INVESTIGATION OF SUPERMAGNETISM OF FERROMAGNETIC PARTICLES BY MOSSBAUER SPECTROSCOPY

Afanas'yev, A. M.; Suzdalev, I. P.; Gen, M. Ya.; Gol'danskiy, V. I.; Korneyev, V. P.

A theoretical and experimental investigation of supermagnetism of ferromagnetic spherical particles is carried out. It is found that the anisotropy energy (relaxation time) drops to zero for crystals with cubic symmetry at particle dimensions of the order of a certain d_{cr} and then begins to increase with increase of particle size due to turning of the magnetic moments of separate atoms with respect to each other. In is also shown that this phenomenon is not observed in uniaxial crystals. An investigation by Mossbauer spectroscopy of particles of the ferromagnetic alloy FeNi (37% Ni) with a face centered cubic lattice (the particle size varied between 800 and 120 A) revealed a pronounced anomoly in the hyperfine structure of 190 and 120 A particle spectra; this confirms the theoretical dependence of anisotropy energy on the particle size.

REEL/FRAME
19731076

USSR

UDC: 681.121.872

GOLDAYEV, I. P., PERSHIN, A. P., CHEREPANOV, V. P.

"On the Problem of Using Nonstandard Venturi Tubes to Measure Minute Rates of Flow of Gaseous Substances"

Samoletostr. i tekhn. vozd. flota. Resp. mezhved. nauchno-tekhn. sb. (Aircraft Construction and Air Force Technology. Republic Interdepartmental Scientific and Technical Collection), 1970, Vyp. 17, pp 34-37 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 9, Sep 70, Abstract No 9.32.751)

Translation: Measurement of minute rates of flow of gaseous substances precludes the use of standard Venturi tubes since the large diameter of the constriction in these tubes prevents measurement of the pressure drop with sufficient precision. A method is outlined for experimentally determining the flow rate coefficient of Venturi tubes with a constriction diameter of considerably less than 50 mm. A diagram is given of an installation which permits highly precise determination of the flow rate coefficient of small Venturi tubes. Data are given from an experimental study of a slow-flow tube designed at the Khar'kov Aviation Institute. Five illustrations, bibliography of one title.

1/1

USSR

UDC 621.762.224

~~GOLDAYEV, I.~~ P., MOTORNENKO, A. P., SHEVCHENKO, A. P., and LASTIVNYAK, YU. A., Khar'kov Aviation Institute

"Gas-Jet Spraying of Liquid Metals and Alloys"

Kiev, Poroshkovaya Metallurgiya, No 2, Feb 71, pp 9-13

Abstract: One of the most productive methods of producing metal and alloy powders is by spraying a stream of melted metal. The authors of the present article have developed a method for producing these powders by means of a supersonic high-temperature gas jet, designed to improve the thermodynamic parameters of the gas. A gas generator operating by burning a mixture of compressed air and a hydrocarbon fuel such as gasoline is described and illustrated. The supersonic gas stream produced is directed at a stream of melted metal and causes it to break into droplets, producing the powder upon cooling. The gas generator allows the parameters of the gas stream at the output of the nozzle to

USSR

GOLDAYEV, I. P., et al., Poroshkovaya Metallurgiya, No 2, Feb 71, pp 9-13

be continually varied between 500 and 1500°K and 700 and 1250 m/sec velocity. Several types of nozzle apparatus are diagrammed. The new gas generator and total system for production of metal powder are claimed to improve spraying conditions, improve particle formation conditions, decrease air consumption,and allow the chemical composition of the powder to be altered by performing spraying in a reducing, neutral or oxidizing medium.

2/2

USSR

UDC 621.394/399:621.398

GOL'DBAUM, L. S.

"The Problem of Choosing Selective Devices for Data Transmission Apparatus"

Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR (Works of Educational Institutions of Communication. Ministry of Communications, USSR), Vyp. 46, pp 106-116 (from RZh-Elektrosvyaz', No 6, June 1970, Abstract No 6.64.264)

Translation: The dependence is considered of the characteristics (amplitudes and boundaries) of distortions, on the width of the frequency band for two types of amplitude-frequency characteristics of selective devices. The advantages and deficiencies of these devices are shown.

1/1

USSR

UDC: 512.25/.26+519.3:330.115

GOL'DBERG, A. P.

"Optimum Ordering of a System of Demands Based on Dynamic Programming"

V sb. Tekhn. kibernetika. Vyp. 16 (Technical Cybernetics--collection of works. No 16), Kiev, 1970, pp 16-28 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V507)

[No abstract]

1/1

USSR

UDC: 621.391.14

GOL'DBERG, B. S. and KONOVALOV, G. V.

"Energy Spectra of Mixed Random Pulse Signals in Statistical Multiplexing Systems"

Moscow, Radiotekhnika, No 2, 1972, pp 13-20

Abstract: In systems of asynchronous radio communication with free access for reducing intrasystem noise, statistical multiplexing methods are used, with pulses transmitted only during direct information communication. The purpose of this paper is to find the principle relationships for computing the energy spectra of such signal processes. The authors begin their analysis by using the method of estimating the frequency distribution of the power of the processes, which consists in computing the limit of the square of the spectral density modulus, averaged over a set of samples, for $2N+1$ pulse groups as $N \to \infty$. They obtain expressions for signals of binary pulses and speech signals. Cases of pulse position modulation, delta modulation, and pulse code modulation are also considered.

1/1

USSR

UDC: 621.396.43

MUSAYELYAN, S. A., VENEDIKTOV, M. D., GOL'DBERG, B. S., ZHENEVSKIY, Yu. P.

"A PPM Signal Demodulator for Radio Relay Communications Lines"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 11, 1970, Author's Certificate No 265979, filed 30 May 68, p 47

Abstract: This author's certificate introduces a PPM signal demodulator for radio relay communications lines. The unit contains a gating channel interval stage and a PPM to PAM converter which are both connected to a reference signal source. The converter incorporates a shaper, keyer and slave sawtooth voltage oscillator with controlled steepness of the linear segment. As a distinguishing feature of the patent, the resistance to interference and operational reliability of the demodulator are improved by connecting the shaper and the slave sawtooth voltage oscillator to the output of the gating channel interval stage through series-connected circuits consisting respectively of a network for differentiating the trailing edge of a pulse and a delay element, and of a network for differentiating the leading edge of a pulse, a slave relaxation oscillator and a key.

1/1

USSR

UDC 575.576.8

GOL'DFARB, D. M., CHERNIN, L. S., GOL'DBERG, G. I., AKATOVA, N. S., and GUKOVA, L. A., Institute of General Genetics, Academy of Sciences USSR, Moscow

"Some Properties of the EPAI [Influence of the Aftereffect of Nitrogen Mustard] Depression Factor Produced by Male Strains of Escherichia Coli K-12"

Moscow, Genetika, Vol 6, No 10, Oct 70, pp 107-114

Abstract: Experiments were conducted to determine whether the inhibition factor affects macromolecular syntheses in F⁻ cells of E. coli, how the factor alters the recombination frequency during conjugation of Hfr x F⁻, transduction, and the transfer effectiveness of the RTF episome. New data are presented which characterize the ability of fertile strains of E. coli to produce the factor in a medium. It was also established that isolated F-fibers of male strains, which possibly exist in active filtrates of such strains, cannot inhibit EPAI. It was found that the factor causes partial inhibition of the synthesis of desoxyribonucleic acid in healthy F⁻ cells but has no effect on the synthesis of protein and ribonucleic acid. The factor contributes to the formation of a state of competence of F⁻ cells during conjugation. Removal of the factor from the mixture does not bring about a reduction in the yield of recombinats if recipient strains of type uvr⁻ are used.

1/1

UDC: 531.862

RUSI[illegible], M. M., IVANOV, P. D., POPOV, L. Ye., LIVSHITS, E. M., GOL'DBERG, G. R., [illegible], A. M., Leningrad Institute of Precision Mechanics and Optics

"A Sighting Tube for Observing Objects in an Aqueous Medium"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, Feb 72, Author's Certificate No 328410, Division G, filed 16 Sep 70, published 2 Feb 72, p 143

Translation: The Author's Certificate introduces: 1. A sighting tube for observation of objects in an aqueous medium which contains two objective lenses with protective glasses, collective lenses and erecting systems. The tube also contains a commutating flip mirror and an ocular. As a distinguishing feature of the patent, the tube is designed for simultaneous [illegible] visual optical system and photography of the field of view of the objective lenses. Placed directly in front of the photosensitive [illegible] is a three-component system of single positive menisci with concave [illegible] objects. The three-component system is introduced into [illegible] by an auxiliary beam-splitting flip mirror. 2. A

1/2

SINOV, M. M. et al., USSR Author's Certificate No 328410

modification of this tube distinguished by the fact that provision is made for compensating for rotation of the image and correcting for chromatic aberrations. Placed in front of the ocular is a PK-0° prism and a plane-parallel plate with chromatic radius.

2/2

USSR

UDC 536.63

ALESHKEVICH, Yu. V., GOL'DBERG, G. R., BURAVOY, S. Ye., PLATUNOV, Ye. S.

"Installation for Studying Heat Physical Properties of Materials in 50-900°C Temperature Interval"

Priborostroyeniye, No 12, 1971, pp 103-107.

ABSTRACT: An installation is described for studying the heat capacity and temperature conductivity of solids with a heat conductivity λ of 2 to 50 w/m·degree. Measurements are performed with smooth heating of a cylindrical specimen. The total measurement error is not over 5-10%. A photograph and schematic diagram of the device are presented. Errors in the measurement of temperature conductivity generally did not exceed 7%. The basic error components are: errors in determination of spacing R (2%), asymmetrical temperature field of the specimen, errors in graphic differentiation (up to 3%), errors in recording by the electronic potentiometer (1-2%) and others. The author's particularly note the errors developing in the measurement of θ resulting from the inertia of the R and 0 thermocouples. These errors can be reduced by placing the specimen over the thermocouples rather tightly, with a clearance not exceeding 0.03 mm.

1/1

GOLDBERG, I. YE.

RADIO ENGINEERING / Diode switching Devices

GOLDBERG, I. YE.

JPRS 54704

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. Sumoylenko, candidate of engineering sciences: Nelineynyye i sverkhvysokochastotnyye radiotekhnicheskiye sistemy, Trudy Moskovskogo Ordena Lenina Aviatsionnogo Instituta imeni Sergo Ordzhonikidze, Vol 2, No 215, 1970, signed to press 14 October 1970, Machine Building Press, Moscow.

CONTENTS

[I - USSR - F]

UDC 629.7.051:621.396.6.001

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

Engineers G. A. Bukhonina, G. F. Vasil'yev,
V. A. Galkovskiy, L. Ye. Gol'burt,
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 modern 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 circuit;

(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 operation of 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 wavelength range the operation of such diodes as the 1A50] may be considered as practically inertia-free.

CONCLUSIONS

An analysis of the circuits of diode switching devices demonstrated that a number of their properties, such as quick operation, bandwidth, 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 1A5G1 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 cells switches in cascade, with these switches spaced along the line at a distance of a quarter wave length from each other.

BIBLIOGRAPHY

1. Sestroretskiy, B. V., "Semiconductor switching devices for high-frequency channels," Sb. Sovremennyye problemy antenno-volnovodnoy tekhniki (Collection: Contemporary Problems of Antenna-Wave Guide Engineering), edited by A. A. Pistol'kors, izd-vo "Nauka", 1967.

2. Korolevich, Ye. G., and Liberman, L. S., "Changeover-switch diodes in the microwave range," Sb. poluprovodnikovyye pribory v tekh. primenenii (Collection: Semiconductor Instruments and their Applications), edited by A. Ya. Fedotov, izd-vo "Sovetskoye radio", 1962, No. 6.

3. Garver, R. V., Spooner, E. G., Le Graw, R. C. "High-speed microwave switching of semiconductors," Journal of Applied Physics, 1957, vol. 28, No. 11.

4. Garver, R. V., Hines, M. E., "Fundamental limitations in RF switching using semiconductor diodes," Proceedings of the IEEE, 1964, vol. 52, No. 11.

5. Strukov, I. A., and Elkin, V. S., "On the investigation of the dynamic breakdown phenomenon in semiconductor microwave diodes," Radioelektronika i elektronika (Radio engineering and electronics), 1964, vol. 10, No. 4.

6. Hines, M. E., "Fundamental limitations in RF switching and phase shifting using semiconductor diodes," Proceedings of the IEEE, 1964, vol. 52, No. 6.

7. Van der Ziel, [illegible]

8. Drobot, Ivan, "A broad-band [illegible] with a traveling-wave tube," [illegible] electronics), 1954, No. 8.

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

USSR UDC 621.319.4

GOL'DBERG, I. L., CHEBONENKO, L. I., VAYSBERG, I. I., ZYKOV, V. S.

"A Method of Making Film Capacitors"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 36, Soviet Patent No 288153, class 21, filed 14 Sep 68, published 3 Dec 70, p 85

Translation: This Author's Certificate introduces a method of making film capacitors with fixed capacitance. The capacitors contain a multilayered dielectric in the form of oxides produced by the method of vacuum deposition. As a distinguishing feature of the patent, the specific capacitance, working voltage and percent yield of usable capacitors are increased by using successively deposited layers of silicon monoxide and germanium monoxide as the oxides.

1/1

USSR

UDC 681.326.3:621.382.233.072.1

NEFED'YEV, Ya. N., and GOL'DBERG, L. L.

"Pulse Distributer"

USSR Author's Certificate No 277847, filed 22 May 69, published 3 Nov 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6, Jun 71, Abstract No 6B234P)

Translation: This invention belongs to the field of automation and computer engineering. The well-known pulse distributors made of thyristors are executed, as a rule, in such a way that when a load is connected, the preceding loads are switched off. A significant volume in the distributor circuits is occupied by the intercascade coupling circuits, complicating the distributors and frequently critical to the parameters of the elements entering into the circuit. The purpose of the given invention is simplification of the device with simultaneous improvement of its operating reliability. In the proposed device this purpose is achieved by connecting the commuted loads to the feed source via a circuit of series-connected thyristors each of which, in addition to the first, is shunted by a capacitor. There is 1 illustration.

1/1

USSR

UDC 621.125-529:629.123.56-181.2

VOYTETSKIY, V. V., GOL'DBERG, M. E., IGNAT'YEV, A. V., and SHRAYER, A. I.

"Programmed Control of a Supertanker Steam-Turbine Plant Fitted With a Variable-Pitch Propeller"

Leningrad, Sudostroyeniye, No 11, Nov 72, pp 26-28

Abstract: On the basis of research conducted with regard to the steam-turbine unit of a tanker of the "Krym" type, a report is given on the particular features of the programmed control of a turbogear unit with a variable-pitch propeller in application to a supertanker, and recommendations are made concerning the structure of the automated remote control of the automated power unit. 3 figures.

1/1

USSR

UDC: 62-531.6

GOL'DBERG, M. E.

"Device for Controlling the Displacement Rate of a Hydraulic Servomotor"

USSR Author's Certificate No 288085, filed 20 Oct 69, published 5 Feb 71 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1971, Abstract No 12A173P)

Translation: Known devices for the control of the displacement rate of hydraulic servomotors provide for the stability of the system by increasing the servomotor time constant, which degrades maneuverable and reversible characteristics. The present device differs in that, for the purpose of improving the speed and stability of the system, irreversible spring valves are included in the line along which the operating medium is carried from the hydraulic relay to the servomotor in opposition and in parallel, and parallel to the throttle valve. Resume

1/1

USSR

GOL'DBERG, M. K.

UDC: 519.1

"Odd Cycles of a Multigraph With a Large Chromatic Index"

Novosibirsk, Upravlyayemyye sistemy--sbornik (Controllable Systems--collection of works), vyp. 10, 1971, pp 45-47 (from RZh-Kibernetika, No 5, May 73, abstract No 5V500 by I. Sigal)

Translation: Two theorems on chromatic indices κ of a multigraph of degree s are proved.

Theorem 1. Any multigraph of degree $s \geq 4$ with chromatic index $\kappa > s + 1$ has odd cycles of length not exceeding $(\kappa-3)/(\kappa-s-1)$.

For a Shannon multigraph, i. e. for three-vertex multigraphs of degree s and number of edges [3s/2] the following theorem is proved:

Theorem 2. Any multigraph of degree $s \geq 4$ with chromatic index [3s/2] contains a Shannon multigraph.

1/1

USSR

UDC: 531.715

SUMINOV, V. M., GOL'DBERG, M. M., GREBNEV, A. A., Moscow Institute of Aviation Technology

"A Device for Automatic Dimensional Analysis of Microscopic Objects"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329378, Division G, filed 15 Jun 70, published 9 Feb 72, p 152

Translation: This Author's Certificate introduces a device for automatic dimensional analysis of microscopic objects. The device contains an optical system, a closed-circuit television system, and a display unit. In front of the optical system is a light source, and the closed-circuit TV system has an analyzer at the output. As a distinguishing feature of the patent, the accuracy of analysis is improved by using an input controller made in the form of a set of time-mark elements connected between the output of the TV system and the input of the analyzer. The patent also covers a modification of this device distinguished by the fact that the light source is made in the form of a continuous-emission laser with an attachment for reducing the degree of coherence.

1/1

UDC: 517.9

USSR

GOL'DBERG, V. N.

"Discontinuous Solutions of Mixed Nonlinear Problems for Hyperbolic Equations on a Plane"

Moscow, Matematicheskiy Sbornik, vol 87(129), No 2, 1972, pp 159-178

Abstract: The mixed problem involving the following equations

$$u_{xx} - u_{tt} = A(x,t,u)u_x + B(x,t,u)u_t + F(x,t,u),$$

$$u(x,0) = \varphi(x),\ u_t(x,0) = \psi(x),\ \text{for } 0 \leq x \leq 1,$$

$$a_0(u)u_x + b_0(u)u_t = f_0(t,u),\ \text{for } x = 0,$$

$$a_1(u)u_x + b_1(u)u_t = f_1(t,u),\ \text{for } x = 1,$$

is investigated. In earlier papers dealing with the problem it was found that if the function

$$u \in C_2(\overline{\Pi}_{T_0})$$

1/2

USSR UDC: 517.9

GOL'DBERG, V. N., Matematicheskiy Sbornik, vol 87(129), No 2, 1972, pp 159-178

is a solution of the problem in the rectangle $\overline{\Pi}_{T_0} = \{0 \leqslant x \leqslant 1, 0 \leqslant t \leqslant T_0\}$, $0 < T_0 < \infty$, and

$$h_i(\overset{o}{u}(i,T_0)) = b_i(\overset{o}{u}(i,T_0)) + (-1)^{i+1} a_i(\overset{o}{u}(i,T_0)) \neq 0, \quad (1)$$

where $i = 0,1$, then the solution u can be uniquely extended to $\overline{\Pi}_{T_0+\Delta T}$, $\Delta T > 0$, without loss of continuity. In this paper, the problem is investigated for the case when, in the extension of the solution of the class C_2, the inequality (1) above transforms at $i = 0$ to an equality at some moment $t = T^*$, $0 < T^* < \frac{1}{2}$. The present paper also establishes theorems of the existence and uniqueness of a continuous solution to the problem as well as the solution's stability.

2/2

1/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--PRIME12 C(PRIME3 HE, PRIME3 HE PRIME) PRIME12 C AND PRIME12 C(PRIME 3 HE,T) PRIME12 N MIRROR REACTIONS -U-

AUTHOR-(05)-ARTEMOV, K.P., GLUKHOV, YU.A., GOLDBERG, V.Z., DAVYDOV, V.V., PETROV, I.P.

COUNTRY OF INFO--USSR

6

SOURCE--YAD. FIZ. 1970, 11(1), 43-7

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ION BOMBARDMENT, CARBON ISOTOPE, NUCLEAR REACTION, EXCITED NUCLEUS, DIFFERENTIAL CROSS SECTION, HELIUM ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0171 STEP NO--UR/0367/70/011/001/0043/0047

CIRC ACCESSION NO--AP0048463

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0048463

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIFFERENTIAL CROSS SECTIONS ARE MEASURED FOR THE TITLE MIRROR REACTIONS AT AN PRIME3 HE ION ENERGY OF 36 MEV. DIRECT EVIDENCE IS PRESENTED THAT THE STATES OF THE PRIME12 C NUCLEUS WITH ENERGIES 15.1 MEV (1 PLUS, T) EQUALS 1) AND 16.1 MEV (2 PLUS, T EQUALS 1) ARE ANALOGOUS TO THE GROUND STATE (1 PLUS) AND THE 1ST EXCITED STATE (0.95 MEV) OF PRIME12 N. THUS, THE 0.95-MEV LEVEL OF PRIME12 N HAS THE QUANTUM NOS. 2 PLUS. THE ADMIXT. OF THE T EQUALS 0 STATE TO THE 15.1-MEV STATE OF PRIME12 C IS NO MORE THAN 3PERCENT IN THE AMPLITUDE. THE SAME ADMIXT. TO THE 16.1-MEV STATE OF PRIME12 C IS ALSO, VERY LIKELY NO MORE THAN A FEW PER CENT FACILITY: INST. AT. ENERGY, IM. KURCHATOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 616.981.513-022.38-039:616.3-008.1

PIVOVAROV, Yu. P., SIDORENKO, G. I., TKACHENKO, A. V., GOL'DBERG, Ye. S., AKIMOV, A. M., VOLKOVA, R. S., and SHELAKOVA, V. V., Chair of General Hygiene, Second Moscow Medical Institute imeni N. I. Pirogov

"Bacillus cereus as an Agent of Food Poisoning in Man"

Moscow, Voprosy Pitaniya, No 3, 1970, pp 25-25

Abstract: During an investigation of food poisonings treated in several clinics and hospitals in Moscow, Moscow Oblast, and Roven'kovskiy Rayon, Luganskaya Oblast (Ukraine) since 1967, it was found that two general outbreaks, four familial outbreaks, and 29 isolated cases involving a total of over 150 persons were caused by Bacillus cereus. The microorganism was isolated in large quantities from the intestinal contents, vomited material, and suspected food products (sausage, beet and potato soup, stewed cabbage, boiled meat, sardines, canned duck and beef). Most of the cases were reported in the summer and fall. The course was generally mild and brief. After an incubation period of 10 to 16 hours, sometimes 4 to 6 hours, symptoms appeared - stomach pains, nausea, diarrhea. The symptoms subsided in 11 to 16 hours, less commonly in 24 to 48 hours. About 2% of the cases followed a more severe and longer (3 to 5 days) course.

1/1

1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--BAC. CEREUS AS A CAUSATIVE AGENT OF FOOD POI OONGS IN MAN -U-

AUTHOR-(05)-PIVOVAROV, YU.P., SIDORENKO, G.I., TKACHENKO, A.V., GOLDBERG, YE.S., AKIMOV, A.M.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PITANIYA, 1970, NR 3, PP 25-28

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FOOD CONTAMINATION, BACILLUS, POISON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1164 STEP NO--UR/0244/70/000/003/0025/0028

CIRC ACCESSION NO--AP0123141

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123141

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN RECENT YEARS FOOD POISONINGS CAUSED BY BAC. CEREUS HAVE BEEN AN OBJECT OF LARGE SCALE STUDIES IN A NUMBER OF COUNTRIES. SINCE 1967 THE QUESTION AS TO THE ETIOLOGICAL ROLE OF BAC. CEREUS IN T H CAUSATION OF POISONINGS IN THIS COUNTRY HAS BEEN STUDIED AT THE CHAIR OF GENERAL HYGIENE OF THE 2D MOSCOW MEDICAL INSTITUTE IN COOPERATION WITH MICROBIOLOGICAL LABORATORIES OF THE SANITARY EPIDEMIC STATIONS OF THE MOSCOW D LUGANSK REGIONS. TWO MAJOR, 4 FAMILIAL OUTBREAKS AND 29 ISOLATED CASES OF THIS AFFECTION WERE REGISTERED IN THE PAST PERIOD. IN THE CASES UNDER REVIEW A DISTINCT SEASONAL NATURE AND A GREAT VARIETY IN THE CLINICAL CO,SE COULD BE DISCERNED AMONG CAUSES (SUPPORTED BY BACTERIOLOGICAL ANALYSES) RESPONSIBLE FOR THE POISONINGS WERE PRODUCTS OF BOTH ANIMAL AND VEGETABLE ORIGIN. BACKGROUNDS OF CRITERIA FOR DIAGNOSING THE AFFECTIONS UNDER DI CUSION ARE OFFERED. FACILITY: KAFEDRA OBSHCHEY GIGIYENY II MOSKOVSKOGO MEDITSINSKOGO INSTITUTA IM. N. I. PIROGOVA.

UNCLASSIFIED

USSR

GOL'DBERG, Yu. A., Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1383-1385

energy of the impurities is determined from the time constant curve and the impurity concentration is determined from the curve for the derivative of the voltage. A table is given of the parameters of the impurity atoms in GaAs as determined by the authors' method. They express their gratitude to D. N. Nasledov and B. V. Tsarenkov for their advice, to D. Z. Garbuzov for his measurements and comments, and to Ye. M. Sreselya for her assistance with the work.

2/2

Industrial & Mining

USSR

UDC 621.18.004

VAVILIN, A. N., BERLINSKIY, YU. N., NOSOV, B. N., Engineers, and GOL'DBERG, YU. A., Candidate of Technical Sciences (Kirishskaya State Regional Electric Power Plant)

"First Period of Operation of the Gas-Tight TGMP-324 Boiler Unit"

Moscow, Energetik, No 6, June 1973, pp 3-5

Abstract: The single-pass, single-unit TGMP-324 boiler unit, with a steam productivity of 1000 t/hour at a superheated-steam temperature of 545/545°C, was designed for operation with pressure charging at an efficiency of 94.7% with the combustion of mazut M100. The unit is described, and its distinguishing features are enumerated. In its first year of operation, the unit was in service for more than 4500 hours, including over 3600 hours with pressure charging. The following conclusions are drawn from an analysis of its first year of operation:

1. The decisions adopted in designing the gas-tight features of the TGMP boiler unit are satisfactory; the unit was viable for operation with pressure charging. With attentive and skilled installation, difficulties were not encountered in providing the seals with the requisite tightness.
2. Unsatisfactory design of hatches for observation of the heating

USSR

VAVILIN, A. N., et al., Energetik, No 6, June 1973, pp 3-5

regime of the boiler, during operation with pressure charging, hinders the determination of flaws and breaches on the pipes of the heating surfaces.

3. The design of the joints of the combustion-chamber screens is in need of improvement.

4. The adopted burned devices with steam-mechanical nozzles permit operation within the load range of 10 to 100% of D_{nom} without turning the burners off.

5. The temperature regime of the heating surfaces has been satisfactory.

6. Increasing the capacity of the unit to the nominal value during operation of the boiler with pressure charging was attained by decreasing the resistance of the gas-air channel and increasing the thrust of the blower fans.

7. By means of appropriate adjustments, it became possible to attain economical operation of the unit with a unit consumption of standard fuel of 336 g/kwh at a capacity utilization factor of 70% and a preparedness factor pf 88% (in separate months). 5 figures.

2/2

USSR

UDC 621.382.2

GOL'DBERG, YU. A., RAFIYEV, T. YU., TSARENKOV, B. V., YAKOVLEV, YU. P.

"Surface-Barrier Metal-n-$Ga_{1-x}Al_xAs$ Structures and Their Energy Diagrams"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 462-466

Abstract: The surface-barrier metal (m) and semiconductor (s) structures based on solid solutions of n-$Ga_{1-x}Al_xAs$ of different composition ($0 \leq x \leq 0.4$) alloyed with tellurium were created by chemical deposition of the metals (Au or In) on the surface of the solid solution. The dependence of the inverse capacitance of these m-s-structures on the voltage is linear, and by the slope of this straight line, the electron concentration in the solid solutions of different composition was determined. The dependence of the direct current on the voltage for voltages less than the contact potential difference is exponential, and the dimensionless coefficient $\beta = 1.01-1.15$.

In order to construct the energy diagram of the metal and solid solution, the square root of the short circuit photocurrent of the m-s-structures as a function of the energy of the incident photons was measured. This relation comprises two linear sections. By extrapolation of these sections to the zero value of the photocurrent, the height of the barrier and the width of the forbidden band of the solid solution were determined. On variation of the

1/2

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200920017-8"

USSR

GOL'DBERG, YU. A., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 462-466

composition of the n-$Ga_{1-x}Al_xAs$ solid solution, the height of the metal-semiconductor potential barrier is directly proportional to the width of the forbidden band of the solid solution, and the proportionality factor is close to 2/3. The energy diagram of the metal-n-$Ga_{1-x}Al_xAs$ structures arises mainly from the surface levels of the semiconductor a distance of 2/3 of the width of the forbidden band from the bottom of the conduction band and not from the work function of the metal and the energy of the electron affinity of the semiconductor.

2/2

USSR

UDC 612.014.42+612.825.55

BOGDANOV, G. V., GOL'DBURT, S. N., ZUBOVA, T. S., SOKOLOVA, M. L.

"Comparison of Residual and Backward Microinterval Maskings by Means of Measuring Absolute Judgement of Loudness"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 57, No 6, 1971, pp 806-817

Abstract: For clarification of both kinds of masking, the research objective described was to study changes in loudness within the same intervals. This is research not on relative, but absolute, loudness estimation; that is in comparison with a memory-retained standard. Micro-interval and information theory methods were combined for this purpose. Two experimental tasks were set: 1) determination of the amount of transmitted information (ATI) on pure tone loudness which followed, after a 30 to 980 m sec interval a stronger tone of the same frequency (residual masking) or preceded it by the same interval (backward masking); 2) an error comparison was made, i.e., the number of over- and underestimations of loudness on both maskings. Results showed that the ATI on loudness in six categories of pure tone, under the described conditions of interference, showed a sharp ATI decrease not corresponding to concomitant threshold changes. ATI displacements in residual and backward mask-

1/2

USSR

BOGDANOV, G. V., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 57, No 6, 1971, pp 806-817

ings were not symmetrical. There was a contrast of dominant errors (overestimations with residual; underestimations with backward). This is seen as evidence of their differing origins.

2/2

USSR

UDC 612.821.612.014.4

GOL'DBURT, S. N., and MAKAROV, P. O., Leningrad State University

"Measurement of the Time of Reaction to the Appearance and Disappearance of Brief Auditory Stimuli in Order to Measure the Duration of Sensation"

Moscow, Doklady Akademii Nauk SSSR, No 5 1971, pp 1,235-1,238

Abstract: Four human subjects with normal hearing were asked to press a key either as soon as they heard a tone or as soon as they ceased to hear it. The reaction times were measured for a wide variety of intnesities and durations of a pure tone of 1,000 hz (1 to 1,000 msec and from 0 to 100 db). The time of reaction to the cessation of sound was found to be 200 to 300 msec longer than to the beginning with t_0 from 100 to msec, indicating that even very short sounds produce auditory sensations lasting several hundred milliseconds. However, the difference in reaction times diminished when the sound was lengthened and in most cases it became insignificant with t_0 between 100 and 500 msec. The time of reaction to the disappearance of brief sound generally exceeded that to its appearance by a value approximately equal to the duration of the sensation. Thus, the difference between the two reaction times can be used to measure the length of an auditory stimulus.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--DIAPHRAGM DENSIMETER -U-

AUTHOR-(03)-GUGLYA, V.G., GOLDEN, A.D., DATSKEVICH, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 240-2

DATE PUBLISHED--------70

SUBJECT AREAS--METHODS AND EQUIPMENT, PHYSICS

TOPIC TAGS--MANOMETER, PRESSURE MEASUREMENT, PRESSURE MEASURING INSTRUMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1427 STEP NO--UR/0032/70/036/002/0240/0242

[illegible] ACCESSION NO--AP0117421

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0112421

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. CONSISTING OF A DETECTOR AND MANOMETER IS SUITABLE FOR D., MOL. WT., AND GAS COMPN. DETNS. THE MANOMETER HAS A "GETINAKS" DIAPHRAGM CAPABLE OF MEASURING PRESSURE DIFFERENTIALS OF 0.01-0.1 MM H SUB2 O AS ELEC. OUTPUT SIGNALS WITH A SENSITIVITY OF 15 UV-MM H SUB2 O AT A TIME DELAY OF 0.1-0.2 SEC. THE DETECTOR (VOL. SIMILAR TO 0.1 CM PRIME3) COMPARES SMALL STREAMS OF SAMPLE GAS, WITH A HE OR H CARRIER GAS. A LINEAR RELATION WAS OBSD. BETWEEN CCL SUB4, CHCL SUB3, C SUB2 H SUB4, AND C SUB6 H SUB6 SAMPLE WTS. AND DETECTOR OUTPUTS. GAS ANALYSES MADE WITH A KATHAROMETER AND THE DENSIMETER DESCRIBED WERE WITHIN 2.5PERCENT. FACILITY: MOSK. INST. SKALI SPLAVOV, MOSCOW. USSR.

USSR

UDC 669.14.018.298:620.172.251.29

GOL'DENBERG, A. A., SUKHIKH, N. P., and MINEYEVA, T. M., All-Union Correspondence Machine Building Institute

"The Effect of Manganese and Nickel on the Strength of Steel under Harsh Loading Conditions"

Moscow, Metallovedeniye, No 6, 1971, pp 41-43

Abstract: A study was made of the effect of manganese and nickel on steel strength under harsh loading conditions. Two groups of steels, the first containing melts with 0.5, 1.0, 2.0, and 4.0% Mn and 0.1, 0.2, and 0.4%C, the other with melts containing 0, 1.0, 2.0, and 4.0% Ni and 0.2, 0.3, and 0.5% C, 0.2-0.35% Si, 0.3-0.5% Mn, 0.017-0.027%P, and 0.023-0.03% S were investigated. Strength was found to depend on the annealing temperature and the content of C. The results are represented in curves showing the effects of Mn and Ni on plastic properties and of the annealing temperature on strength and the change of the cold brittleness threshold. The strength under harsh loading conditions for steels with 4% Mn and 0.4% C is considerably lower than for steels with smaller Mn content. A comparison of plasticity and cold brittleness changes of nickel-alloyed steels revealed the absence of a clear interdependence between macroplasticity and the tendency to brittle failure. Three figures, two bibliographic references.
1/1

USSR

UDC 576.8.095:622.323

GOL'DENBERG, A. M., KVASNYKOV, YE. I., BOYKO, M. M., LYUBOMYROVA, O. M., PAVLENKO, M. I., PYSARCHUK, YE. M., and KHYZHNYAK, O. O., Ivano-Frankovsk Central Scientific Research Laboratory, and Institute of Microbiology and Virology, Academy of Sciences UkrSSR

"Biochemical Processes During Oil Displacement Under the Influence of Bacteria in Model Experiments"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 2, Mar/Apr 71, pp 234-239

Abstract: Introduction of selected cultures of gas-forming bacteria from the genus Clostridium together with a molasses medium into an artificial model of an oil-bearing bed (sand saturated with oil) results in higher displacement of oil as compared to the control (without addition of bacteria). Most crucial changes in the medium enriched with bacteria occur in 5-7 days at an optimum temperature of 30°C, that is during the period of most intensive changes in the nutrient medium and maximum gas production. At that time the surface tension at the interphase culture medium-air is lowered, the amount of organic acids and ethanol is increased and the pH of the medium is lowered. The specific gravity of the oil exposed to bacteria is lowered by 0.0018-0.0096 g/cm^3, and its viscosity is lowered by 0.51-3.02 cst, without any changes in its fractional composition.

1/1

USSR

UDC: 681.2.087.92-932

VYZHELEVSKIY, B. V., POMYKAYEV, I. I., VIASOV, Ye. N., LUKIN, V. F., GOL'DENBERG, F. M., KARCHEVSKIY, A. A., ZELENKOV, S. V.

"A Sine-Cosine Converter"

USSR Author's Certificate No 316110, filed 24 Apr 70, published 9 Nov 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7, Jul 72, Abstract No 7A111 P)

Translation: A patent has been granted for a sine-cosine converter distinguished by the fact that one end of each output winding of the rotor is connected to the input of an auxiliary phase-sensitive rectifier, while the other end is connected through a resistor to the input and output of the same rectifier. Laid around the perimeter of the back edge of the rotor is an excitation winding which is connected to a source of alternating current. The device acts as a vector plotter and coordinate transformer with DC and AC input signals. Either DC or AC output signals may be obtained as desired. The device can serve two servosystems simultaneously, one working on AC and the other on DC. Two illustrations. O. S.

1/1

USSR

UDC: None

GOL'DENBERG, L. M. and GRINSHPON, M. S.

"Method of Computing the Reliability of Logic Circuits"

Moscow, Radiotekhnika, Vol. 26, No 1, 1971, pp 94-101

Abstract: Because the procedure given in an earlier article (V. I. Levin, Veroyatnostnyy analiz nenadezhnykh avtomatov -- Probability Analysis of Unreliable Automata -- "Zinatne," Riga, 1969) for computing the reliability of combination Boolean circuits is too difficult, the authors of the present article propose a simpler method. They begin by considering as given a logic function F of n arguments determined by N sets of these arguments, where N may assume any value between 1 and 2^n inclusive. They then examine a possible circuit L for realizing F. They define the integral reliability of L as the reliability of realizing F by circuit L, and state that it can be determined as the probability of the correct value of the signal at the circuit output. An example of the method, involving tables given in this article, is submitted. The authors assert that their method can be used for determining the probability of errors of the $1 \rightarrow 0$ and $0 \rightarrow 1$ type at the circuit output as well as computing its reliability.

1/1