"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

MELIK-SARKISYAN, S. S.

UDC 576.85

MOLECULAR MECHANISMS OF ATMOSPHERIC NITROGEN FIXATION

[Article by Member-Correspondent USSR Academy of Sciences V. L. Kretovich, Doctor of Biological Sciences I. G. Yevstigneyeva, Candidates of Biological Sciences N. P. L'vov, S. S. Melik-Sarkisyan; Moscow, Vestnik Akademii Nauk SSSR, Russian, No 3, March 1972, pp 38-47]

The atmosphere is a source of nitrogen, found in the composition of all life. The reserves of nitrogen in the atmosphere are almost unlimited: above each hectare of soil rises a column of air containing about 80,000 tons of nitrogen, i.e., approximately 10,000 times more than in one hectare of soil. Nevertheless, neither the human nor the animal organism, nor much of the world's vegetation is capable of assimilating molecular nitrogen from the atmosphere. Man and animal alike acquire nitrogen from food in the form of vegetable and animal proteins. As regards vegetables, however, they have a remarkable capacity to synthesize proteins from carbon dioxide gas, water and inorganic sources of nitrogen -- ammonia and the salts of nitric acid, representing in the final analysis a primary source of protein on our planet. But even ammonia and nitric acid salts (nitrates), in turn, are formed from molecular atmospheric nitrogen by virtue of the vital activity of a special group of nitrogen-fixing microorganisms, living in the soil and in water bodies.

Thus, life on our planet depends on these microorganisms.

Natural nitrogen-fixing microorganisms can be classified in two groups: free-living and symbiotic, which live in symbiosis (companionship) with higher plants or fungi, supplying them with various nitrogen compounds formed in the process of fixation of atmospheric molecular nitrogen.

The history of analysis of nitrogen-fixing microorganisms goes back to 1893, when S. N. Vinogradskiy first extracted from soil the anaerobic nitrogen-fixing bacterium clostridium (Clostridium pasteurianum). Later on in 1901, M. Beyerink discovered the anaerobic nitrogen-fixing bacterium azotobacter. For nearly a half century these two free-living bacteria were considered the only nitrogen-fixing microbes in the soil. Development of new, highly sensitive methods of determining nitrogen-fixing activity by

JPRS 55889
4 May '72

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

Acc. Nr.: AT0046520

Ref. Code: UR0146

UDC 621.316.761.2

USSR

MELIK-SHAKHNAZAROV, A.M., PITERYAKOV, V.V., SHAYN, I.L.

"Use of the Scanning Conversion Principle in Constructing Alternating Current Compensators"

K voprosu o primenenii printsipa razvertyvayushchego preobrazovaniya pri postroyenii kompensatorov peremennogo toka (cf. English above). Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy, Priborostroyeniye, 1970, No 1, pp 15-19

Translation:

The article examines the use of scanning conversion methods in alternating current automatic control systems. The possibility is demonstrated of increasing the speed of response for a low carrier frequency of the signal being measured.

Reel/Frame
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USSR

UDC 621.317.421

MELIK-SHAKHNAZAROV, V. P., VOLKOV, I. I., BARANOV, A. A. and KORGANOVA, O. G.

"Device for Measuring the Induction of Constant Magnetic Fields"

Moscow, Izmerital'naya Tekhnika, No 6, 1972, pp 51-52

Abstract: A uniquely designed, self-compensating device for measuring the induction of constant magnetic fields, operating on the basis of a commercially available Hall generator, has been developed by the authors at the "Information Measurement Engineering" department of the Kuybyshev Polytechnical Institute. This device does not possess the drawbacks of the devices conventionally used for this purpose, such as manual balancing and thermal stabilization of the Hall generator, and a value of the electrical output signal which is insufficient for automatic signal measurement and recording.

The specifications are: measurement limits - 0.001 0.01, 0.1 T; basic error, not taking into account the error of the output instrument, about 1%; nominal output current - 3 ma; pass band - 1 Hz; supply voltage 220v ± 10%, 50 Hz. The device is made from series-produced, domestically manufactured subassemblies and parts, and is suitable for expensive application in various branches of the electrical engineering industry, as well as for development

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USSR

MELIK-SHAKHNAZAROV, V. P., et al., Izmerital'naya Tekhnika, No 6, 1972, pp 51-52

and research on various automation and information-measurement facilities. 2 figures. 4 references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR

UDC 632.95

MELIKADZE, L. D., KIPIANI, R. YA., MUKHASHAURIYA, A. L., BHONIYA, D. I., GURGENIDZE, Z. I., Institute of Physical and Organic Chemistry, Academy of Sciences of the Georgian SSR, Institute of Plant Protection, Ministry of Agriculture

"A Chemicalfor Controlling Large Spruce Bark Beetles"

USSR Author's Certificate No 270390, filed 18 Jan 67, published 9 Apr 71 (from RZh-Khimiya, No 1(II), Jan 72, Abstract No 1N25 P)

Translation: The large spruce bark beetle can be effectively controlled by treating the trunks of trees with a 50% emulsion prepared from a concentrate containing 5.5-6.0% technical hexachlorocyclohexane, 49-54.5% kerosene, 20-25% dichloroethane, 2.0% sulfite pulp extract, 0.5% OP-10 or OP-7 and water (to make 100%). The treatment does not harm the tree. P. V. Popov

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UNCLASSIFIED PROCESSING DATE--30OCT70

1/2 020

TITLE--THERMAL DIFFUSION SEPARATION OF A MIXTURE OF HIGH MOLECULAR WEIGHT ISOPARAFIIN AND HYBRID PARAFFIN CYCLOPENTANE HYCARBONS -U-

AUTHOR-(05)-SERGIYENKO, S.R., ERNEPESOV, D.N., ERNEPESOV, KH.N., KOROTKIY, A.G., MELIKADZE, L.D.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1159-61

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CHEMICAL SEPARATION, PARAFFIN WAX, CYCLOPENTANE, THERMAL DIFFUSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1125 STEP NO--UR/0020/70/190/005/1159/1161

CIRC ACCESSION NO--AT0119979

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0119979

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FRACTIONATING EFFECTIVITY OF A H SUB2 O COOLED, THERMAL DIFFUSION APP. HAVING HOT AND COLD WALL TEMPS. OF 125 AND 27DEGREES, RESP., AND CONSISTING OF 2 COAXIAL 1000 MM COLUMNS, THE OUTER 50 MM IN INTERNAL DIAM., SEPD. FROM THE INNER BY A 0.4 MM GAP CONTG. SPIRALLED WIRE, AND EQUIPPED FOR SAMPLE REMOVAL WITH NEEDLE VALVES AT 200 MM INTERVALS, WAS 99.1, 100.2, AND 105.4PERCENT AFTER 8, 10, AND 12 HR DIFFUSION FOR A MIXT. OF EQUAL VOLS. OF CETANE AND DECALIN (I), SINCE CIS-I AND TRANS-I BEGAN TO SEP. AFTER 10 HR. FRACTIONATION FOR 12 HR OF A B. 350-450DEGREES CHELEKNE SEA PETROLEUM FRACTION HAVING RATIO (A-C) OF ISOPARAFFIN PARAFFIN CYCLOPENTANE HYDROCARBONS 65:35, AV. MOL. WT. (BAR M) 280, AV. NO. (K SUBO) OF RINGS-MOL. 1.2, D PRIME20 0.8303, AND N PRIME20 SUBD 1.4565 YIELDED A FIRST FRACTION HAVING A-C 90.5:9.5, M 261, K SUBO 0.3, D PRIME20 0.7939, AND N PRIME20 SUBD 1.4438, A FOURTH FRACTION HAVING A-C 82:18, BAR M 286, K SUBO 0.7, D PRIME20 0.8102, AND N PRIME20 SUBD 1.4504, AND A TENTH FRACTION HAVING A-C 21.5:78.5, M 296, K SUBO 3.6, D PRIME20 0.9139, AND N PRIME10 SUBD 1.4840. IN THE ORIGINAL MIXT. AND THE RESP. FRACTIONS, THE NO. OF ME GROUPS-MOL. WAS 4.4, 34. 4.7, AND 4.8 AND THE NO. OF CH SUB2 GROUPS-MOL. WAS 6.9, 13.6, 10.2, AND 1.2. COMBINED FRACTIONS 2, 3, AND 4 WERE REFRACTIONATED TO PREP. NEARLY PURE ISOPARAFFINS. FACILITY: INST. KHIM., ASHKHABAD, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

Entomology

USSR

MELIKADZE, L. D., MIKADZE, L. D., SHONIYA, D. I., GURGENIDZE, Z. I., BARABADZE, Sh. Sh., and AZKHAZAVA, I. I., Georgian Institute of Plant Protection

"Olfactometry to Evaluate Chemical Attractants"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 2, 1972, pp 473-476

Abstract: A description is given of a device used to test attractants of the European spruce bark beetle (Dendroctonus micans) and other insects. Unlike other olfactometric methods, it can determine the optimum concentration of an attractant in the air. Air is fed through a thermostat-controlled heating coil and bubbler containing the substance tested. The temperature is controlled to keep the vapor pressure uniform. The air saturated to the same concentration by the vapor of the attractant (working mixture) enters the working part of the olfactometric unit. Both the control and the working parts of the unit are divided into three chambers. The working mixture after entering the olfactometer gradually fills the three chambers and through openings in the bottom of the third chamber diffuses along a platform where the insects are kept. An equal amount of pure air flows from the control part and moves along the platform in the opposite direction, creating a concentration

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USSR

MELIKADZE, L. D., et al., Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 2, 1972, pp 473-476

gradient along the platform. Depending on the reaction of the insects to the substance, they crawl into the working or control part of the olfactometer. The optimum concentration is determined (a) from a curve showing the dilution of the working mixture at the outlet from the third chamber of the olfactometer and (b) from the dynamics of migration of the insects in time. The optimum concentration is that which attracts the most insects.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR UDC 628.84:697.97

MELIK-ARAKELYAN, T. A., Candidate of Technical Sciences, Central Scientific Research Institute of Experimental Planning of Buildings of Entertainment and Sports

"Air Conditioning Units of Ostankino Television Tower"

Moscow, Kholodil'naya Tekhnika, No 9, Sep 73, pp 16-19

Abstract: Projected and realized systems of air conditioning of the Ostankino television power in Moscow are described and their technical characteristics are discussed by reference to photographs and principal schemata of air condition and ventilation of restaurant and observation halls and of the cooling system of the room of automatic control of high-speed elevators. The air condition installations of the rooms for operators, of the conference hall, and of the elevator machine rooms are discussed in detail; their operational characteristics, including air discharge, cooling efficiency, heating capacity, and the power of electric motors are given. Five figures.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR UDC 669.18.046.516:621.746.32

KAZACHKOV, I. P., MELIKAYEV, N. P., DRUINSKIY, N. I., PANIMONCHIK, I. B., and OFENGENDEN, Dnepropetrovsk Metallurgical Institute, Yermakov Ferroalloys Plant, and Donets Metallurgical Plant

"Melting Complex Alloys FKhMnS500 From Lean Iron-Manganese Ores and Their Use"

Moscow, Stal', No 9, Sep 73, pp 800-801

Abstract: The possibility has been indicated at the Yermakov Ferroalloys Plant for the industrial use of unconditioned Fe-Mn ores with a low phosphorus content (0.03-0.04%) for melting alloys of the ferrochromium-manganese--silicon type (30-40% Cr, 17-35% Mn, 10-13% Si, and 0.06-5.5% C). Tests were conducted in an arc furnace with a power rating of 1.2 mva. At the Donets Metallurgical Plant Economic effect of 1.0-1.15 rubles/ton was achieved by using alloy FKhMnS500 (38% Cr, 17.1% Mn, 12% Si, 5.2% C, 0.6% Al, 0.6% Ca + Mg, 0.020% S, and 0.040% P) for deoxidation and alloys steel 40Kh in the ladle. Distribution of elements in the rolled metal was uniform, mechanical properties were somewhat improved, general consumption of ferro-alloys during melting was diminished, loss of Cr, Mn, and Si was reduced by 2.6, 2.0, and 1.1 times, respectively, and the P and N content in the steel was lowered. Four bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR UDC 621.365.82

MELIKhIN, G. V.

"On the Polarization of the Radiation of Single-Mode Gas Lasers with Anisotropic Resonators, Operating on J-J Transitions"

Tr. Ryazan. Radiotekhn. In-ta (Proceedings of the Ryazan' Radiotechnical Institute, No 37, 1972, pp 5 - 10, RZh-Fizika, No 9, Sep 73, Abstract No 9D712

Translation: An analysis is given of the polarization characteristics of single-mode gas lasers operating on the J-J transition. It is noted that threshold oscillations in the resonator with an amplitude anisotropy are linearly polarized and that the plane of polarization is determined by the direction of least loss. When the intensity of radiation is increased to some critical value determined by the parameters of resonator anisotropy and the characteristics of the active medium, a linear polarization is observed; when the intensity is further increased, the polarization changes almost to circular. The conditions for observing elliptical polarization of the radiation are cited, and the relationship between the direction of plane polarization and the adjustment of the resonator and the intensity of the radiation are given. Eleven bibliographic citations.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR UDC: 577.4

MELIKHOV, A. N., GUZIK, V. F., KARELIN, V. P., MIRONOV, B. N.

"On Optimizing the Adjustment of Linear Digital Integrating Structures"

V sb. Vychisl. sistemy (Computer Systems--collection of works), vyp. 47, Novosibirsk, 1971, pp 18-31 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V452)

[No abstract]

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR

MELIKHOV, A. N., KUREYCHIK, V. M., LISYAK, V. V.

"Algorithm of Placement of a Graph on a Plane"

Teor. Kibernetika [Theoretical Cybernetics -- Collection of Works], Kiev, 1971, pp 48-65 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V784 by O. Belkin).

Translation: One problem of topological planning of digital automata is studied -- the problem of placement of modules in cells considering the minimum total length of connecting wires. Known algorithms of placement of modules can be divided into two types: sequential and iterational. The former, in addition to simplicity of realization and high speed, have low accuracy. Iterational algorithms, although they are slower, yield more precise results, the final result depending on the initial placement of the modules. An algorithm suggested for production of the initial placement of modules utilizes sequential methods, and minimization of the total length of connections is achieved by iterational methods. The algorithm studied was used in a small system for planning the topology of digital integrated circuits and structures. The corresponding program, written in LYaPAS, allows graphs containing up to 200 points to be studied. The total time of solution of the problem of placement of 100 modules is approximately 1 hour (on the Minsk 22 computer).

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

MELIKHOV, A. N., KUREYCHIK, V. M., LISYAK, V. V.

"An Algorithm for Laying out a Graph on a Plane"

UDC 8.74

Kiev, Teor. kibernetika--sbornik (Theoretical Cybernetics--collection of works), 1971, pp 48-65 (from RZh-Matematika, No 1, Jan 73, abstract No 1V784 by O. Belkin)

Translation: The paper deals with one of the problems of topological projection of digital automata -- the problem of arranging modules in cells with regard to the minimum overall length of connecting wires. Conventional algorithms for arrangement of modules can be broken down into two types: sequential and iteration. Algorithms of the first type are simple to realize and fast, but are not highly precise. Iteration algorithms, although slower, give more accurate results, the final result depending on the initial arrangement of the modules. The proposed algorithm for initial arrangement of the modules utilizes sequential methods, and the overall length of the connections is minimized by iteration methods. This algorithm was used in a small system for design of the topology of digital integrated circuits and structures. The corresponding program in LYAPAS language can handle graphs containing up

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR UDC: 51:621.391

MELIKHOV, A. N., BERSHETYN, L. S., KARELIN, V. P.

"On Isomorphic Embedding of Graphs and Abstract Automata"

Tr. Seminara po metodam mat. modelir. i teorii elektr. tsepey. In-t kibernet. AN USSR (Works of the Seminar on Methods of Mathematical Modeling and Electric Circuit Theory. Institute of Cybernetics, Academy of Sciences of the UkrSSR), 1970, vyp. 7, pp 95-104 (from RZh-Kibernetika, No 1, Jan 71, Abstract No 1V334)

Translation: Algorithms are described for recognition of isomorphic embedding of graphs and abstract automata. In the authors' opinion, these algorithms are suitable for realization on digital computers. Some properties of isomorphic embeddings of graphs and automata are established.

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USSR

MELIKHOV, A. N., KARELIN, V. P. and KUREYCHIK, V. M.

"Cutting of a Graph into Subgraphs"

Mat. Modelir. i Teoriya Elektr. Tsepey [Mathematical Modeling in the Theory of Electric Circuits -- Collection of Works], No 10, Kiev, Nauk. Dumka Press, 1973, pp 70-75 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No (V417)

Translation: Problems of the cutting of arbitrary finite graphs into maximally connected subgraphs are studied. A formal method is suggested for solution of this problem. The method is based on the determination of permutations maximizing the number of units in the diagonal sections of a contiguity matrix of the initial graph. The algorithm suggested is used to write and debug a program for optimal sectioning of graphs on the Minsk-22 computer. Author's view

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MELIKHOV, A.N.

Cybernetics

D-5

JPRS 54862
26 Nov 71

NEW BOOKS OF 'NAUKA' PUBLISHING HOUSE

[List; Moscow, Vestnik Akademii Nauk, Russian, Vol 41, No 9, September 1971, pp [illegible]]

Physical, Mathematical, and Technical Sciences

Automatizeniye [illegible] (Automation of Scientific Investigations in Machine-Building and Instrument-Making). Collection of Articles. Institute of Machine Studies. Moscow, 1971, [illegible] pages, [illegible] copies, 1 r 02 k.

Adaptivnyye sistemy. Sol'shiye sistemy (Adaptive Systems. Complex Systems). Collection. Institute of Problems of Control (Automatin and Telemechanics). Moscow, 1971, 534 pages with ill., 3750 copies, 2 r 99 k.

P. S. Aleksandrov and P. S. Urinson. [illegible] tipologicheskiye [illegible] (Memoir on Compact Topological Spaces). Moscow, 1971, [illegible] pages, 2900 copies, [illegible] k.

N. M. Beskin. Izobrazheniye [illegible] (Images of Spatial Figures). Moscow, 1971, 90 pages, [illegible] copies, [illegible] k.

I. M. Gelfand, Ye. G. Glagoleva, and A. A. Kirillov. [illegible] (The Method of Coordinates). Moscow, 1971, [illegible] pages with ill., 200,000 copies, 15 k.

[illegible] (Statistical Models of Interpretation). [illegible] 7000 copies, 1 r [illegible] k.

[illegible] Moscow, 1971, [illegible] pages with ill., [illegible] copies, [illegible] k.

A. N. Melikhov. Orientirovannyye [illegible] (Oriented [illegible]

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

III. Mathematical Cybernetics
A. Theory of Control Systems

USSR

MELIKHOV, A. N., BERSHTEYN, L. S., IVANOV, G. I.

"Analysis of Structural Plans of Asynchronous Automata"

Avtomatika i Vychisl. Tekhn. [Automation and Computer Technology], 1972, No 6, pp 14-18 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V439, by N. Katerinochkina).

Translation: An algorithm is presented for construction of a generalized quadratic automat matrix (GQAM) on the basis of the structural plan of the asynchronous automata. The GQAM is defined as a matrix in which the intersection of the ith row and the jth column carrier a Boolean function which takes on the value of 1 with those and only those sets of values of input and internal variables which shift the automaton from state q_i to state q_j.

An algorithm is presented for detection of contradictions and continuous transitions and dangerous runs in the memory of the asynchronous automaton by means of its GQAM.

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USSR UDC: 8.74

MELIKHOV, A. N., IVANOV, G. I., INOZEMTSOV, Z. P., ORLOVA, A. S.

"A Program for Checking an Automaton for Contradiction, Redundancy and Ripple-Through Jumps"

Inform. materialy. Nauch. sovet po kompleks. probl. "kibernetiki" AN SSSR (Informational Materials. Scientific Council on the Complex Problem of Cybernetics, Academy of Sciences of the USSR), 1971, No 7(54), pp 118-119 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V554)

[No abstract]

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR UDC 536.46

IVANOV, B. A., MELIKHOV, A. S., ROZOVSKIY, A. S., Balashikha

"Combustion of Materials in Liquid Oxygen"

Novosibirsk, Fizika goreniya i vzryva, Vol 8, No 4, 1972, pp 593-595

Abstract: Solid nonmetallic materials (plastics, fiberglass, and so on) are widely used in the oxygen industry, but in contact with liquid oxygen they form heterogeneous systems capable of ignition from various random sources and intense combustion. A study was made to measure the apparent combustion rate of standard representatives of the nonmetallic materials -- polytetrafluoroethylene, polymethylmethacrilate, textolite and KAST-V fiberglass -- as a function of the specimen diameter, pressure and temperature of the liquid oxygen. The combustion rates of all the materials increase with an increase in pressure almost by a linear law. The temperature of the liquid oxygen has a noticeable effect on the combustion rate. The linear dependence of the combustion rate on pressure is retained for all the investigated diameters, but the slopes of the curves decrease with an increase in diameter. A photograph of a burning specimen of textolite in liquid oxygen under a pressure of 1 kg/cm^2 shows that the combustion takes place in a gas bubble formed during evaporation of the liquid oxygen. Thus, some of the laws of combustion of solid nonmetallic materials in gaseous oxygen will also apply in liquid oxygen. The increased

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USSR

IVANOV, B. A., et al., Fizika goreniya i vzryva, Vol 8, No 4, 1972, pp 593-595

combustion rate of polytetrafluoroethylene in liquid oxygen is connected with intensification of the mass exchange processes as a result of boiling and evaporation of the liquid oxygen at the liquid-gas bubble interface and also pulsations of the bubble walls.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

MELIKHOV P.I.

Acc. Nr.: AN0104123 Ref. Code: 2189003

TITLE-- ANNOUNCEMENT OF THE COMMITTEE ON LENIN AND STATE PRIZES, U.S.S.R.

NEWSPAPER-- IZVESTIYA, MAY 28, 1970, P 4, COLS 1-5

ABSTRACT-- NINETY ONE BASIC AND APPLIED RESEARCH WORKS HAVE BEEN NOMINATED FOR THE STATE PRIZES. TWO OF THESE, "THE MULTI-PURPOSE INDUSTRIAL HELICOPTER KA-26", BY N. I. KAMOV, V. B. AL.PEROVICH, V. B. BARSHEVSKIY, A. A. DMITRIYEV, G. I. IOFFE, M. A. KUPFER, L. A. POTASHNIK, N. N. PRIOROV, A. G. SATAROV, I. M. VEDENEYEV, S. B. BREN, AND V. A. NAZAROV, AND "THE DEVELOPMENT OF TURBOFAN JET ENGINES NK-8 AND NK-8-4, AND THE DEVELOPMENT AND REDUCTION TO SERIAL PRODUCTION A SYSTEM OF TECHNOLOGICAL PROCESSES WHICH ASSURED WIDE USES FOR TITANIUM ALLOYS", BY N. D. KUZNETSOV, M. T. VASILISHIN, V. A. KURGANOV, P. M. MARKIN, V. D. RADCHENKO, P. A. SUKHOV, A. A. MUKHIN, V. G. SHITOV, G. I. MUSHENKO, L. A. SHKODO, AND G. P. DOLGOLENKO, HAVE BEEN SUBMITTED BY THE MINISTRY OF THE AVIATION INDUSTRY.

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Acc. Nr.: AN0104123

"A SERIES OF INVESTIGATIONS INTO THE DYNAMICS OF A BODY WITH FLUID-FILLED CAVITIES", /65-68/, BY N. N. MOISEYEV, A. A. PETROV, V. V. RUMYANTSEV AND F. L. CHERNOUS,KO AND "ULTRA HIGH PRECISION JIG BORING MILLS WITH 1,000 X 1,600 AND 1,400 X 2,240 MM PLATENS", BY A. I. KIR,YANOV, V. G. ABRAMOVICH, I. V. GUTKIN, A. S. ALIKPEDEV, G. B. PAUKOV, AND A. S. YEGUDKIN, HAVE BEEN SUBMITTED BY THE COMPUTATION CENTER OF THE ACADEMY OF SCIENCES AND THE MINISTRY OF THE MACHINE TOOL CONSTRUCTION AND TOOL INDUSTRY, RESPECTIVELY.

"THE RADICALLY IMPROVED MELTING TECHNOLOGY OF CRITICAL-PURPOSE HIGH-ALLOY STEELS AND ALLOYS OF IMPROVED QUALITY ACHIEVED BY THE INERT GAS TREATMENT OUTSIDE THE FURNACE", BY YU. V. GRIGASIMOV, O. M. CHEKHOMOV, N. V. SIDOROV, S. K. FILATOV, B. A. CHEREMNYKH, R. M. KHAYRUTDINOV, I. P. BARMOTIN, L. K. KOSYREV, K. P. BAKANOV, N. N. VLASOV, P. I. MELIKHOV, AND N. A. TULIN, HAS BEEN SUBMITTED BY THE ZLATOUST METALLURGICAL PLANT.

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USSR

UDC: None

ARTEMENKOV, L. I., KOZLOV, P. I., MELIKHOV, P. I., MUKHIN, P. A., and PAPKOV, L. N.

"Maintaining a String Plasma in the TOKAMAK TO-1 by an Automatic Control System"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 17, No 5, 1973, pp 251-254

Abstract: The principal difficulty in controlling the maintenance of a string plasma in the Tokamak TO-1 is the amplification of the current induced in the control winding that occurs with shifts of the plasma. To cope with this and other control problems, the authors of this letter conducted experiments on the TO-1 to study the dependence of the microscopic characteristics of a plasma string on the time constant of the control winding within the range of 0.04-2 seconds. Typical oscillograms of the discharge at initial hydrogen pressures of $2 \cdot 10^{-4}$ mm Hg, with a longitudinal magnetic field of 8.2 kgauss and a vertical correcting field of 23 gauss for two values of the control winding time constant, show that a duration of a plasma current pulse of as much as 400 msec is basically a function of the vertical correcting field. The curves for these functions are obtained. Examination of oscillograms taken by magnetic probes

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ARTEMENKOV, L. I., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 17, No 5, 1973, pp 251-254

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USSR

UDC 539.37

PRESNYAKOV, A. A., BEGIMOV, T., MELIKHOV, V. D., and CHERNOUSOVA, K. T. (Editors)

Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov (Effect of Preliminary Deformation on the Properties of Metals and Alloys), Collection of Papers, Alma-Ata, "Nauka" Press, 1971, 135 p., illustrations, graphs, tables, 1500 copies printed.

Translation of Annotation:

The papers in this collection deal with studies on the effect of preliminary plastic deformation on the properties of copper, aluminum, nickel, tin, and alloys including eutectic and eutectoid composi[illegible] The papers offer new data on the specific characteristics of ch[illegible] in plasticity, strength and structure of the above materials. These characteristics become apparent following plastic deformation-induced activation of phase and structural transformations and consist in the development of rheotropic recovery-type phenomena, superplasticity, and transformation of thermal brittleness zones. The papers reflect data on the influence of stretching rates of specimens and their state on the development of these effects. The results of the studies are of interest for the theory of metal alloys, their treatment techniques, and uses. The collection is intended for scientific personnel of institutes and engineers of metal working plants, graduate students, and metallurgical students.

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Chernysheva, Yu. P. Effect of Straining Rate on Copper Plasticity 14

Aubakirova, R. K., Presnyakov, A. A., and Karpenyuk, A. M. Changes in Flow Curves of the Superplastic Al-Zn Alloy With Temperature 18

Tokseitova, R. K., Chernousova, K. T. and Baimbetov, N. Effect of Pre-straining on the Decomposition of α-Solid Solution of the Cu-Zn System 27

Kagasova, L. Ya (deceased) and Presnyakov, A. A. Effect of Pre-straining on the Plasticity of Tin-Lead alloys 32

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UDC 621.365.82

USSR

MELIKhIN, G. V.

"On the Polarization of the Radiation of Single-Mode Gas Lasers with Anisotropic Resonators, Operating on J-J Transitions"

Tr. Ryazan. Radiotekhn. In-ta (Proceedings of the Ryazan' Radiotechnical Institute, No 37, 1972, pp 5 - 10, RZh-Fizika, No 9, Sep 73, Abstract No 9D712

Translation: An analysis is given of the polarization characteristics of single-mode gas lasers operating on the J-J transition. It is noted that threshold oscillations in the resonator with an amplitude anisotropy are linearly polarized and that the plane of polarization is determined by the direction of least loss. When the intensity of radiation is increased to some critical value determined by the parameters of resonator anisotropy and the characteristics of the active medium, a linear polarization is observed; when the intensity is further increased, the polarization changes almost to circular. The conditions for observing elliptical polarization of the radiation are cited, and the relationship between the direction of plane polarization and the adjustment of the resonator and the intensity of the radiation are given. Eleven bibliographic citations.

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USSR UDC: 577.4

MELIKHOV, A. N., GUZIK, V. F., KARELIN, V. P., MIRONOV, B. N.

"On Optimizing the Adjustment of Linear Digital Integrating Structures"

V sb. Vychisl. sistemy (Computer Systems--collection of works), vyp. 47, Novosibirsk, 1971, pp 18-31 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V452)

[No abstract]

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USSR

MELIKHOV, A. N., KUREYCHIK, V. M., LISYAK, V. V.

"Algorithm of Placement of a Graph on a Plane"

Teor. Kibernetika [Theoretical Cybernetics -- Collection of Works], Kiev, 1971, pp 48-65 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V784 by O. Belkin).

Translation: One problem of topological planning of digital automata is studied -- the problem of placement of modules in cells considering the minimum total length of connecting wires. Known algorithms of placement of modules can be divided into two types: sequential and iterational. The former, in addition to simplicity of realization and high speed, have low accuracy. Iterational algorithms, although they are slower, yield more precise results, the final result depending on the initial placement of the modules. An algorithm suggested for production of the initial placement of modules utilizes sequential methods, and minimization of the total length of connections is achieved by iterational methods. The algorithm studied was used in a small system for planning the topology of digital integrated circuits and structures. The corresponding program, written in LYaPAS, allows graphs containing up to 200 points to be studied. The total time of solution of the problem of placement of 100 modules is approximately 1 hour (on the Minsk 22 computer).

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USSR UDC 8.74

MELIKHOV, A. N., KUREYCHIK, V. M., LISYAK, V. V.

"An Algorithm for Laying out a Graph on a Plane"

Kiev, Teor. kibernetika--sbornik (Theoretical Cybernetics--collection of works), 1971, pp 48-65 (from RZh-Matematika, No 1, Jan 73, abstract No 1V784 by O. Belkin)

Translation: The paper deals with one of the problems of topological projection of digital automata -- the problem of arranging modules in cells with regard to the minimum overall length of connecting wires. Conventional algorithms for arrangement of modules can be broken down into two types: sequential and iteration. Algorithms of the first type are simple to realize and fast, but are not highly precise. Iteration algorithms, although slower, give more accurate results, the final result depending on the initial arrangement of the modules. The proposed algorithm for initial arrangement of the modules utilizes sequential methods, and the overall length of the connections is minimized by iteration methods. This algorithm was used in a small system for design of the topology of digital integrated circuits and structures. The corresponding program in LYAPAS language can handle graphs containing up

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USSR

MELIKHOV, A. N. et al., Teor. kibernetika, 1971, pp 48-65

to 200 vertices. The overall time for solution of the problem of arranging 100 modules is approximately one hour (on the "Minsk-22" digital computer).

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USSR UDC: 51:621.391

MELIKHOV, A. N., BERSHETYN, L. S., KARELIN, V. P.

"On Isomorphic Embedding of Graphs and Abstract Automata"

Tr. Seminara po metodam mat. modelir. i teorii elektr. tsepey. In-t kibernet. AN USSR (Works of the Seminar on Methods of Mathematical Modeling and Electric Circuit Theory. Institute of Cybernetics, Academy of Sciences of the UkrSSR), 1970, vyp. 7, pp 95-104 (from RZh-Kibernetika, No 1, Jan 71, Abstract No 1V334)

Translation: Algorithms are described for recognition of isomorphic embedding of graphs and abstract automata. In the authors' opinion, these algorithms are suitable for realization on digital computers. Some properties of isomorphic embeddings of graphs and automata are established.

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USSR

MELIKHOV, A. N., KARELIN, V. P. and KUREYCHIK, V. M.

"Cutting of a Graph into Subgraphs"

Mat. Modelir. i Teoriya Elektr. Tsepey [Mathematical Modeling in the Theory of Electric Circuits -- Collection of Works], No 10, Kiev, Nauk. Dumka Press, 1973, pp 70-75 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No (V417)

Translation: Problems of the cutting of arbitrary finite graphs into maximally connected subgraphs are studied. A formal method is suggested for solution of this problem. The method is based on the determination of permutations maximizing the number of units in the diagonal sections of a contiguity matrix of the initial graph. The algorithm suggested is used to write and debug a program for optimal sectioning of graphs on the Minsk-22 computer. Author's view

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MELIKHOV, A.N.

Cybernetics

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16 Nov 71

NEW BOOKS OF 'NAUKA' PUBLISHING HOUSE

[List; Moscow, Vozhnik Akademii Nauk, Russian, Vol 41, No 9, September 1971, pp [illegible]]

Physical, Mathematical, and Chemical Sciences

Automatizatsiya [illegible] (Automation of Scientific [illegible] Machine-Building and Instrument-Making). Collection of Articles. Institute of Machine Studies. Moscow, 1971, [illegible] pages, [illegible] copies, 1 r 02 k.

Adaptivnyye sistemy. Dolishiye sistemy (Adaptive Systems. Complex Systems). Collection. Institute of Problems of Control (Automatin and Telemechanics). Moscow, 1971, 594 pages with ill., 3750 copies, 2 r 99 k.

P. S. Aleksandrov and P. S. Urinson. Nemnogo [illegible] tipologicheskikh prostranstvakh (Memoir on Compact Topological Spaces). Moscow, 1971, [illegible] pages, 9900 copies, [illegible] k.

N. M. Beskin. Izobrazhenive prostranstvennykh figuh (Images of Spatial Figures). Moscow, 1971, [illegible] pages, [illegible] copies, [illegible] k.

I. M. Gelfand, Ya. G. Glaceleva, and A. A. Kirillov. Metod koordinat (The Method of Coordinates). Moscow, 1971, [illegible] pages with ill., 200,000 copies. 15 k.

F. M. [illegible]. [illegible] (Statistical Models of Interpretation). [illegible] 7000 copies, 1 r 31 k.

[illegible]. [illegible] Moscow, 1971, [illegible] pages with ill., [illegible] copies, [illegible] k.

A. N. [illegible]. Orientat[illegible] (Oriented

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

III. Mathematical Cybernetics
A. Theory of Control Systems

USSR

MELIKHOV, A. N., BERSHTEYN, L. S., IVANOV, G. I.

"Analysis of Structural Plans of Asynchronous Automata"

Avtomatika i Vychisl. Tekhn. [Automation and Computer Technology], 1972, No 6, pp 14-18 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V439, by N. Katerinochkina).

Translation: An algorithm is presented for construction of a generalized quadratic automat matrix (GQAM) on the basis of the structural plan of the asynchronous automata. The GQAM is defined as a matrix in which the intersection of the ith row and the jth column carrier a Boolean function which takes on the value of 1 with those and only those sets of values of input and internal variables which shift the automaton from state q_i to state q_j.

An algorithm is presented for detection of contradictions and continuous transitions and dangerous runs in the memory of the asynchronous automaton by means of its GQAM.

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UDC: 8.74

USSR

MELIKHOV, A. N., IVANOV, G. I., INOZEMTSOV, Z. P., ORLOVA, A. S.

"A Program for Checking an Automaton for Contradiction, Redundancy and Ripple-Through Jumps"

Inform. materialy. Nauch. sovet po kompleks. probl. "Kibernetiki" AN SSSR (Informational Materials. Scientific Council on the Complex Problem of Cybernetics, Academy of Sciences of the USSR), 1971, No 7(54), pp 118-119 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V554)

[No abstract]

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UDC 536.46

USSR

IVANOV, B. A., MELIKHOV, A. S., ROZOVSKIY, A. S., Balashikha

"Combustion of Materials in Liquid Oxygen"

Novosibirsk, Fizika goreniya i vzryva, Vol 8, No 4, 1972, pp 593-595

Abstract: Solid nonmetallic materials (plastics, fiberglass, and so on) are widely used in the oxygen industry, but in contact with liquid oxygen they form heterogeneous systems capable of ignition from various random sources and intense combustion. A study was made to measure the apparent combustion rate of standard representatives of the nonmetallic materials -- polytetrafluoroethylene, polymethylmethacrilate, textoline and KAST-V fiberglass -- as a function of the specimen diameter, pressure and temperature of the liquid oxygen. The combustion rates of all the materials increase with an increase in pressure almost by a linear law. The temperature of the liquid oxygen has a noticeable effect on the combustion rate. The linear dependence of the combustion rate on pressure is retained for all the investigated diameters, but the slopes of the curves decrease with an increase in diameter. A photograph of a burning specimen of textolite in liquid oxygen under a pressure of 1 kg/cm^2 shows that the combustion takes place in a gas bubble formed during evaporation of the liquid oxygen. Thus, some of the laws of combustion of solid nonmetallic materials in gaseous oxygen will also apply in liquid oxygen. The increased

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USSR

IVANOV, B. A., et al., Fizika goreniya i vzryva, Vol 8, No 4, 1972, pp 593-595

combustion rate of polytetrafluoroethylene in liquid oxygen is connected with intensification of the mass exchange processes as a result of boiling and evaporation of the liquid oxygen at the liquid-gas bubble interface and also pulsations of the bubble walls.

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MELIKHOV P.I.

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USSR

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ARTEMENKOV, L. I., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 17, No 5, 1973, pp 251-254

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PRESNYAKOV, A. A., BEGIMOV, T., MELIKHOV, V. D., and CHERNOUSOVA, K. T. (Editors)

Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov (Effect of Preliminary Deformation on the Properties of Metals and Alloys), Collection of Papers, Alma-Ata, "Nauka" Press, 1971, 135 p., illustrations, graphs, tables, 1500 copies printed.

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Aubakirova, R. K. Development of Superplasticity Following Pre-straining of the Cast Eutectoid Aluminium-Zinc 7

Chernysheva, Yu. P. Effect of Straining Rate on Copper Plasticity 14

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PRESNYAKOV, A. A. (Ed.) et al., Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov, "Nauka" Press, 1971, 135 pp.

Chasnikov, A. Ya. Effect of Pre-straining on the Mechanical Properties of Oxygen-Free Copper and Some of Its Alloys 39

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USSR

PRESNYAKOV, A. A. (Ed.) et al. Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov, "Nauka" Press, 1971, 135 pp.

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USSR

PRESNYAKOV, A. A. (Ed.), et al., Vliyaniye predvaritel'noy deformatsii na svoystva metallov i splavov, "Nauka" Press, 1971, 135 pp.

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UNCLASSIFIED PROCESSING DATE--11SEP70

1/2 011

TITLE--EXPERIMENTAL DETERMINATION OF THE EXTENT OF LONG RANGE ORDERING IN ALLOYS OF THE COPPER PLATINUM SYSTEM -U-

AUTHOR--KARPENYUK, A.N., PRESNYAKOV, A.A., DZHANBUSINOV, YE.A., MELIKHOV, V.D.

M

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(1), 140-2

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER ALLOY, PLATINUM ALLOY, ALLOY PHASE COMPOSITION, ORDERED ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0125/70/015/001/0140/0142

PROXY REEL/FRAME--1989/1278

--ON NO--AP0107756 UNCLASSIFIED

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UNCLASSIFIED PROCESSING DATE--11SEP70

2/2 011

CIRC ACCESSION NO--AP0107754

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONCN. CHANGES WERE DETD. AS A FUNCTION OF RELATIVE INTEGRAL INTENSITY OF HIGH RESOLN. (321) AND (410) LINES AND AS A FUNCTION OF THE EXTENT OF LONG RANGE ORDER IN A CU,PT ALLOY (ANNEALED FOR 1732 AND 2164 HR). THE EXTENT OF LONG RANGE ORDER CHANGED MARKEDLY AT 12.5-20 ATOM PERCENT PT, APPARENTLY, DUE TO FORMATION OF ORDERED CU SUB7 PT AND CU SUB4 PT PHASES.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

MELIKHOV, V. S. and LEVASHKIN, G. I.

"Broad-Band Amplifier With a Complex Feedback Connection"

/Tomsk. in-t radioelektron. i elektron. tekhn./ Avt sv. SSSR (Tomsk Radio and Electronic Engineering Institute, Author's Certificate USSR) Class 21a^2, 18/08, (H 03 f 1/42), No. 275150, Application 5.07.68, Publication 29.09.70 (from RZh-Radiotekhnika, No. 3, March 21, Abstract No. 3D174P)

Translation: A broad-band amplifier with complex feedback containing stages with local frequency-dependent negative feedback in the transistor emitter circuits and an external positive feedback circuit is proposed. To improve the efficiency of frequency distortion correction and to simplify the circuit and tuning of the amplifier, the external frequency-correcting positive feedback circuit, consisting of a series-connected capacitance and inductance shunted by a resistor, is connected between the transistor emitter circuits.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UNCLASSIFIED PROCESSING DATE--11DEC70

1/2 026

TITLE--EXTRACTION OF VANADIUM,V, BY A INDUSTRIAL MIXTURE OF TRIALKYPHOSPHINE OXIDES -U-

AUTHOR-(02)-BYKHOVTSOV, V.L., MELIKHOVA, G.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(5), 954-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--SOLVENT EXTRACTION, VANADIUM, KEROSENE, ORGANIC OXIDE, ORGANIC PHOSPHORUS COMPOUND, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0080/70/043/005/0954/0959

PROXY REEL/FRAME--3004/0950

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UNCLASSIFIED

PROCESSING DATE--11DEC70

2/2 028

CIRC ACCESSION NO--AP0131535

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. IN 0.2 M TRIALKYLPHOSPHINE OXIDE (I), V NITRATE IS EXTD. AT PH 1-2.5. WITH INCREASE OF V CONCN. IN THE SOLN., THE EXTN. MAX. SHIFTS TO THE LOW PH RANGE. NW SATG. 0.2 M I WITH LARGER THAN 0.1 M V (5.1 G-L.) IN THE SYSTEM, A LIQ. 3RD PHASE IS FORMED. IT WAS PROPOSED THAT I EXTS. V FROM NITRATE SOLN. AT THE INDICATED PH RANGE IN THE FORM OF MONOMERIC MOLS. OR METAVANADIC ACID ACCORDING TO THE FOLLOWING REACTIONS: HVO SUB3AQ. PLUS 2TAFO SUBORG. IN EQUILIBRIUM WITH (HVO SUB3 2TAFO) SUBORG, WHERE TAFO IS I. THE RATIO OF THE VOLS. OF ORG. AND AQ. PHASE WAS 1:1 AND THE CONTACT TIME WAS 3 MIN. THE I SOLN. WAS PREPD. IN PURIFIED KEROSINE AND THE TEMP. WAS 10 PLUS OR MINUS 2DEGREES.

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Pharmacology and Toxicology

UDC 591.1.15

USSR

MOVSEYAN, M. A., BARKHUDARYAN, L. Kh., ARUTYUNYAN, D. Ye., and MELIK-MKRTCHYAN, L. N.

"Glycogen Concentration Changes in the Heart Muscle of Irradiated Rats"

V sb. Materialy 3 Zakavkaz. nauch. konf. patofiziologov, 1972 (Collection of Papers Presented at Third Transcaucasian Scientific Conference of Pathophysiologists, 1972), Tbilisi, 1972, pp 151-152 (from Referativnyy Zhurnal -- Biologicheskaya Khimiya, Otdel'nyy Vypusk, No 2, 1973, Abstract No 2F1335 by V. M. Podval'naya)

Translation: Comparatively small doses of ionizing radiation cause a stress reaction, along with its specific effect. When radiation sickness is very light or light, the glycogen concentration in the heart muscle is the protective reaction of the animal organism and constitutes a part of the general adaptation syndrome. Adrenergic structures in the hypothalamus hypophysis-adrenal cortex system represent the necessary link without which the activation of this system is impossible.

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UDC 631.847.2

USSR

NALBANDYAN, A. D., AVETISYAN, V. A., and MELIKSETYAN, R. S., Institute of Microbiology, Academy of Sciences Armenian SSR

"Lyophilization of Pea Nodule Bacteria"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 24, No 3, Mar 71, pp 24-29

Abstract: Study of the lyophilization of nodule bacteria for the purpose of preparing dry nitrargin was initiated at the Moscow Department of the All-Union Scientific Research Institute of Agricultural Microbiology. Recently work on the subject was also conducted at the Laboratory of Biological Fixation of Atmospheric Nitrogen, Institute of Microbiology, Academy of Sciences Armenian SSR. In the work carried out there, nodule bacteria of pea plants (strain 144) were cultivated in a medium containing (in %) molasses 1 (sucrose content ≥ 45%), corn extract 0.3, $(NH_4)_2SO_4$ 0.05, K_2HPO_4 0.05, NaCl 0.02, $MgSO_4$ 0.02 (pH 7-7.2). Shake culturing was carried out for 48 hrs. After 24 hrs of culturing, molasses 1, corn extract 0.3, $(NH_4)_2SO_4$ 0.05, K_2HPO_4 0.05% were added to the medium. Biomass in the amount of 15-18 g/l. accumulated, which was separated by centrifuging. To reduce the drop in the bacterial titer during lyophilization, in the course of which the temperature increased from minus 20 to + 3-16°C, protective agents

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NALBANDYAN, A. D., et al., Biologicheskiy Zhurnal Armenii, Vol 24, No 3, Mar 71, pp 24-29

were added before freezing to the paste obtained on centrifuging. The most effective combination of protective agents was molasses 20%, bentonite 30%, upon the addition of which the drop in bacterial titer at 1-8°C during lyophilization decreased significantly. Freezing of the paste consisting of bacteria and protective agents was carried out with solid CO_2 + isopropyl alcohol at minus 75 - minus 80°C for 1 hr. The frozen mixture was stored at minus 40 - minus 50°C for a period $\leq$ 24 hrs and then subjected to lyophilization in vacuo. A bacterial preparation with a residual water content of 2.03% was obtained on drying. This preparation could be stored at 4-5°C for 6-7 mos in vacuo and 4-5 mos at atmospheric pressure without a significant decrease of the bacterial titer.

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DIFFERENTIAL GAMES WITH VARIABLE CONDITIONS OF BEING INFORMED

[Article by A. A. Melikyan, F. L. Chernous'ko, Institute of Problems of Mechanics of the USSR Academy of Sciences, Moscow; Moscow, Doklady Akademii Nauk SSSR, Russian, Vol 273, No 1, 1982, submitted 22 July 1971, pp 46-49]

In the theory of differential games it is usually assumed [1-3] that the phase coordinates of both sides are exactly known to each player at any point in time. However, in applied problems the informed nature of the sides is nonideal. The differential games with information delay were investigated in [4, 5]. In the present paper a study was made of games in which one of the sides can measure the phase coordinates of the other side only in part of the interval of motion.

1. Let the movement of the targets X, Y be described by the equations

$$X:\ dx/dt = f(t, x, u), \quad Y:\ dy/dt = g(t, y, v) \qquad (1)$$

Here t is time, x, y are the vectors of the phase coordinates of the targets, u, v are the vectors of their controlling functions, f, g are the given vector functions. The dimensionality of the vectors x, y, u, v is arbitrary. In the entire interval of motion, the controlling functions are subject to the restrictions

$$u(t) \in U, \quad v(t) \in V \qquad (2)$$

where U, V are closed bounded sets. The initial conditions change form

$$x(t_0) = x^0, \quad y(t_0) = y^0, \qquad (3)$$

where t_0 is the given initial point in time. For simplicity, the time of completion of the game T will be considered fixed, $T > t_0$. The statements presented below can be investigated also under more general conditions of completion of the game.

The purpose of the side X is minimization of the functional

$$J = F(x(T), y(T)), \qquad (4)$$

where F(x, y) is the given function. The side Y strives to maximize the functional (4).

MELIKYAN, A. A.

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Ref. Code: UR 0056

Acc. Nr: AP0038049

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 281-290

RAYLEIGH AND COMBINATIONAL SCATTERING IN THE FIELD OF AN INTENSE WAVE

Ter-Mikayelyan, M. L.; Melikyan, A. D.

Scattering of a light wave by an atom is considered without assuming validity of perturbation theory with respect to the scattered field. The scattered light frequency may be close to ω_{21} which is the frequency corresponding to the energy difference of the two atomic levels. Relaxation of the system is neglected and it is assumed that the strength of the scattered wave field is much smaller than the characteristic atomic values. It is shown that deviation from the usual perturbation theory results depends on the parameter α (11). Scattering of light by a two-level system is first considered; it is shown that besides spontaneous unshifted scattering (23), combinational stimulated scattering with a frequency (24) appears, providing allowance is made for the saturation effect. The magnitude of this scattering is defined by cross section (30). Moreover, in an intense field a two-level system possesses an absorption line at the frequency (25), the cross section being (31). The results are extended to the case of

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a many — level system. The transition 1 ⇄ 2 is considered by taking into account intermediate levels and nonresonance terms. Additional coherent spontaneous scattering at a double frequency with a cross section (38) appears in this case. Noncoherent stimulated combinational scattering at two additional frequencies (40) and (42) defined by the cross sections (41) and (43) appears. The system will possess absorption at new additional frequencies (45) and (42') defined by cross sections (46) and (47). The formulas correctly describe the limiting transition to perturbation theory formulas.

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Immunology

UDC 616.981.42+591.445

USSR

TOROSYAN, S. Ye., MARDZHANYAN, D. S., [redacted] and ARUTIUNYAN, V. M., Armenian Scientific Research Institute of Animal Husbandry and Veterinary Medicine

"The Relationship Between Lymph Nodes and Adrenal Glands During Immunogenesis in Rabbits With Brucellosis"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 23, No 12, pp 77-79

Abstract: In order to investigate the functional relationship between lymph nodes and adrenal glands, control rabbits and previously vaccinated rabbits were infected with Brucella melitensis strain No 74. The concentration of specific antibrucellosis agglutinins increased in the lymph nodes faster than in the blood. Maximum immunological reactivity in regional lymph nodes (those near the site of inoculation) was observed on the 7th day after vaccination and on the 20th day after infection. In mesenteric lymph nodes, immunological reactivity developed 3-5 days later and was less intense. The agglutinin titer in blood serum gradually increased to reach a maximum on the 20th day after vaccination. Control rabbits had the highest agglutinin titer in blood and in lymph nodes on the 20th day after infection. The immunological activity of the adrenal glands was determined according to the concentration of

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USSR

TOROSYAN, S. Ye., et al, Biologicheskiy Zhurnal Armenii, Vol 23, No 12, pp 77-79

ascorbic acid and cholesterol. The concentration of both these substances decreased in the adrenal glands on the 7th day and increased in blood serum on the 10th day after inoculation. Thus, immunogenesis involved simultaneous activation of lymph nodes and adrenal glands.

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JPRS 57263

6-73

SESSION XV

XV-1. HARDNESS OF AUTOEPITAXIAL SILICON LAYERS

[Article by T. S. Kondrat'yeva, N. A. Belov, R. N. Erlikh, L. K. Melikyan, T. N. Gusava, Leningrad; Novosibirsk, III Simposium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 212]

This paper is devoted to the study of the hardness of silicon crystals used as substrates and autoepitaxial layers grown by the method of reducing silicon tetrachloride by hydrogen.

Experimental data are presented on the hardness of crystals as a function of the mechanical, chemical and electrochemical processing and with respect to the effect of different types of treatment on the mechanical properties of the autoepitaxial layer. It is demonstrated that the anisotropy of the hardness of the crystals and the autoepitaxial layers of silicon has an analogous nature -- the magnitude of the hardness (H_μ) decreases on going from the (111) facets to the (110) ones. The magnitude of H_μ is defined as a function of the concentration of the alloying mixture in the layers. The data obtained were checked by calculating the Kolmogorov criterion on the Minsk-22 computer by the M. M. Ulin procedure. The statistical analysis indicates a decrease in hardness with an increase in the phosphorous concentration in the layers.

The variation in hardness with respect to depth of the layers was observed which is caused by the effect of the substrate properties: the type and concentration of the alloying admixture, the type of surface machining.

In this paper it is demonstrated that the magnitude of the hardness is a parameter which permits estimation of the perfection of the autoepitaxial layers reflecting the interrelation of the mechanical and structural properties with the crystallization conditions.

MELIKYAN, L.K.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UNCLASSIFIED PROCESSING DATE--

1/2 008

TITLE--SYNTHESIS OF ALPHA, OMEGA, BIS(ACYLOXY)POLYORGANOSILOXANES -U-

AUTHOR-(03)-MELIKYAN, M.O., TERGAZAROVA, D.A., VARTANYAN, M.M.

COUNTRY OF INFO--USSR

SOURCE--ARM. KHIM. ZH. 1970, 23(1), 74-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, POLYSILOXANE, CARBOXYLIC ACID, ANHYDRIDE

CONTROL MARKING--NO RESTRICTIONS

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PROXY REEL/FRAME--1995/1483

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UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 008

CIRC ACCESSION NO--AP0116920

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACO(SIETRO) SUB3 AC(WHERE R EQUALS ME OR PR) AND R CO SUB2(SIET SUB2O)SUB3 COR' (WHERE R' EQUALS ME, ET, PR, BU, OR AMYL) WERE PREPD. BY TREATING HEXAALKYLCYCLOTRISILOXANES WITH EQUIMOLAR AMTS. OF THE APPROPRIATE CARBOXYLIC ACID ANHYDRIDE. THE REACTION PROCEEDED WITHOUT CATALYST AT 250DEGREES, WITH ZNCL SUB2 AT 100DEGREES, OR WITH HCLO SUB4 AT ROOM TEMP., IN 14-33, 28-63.5, AND 21.5-30.1PERCENT YIELDS, RESP.

FACILITY: INST. OBHCH. NEORG. KHIM., EREVAN, USSR.

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USSR

MELIKYAN, R. A.; ORLOV, Yu. F.; KHEYFETS, S.A. (Yerevan Institute of Physics)

"A Quantum Theory of Electron Movement in a Synchrotron, Taking into Account an Autophasing Field. I. Wave Functions"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Fizika, Vol 8, No 2, 73, pp 85 - 92

Abstract: Since the existence of quantum transverse oscillations of moving particles in magnetic and electric fields was revealed, a number of studies have examined the nature of these oscillations. However, none of these works considered an accelerating electric field and the synchrotron oscillations of the particles related to this, nor was there a quantum analysis of the longitudinal oscillations. This study assumes 2-dimensional movement for simplicity and ignores spin effects, reducing the problem to a solution of the Klein-Gordon equation. Wave functions and energy levels are found for particles moving in a non-uniform, constant, axially symmetric magnetic field and in a field of autophased electromagnetic waves whose phase velocity is close to the velocity of the particles.

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UDC 616.981.42

USSR

ARSHAKUNI, G. A., MELIKYAN, V. G., SARKISYAN, G. Ye., and MARDZHANYAN, D. C.,
Armenian Scientific Research Institute of Animal Husbandry and Veterinary Science

"Cases of Isolation of B. melitensis from Cattle"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 25, No 8, Aug 72, pp 85-86

Abstract: An investigation of 81 cultures of Brucella isolated from aborted fetuses of cattle and from slaughtered cows in the Armenian SSR indicated that two cultures from fetuses and two cultures from slaughtered cows, respectively, belonged to the species B. melitensis, while 77 of the cultures were of the species B. abortus bovis. The results showed that occasional infection of cattle with B. melitensis is possible in the Armenian SSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UDC 619:616.981.31-093.33

USSR

POSTOYAN, S. R., MELIKYAN, V. G., and MARDZHANYAN, D. S., Armenian Scientific Research Institute of Animal Husbandry and Veterinary Sciences

"The Alveonasus lahorensis Neum 1908 Mite as a Possible Source of Vibrio Infection"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 23, No 8, Aug 70, pp 79-83

Abstract: The biological cycle of the Alveonasus lahorensis Naum mite has been found to coincide with the period in which abortions of vibrio etiology are widespread among sheep. Laboratory experiments were undertaken to determine the possibility of survival and periods of existence of Vibrio fetus in the mite organism, as well as the possibility of transmission of the Vibrio infection to animals through blood-sucking. Guinea pigs weighing 400 grams were infected subcutaneously and intraperitoneally with a Vibrio fetus culture of 2 million cells isolated from aborted sheep. Examinations of mites satiated with the blood of infected animals revealed the presence of Vibrio fetus in insect intestines. The intestinal content of the ticks was then removed by pressure, placed in physiological solution, and cultured in a test tube on meat-liver semiliquid agar. The tubes were taken then sealed with paraffin and kept at a temperature of 37°C. Vibrios were also cultured on 10-12 day old chick embryos. Growth of Vibrios on

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USSR

POSTOYAN, S. R., et al, Biologicheskiy Zhurnal Armenii, Vol 23, No 8, Aug 70, pp 79-83

both media was observed on the 2nd and 4th days after inoculation. Further examination of the intestinal content of the mites, conducted periodically for up to 136 days, established the presence of Vibrio fetus. No Vibrio were found in the larvae and eggs, however. It was also established that, notwithstanding the fact that Alveonasus lahorensis may be a carrier of Vibrio fetus for as long as 136 days, it did not transmit vibriosis to laboratory animals by blood-sucking and therefore cannot be regarded as the causative agent of the infection.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

Ion Exchange

UDC 547.841

USSR

ISAGULYANTS, V. I., MELIKYAN, V. R., and NGUYEN MAN' KHUNG

"Condensation of Alpha-Chlorostyrene with Paraformaldehyde on the Cation Exchange Resin KU-2"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 9, Sep 71, pp 1794-1795

Abstract: The reaction of alpha-chlorostyrene with paraformaldehyde was studied using KU-2 as the catalyst. Using a ratio of 1:2 of alpha-chlorostyrene:formaldehyde yields beta-chloro-beta-phenylpropionaldehyde and 4-chloro-4-phenyl-1,2-dioxane. When the above ratio is changed to 1:4, the only product obtained is 4-chloro-4-phenyl-1,3-dioxane. The reaction was carried out at 95-100° by adding alpha-chlorostyrene to a mixture of formaldehyde and KU-2.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UNCLASSIFIED PROCESSING DATE--27NOV70

006

TITLE--ALKYLATION OF PHENOL BY ISOBUTYL ALCOHOL ON THE MACROPOROUS CATION EXCHANGER KU,2-12P -U-

AUTHOR-(05)-ISAGULYANTS, V.I., MELIKYAN, V.R., GUZIK, V.S., DVORTSOVA, V.M., SUKHANOVA, N.A.

COUNTRY OF INFO--USSR

M

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(5), 389

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALKYLATION, PHENOL, BUTANOL, CATION EXCHANGE RESIN/(U)KU2 12P ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0064/70/046/005/0389/0389

PROXY REEL/FRAME--3008/0883

CIRC ACCESSION NO--AP0137911

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 006

CIRC ACCESSION NO--AP0137911

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE ALKYLATION OF PHOH BY ISO,SUOH, THE CATALYTIC ACTIVITY OF THE MACROPOROUS CATION EXCHANGER KU,2-12P (STATIC EXCHANGE CAPACITY 4.85 MG EQUIV.-G, SP. SURFACE 30-40 M PRIME2-G, AND PARTICLE SIZE 0.355-2.0 MM) WAS CLOSE TO THAT OF THE UNMODIFIED RESIN KU,2-8 FROM WHICH IT WAS DERIVED. AT 150DEGREES WITH 30PERCENT KU,2-12P AND A PHOH ALC. RATIO OF 1:0.8, THE PRODUCT MIXT. CONTAINED 32PERCENT PHOH, 3PERCENT O AND 65PERCENT P,TERT,BUC SUB6 H SUB4 OH.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UDC 669.71.003

USSR

MELIKYANTS, R. V.

"Automation of Aluminum Plants and Power Economy"

Sb. materialov Vses. seminara energetikov predpriyatiy tsvetn. metallurgii po ekon. elektroenergii (All-Union Seminar of Electrical Engineers if the Enterprises of Non-ferrous Metallurgy on the Question of Economizing on Electrical Power -- collection of transactions), Moscow, 1970, pp 77-82 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G96)

Translation: A description is given of an automated system of control of the operation of "Alyuminiy" electrolytic reduction cells, which make it possible to considrably improve the operational control of Al electrolytic reduction cell shops. Dispather points are established on the basis of the system.

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UDC 669.71.472(088.8)

USSR

BALDOVSKIY, L. A., VOLODCHENKO, V. O., GRECHUKHIN, N. V., MELIKYANTS, R. V., MITREYKIN, N. V., and RABINOVICH, B. V.

"Device for Sampling Melted Electrolyte"

USSR Author's Certificate No 271105, Filed 29/11/68, Published 19/08/70 (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G145 P)

Translation: A device for sampling a melted electrolyte, including a spring-mounted perforated cup with a support rod, is presented. To increase the effectiveness of its operation the outer surface of the cup is wrapped with paper and contains a concentrically mounted cylinder, equipped with cells mounted on a spiral and fastened to the supporting rod by a quick-change joint such as a wedge.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UDC: 621.396.69:621.319.4

USSR

MELIORANSKAYA, S. V.

"Production of Film Capacitors With Maximum Specific Capacitance on an Anodized Aluminum Base"

V sb. Radiofiz. i mikroelektronika (Radio Physics and Microelectronics--collection of works), Voronezh, 1970, pp 79-85 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V317)

Translation: The author outlines the results of work devoted to optimizing the technology of film capacitors based on using an Al_2O_3 film as a dielectric. This film is produced by anodizing vacuum-deposited aluminum in a 3-percent solution of ammonium tartrate in a mixture of 50 percent distilled water and 50 percent ethylene glycol. Optimum conditions of anodizing and forming are established. The feasibility of using capacitors with anodized aluminum in microcircuits is discussed. An emitter follower circuit is given as an example. Five illustrations, one table, bibliography of eight titles. N. S.

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Acc. Nr.: AP0042566 Ref. Code: UR0293

Gamma Quanta with Energy Greater than 50 MeV in Cosmic Radiation

(Abstract: "Measurements of Fluxes of Gamma Quanta with Energies Greater than 50 MeV in Primary Cosmic Radiation on the 'Kosmos-208' Artificial Earth Satellite," by L. S. Bratolyubova-Tsulukidze, N. L. Grigorov, L. F. Kalinkin, A. S. Melioranskiy, Ye. A. Pryakhin, I. A. Savenko and V. Ya. Yufarkin; Moscow, Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 136-139)

The artificial earth satellite "Kosmos-208" carried a telescope of Cerenkov counters with radiators of Plexiglas and lead glass, surrounded by a scintillator for protection against the background of charged particles, for measuring the fluxes of cosmic γ-quanta with energies greater than 50 MeV. There is a dependence between the counting rate of γ-quanta and geographic latitude, probably related for the most part to imitations of γ-radiation by charged particles. The article gives the values of the total intensities of γ-quanta for the high and equatorial latitudes. The latter data, interpreted as the upper limits of the fluxes of primary γ-rays, are $(1.0\pm0.4)\cdot10^{-4}$, $(6\pm3)\cdot10^{-5}$ and $(1.0\pm1.0)\cdot10^{-5}$ (cm^2·sec·sterad)$^{-1}$ for $E_\gamma \geqslant 50$, 90 and 146 MeV respectively. Within the limits of error these results agree with the data obtained using the artificial satellite OSO-III.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UNCLASSIFIED PROCESSING DATE--11DEC70

1/2 035

TITLE--STUDY OF X RAYS CARRIED OUT ON THE SATELLITE COSMOS 208 -U-

AUTHOR-(05)-ANISIMOV, M.M., GRIGOROV, N.L., ILLARIONOVA, N.V., KALIKIN, L.F., MELIGRANSKIY, A.S.

COUNTRY OF INFO--USSR, HUNGARY

SOURCE--INTERNATIONAL CONFERENCE ON COSMIC RAYS, 11TH, BUDAPEST, HUNGARY, AUGUST 25-SEPTEMBER 4, 1969, PROCEEDINGS. VOLUME 1 ORIGIN AND GALACTIC

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, SPACE TECHNOLOGY

TOPIC TAGS--X RAY STUDY, ARTIFICIAL EARTH SATELLITE, PROPORTIONAL COUNTER, X RAY SPECTROMETER, SPACECRAFT CARRIED EQUIPMENT, COLLIMATOR/(U)COSMOS 208 SATELLITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605061/805 STEP NO--HU/2506/70/029/000/0309/0314

CIRC ACCESSION NO--AT0144429

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UNCLASSIFIED PROCESSING DATE--11DEC70

2/2 035

CIRC ACCESSION NO--AT0144429

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DESIGN OF THE X RAY SPECTROMETER INSTALLED ON THE SATELLITE COSMOS 207 IS DESCRIBED. THE EFFECTIVE AREA OF HTE PROPORTIONAL COUNTERS WAS 270 SQ CM. SLOT WINDOW COLLIMATORS WITH AN OPENING ANGLE OF 32 MIN BY 18 DEG (FWHM) WERE USED. PRELIMINARY DATA CHARACTERIZING HTE OPERATION OF HTE INSTRUMENT DURING FLIGHT ARE REPORTED. FACILITY: MOSKOVSKII GOSUDARSTVENNYI UNIVERSITET, MOSCOW, USSR.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UDC: 638.61

USSR

BUDOVSKIY, I. I., MAKOSEVSKIY, V. V., MELISHCHUK, I. E., REZNITSKIY, M. S., SOLOMKO, A. A., TRON'KO, V. D., PALENCHUK, M. R., Kiev State University

"A Meter for Determining High-Frequency Power Transmission With the Use of a Laser Signal"

Moscow, Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 110-112

Abstract: The paper describes an instrument for measuring high levels of power passing through transmission lines which operate in the 10 kHz - 30 MHz range. The meter is shown schematically in Fig. 1a. A laser beam with wavelength $\lambda = 1.15\ \mu$ passes successively through electro-optical and magneto-optical crystals of GaAs and $Y_3Fe_5O_{12}$ located between polarization prisms P_i. The relative intensity of the laser signal at the output of the optical system is $S/S_0 = [A - B(1 - \cos\Delta\varphi)](1 - \cos 2\delta)$, where $A = {}^1/_2\cos^2\alpha - \beta$, $B = {}^1/_4\sin 2\alpha 2\beta$; $\Delta\varphi = \Delta\varphi_0 + \Delta\varphi_V$, $\Delta\phi_0$ is the phase shift which is independent of the field, $\Delta\phi_V$ is the phase delay induced by the electric field, $\delta = \gamma + \Delta\phi_I$, $\Delta\phi_I$ is the rotation of the polarization plane of the optical beam determined by the Faraday effect and dependent on the current in the magnetizing system, γ is the angle between polarization prisms P_2 and P_3, α and β are the angles

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR
BUDOVSKIY, I. I. et al., Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 110-112

between the axis x_1 of the GaAs crystal and polarization prisms P_1 and P_2. Angles α, β and γ are illustrated in Fig. 1b.

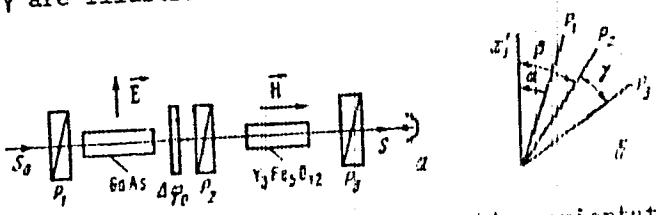

Fig. 1: a--schematic of the power meter; b--relative orientation of the polarizers.

A diagram of the power meter is shown in Fig. 2. The unit is a section of coaxial channel with wave impedance of 75 Ω with rectangular inner conductor 4 fastened between washers 2. Crystals of GaAs 6 and $Y_3Fe_5O_{12}$ 7 are fastened to inner conductor 4 at right angles to each other. The crystals measure 2 × 2 mm in cross section. The GaAs crystal has a 45° cut which acts as a rotating mirror. Conductive cement is used to fasten electrode 5 to

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BUDOVSKIY, I. I. et al., Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 110-112

the top of the GaAs crystal. The electrode is connected to the outer conductor 3. The central polarizer P_2 is a polaroid film 11, cemented between two crystals. Polarization prisms 10 and 8, as well as λ-wave plate 9, are used for the necessary adjustment. The meter is connected to the coaxial channel by means of rf disconnects 1.

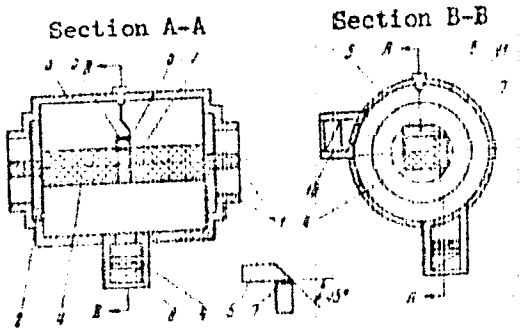

Fig. 2. Simplified diagram of the power meter.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

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BUDOVSKIY, I. I. et al., Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 110-112

A study of the frequency response of the meter showed a sharp drop in the band above 600 kHz. This is caused by a temperature increase due to losses from high hysteresis impedance. This impedance is appreciably reduced by placing the $Y_3Fe_5O_{12}$ crystal in a transverse magnetic field. The optimum field strength was found to be close to 500 oersteds.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UNCLASSIFIED

1/2 013 PROCESSING DATE--13NOV70

TITLE--FARADAY EFFECT LIGHT MODULATOR WITH CLOSED MAGNETIC CIRCUIT -U-

AUTHOR-(04)-DANILOV, V.V., DERYUGIN, I.A., MELISHCHUK, I.S., TRUNKO, V.D.

M

COUNTRY OF INFO--USSR

SOURCE--RADIOTEKHNIKA I ELEKTRONIKA (RADIO AND ELECTRONICS), 1970, NO 2, PP 362-364

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--FARADAY EFFECT, LIGHT MODULATOR, MAGNETIC CIRCUIT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0109/70/000/002/0362/0364

PROXY REEL/FRAME--3003/1858

CIRC ACCESSION NO--AP0130685

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 013

CIRC ACCESSION NO--AP0130665

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONSTRUCTION OF A FARADAY MODULATOR BASED ON YIG WITH THE MAGNETOOPTIC ACTIVE SPECIMEN IN THE FORM OF A CLOSED MAGNETIC CIRCUIT IS DESCRIBED. THIS MAKES IT POSSIBLE TO IMPROVED THE MODULATOR PARAMETERS SIGNIFICANTLY.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UNCLASSIFIED PROCESSING DATE--04DEC70

1/2 016

TITLE--STATISTICAL CHARACTERISTICS OF THE POLARIZATION PARAMETERS OF PARTIALLY POLARIZED WAVE WITH A LOG NORMAL DISTRIBUTION LAW OF ITS

AUTHOR--MELITITSKIY, V.A.

M

COUNTRY OF INFO--USSR

SOURCE--RADIOTEKHNIKA, VOL. 25, MAY 1970, P. 53-59

DATE PUBLISHED----MAY70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--STATISTIC ANALYSIS, POLARIZED SIGNAL, PROBABILITY DISTRIBUTION, ELLIPTIC INTEGRAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605007/012 STEP NO--UR/0108/70/025/000/0053/0059

CIRC ACCESSION NO--AP0139894

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

2/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139894

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF EXPRESSIONS FOR THE COINCIDENT PROBABILITY DENSITIES OF THE PHASOR MODULUS, THE ELLIPTICITY COEFFICIENT, AND THEIR DERIVATIVES. FORMULAS ARE GIVEN FOR THE ONE DIMENSIONAL PROBABILITY DENSITIES AND THE MEAN NUMBER OF EXCEEDANCES OF THE PHASOR MODULUS AND ELLIPTICITY COEFFICIENT. IF IS SHOWN THAT A KNOW NUMERICAL VALUE OF ONE OF THESE POLARIZATION PARAMETERS CAN ALWAYS BE USED TO DETERMINE THE VALUE OF THE OTHER.

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USSR

UDC 577.44+612.83

MELIYA, A. S., Laboratory of Cortical-Subcortical Relations, Institute of Physiology, Academy of Sciences Georgian SSR, Tbilisi

"Changes Induced in Spinal Reflexes by Total-Body Vibration"

Leningrad, Fiziologicheskiy Zhurnal SSR imeni I. M. Sechenov, Vol 59, No 5, 1973, pp 718-724

Abstract: In spinal frogs, vibration of an amplitude of over 0.5 mm and a frequency of over 10-15 cyc/sec causes a tonic contraction of hind paw flexors. Depending on the amplitude, the tonic contraction reaches a maximum magnitude at a frequency of about 100-150 cyc/sec and then decreases, to disappear entirely at 200-250 cyc/sec. The bigger the amplitude (up to 2 mm) the lower the frequency at which maximum contraction occurs. This reflex contraction develops only in the initial period of vibration and disappears with continuing vibration. Phasic reflex contractions of the semitendinous muscle induced by stimulation of sensory nerve fibers are exaggerated during the first seconds of vibration as a result of summation with the tonic contraction, and are inhibited subsequently. Reciprocal relation between antagonistic muscles is also altered. Initially, due to general facilitation of reflex activity induced by vibration, flexors do not relax when extensors begin to contract. Subsequently, due to general inhibition of reflex activity, the contractions of flexors and

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USSR

MELIYA, A. S., Fiziologicheskiy Zhurnal SSR imeni I. M. Sechenov, Vol 59, No 5, 1973, pp 718-724

extensors are suppressed. The initial high-amplitude and the subsequent low-amplitude afferent impulses discharged by cutaneous receptors suggest that thick sensory fibers (Ia) are responsible for the initial facilitation and thin sensory fibers for the subsequent inhibition.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR UDC 51:621.391

MELIYA, V. I.

"Determination of Diagram of States of Asynchronous Automaton Fixed by Structural Graph"

Vopr. Razrab. i Vnedreniya Sredstv. Vychisl. Tekhn. [Problems of the Development and Introduction of Computer Equipment -- Collection of Works], Tbilisi, 1970, pp 101-106 (Translated from Referativnyy Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V325).

No abstract.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR

MELIYEV, A., LEBEDEV, A. D., AVAKYAN, A. A., and MAKSUMOV, S. S., Uzbek Scientific Research Institute of Epidemiology, Microbiology and Infectious Diseases; Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR; and Institute of Scientific Information, Academy of Sciences USSR

"Carriers of Hemorrhagic Fever in the Uzbek SSR"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 4, 1971, pp 15-18

Abstract: Twenty-six species of Ixodid ticks were discovered in regions of Uzbekistan where hemorrhagic fever had been recorded. They belonged to the genuses Hyalomma, Dermacentor, Rhipicephalus, Haemaphysalis, Ixodes, Boophilus, and the Argasidae family. The seasonal fluctuation in incidence of hemorrhagic fever corresponds to the curve of seasonal population density of Hyalomma anatolicum, which predominates in most regions of the republic in foci of the disease and is, according to most investigators, the principal carrier and vector of the virus. Other widespread species include H. detritum, H. plumbeum, H. asiaticum, and D. daghestanicus. The ticks develop mainly in cowsheds and other shelters for farm animals, from which they invade human dwellings. The virus most probably exists in the system of H. plumbeum turanicum, which,

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USSR

MELIYEV, A., et al, Meditsinskiy Zhurnal Uzbekistana, No 4, 1971, pp 15-18

living on livestock together with H. anatolicum and H. detritum, passes the virus on to them. Final solution of the question of vectors and reservoirs of the virus, and measures for fighting the infection require virological studies of the fauna of various localities by entomologists and epidemiologists.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

M Epidemiology

AVAKYAN, A. A., [illegible], S. S., and [illegible], A., Institute of Epidemiology and Microbiology, USSR Academy of Medical Sciences, and Uzbek Institute of Epidemiology, Microbiology, and Infectious Diseases

"RSHG-19 Virus Isolated from Ticks Collected in Hemorrhagic Fever Centers"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 2, 1970, pp 38-41

Abstract: Despite extensive research in the USSR and abroad, the etiology of tropical hemorrhagic fevers is not known. Ixodid ticks, collected in hemorrhagic fever centers in Uzbekistan, were studied. Adult ticks were treated with ether and alcohol, washed with sterile saline, crushed in a mortar with sterile sand, and centrifuged. The supernatant fluid was used to inoculate tissue cultures. The virus strains were identified with a set of sera by titrating the virus and neutralizing its antibodies. A portion of the culture fluid mixed with O-group human erythrocytes was used for the hemagglutination and hemadsorption measurements. The virus detected in human fibroblasts had a definite cytopathic effect, as well as in cultures of rhesus monkey kidney, human embryonic kidney, human amniotic cells, Hela, HEp-3, and Detroit-6. Virus induced complete degeneration of a monolayer of cells within [illegible]

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR

AVARYAN, A. A., et al., Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 1, 1970, pp 29-31

hours. No cytopathotic effects were observed in cultures of chick embryo fibroblasts, HEp-2, and L cells. When material from these tissues was transferred to susceptible tissues, no cytopathotic effects were observed, indicating the absence of latent infection. Fluid obtained from susceptible cultures had hemagglutinating and hemadsorbing properties. The isolated virus was resistant to ether and thermal inactivation. In view of these properties, the virus was classified among the intestinal group of viruses. For ultimate identification, the neutralization reaction was performed: the virus was completely neutralized by only one serum containing antibodies against ECHO-19 virus. A cross-hemagglutination inhibition [illegible] yielded the same result. Cells infected with the virus contained cytoplasmic inclusions consisting of virus particles. The possibility of the cultures being contaminated with ECHO-19 virus from other sources was ruled out. The fact that the intestinal ECHO-19 virus was isolated from ticks is significant and worthy of further investigations.

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USSR UDC 577.4

ZHAK, S. V., MELKADZE, A. G.

"Optimization of Operating Time between Repairs"

V sb. Teoriya i praktika mash. obrabotki inform. (Theory and Practice of Machine Data Processing -- collection of works), Rostov-na-Donu, 1971, pp 63-70 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V489)

Translation: See RZh-Matematika, 1972, 2V544.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

USSR UDC 621.317.799:621.397.2

MARINETS, V. P., MELKHISEDEKOV, L. S., and SMERDOV, A. A., Physicomechanical Institute, Academy of Sciences Ukrainian SSR

"Television Device for the Automatic Recognition of Straight L"nes and Faces"

USSR Authors' Certificate No 336673, Cl. G 06k 9/13, filed 23 Jun 72, published 21 Apr 72, related to USSR Authors' Certificate No 205895 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 14, 21 Apr 72, p 167)

Abstract: To eliminate the effect of the absolute brightness of objects on recognition, the scanning disk is made of a series of identical apertures of arbitrary shape, the dimensions of which are equal to the picture element. The apertures are arranged on the disk with a constant displacement of several picture elements for each subsequent aperture from the preceding aperture. An amplitude limiter is included between the output of the photoelectric transducer and the input of the band filter.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002202010019-4

UNCLASSIFIED PROCESSING DATE--13NOV70

1/2 017

TITLE--PREPARATION OF AN EXPERIMENTAL BATCH OF THE ADDITIVE DFLL AT THE POLOTSK PETROLEUM REFINERY -U-

AUTHOR-(04)-MELKIN, YU.A., VYALTSIN, N.I., SHAPOVALOVA, L.M., SAVONKINA, M.G.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (5), 48-9

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SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CHEMICAL SYNTHESIS, ANTIOXIDANT ADDITIVE, ZINC OXIDE, PETROLEUM REFINERY/(U)DFLL ANTIOXIDANT ADDITIVE, (U)VNIENP360 ADDITIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1959 STEP NO--UR/0318/70/000/005/0048/0049

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANTIOXIDANT DF-11 WAS PREPD. BY TREATING P SUB2 S SUB5 WITH MIXED ISO-BUOH,2,ETHYLHEXANOL, NEUTRALIZING THE ACID WITH ZNO, DILG. WITH SOLVENT GASOLINE "KALOSHA", SEPG. THE MECH. IMPURITIES, AND DISTG. THE SOLVENT. THE SAME EQUIPMENT WAS USED FOR PREPG. THE ADDITIVE VNIINP-360. FACILITY: POLOTSK. NEFTEPERERAB. ZAVOD, POLOTSK, USSR.

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1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CHEMISTRY OF ETHERS WITH UNSATURATED RADICALS. XVI. REACTION OF A GRIGNARD REAGENT WITH 2,METHOXY,2,METHYL, 3,ALKYNES --U--

AUTHOR-(04)-PERKYAN, G.P., GASPARYAN, S.P., MELKONYAN, A.K., NAZARYAN, A.A.

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