"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 025 UNCLASSIFIED

TITLE--A DIFFERENTIAL GAME OF NAVIGATION -U- PROCESSING DATE--30OCT70

AUTHOR-(02)-KRASOVSKIY, N.N., SUBBOTIN, A.I.

COUNTRY OF INFO--USSR

SOURCE--DIFFERENTSIAL'NYE URAVNENIIA, VOL. 6, APR. 1970, P. 579-591

DATE PUBLISHED----APR70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--GAME THEORY, DIFFERENTIAL EQUATION SYSTEM, NEGATIVE FEEDBACK, MOTION EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1229 STEP NO--UR/0376/70/006/000/0579/0591

CIRC ACCESSION NO--AP0124883

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

2/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF A GAME PROBLEM OF BRINGING A CONTROLLED OBJECT TO A GIVEN SET. IT IS ASSUMED THAT THE MOTION OF THE CONFLICTINGLY CONTROLLED SYSTEM IS DESCRIBED BY LINEAR DIFFERENTIAL EQUATIONS. IT IS SUGGESTED THAT THE SOLUTION TO THIS GAME PROBLEM BE SOUGHT IN A CLASS OF GENERALIZED PLAYER CONTROLS FORMED ACCORDING TO A FEEDBACK PRINCIPLE, THUS MAKING IT POSSIBLE IN CONTINGENCIES TO FORMALIZE THE SLIDING REGIMES GENERATED BY THE DISCONTINUOUS STRATEGIES OF THE PLAYERS WITHIN THE FRAMEWORK OF THE THEORY OF DIFFERENTIAL EQUATIONS. SUFFICIENT CONDITIONS ARE FORMULATED UNDER WHICH THERE EXISTS A GENERALIZED EXTREMAL CONTROL WHICH ENSURES THAT THE OBJECT IS BROUGHT TO A GIVEN SET BY A CERTAIN FINITE MOMENT OF TIME. A DISCRETE SCHEME FOR APPROXIMATING THE PROPOSED GENERALIZED CONSTRUCTION IS PRESENTED. FACILITY: AKADEMIIA NAUK SSSR, MATEMATICHESKII INSTITUT, SVERDLOVSK, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

UNCLASSIFIED PROCESSING DATE--03JUL70

TITLE--THERMAL CHLORINATION OF ETHYLENE WITH THE SIMULTANEOUS PYROLYSIS OF 1,2,DICHLOROETHANE -U-

AUTHOR--SUBBOTIN, A.I.

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6/5/11

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(1), 7-10

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINATION, ETHYLENE, CHEMICAL REACTOR, EXOTHERMIC REACTION, PYROLYSIS, CHLORINATED ALIPHATIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/1717 STEP NO--UR/0064/70/046/012/0007/0010

CIRC ACCESSION NO--AP0049795

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

Acc. Nr: AP0049795 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR0064

99918b Thermal chlorination of ethylene with the simultaneous pyrolysis of 1,2-dichloroethane. Subbotin, A. I. (USSR). *Khim. Prom. (Moscow)* 1970, 46(1), 7-10 (Russ). The thermal chlorination of $C_2H_4$ coupled with the simultaneous pyrolysis of $ClCH_2CH_2Cl$ was conducted in a special chlorination reactor at 300-440°. A line diagram of the reactor and its mode of operation were presented. By combining the 2 processes in a reactor, the heat from the exothermic chlorination was used for pyrolysis. The reactions gave $CH_2:CHCl$ in 85-90% yield and a no. of by-products, primarily $Cl_2CHCH_2Cl$, $MeCHCl_2$, $ClCH:CHCl$, and $Cl_2C:CH_2$. The reactants were dild. with HCl at 420-40° to ensure a max. yield of $CH_2:CHCl$. Kinetic data indicated that chlorination involved radical addn. of Cl to $C_2H_4$, successive chlorination, and termination. CKJR

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USSR

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KRASOVSKIY, N. N.; SUBBOTIN, A. I. (Sverdlovsk Department, Steklov Mathematics Institute)

"Differential Game of Induction"

Minsk, Differentsial'nyye Uravneniya; April, 1970; pp 579-91

ABSTRACT: The problem (in game theory) of the reduction of a controlled object to a given group is considered. It is assumed that the action of a conflicting controlled system is described by linear differential equations. It is proposed that the solution of this problem be sought in the class of generalized controls of players based on the principle of feedback, making it possible in contingencies to formalize, within the framework of differential equation theory, sliding modes generated by discontinuous strategies of the players. Sufficient conditions are formulated for the existence of a generalized extremal control which guarantees the reduction of an object to a given group at some finite instant of time. A discrete scheme is presented which approximates the proposed generalized construction.

17 references.

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USSR

KRASOVSKIY, N. N., Academician, and SUBBOTIN, A. I., Sverdlovsk Department of the Mathematics Institute imeni V. A. Steklov of the Academy of Sciences USSR

"On the Structure of Differential Games"

Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 3, 21 Jan 70, pp 523-526

Abstract: A differential game for minimax time to encounter is considered. The purpose of the article is to show the game structure in a class of approximation strategies. The system is described by the equation

$$\dot{x} = f^{(1)}(t, x, u) + f^{(2)}(t, x, v)$$

where $x$ is a phase vector and $u$, $v$ are control vectors taught to the first and second players and constrained by the condition

$$u \in U, \quad v \in V,$$

where the sets $U$ and $V$ are bounded and closed. The $f^{(i)}$ are continuous functions satisfying the Lipschitz condition with respect to x. Approximation strategies

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USSR

KRASOVSKIY, N. N., Doklady Akademii Nauk SSSR, Vol 190, No. 3, 21 Jan 70, pp 523-526

$U_a$ and $V_a$ are defined as systems of sets $U_\Delta$ (t, x) and $V_\Delta$(t, x) defined for all possible positions {t, x} for any choice of the covering $\Delta$. Three theorems concerning the stability of sets of strategies are presented.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--THE CLINICAL PICTURE AND DIFFERENTIAL DIAGNOSIS OF SPINAL STROKES -U-

AUTHOR-(03)-SUBBOTIN, A.V., KOVALENKO, V.N., APASOVA, N.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970, VOL 70, NR 6, PP 824-828

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SPINAL CORD, BLOOD CIRCULATION, HEMORRHAGE, ATHEROSCLEROSIS, HYPERTENSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0911 STEP NO--UR/0246/70/070/006/0824/0828

CIRC ACCESSION NO--AP0126570

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

2/2 023 UNCLASSIFIED

CIRC ACCESSION NO--AP0126570 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDY CONCERNS A CLINICAL ANALYSIS OF 20 PATIENTS WITH DISORDERS OF SPINAL CIRCULATION. THE DISORDER MORE FREQUENTLY OCCURS IN PEOPLE OLDER THAN 40. AMONG THE ETIOLOGICAL FACTORS A BIG SIGNIFICANCE IS ATTACHED TO THE SIMULTANEOUS INFLUENCE OF SEVERAL FACTORS (SPINAL OSTEOCHONDROSIS, ATHEROSCLEROSIS, HYPERTENSIVE DISEASE, MYXEDEMA, LIGHT SPINAL TRAUMAS), ONE OF WHICH IS THE MAIN, I.E. THE BACKGROUND ON WHICH THE DISORDER APPEARS. THE OTHER FACTORS MAY SERVE AS PRECIPITATING ONES IN CERTAIN PATHOLOGICAL CONDITIONS. THE AUTHORS STRESS THE POSSIBILITY OF DEVELOPING A SPINAL STROKE WITH THE SYNDROME OF BROWN SEQUARD. THE DIAGNOSIS OF DISTURBED SPINAL CIRCULATION IS A VERY RESPONSIBLE ONE AND REQUIRES A THOROUGH CLINICAL ANALYSIS OF EACH CASE WITHE THE USE OF SPECIAL METHODS OF DIAGNOSIS AND FOLLOW UP STUDIES. FACILITY: KEMEROVSKOGO MEDITSINSKOGO INSTITUTA.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 008

UNCLASSIFIED

TITLE--USE OF HYDROCYCLONES TO CLEAN DYE SOLUTIONS -U-

PROCESSING DATE--20NOV70

AUTHOR-(02)-SUBBOTIN, N.P., BESKIN, L.Z.

COUNTRY OF INFO--USSR

SOURCE--TEKST. PROM. (MOSCOW) 1970, 30(3), 77-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DYE, CYCLONE SEPARATOR, CHEMICAL PURITY, ORGANIC SULFUR COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1234

STEP NO--UR/0342/70/030/003/0077/0078

CIRC ACCESSION NO--AP0128650

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

2/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128650

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SULFUROUS DYES WERE PURIFIED (DEGREE OF PURIFICATION 97PERCENT) IN SPECIALLY DESIGNED HYDROCYCLONES. A CROSS SECTIONAL DIAGRAM OF THE CLARIFICATION APP. AND ITS MODE OF OPERATION WERE PRESENTED. OPTIMUM PURIFICATION CONDITIONS WERE DETD.

FACILITY: GPI-T, IVANOVO, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 535.337

PANFILOV, V. V., SUBBOTIN, S. I., and VERESHCHAGIN, L. F., Academician of the Academy of Sciences, USSR, Institute of High-Pressure Physics, Academy of Sciences USSR

"Shifting of the Fundamental Absorption Edge of Gallium Arsenide Under the Action of Hydrostatic Pressure"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 3, 1971, pp 559-561

Abstract: Investigation of the shift of the fundamental absorption edge of semiconductors with pressure permits determination of the change of the width of the forbidden zone with pressure, and makes it possible to ascertain some features of the zonal structure of the substances; in particular, this investigation is useful for identification of the symmetry of the very lowest conductivity zones. Gallium arsenide GaAs was taken as the object of investigation. The present article deals with a new attempt to measure the value of the pressure coefficient for gallium arsenide in a broader range of hydrostatic pressures than has previously been done by other researchers. Two figures, 12 bibliographic entries.

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USSR

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UDC 532.593+662.215.1

VASIL'YEV, A. A., GAVRILENKO, T. P., MITROFANOV, V. V., SUBBOTIN, V. A., and TOPCHIYAN, M. Ye.

"The Position of the Point of Transition Through Sonic Velocity Behind a Detonation Front"

Novosibirsk, Fizika Goreniya i Vzryva, No 1, 1972, pp 98-104

Abstract: An attempt is made to determine experimentally the position of the Chapman-Jouguet surface behind the front of a detonation occurring in a pipe. In pipes filled with various gas mixtures, the interaction of a detonation wave with a thin plate, situated along the pipe axis, is studied at various pressures to determine the position of the Chapman-Jouguet point. 2 figures. 1 table. 9 references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR UDC: 8.74

SUBBOTIN, V. A.

"Mathematical Models in Data Retrieval Systems"

Tr. Mosk. in-ta elektron. mashinostr. (Works of the Moscow Institute of Electronic Machine Building), 1971, vyp. 16, ch. 2, pp 228-235 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V540)

Translation: Mathematical models are considered for data retrieval systems for finding the closest prototype and checking the patent clearance of an object. A brief description is given of the language used for solving these problems. Algorithms for solving these problems are considered in general outlines together with a two-stage computer realization of the algorithms. Author's resumé.

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USSR

UDC 681.327.6

RYBACHENKOV, V. I., SUBBOTIN, V. A., The Scientific Research Center of Electronic Computer Technology

"A Buffer Memory Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 35, Soviet Patent No 287123, class 21, filed 12 Mar 69, published 19 Nov 70, pp 64-65

Translation: This Author's Certificate introduces a buffer memory device which contains a command magazine, registers, counters, comparison circuits, diodes, OR circuits, delay lines, flip-flops and data transmission lines. As a distinguishing feature of the patent, the device is designed for increased speed of the system, a reduction in the amount of equipment for ensuring continuity of data processing in the computers of the system, an increase in the flexibility of the system by using dynamic priority. The device contains an operand magazine, circuits for comparing the contents of the command magazine registers with the contents of the ready register for the operational memory modules, first level-storage flip-flops, diodes for transferring the most significant digits of the command address from the registers of the command magazine, an address tag analysis circuit,



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RYBACHENKOV, V. I., SUBBOTIN, V. A., Otkrytiya, izobreteniye, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 35, Soviet Patent No 287123, class 21, filed 12 Mar 69, published 19 Nov 70, pp 64-65

circuits for comparing the contents of the operand magazine registers with the contents of the ready register for the operational memory modules, second level-storage flip-flops, diodes for transferring the most significant digits of the operand address, registers of dynamic and maximum priority, a magazine address counter, diodes for recording the contents of the address counter in the command magazine registers, circuits for comparing the contents of the address counters with the contents of the command magazine registers, diodes for recording the contents of the information register in the command magazine register, diodes for recording the contents of the magazine address counter in the operand magazine registers, circuits for comparing the contents of the address counter with the contents of the operand magazine, diodes for recording the contents of the information register in the operand magazine register, and flip-flops which inhibit shift of the command and operand magazines. The first inputs of the circuits for comparing the contents of the registers in the command and operand magazines are connected through the OR circuits to the output of
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USSR

RYBACHENKOV, V. I., SUBBOTIN, V. A., Otkrytiya, izobreteniye, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 35, Soviet Patent No 287123, class 21, filed 12 Mar 69, published 19 Nov 70, pp 64-65

of these diodes are connected to the outputs of the first level-storage flip-flops, while the outputs of the diodes are connected to the command magazine registers. The circuits for comparing the contents of the address counter are connected to the address counter and to the command magazine registers, and the outputs of these comparison circuits are connected to the first inputs of the diodes for recording the contents of the information register in the command magazine register. The second inputs of these diodes are connected to the information register. The output of the magazine address counter is connected through a diode to the first inputs of the diodes for recording the contents of the address counter in the registers of the operand magazine. The second inputs of this diode are connected to the outputs of the second level-storage flip-flops, while the outputs of the above-mentioned diodes are connected to the registers of the operand magazine. The circuits for comparing the contents of the address counter are connected to the address counter and to the registers of the operand magazine, and the outputs of these comparison circuits are connected to the first inputs of the diodes for recording the contents of the information

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USSR

RYBACHENKOV, V. I., SUBBOTIN, V. A., Otkrytiya, izobreteniye, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 35, Soviet Patent No 287123, class 21, filed 12 Mar 69, published 19 Nov 70, pp 64-54

the ready register for the operational memory modules, while the second inputs of the comparison circuit are connected to the registers of the command magazine and the operand magazine respectively. The outputs of these comparison circuits are connected to the inputs of the first and second level-storage flip-flops, and the outputs of these flip-flops are connected to the first inputs of the diodes for transferring the most significant command and operand address digits, while the second inputs of the diodes are connected to the registers of the command magazine and the operand magazine. The first input of the address tag analysis circuit is connected to the K-th register of the command magazine, and the second input of this analysis circuit is connected to the S-th register of the operand magazine, while its output is connected to the input of the diode for transferring the contents of the maximum priority register and to the input of the diode for transferring the contents of the dynamic priority register. The output of the magazine address counter is connected through a diode to the first inputs of the diodes for recording the contents of the address counter in the command magazine registers. The second inputs

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USSR

RYBACHENKOV, V. I., SUBBOTIN, V. A., Otkrytiya, izobreteniye, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 35, Soviet Patent No 287123, class 21, filed 12 Mar 69, published 19 Nov 70, pp 64-65

register in the operand magazine register. The second inputs of the diodes are connected to the information register.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 615.31:546.347.033

SARATIKOV, A. S., SAMOYLOV, N. N., SUBBOTIN, V. F., KUKLENKO, V. G., and PILIPENKO, YU. A., Tomsk Medical Institute

"The Distribution of Lithium in the Body and Its Elimination"

Moscow, Zhurnal Nevropatologii i Psikhiatrii imeni S. S. Korsakova, Vol 71, No 11, 1971, pp 1,709-1,712

Abstract: Lithium was administered to mice, and upon sacrifice of the animals its content was determined by the flame photometry method. Statistically processed results demonstrated that the accumulation of lithium after a single administration of its salts in doses of 1/3 to 1 $LD_{50}$ was manifested to the highest degree in the kidneys, then in order of diminishing values, in the heart, lungs, spleen, muscles, liver, and brain. The method of administration, dosage and anion type of lithium salt have no significant effect on the nature of distribution, accumulation, or elimination of the metal from the body, whereas the rapidity of its assumulation in the tissues depends on the type of tissue, method of administration and dosage. A Study of the dynamics of elimination of lithium from the tissues revealed its selective retention by the brain.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

MILLIONSHCHIKOV, N. D., SUBBOTIN, V. I., et al

"Hydraulic Drag and Velocity Curves in Tubes Having Artificially Roughened Walls"

Moscow, Atomnaya Energiya, April 1973, pp 235-245

Abstract: Experimental data on the drag coefficients and velocity curves in the range of Reynolds numbers from $4 \cdot 10^3$ to $10^6$ are presented. Surface roughness consists of single threads of various profiles, multiple cross threads of triangular profile, circular grooves, pyramids, and semispherical ribs of varying thickness. Hydrodynamic flow characteristics depend on the average height of features causing surface roughness, dispersion of their heights, and the form and spacing of these features. The variety of roughened tubes available made it possible to study the effect of each of the above factors on hydrodynamic flow, other geometric characteristics remaining unchanged.

The article includes five figures, one table. There are 19 references.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 532.517

MILLIONSHCHIKOV, M. D., Academician, SUBBOTIN, V. I., Corresponding Member of the Academy of Sciences USSR, IBRAGIMOV, M. KH., TARANOV, G. S., and KOBZAR', L. L.

"Experimental Study of Turbulent Flow in Pipes With Artificial Wall Roughness"

Moscow, Doklady Akademii Nauk SSSR, Vol 207, No 6, 1972, pp 1292-1295

Abstract: The authors studied turbulent flow in circular pipes with regular, artificially created wall roughness. The roughness was created by cutting single and multiple cross threads and circular recesses on the inside surface of Duralumin pipes. There were 15 variants. The experiments were conducted in air (Re = 5000-200,000) and water (Re = 70,000-$1 \cdot 10^6$). It was found that the dependence of the resistance coefficient on the Reynolds number for the investigated types of rough surfaces differs from the relations obtained for sand-grain roughness or for commercial rough pipes. There was found to be an earlier hydraulic appearance of roughness. In most cases this effect occurs at $u_\tau k/\nu < 3$, where $u_\tau$ is the dynamic velocity, k the height of the roughness elements, $\nu$ the fluid viscosity. At Reynolds numbers ranging

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

MILLIONSHCHIKOV, M. D., et al., Doklady Akademii Nauk SSSR, Vol 207, No 6, 1972, pp 1292-1295

up to $10^6$ practically no interval is observed where a square resistance law would occur, in which $\lambda$ for one and the same type of thread is determined only by the relative roughness height. The mean relative height of the roughness elements is far from being the complete characteristic of a rough surface. The resistance coefficient is considerably influenced by the pitch of the mutual arrangement of the roughness elements and their shape. Further studies are under way to determine the mechanism of the interaction between turbulent flow and roughness elements and to obtain generalizing relations and develop calculation procedures.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 539.199

DAVYDOV, A S., Academician of the Academy of Sciences Ukrainian SSR, and SUPRUN, A. D., Institute of Theoretical Physics, Academy of Sciences Ukrainian SSR, Kiev

"Quantum Theory of Protein Molecule Contraction"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 4, 1972, pp 809-811

Abstract: The article develops a quantum theory for one of the mechanisms for the contraction of protein molecules during their excitation. Contractile proteins are polypeptide chains of amino acid residues. They are coiled in an alpha-helix as a result of the appearance of hydrogen bonds between the oxygen and hydrogen of the peptide groups $\overset{H}{\overset{|}{N}}-\underset{\underset{O}{\|}}{C}$ of the first and fourth, second and fifth, etc. amino acid residues; three chains of hydrogen bonds are thus formed along the helix. When the state of the peptide groups

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

DAVYDOV, A. S., and SUPRUN, A. D., Doklady Akademii Nauk SSSR, Vol 205, No 4, 1972, pp 809-811

changes, the quantity of the hydrogen bonds changes and the lead of the helix is changed thereby. One of the three hydrogen bond chains is considered for a quantitative calculation of this change.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC. 532.517

MILLIONSHCHIKOV, M. D., Academician; SUBBOTIN, V. I., Corresponding Member USSR Academy of Sciences; IBRAGIMOV, M. Kh.; TARANOV, G. S.; KOBZAR', L. L.

"Experimental Investigation of the Turbulent Current in Tubes With Artificially Roughened Walls"

Moscow, Doklady Akademii Nauk SSSR, vol 207, No 6, 1972, pp 1292-1295

Abstract: Asserting that the experimental and theoretical work on tubes with roughened walls lags behind similar analysis of currents in tubes with smooth walls, the authors describe experiments they performed to investigate turbulent flow in circular tubes of accurate design and with artificially roughened walls, the latter being created by cutting the inner surfaces of the duralumin with grooving and threading devices. The method of cutting is described in some detail, and a table of variants of these roughened tubes, showing diagrams of the cuts and their parameters, is given. The experiments were conducted with air and with water, the Reynolds numbers for each varying from 5000-200,000 and 70,000-$1 \cdot 10^6$ respectively. Curves for the resistance of the tubes with various

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

MILLIONSHCHIKOV, M. D., et al, Doklady Akademii Nauk SSSR, vol 207, No 6, 1972, pp 1292-1295

types of cut along the inner walls are plotted. The authors recommend further research to help clarify the mechanism of current and wall interactions.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR UDC: 621.039.526

DOBROVOL'SKIY, V. F., ZHUKOV, A. V., SVIRIDENKO, YE. YA., SUBBOTIN, V. I. and USHAKOV, P. A.

"A Study of the Temperature Fields of Fuel Elements in Fast Reactors During Variable Energy Release with Respect to Zone Height"

Moscow, Atomnaya energiya, Vol 28, No 6, Jun 70, p 490

Abstract: The authors experimentally determined the temperature fields of the central, lateral, and corner elements of a BOR [expansion unknown]-type reactor cassette model during cosinusoidal energy release along the height of the model. The results show that the heat flux varying with respect to length evokes deformation of the temperature profile in the channel because of the varying amount of heat supplied at each section of the channel. As a result of this, a change takes place in the numerical values of the heat-transfer coefficients along the channel. A reduction of the heat-transfer coefficients in the upper part of the active zone of a BOR-type reactor as the result of variable energy release does not present a danger to the operation of the fuel elements since the numerical values of the mean temperature difference for wall-fluid are small in the case of sodium heat-transfer agents. The maximum temperature nonuniformity of the fuel elements of a BOR-type reactor can be estimated with respect to the mean along the height of the heat flux zone starting with test data obtained for q = const.

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UNCLASSIFIED PROCESSING DATE--[illegible]

/72 043

TLE--SOLUBILITY OF GASES IN A SODIUM AND POTASSIUM EUTECTIC ALLOY --U-

UTHOR-(05)-ARNOLDOV, M.N., IVANOVSKIY, M.N., MOROZOV, V.A., PLETNETS, S.S., SUBBOTIN, V.I.

OUNTRY OF INFO--USSR

OURCE--AT. ENERG. 1970, 28(1), 18-22

ATE PUBLISHED--------70

UBJECT AREAS--MATERIALS, CHEMISTRY

OPIC TAGS--SODIUM ALLOY, POTASSIUM ALLOY, EUTECTIC, ALKALI METAL, HYDROGEN, ARGON, SOLUBILITY, GAS PROPERTY, LIQUID METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1321 STEP NO--UR/0089/70/028/001/0018/0022

CIRC ACCESSION NO--AP0116781

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

2/2 - 043 UNCLASSIFIED PROCESSING DATE--09OCT70

IRC ACCESSION NO--AP0116781

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. USED TO MEASURE THE SOLY. C OF GASES IN MOLTEN ALKALI METALS IS DESCRIBED. THE C OF H SUB2 IN A 78.2 WT.PERCENT K-21.8 WT.PERCENT NA ALLOY IS DESCRIBED BY THE EQUATION LOG (C TIMES 10 PRIME4) EQUALS 6.43 MINUS (2670-T), WHERE C IS IN WT.PERCENT AND T IS THE TEMP., (DEGREESK); THIS EQUATION IS VALID FOR H SUB2 CONCN. BELOW THE SATN. POINT, I.E., WHEN THE RELATION BETWEEN THE H SUB2 CONCN. AND (P) PRIME0.5 (WHERE P IS THE H SUB2 PRESSURE OVER THE ALLOY) IS LINEAR. AT 300DEGREES, LOG C FOR N SUB2, HE, AND AR IN THE ABOVE ALLOY (WHERE C IS ATOM FRACTION-KG-CM PRIME2) UNDER 1 ATM IS MINUS 4.3, MINUS 4.9, AND MINUS 5.1, RESP.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 035 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--STUDY OF DYNAMICS OF BUBBLE BOILING OF WATER ON FINE WIRES UNDER CONDITIONS OF FREE CONVECTION -U-

AUTHOR-(05)-SUBBOTIN, V.I., KAZONVSKIY, S.P., KOROTAYEV, S.K., SVIRIDENKO, V.YE., SELIVANOV, YU.F.

COUNTRY OF INFO--USSR

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SOURCE--AT. ENERG. (USSR) 28, 9-13 JAN 1970

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--BOILING, FLUID DYNAMICS, GAS DYNAMICS, CONVECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1979/1596 STEP NO--UR/0089/70/028/000/0009/0013

CIRC ACCESSION NO--AP0047918

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

2/2 035 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0047918

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CINEMATOGRAPHIC STUDY OF THE PROCESS OF BUBBLE BOILING ON FINE WIRES UNDER THE CONDITIONS OF FREE CONVECTION WAS CARRIED OUT. DIRECTIONS OF ESCAPING OF BUBBLES FROM THE SURFACE OF A HEATER WERE DETERMINED. ON THE BASIS OF SOLVING THE EQUATION OF MOTION OF A BUBBLE AND BY A MEASUREMENT OF THE DISTANCE PASSED BY IT IN THE DIRECTION OPPOSITE TO THAT OF THE ACTION OF THE LIFTING FORCE, FROM THE MOMENT OF ESCAPING TILL FULL STOP, THE VALUE OF KINETIC ENERGY NECESSARY FOR OVERCOMING THE GRAVITATIONAL FORCES IS DETERMINED. THE CONCLUSION IS MADE ABOUT A NONGRAVITATIONAL NATURE OF FORCES, CAUSING ESCAPING OF A VAPOR BUBBLE FROM THE SURFACE OF A HEATER. SOME HYPOTHESES CONCERNING THE NATURE OF THESE FORCES HAVE BEEN PROPOSED.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 042 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--HEAT AND MASS TRANSFER IN A HEAT PIPE WITH A SODIUM HEAT TRANSFER AGENT -U-

AUTHOR-(04)-IVANOVSKIY, M.N., SOROKIN, V.P., SUBBOTIN, V.I., SHUSTOV, M.V.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(2), 319-25

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--HEAT TRANSFER, MASS TRANSFER, HEAT PIPE, SODIUM, STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1407 STEP NO--UR/0294/70/008/002/0319/0325

CIRC ACCESSION NO--AP0133359

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

2/2 042 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133359

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEAT AND MASS TRANSFER STUDIES BASED ON CAPILLARY ACTION IN WICKS, APPLICABLE TO WEIGHTLESS CONDITIONS, WERE CONDUCTED AT HIGH TEMPS. IN HEAT TUBES (500 MM LONG, 25.5 MM INSIDE DIAM.) LINED WITH A NA WETTED AND SATD., WOVERN STAINLESS STEEL SCREEN 1.5 MM THICK WITH PERMEABILITIES OF 70-260 DARCIES AND EFFECTIVE PORE RADII OF 0.023-0.13 MM. THE VAPOR PRESSURE VARIATIONS AND PRESSURE DROPS (DELTAP) ALONG THE LENGTH OF THE TUBE WERE DETD. AS A FUNCTION OF TEMP. (600-800DEGREES), HEAT TRANSFER RATE (Q) LESS THAN 3.7 KW, AND VAPORIZATION ZONE REYNOLDS NO. OF 1900-3700 AND 24-47 IN THE LONGITUDINAL AND RADIAL DIRECTIONS, RESP. THE WEDGE SHAPE PORE OPENINGS OF THE WICKS PERMITTED HEAT AND MASS TRANSFER DETNS. AT DELTA P GREATER THAN 0.07 BARS BETWEEN THE PHASES. FACILITY: FIZ.-ENERG. INST., MOSCOW, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SUPERHEAT NECESSARY FOR BOILING ALKALI METALS -U-

AUTHOR-(03)-SUBBOTIN, V.I., SOROKIN, D.N., KUDRYAVTSEV, A.P.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(2), 153-5

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LIQUID METAL BOILING, SODIUM, POTASSIUM, CESIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1363 STEP NO--UR/0089/70/028/002/0153/0155

CIRC ACCESSION NO--AP0130321

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

2/2 018 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0130321

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LITERATURE DATA ON THE SUPERHEATING DELTAT REQUIRED FOR BOILING ALKALI METALS VARY WITHIN WIDE LIMITS; EXPTL. DATA OF THE AUTHORS ALSO SHOW A WIDE SCATTER, I.E., THE DELTAT FOR NA, K, AND CS (AT SATN. TEMPS. OF 600-930, 450-800 AND 480-660DEGREES) ARE 40-200, 60-150 AND 70-120DEGREES, RESP.; DELTAT TENDS TO DECREASE WITH INCREASING SATN. TEMP. THE SCATTER OF EXPTL. DATA, AND THE DISCREPANCIES BETWEEN DATA OF VARIOUS AUTHORS, IS ATTRIBUTED TO DIFFERENCES IN THE STATE OF THE HEAT TRANSFER SURFACE.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR S UDC 621.039.534.6

ARNOL'DOV, M. N., IVANOVSKIY, M. N., MOROZOV, V. A., PLETENETS, S. S., and SUBBOTIN, V. I.

"Solubility of Gases in Eutectic Sodium-Potassium Alloy"

Moscow, Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 18-22

Abstract: The article describes results of the measurement of the solubility of gases in the eutectic sodium-potassium alloy at various temperatures. The apparatus used by the authors, in contrast to the device used by E. COMPERE and J. SAVOLAINEN, permits study of the equilibrium between gas and alloy in direct contact with each other. This made it possible to measure the solubility not only of hydrogen, but also of such gases as nitrogen, argon, and helium. In addition, information could be obtained on the kinetics of the interaction of the gases with the alloy. The hot volume method was used to study the solubility of the gases in the alloy.

The first series of experiments yielded the dependence of the hydrogen pressure on the amount of hydrogen absorbed by the alloy

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USSR

ARNOL'DOV, M. N., et al., Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 18-22

at 380° C. The dependence of activity coefficient, $\gamma$, of hydrogen in the alloy on the hydrogen concentration was calculated. In the second series of experiments, undertaken following removal of hydrogen from the alloy by evacuation, the temperature dependence of the saturation concentration of hydrogen in the alloy was calculated, as well as the temperature dependence of the dissociation pressure of the saturated hydrogen solution.

Some results are described of the kinetic study of the interaction of gases with alloy. The process of hydrogen evolution, as well as the process of absorption, is described by a first-order reaction equation. The solubility of the inert gases was determined for the alloy at 300° C. The absorption rate of the inert gases is much slower than hydrogen absorption.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 62-558

SUBBOTIN, V. M., and KUZNETSOV, YU. I., Perm Polytechnical Institute

"A Differentiating Accelerometer for Linear Acceleration"

Leningrad, Priborostroyeniye, Vol 16, No 5, 1973, pp 95-100

Abstract: The accelerometer consists of a fluid-filled casing, an inertial body connected to the casing by springs, a power transformer with windings on the inertial body, and a movable induction displacement transformer. The fixed portion of this last transformer is attached to the casing. The ends of the inertial body have cylindrical recesses containing the pole pieces and magnets of the force magnetic transformer system. With an external amplifier, the transformers form an electric spring. A channel through the center of the inertial body contains a neutral buoyancy float connected to the casing by springs and carrying the movable part of a displacement induction transformer, the other part of which is connected to the body, and the coil of a force electric spring transformer. Under acceleration, the displacement of the inertial body is proportional to the acceleration, while the pressure difference between the fluid reservoirs ahead and behind the inertial body is proportional to the speed of movement of the inertial body and therefore to the first derivative of the acceleration. The displacement of the float is

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SUBBOTIN, V. M., and KUZNETSOV, YU. I., Priborostroyeniye, Vol 16, No 5, 1973, pp 95-100

proportional to the pressure difference and therefore to the first derivative of the acceleration. The article contains a diagram of the device, differential equations which can be used to select parameters in designing such a device, and the specific parameters of an actual device.

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SUBBOTIN, V.M.

accelerometers

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ACCELEROMETERS

A DIFFERENTIATING LINEAR ACCELEROMETER

UDC 62-558

[Article by V. M. Subbotin and Yu. I. Kurnalnov, Perm Polytechnical Institute; Leningrad; Izvestiya Vuzov Priborostroyeniye, Russian, No 5, 1973, recommended by the Chair of Gyroscopic and Navigation Instruments, submitted 24 November 1972, pp 95-100]

In this article a diagram of an accelerometer is considered, which makes it possible to obtain the first derivative of the linear acceleration by direct measurement. The operating principle of the instrument is demonstrated. Differential equations of motion and transfer functions of the instrument are obtained, which may be used in the selection of its parameters.

In a number of cases in stabilization and control systems, and also in dynamic investigations of the behavior of an object, an instrument transmitting a signal that is proportional to the first derivative of the linear acceleration is needed. In particular, a need for such an instrument arises in the formation of controlling signals in gyrocompasses with electromagnetic control [1]. The instrument under consideration [2], aside from transmitting an acceleration signal, also transmits the signal of the first derivative of linear acceleration.

The accelerometer (Figure 1) contains a casing 1 filled with a fluid. The inertial body 2, in which are located the windings 3 of the power magnetoelectric converter and the moving part 9 of the inductive transfer converter are placed, is connected with the casing 1 by elastic elements 8. The fixed part 10 of the inductive transfer converter is fastened in the casing of the instrument. At the end of the inertial body 2 cylindrical recesses are made, in which the pole ends 4 are placed and also the magnets 5 of the magnetic system of the power magnetoelectric converter.



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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

Measuring, Testing, Calibrating

USSR

UDC 531.768

SUBBOTIN, V.M., Perm' Polytechnic Institute

"Angular Accelerometer"

Leningrad, Priborostroyeniye, No 4, 1971, pp 83-86

Abstract: The described angular accelerometer has, as compared to the conventional inertial angular accelerometer, greater effective sensitivity and provides a direct indication of the first derivative of acceleration without using an auxiliary differentiating device. The accelerometer consists of a cylindrical inertial sensing rotor connected along a common axis by torsion to a damping vane located in an auxiliary chamber. The rotor and vane are immersed in hydraulic fluid. The rotor exhibits a high self-turning moment and resulting sensitivity increase because the vane spring moment adds to that of the rotor's electrical damping and transducer system. Upon application of angular acceleration to the accelerometer body, the rotor turns through an angle, relative to the body, that is a function of the applied acceleration. The rotor velocity is a function of the derivative of the angular acceleration. The vane will cause a fluid pressure drop in proportion to this velocity. The angle of the vane will cause a fluid pressure drop in proportion to this velocity. The angle of the vane, relative to the rotor, is proportional to the fluid pressure, and consequently to the derivative of angular acceleration. A relationship between operating parameters and device dimensions plus fluid viscosity was established.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR UDC: 531.1

KARPOV, S. V. and SUBBOTIN, V. M.

"Deviations of a Gyroscope on a Movable Base Caused by Friction Moments"

Sb. Nauchn. tr. Perm. politekhn. in-t (Scientific Transactions of the Perm Polytechnical Institute--collection of works) 1970, No. 57, pp 139-144 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2A79)

Translation: Equations are given for the precession movement of a three-degree astatic gyroscope with the moments of force of dry friction in the suspension axes taken into account. The base rotates with a constant angular velocity around the external frame axis, and makes progressive shifts (vibrations) with accelerations obeying the harmonic law. When this angular velocity substantially exceeds the azimuthal deviation of the gyroscope, the equations are markedly simplified, and only the azimuthal motion of the gyroscope axis is considered. An expression is given for the modulus of the friction moment in the inner frame suspension

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

KARPOV, S.V., et al, Sb. Nauchn. tr. Perm. politekhn. in-t, 1970, No 57, pp 139-144 (from RZh-Mekhanika, No 2, Feb 71, Abstract No 2A79)

axis, depending on the radial and axial projections of the reaction of the bearings of this axis and the friction coefficients, for which, on the basis of theoretical and experimental data, corresponding analytical dependences are obtained. A determination is made of the angular velocity of the gyroscope axis azimuthal deviation, averaged over the period of vibration, caused by radial and axial components of the bearing reactions in the inner frame axis of the gyroscope suspension for vibrations of the base.
S. S. Rivkin

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF ANTIBIOTICS ON DIGESTION PROCESSES -U-

AUTHOR--SUBBOTIN, V.M.

5

COUNTRY OF INFO--USSR

SOURCE--VETERINARIYA (MOSCOW) 1970, 46(1), 73-5

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DRUG EFFECT, PENICILLIN, TETRACYCLINE, STREPTOMYCIN, DIGESTIVE SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0406 STEP NO--UR/0396/70/046/001/0073/0075

CIRC ACCESSION NO--AP0122586

UNCLASSIFIED

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

2/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0122586

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF PENICILLINS (PNC), TETRACYCLINES (TC), STREPTOMYCIN (STM), AND CHLORAMPHENICOL (CP) ON DIGESTION PROCESSES WAS STUDIED IN EXPTL. ANIMALS WITH FISTULAE OF THE STOMACH AND INTESTINE. ANTIBIOTICS WERE I.P. OR ORALLY ADMINISTERED SINGLY AT LOWER DOSES (CP AT 1-5 MG-KG OR PNC, TC, STM AT 250-1000 UNITS-KG TO PIGLETS, LAMBS, AND DOGS; CP AT 1-20 MG-KG AND PJC, TC, STM AT 500-2000 UNITS-KG TO FOWL) AND HIGHER DOSES (CP AT 10-50 MG-KG OR PHC, TC, STM AT 2000-3000 UNITS-KG; FOR FOWL 5000-10,000 UNITS-KG). THE LOWER DOSES INCREASED IN ALL CASES THE ACTIVITY OF AMINOLYTIC, PROTEOLYTIC, AND LIPOLYTIC ENZYMES BY 50-120PERCENT, AND THE PRODUCTION OF GASTRIC OR INTESTINAL JUICE BY 80-150PERCENT; THE EFFECT LASTING FOR 2-3 DAYS. HIGHER DOSES SUPPRESSED ALL DIGESTIVE PROCESSES BY SIMILAR TO 50PERCENT AFTER A TRANSIENT INCREASE. WITH LOWER DOSES, GASTRIC HCL CONTENT INCREASED BY 25-46PERCENT, THAT OF ORG. ACIDS DROPPED, AND PH ROSE TO 0.6-0.8. FACILITY: OMSK. VET. INST., OMSK, USSR.

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Measuring, Testing, Calibrating

USSR UDC: 681.2.083.3.531.768

SUBBOTIN, V. M., KUZNETSOV, Yu. I., BLAGOVESHCHENSKIY, M. N., Perm' Polytechnical Institute

"A Compensation Accelerometer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 21, Jul 72, Author's Certificate No 344357, Division G, filed 16 Oct 70, published 7 Jul 72, p 182

Translation: This Author's Certificate introduces a compensation accelerometer which contains a housing, a liquid-filled chamber, an inertial body with force pickup winding and two cylindrical depressions on the ends, a force pickup magnetic circuit located in the depressions of the inertial body, a displacement pickup and an amplifier. As a distinguishing feature of the patent, the device is designed for obtaining the signal of the derivative of the measured acceleration. The accelerometer is equipped with a float and a pickup for displacement of the float relative to the inertial body. An axial channel is made in the inertial body, and the float is connected by an elastic element to the inertial body and is accommodated in the axial channel.



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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 681.325.65

SUBBOTINA, G. V., and TSAREGRADSKIY, F. I., Institute of Problems in Control (Automation and Telemechanics)

"Device for Converting Binary Code With Unipolar Representation of Information to Binary Code With Bipolar Representation of Information"

USSR Authors' Certificate No 312377, Cl. H 03 k 13/00, filed 14 Apr 70, published 12 Oct 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, May 72, Abstract No 5B187P)

Translation: The invention is related to the field of automation and computer technology and can be used for the construction of logic and calculating devices. Most well-known types of standard digital elements, including semiconductor micromodular elements, are devices with unipolar representation of 0 and 1: i.e., the binary digit is represented in them by the presence or absence of a signal. It is known that the representation of a binary digit by means of heteropolar pulses has a number of advantages due to the sharp increase in the noise immunity and functional stability of elements and the expansion of their logical capabilities. Elements with bipolar inputs have appeared at the present time (for example, magnetic threshold elements or FDE-500 type elements) If it is necessary to combine them with unipolar elements, the number of the

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

SUBBOTINA, G. V., et al., USSR Authors' Certificate No 312377

latter has to be doubled. At the same time, well-known devices for changing from unipolar to bipolar elements have a number of shortcomings which limit the range of their practical application. The purpose of the invention is to simplify the circuit of a device for converting binary code with unipolar representation of information to binary code with bipolar representation of information, based on a branched magnetic core. In the proposed converter the write winding is laid out on one of the jumpers of the split section of the core, while the output winding is coiled like a figure eight on both jumpers of the split section, with the jumpers differing in length.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC: 620.197.5

LYUBLINSKIY, YE. YA., BIBIKOV, N. N., TAYTS, A. Yu., and SUBBOTINA, M. S.,
Central Scientific-Research Institute of Shipbuilding Technology

"Selection of Cast Magnesium Protector Alloys"

Moscow, Zashchita Metallov, "Nauka", Vol 7, No 3, 1971, pp 322-326

Abstract: The authors determine the optimal composition of a magnesium protector alloy. The tests were conducted in calm, artificial sea water of average ocean composition at 18-20 degrees. A table is given which shows that commercially pure alloys have similar electrochemical characteristics. Of the high-purity alloys, the Ml4vch alloy appears to be the qualitatively best protector material. The following are its composition and electrochemical characteristics obtained at a current density of 5 a/m$^2$ and a test duration of 480 hr: alloying elements by percent, 519 Al, 2.4 Zn, 0.40 Mn, and 0.0 Ce; impurities by percent, 0.0035 Fe, 0.0005 Cu, and 0.0002 Ni; potential during polarization in mv, -1205; and current efficiency by percent, 60.0. The studies show Ml4vch to be the best protector material if it does not contain more than 0.001 Ni, 0.0045 Fe, and 0.005 Cu. It dissolves within the 3-10 a/m$^2$ current density interval with a current efficiency of 57.5-62.0% at a potential of -1225-1205 mv. Original article: one table, two formulas, one figure, and seven bibliographic entries.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 577.391

GONCHARENKO, YE. N., SUBBOTINA, S. M., and ALIYEVA, L. I., Chair of Biophysics, Moscow State University imeni M. V. Lomonosov

"Mechanisms of Change in Serotonin Content of Irradiated Animal Tissues"

Moscow, Biologichesikye Nauki, No 12, 1970, pp 41-44

Abstract: In irradiated rats (1,000 rad), 5-hydroxytryptophan decarboxylare activity increased in the liver, small intestine, and brain 30 min and 24 hours after exposure and then sharply decreased in all organs. Monoamino-oxidate activity decreased in the gastrointestinal tract and liver of irradiated animals, but remained within normal limits in the brain. The formation of lipid radiotoxins is apparently the cause of impairment of enzymatic activity. By way of conformation, injection of rats with lipid radiotoxins resulted in an increase in both the serotonin content of intestine, liver, and brain tissues and in 5-hydroxytryptophan decarboxylare activity. In the terminal period, the serotonin content decreased sharply as did 5-H activity.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 615.285.7.099.097

NIKOLAYEV, A. I., SUBKHANKULOVA, F. B., and GELLER, I. S., Chair of General and Radiation Hygiene, Tashkent Medical Institute

"Immune Reactions During Intoxication With the Pesticides Methylmercaptophos, Phosphamide, Aldrin, and Monuron"

Moscow, Farmakologiya i Toksikologiya, Vol 33, No 6, Nov/Dec 70, pp 737-741

Abstract: Changes in the immunological specificity of tissue proteins in mice and rats poisoned with methylmercaptophos, phosphamide, aldrin, and monuron were studied. An alteration in the immunological specificity of liver proteins was noted on the first day after intoxication due to chemical binding of pesticides by proteins and, on subsequent days, to destructive changes in the tissues. This sequence was similar to that established by Nikolayev et al in a study of autoimmune processes upon introduction into the organism of antibiotics, carcinogens, and substances with antitumor activity. Anti-hepatic autoantibodies appeared in the blood serum of animals on the 7th day after initiation of intoxication, reaching their maximum titer on the 30th day of the experiment and decreasing in concentration thereafter during the continued action of the pesticides. The titer of antihepatic autoantibodies in

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

NIKOLAYEV, A. I., et al, Farmakologiya i Toksikologiya, Vol 33, No 6, Nov/Dec 70, pp 737-741

the blood serum in connection with continuous administration of the pesticides was studied on rabbits given methylmercaptophos or phosphamide for 15 days and rats receiving monuron for 4 months. Blood sera containing antihepatic auto-antibodies depressed the resorption and excretory function of the liver in healthy animals, produced morphological changes in the liver, and inhibited redox processes in tissues.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/3 .021 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PHOTOREDUCTION OF PORPHYRINS BY STANNOUS CHLORIDE IN AN ACID MEDIUM -U-

AUTHOR-(02)-SUBOCH, V.P., GURINOVICH, G.P.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK BELORUSS. SSR 1970, 14(2), 112-14

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--PORPHYRIN, TIN CHLORIDE, CHEMICAL REDUCTION, PHOTOEFFECT, SPECTROPHOTOMETRIC ANALYSIS, UV SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1093 STEP NO--UR/0250/70/014/002/0112/0114

CIRC ACCESSION NO--AT0124750

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

2/3 021 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124750

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHOTOREDN. OF PROPHYRINS WAS STUDIED IN AQ. HCL (3-37PERCENT) AND IN A MIXT. OF H SUB2 O, GLYCEROL, AND CONCD. HCL (25:25:2), WITH SNCL SUB2 .2H SUB2 O AS THE REDUCING AGENT (5 MG SNCL SUB2 .2H SUB2 O-ML SOLN.). THE SOLNS. WERE IRRADIATED WITH A 750 W PHOTOGRAPHIC LAMP USING A CONDENSING LENS OR DISPERSED LIGHT. THE COURSE OF THE REACTION WAS FOLLOWED SPECTROPHOTOMETRICALLY. THE DEGREE OF HYDROGENATION OF THE REACTION PRODUCTS WAS DETD. BY TITRATION WITH BR WATER (FOR THE PRODUCT WITH MU SUBMAX 510 M MU (FORM I) OR AQ. K SUB3 FE(CN)SUB6 FOR THE PRODUCTS ABSORBING AT 460 M MU (FORM II) AND 445 AND 740 M MU (FORM III), RESP.), IN A SPECIALLY DESIGNED VACUUM CELL. THE AMT. OF REACTED STARTING PROPHYRIN WAS ALSO DETD. SPECTROPHOTOMETRICALLY. THE SOLNS. OF REDUCED FORMS OF MESOPORPHYRIN WERE PREPD. AS FOLLOWS. MESOPORPHYRIN (2-3 MG) WAS DISSOLVED IN 0.3 ML CONCD. HCL, 7 ML DISTD. H SUB2 O ADDED, AND 30-5 MG SNCL SUB2 .2H SUB2 O ADDED. THE SOLN. WAS IRRADIATED UNTIL THE PPT. OF FORM I FORMED AND THE SOLN. WAS ALMOST COLORLESS. THE UV SPECTRUM OF FORM I WAS RECORDED IN CONCD. HCL. SIMILARLY OBTAINED WAS THE FORM II, BUT THE UV SPECTRUM WAS DETD. IN THE H SUB2 O GLYCEROL CONCD. HCL MIXT. MESOPORPHYRIN (2-3 MG) WAS DISSOLVED IN 1.5 ML CONCD. HCL, 30-5 MG SNCL SUB2 .2H SUB2 O ADDED, AND THE SOLN. IRRADIATED UNTIL THE PROPHYRIN DISAPPEARED FROM THE MIXT.; 4.5 ML H SUB2 O WAS ADDED AND THE SOLN. AGAIN IRRADIATED UNTIL A PPT. FORMED (MIXT. OF FORMS I AND III). IN THE PHOTOREDN., FORMS I AND II ARE FORMED BY ADDN. OF 2 H ATOMS, AND FORM III BY ADDN. OF 4 H ATOMS.

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3/3 021 UNCLASSIFIED

CIRC ACCESSION NO--AT0124750 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--THUS, FORMS I AND II ARE TWO DIFFERENT DIHYDROPORPHYRINS AND FORM III IS A TETRAHYDROPORPHYRIN. NONE OF THESE REDUCED PROPHYRINS FORMS A COMPLEX WITH SNCL SUB2 IN ACIDIC MEDIUM.

FACILITY: INST. FIZ., MINSK, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--AMALGAMATIONS AND CENTRAL TERRITORIAL BOARDS IN INDUSTRIAL ADMINISTRATIONS -U-

AUTHOR--SUBOTSKIY, YU.V.

COUNTRY OF INFO--USSR

SOURCE--SOVETSKOYE GOSUDARSTVO I PRAVO, FEBRUARY 1970, NR 2, PP 158-159

DATE PUBLISHED----FEB70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--INDUSTRIAL ASSOCIATION, INDUSTRIAL ENTERPRISE, MINISTERIAL CONTROL, GOVERNMENT ECONOMIC PLANNING, SUPERVISORY CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0949 STEP NO--UR/0554/70/000/002/0158/0159

CIRC ACCESSION NO--AP0116455

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

CIRC ACCESSION NO--AP0116455 UNCLASSIFIED PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IF COMPARED TO SUCH ADMINISTRATIVE UNITS AS MINISTRY, CENTRAL TERRITORIAL AND ADMINISTRATIVE BOARDS AMALGAMATIONS PRESENT SELF SUPPORTING ORGANIZATIONS, CONSOLIDATING PRODUCTIVE AND COMMERCIAL ACTIVITY OF THE NUMEROUS ENTERPRISES. THE LEGAL STATUS OF AMALGAMATION, AND THE AUTONOMY OF THE ENTERPRISES (UNDER ITS AUSPICES) SHOULD DIFFER IN ACCORDANCE WITH PRODUCTIVE AND COMMERCIAL CHARACTERISTICS OF THE PARTICULAR ENTERPRISE AND A DEGREE OF AMALGAMATIVE CENTRALIZATION IN THE UNIT AS A WHOLE. THE AUTHOR CONSIDERS IMPORTANT THE PROPER USE OF SELF SUPPORTING BASIS IMPETUS IN ALL THE CASES. MORE CENTRALIZED NATURE OF A PARTICULAR AMALGAMATION IS JUSTIFIED IN CASE OF SMALL ENTERPRISES UNITING ROUND SOME BIGGER AND BETTER ORGANISED ONE, THE LATTER ABLE TO CONTRIBUTE OT THE PARTICIPANTS DEVELOPMENT. ECONOMIC REFORM STIMULATES THE CHANGES IN UNION REPUBLIC MINISTRIES, CENTRAL TERRITORIAL AND ADMINISTRATIVE BOARDS ORGANIZATION IN THE DIRECTION OF EMPLANTATION OF NEW ECONOMIC PLANNING, STRUCTURE AND ACTIVITY. IN AUTHOR'S MIND IT IS NOT EXPEDIENT TO TRANSFORM THE MINISTERIAL CENTRAL BOARDS INTO TERRITORIAL AMALGAMATIONS IF THERE ARE NO ENTERPRISES DIRECTLY SUBMITTED TO THOSE UNITS, BOARDS OF DIRECTORS AT CONCRETE ENTERPRISES WITHIN THE FRAMEWORK OF TERRITORIAL AMALGATIONS SHOULD BE GIVEN THE POWERS TO DECIDE CERTAIN ISSUES CONCERNING THE COMMERCIAL INTERESTS OF THE PARTICULAR ENTERPRISE.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SIMULTANEOUS REDUCTION OF MOLYBDENUM TRIOXIDE AND CHROMIC OXIDE BY SILICON -U-

AUTHOR-(03)-KHALIKOV, R.S., UMRIKHIN, P.V., SUCHILNIKOV, S.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(3), 5-8

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SMELTING FURNACE, SYNTHETIC SLAG, MOLYBDENUM OXIDE, CHROMIUM OXIDE, SILICON, METAL REDUCTION, PHASE COMPOSITION, CHEMICAL COMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0837 STEP NO--UR/0148/70/013/003/0005/0008

CIRC ACCESSION NO--AT0132927

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

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CIRC ACCESSION NO--AT0132927 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MOO SUB0 AND CR SUB2 O SUB3 WERE SMELTED WITH FE-SI (STOICHIOMETRIC RATIO) IN AN ELEC. RESISTANCE FURNACE IN A N ATM. AT 1890-1900DEGREESK. THE SYNTHETIC SLAG HAD A BASICITY OF 0.4-1.6. EQUIL. BETWEEN MOO SUB3 AND SI WAS REACYHED AFTER 30 MIN HOLDING AT 1890-1900DEGREESK. THE C HAD A DOUBLE EFFECT DURING SMELTING: IT CAN ACT AS A CARBIDE FORMING ELEMENT AND ALSO AS A REDUCTANT. WITH MOO SUB3, AN INCREASE IN C CONTENT RESULTES IN HIGHER EXTN. OF MO. WITH CR SUB2 O SUB5, AN INCREASE IN C CONCN. UP TO 0.6-0.8PERCENT RESULTED IN HIGHER CR EXTN. AT HIGHER C CONCNS., THE CR EXTN. DECREASED, PROBABLY BECAUSE OF THE FORMATION OF SIC. WITH INCREASED BASICITY OF THE SLAG, THE MO EXTN. INCREASED, WHILE EXTN. OF CR INCREASED ONLY UP TO (CR):(MO) EQUALS 0.4, WHILE AT (CR):(MO) EQUALS 0.75, THE EXTN. OF CR DECREASED SLIGHTLY. FACILITY: URAL. POLITEKH. INST., SVERDLOVSK, USSR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC: 669.295.5:536.777

RUBTSOV, A. N., OLESOV, Yu. G., CHERKASHIN, V. I., and SUCHKOV, A. B., Zaporozhe

"Activity of Aluminum, Vanadium, and Chromium in Binary Titanium Alloys"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 84-87

Abstract: Use was made of the electromotive force method to study the activities of aluminum, vanadium, and chromium as a function of temperature and the content of the alloying metal in Ti-Al, Ti-V, and Ti-Cr alloys. The activities of the three metals were determined in alloys not subjected to preliminary hydrogenation-dehydrogenation. The activity of titanium was determined in the same alloys subjected to the preliminary hydrogenation-dehydrogenation. It is noted that the rise in titanium activity in the hydrogenated alloy is related to the bond rupture between the atoms of titanium and those of the alloying metal. This permits separation of some components of titanium alloys from titanium by the use of hydrogenation and subsequent hydrometallurgical treatment as well as by hydrogenation and (after degassing) electrolytic refining. A table in the original article shows the concentration dependences of titanium activity in Ti-Al, Ti-V,

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RUBTSOV, A. N., et al, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 84-87

and Ti-Cr alloys (for 800°C) subjected to preliminary hydrogenation-dehydrogenation.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC: 621.373.826

ALLAKHVERDYAN, R. G., MOROZOV, V. N., SUCHKOV, A. F.

"Nonstationary Excitation of Multimode Emission in Semiconductor Lasers"

Kratkiye soobshch. po fiz. (Brief Reports on Physics), 1972, No 6, pp 3-7 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D230 by A. K.)

Translation: It is shown that the presence of spontaneous noise in the mode of undamped pulsations in semiconductor lasers leads to multimode emission close to the threshold. Ordinary equations of balance with regard to spontaneous emission are considered for studying nonstationarity of oscillation. Multimode emission is analyzed for three modes. It is recommended that emission pulsations be smoothed by introducing negative feedback to obtain single-mode emission.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

BASOV, N. G., BELENOV, E. M., DANILYCHEV, V. A., KERIMOV, O. M., KOVSH, I. B., and SUCHKOV, A. F., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Gas Lasers at High Pressures"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 14, No 7, 5 Oct 71, pp 421-426

Abstract: A gas laser, operating at pressures of tens of atmospheres and high-power, short-duration pulses is described. Its active part is excited by electrons from an ionizing radiation source, accelerated further by an electric field. Essential problems to be solved are: 1) mechanism of the introduction of energy, and 2) conditions of stability of operation not perturbed by quenching processes.

1) Power in the active part of the laser may be divided into two components: one due to the electron current, and another - to both ions and electrons. It was found that in normal operation, the former is several orders of magnitude larger than the latter. A set of partial differential equations is given, the solution of which establishes conditions for the avalanche gas ionization. It was also found that in normal operation the

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

BASOV, N. G., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 14, No 7, 5 Oct 71, pp 421-426

potential gradient along the discharge sector, including the cathode drop, was constant. Typical parameters of laser operation are given: with a pulse length of $2 \times 10^{-8}$ sec, electron particle density $10^{15}$ $cm^{-3}$, the discharge specific energy is 3 to 4 joule $cm^{-3}$.

2) With the potential being larger than its breakdown value, volume discharge is stable during the spark generation period. Cases were examined for the potential difference being below that value. As with an increase of current, the temperature increases, leading to a decrease of pressure, and the breakdown conditions are reached. The dynamics of this type of perturbation is described by three partial differential equations, and computation of the energy needed to produce a discharge with the initial potential difference half the critical value is performed as an illustration. This type of relationship is used as a criterion of stability. Graphs are presented giving threshold voltage as a function of pressure for mixtures of $CO_2:N_2$ and of $CO_2:N_2:He$.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

BASOV, N. G., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 14, No 7, 5 Oct 71, pp 421-426

3) An experiment was performed with a molecular laser using $CO_2$ at 25 atmospheres, with electron bunches as triggers. It was found that quenching collisions produced little effect upon the population inversion in $CO_2$ at high pressure. It was found, however, that with an increase of pressure, the breakdown voltage increased across the discharge sector, and the specific energy input increased too. Increased collision frequency, accompanying the increase of pressure, reduces the generation pulse length.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

Lasers and Masers

UDC 621.378.33

BASOV, N. G., BELENOV, E. M., DANILYCHEV, V. A., and SUCHKOV, A. F.

"Pulsed $CO_2$-Laser With High Pressure of the Gas Mixture"

Moscow, Kvantovaya Elektronika, No 3, 1971, pp 121-122

Abstract: Short powerful pulses of coherent light are required for solving any number of physical problems. However, solid-state lasers are ordinarily used as the sources of powerful pulses. Theoretically, such pulses can be produced from gas lasers as well if the concentration of active particles in the gas is close to their concentration in solid-state lasers. It is certainly interesting to design gas lasers that operate with a high working gas pressure. Typical powerful $CO_2$-lasers operate at pressures of about 50 torr, and recently such lasers have been designed for operation at working mixture pressures up to 1 atm. However, the method of exciting gas lasers can not ensure uniformity in the active medium and is only slightly effective in the region of higher pressures. However, by raising the pressure to 1 atm, the authors were able to observe the spontaneous synchronization of the modes and to produce powerful ultrashort light pulses. The difficulties involved in exciting a gas-discharge laser were overcome by using an external source for ionizing the gas. The electric discharge was activated in a mixture of $CO_2+N_2+H_2O+He$

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

BASOV, N. G., et al., Kvantovaya Elektronika, No 3, 1971, pp 121-122

placed between two flat electrodes. By further increasing the gas pressure, one can reduce the duration of the generation pulse and simultaneously increase the energy. Thus, with large pressures the self-synchronization of the modes may ensure the generation of ultrashort radiation pulses with a duration of about $10^{-11}$ seconds. The article contains 1 figure and 5 bibliographic entries.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

UNCLASSIFIED

TITLE--EFFECT OF THE WAVEGUIDE PROPERTIES OF A P-N JUNCTION ON THE OUTPUT OF GALLIUM ARSENIDE LASER DIODES -U-

PROCESSING DATE--04DEC70

AUTHOR-(03)-ALLAKHVERDYAN, R.G., DRAYEVSKIY, A.N., SUCHKOV, A.F.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA I TEKHNIKA POLUPROVODNIKOV, VOL. 4, FEB. 1970, P. 341-346

DATE PUBLISHED----FEB70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PN JUNCTION, OPTIC WAVEGUIDE, GALLIUM ARSENIDE LASER, GALLIUM ARSENIDE, SEMICONDUCTOR DIODE, HIGH ENERGY INJECTION DEVICE, LASER EMISSION, LASER ENERGY, LASER POWER OUTPUT, LASER PULSE, DAMPING MOMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1464

STEP NO--UR/0449/70/004/000/0341/0346

CIRC ACCESSION NO--AP0112458

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UNCLASSIFIED

CIRC ACCESSION NO--AP0112458 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF THE EFFECT OF AN OPTICAL WAVEGUIDE IN AN INJECTION LASER ON THE THRESHOLD LASING CONDITIONS AND ON THE FIELD DISTRIBUTION IN THE NEAR AND FAR ZONES FOR VARIOUS PARAMETERS OF THE ACTIVE REGION. IN THE CHOSE LASER MODEL, IN CONTRAST TO PREVIOUS WORKS ON THIS SUBJECT, THE REAL AND IMAGINARY PARTS OF THE COMPLEX PERMITTIVITY ARE APPROXIMATED BY CONTINUOUS FUNCTIONS OF THE COORDINATES. ON THE BASIS OF A STUDY OF UNSTEADY PROCESSES IN THE GIVEN MODEL OF AN INJECTION SEMICONDUCTOR LASER, IT IS SHOWN THAT FOR CERTAIN PARAMETER VALUES OF THE OPTICAL WAVEGUIDE OUTPUT POWER PULSATIONS OF UNDAMPED 'PEAK' CHARACTER ARISE. THE PULSATIONS ARE DAMPED IF BOUND FIELD STATES ARISE IN A POTENTIAL WELL FORMED BY AN OPTICAL INHOMOGENEITY. FACILITY: AKADEMIIA NAUK SSSR, FIZICHESKII INSTITUT, MOSCOW, USSR.

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USSR

BASOV, N. G., ORAYEVSKIY, A. N., SUCHKOV, A. F., Physics Institute imeni P. N. Lebedev, Academy of Sciences of the USSR

"Feasibility of Ultrashort Laser Pulse Emission on Combination, Vibrational-Rotational Transitions of Molecular Hydrogen"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 16, No 5, 5 Sep 72, pp 301-304

Abstract: The authors consider the possibility that laser emission might be achieved on transitions which show up in the vibrational-rotational spectrum of hydrogen in the presence of a sufficiently strong electric field E, either AC or DC. The probability of emission or absorption of a quantum is proportional to $E^2$. An expression is derived for finding the amplification factor on induced transitions. The results of the study show that it is possible, at least in theory, to achieve emission without an external field which induces transitions.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

Acc. Nr: AP0044662

Ref. Code: UR0497

PRIMARY SOURCE: Klinicheskaya Meditsina, 1970, Vol 48, Nr 2, pp 85-90

# VARIANTS IN THE CLINICAL COURSE OF IMMUNOGENIC HEPATITIS

A. V. Suchkov, N. V. Privalova, M. L. Zaslavskiy

Summary

The authors describe three clinical variants of immunogenic affections of the liver, depict the diagnostic difficulties and features specific to the treatment of these forms of hepatitis. In all the patients observed there was a progressing affection of the liver with involvemente into the process of the joints with the development of fever. The occurrence of autoimmune affection of the liver in aged patients compels to exercise care in liver lesions in menopausali women. The use of prednisolone in relatively small doses produced a significant clinical effect. However, rapid reduction or cessation of prednisolone intake lead to a more severe exacerbation of the process. The problem of early diagnosis and effective treatment of immunoaggressive forms of hepatitis is quite pressing.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

Physiology

UDC 612.82+616.831-092]:061.3(47+57)"1972"

SUCHKOV, I. A., Moscow

"Problems of Brain Physiology and Pathology at the 32d Session of the General Assembly of the Academy of Medical Sciences USSR"

Moscow, Klinicheskaya Meditsina, Vol 50, No 12, 1972, pp 130-133

Translation (Excerpt): The report "Principles of the Functional Organization of the Human Brain" by Corresponding Member Academy of Medical Sciences USSR N. P. Bekhterova attracted great attention. As a result of an analysis of accumulated factual material and the suggested theoretical concepts, new methods have been proposed and are in use to treat nervous and mental illnesses by overcoming the stability of the pathological state. One of such methods is the application of localized electric stimulation to brain sections having a part in modulating its working conditions. Another is directed "retraining" of the diseased brain by a so-called controlled experiment. In N. P. Bekhterova's opinion the progress in research on brain activity and modern technical possibilities now afford an opportunity for studying the finer physical correlations, in particular the bioelectric code of mental processes.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 51

SUCHKOV, L. N.

"Some Problems of Stability and Optimalness of Probability Systems"

V sb. Prom. kibernetika (Industrial Cybernetics -- collection of works), Kiev, 1971, pp 164-172 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V526)

No abstract

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USSR

UDC 535.89

BORISEVICH, N. A., GRUZINSKIY, V. V., PALTARAK, N. M., SHAGOSHCHENKO, L. P., SUCHKOV, V. A.

"Generation and Tuning of the Radiation Bands of a Laser Based on Solutions of Certain Organic Compounds"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 41-44

Abstract: The generation of solutions of oxazole and oxadiazole solutions that differ in the type and position of substitutes and have one or two oxazole rings was studied. Generation of tetraphenylbutadiene and a solution of a coumarin mixture was also obtained. Compounds of these classes are activators of organic scintillators. They were effective active media for liquid lasers in the ultraviolet and blue regions of the spectrum. A table is given showing the name of the substances, the position and width of the strongest part of the generation bands, and the concentration of the solutions for which generation was obtained. Duration of fluorescence is given for the smallest concentrations ($10^{-3}$ g/l) for which the monomer molecules fluoresce. The generation bands were tuned with a diffraction grating (1200 lines/mm) which concentrated 70% of the reflected light. The second mirror

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BORISEVICH, N. A., et al., Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 41-44

of the resonator was a wide-band mirror. The use of a grid made it possible to narrow considerably and frequency tune the generation bands. For tetraphenylbutadiene with a generation band width of 16 nm, the range of smooth tuning of the generation frequency was 70 nm (480-550 nm). Of greatest interest was the tuning of generation bands of solutions of oxazole and oxadiazole derivatives, since their position was little dependent on experimental conditions in operating with a nonselective resonator.

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USSR UDC

SUCHKOV, V. A., Chelyabinsk

"The Motion of a Gas Behind a Flat Detonation Wave, Perpendicular to a Free Surface"

Prikladnaya Matematika i Mekhanika, Vol 35, No 6, 1971, pp 1,100-1,108.

ABSTRACT: The problem is studied of detonation of one-fourth of a space filled with an explosive, initiated on one face. Determination of the solution in the perturbed area is reduced to the solution of a second order, quasilinear differential equation into unknown variables by a numerical characteristics method. A study is performed of singular points, the solution in the perturbed area and the shape of the free space are determined.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--GDGR OF RUSSIAN LEATHERS AND MEASURES FOR REDUCING IT -U-

AUTHOR-(05)-ARBUZOV, S.V., GORODINSKIY, L.L., MIRONOV, F.V., SUVGROVA, V.P., SUCHKOV, V.G.

COUNTRY OF INFO--USSR

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SOURCE--KOZH. OBUV. PROM. 1970, 12(3), 46-51

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LEATHER, SYNTHETIC OIL, SPECIALIZED COATING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1735 STEP NO--UR/0498/70/012/003/0046/0051

CIRC ACCESSION NO--AP0125356

UNCLASSIFIED

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2/2 018 UNCLASSIFIED

CIRC ACCESSION NO--AP0125356 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEASURES INCLUDE REDUCING THE TEMP. AND DURATION OF MANY OPERATIONS, ESP. FOR BACTERIAL AND IMPORTED RAW HIDES (THE SOFTENING PROCESS WAS ELIMINATED FOR THEM); ELIMINATING NA SUB2 SO SUB3 IN THE ALKALI SOAKING BATH; USING AN OP TYPE EMULSIFIER IN THE DECALCIFYING BATH; USING ACID BLACK S AND FIXER F DURING DYEING AND FIXER F DURING OILING; SALT TREATING INSTEAD OF PICKLING TO HARDEN THE DERMA AND FACE LAYER, ESP. OF BACTERIAL AND IMPORTED STOCKS; LOWERING AIR TEMPS. DURING DRYING; INCREASING THE AMT. OF SYNTHETIC OIL IN MIXTS. WITH FISH OIL; AND COATING WITH ACRYLIC EMULSIONS.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ELECTROLYTIC CELL FOR THE ELECTROLYSIS OF A MOLTEN ELECTROLYTE --U--

AUTHOR-(05)-ADAEV, E.I., BLINOV, A.V., KAMARYAN, G.M., NOVOSELOV, V.A., SUCHKOV, V.N.

COUNTRY OF INFO--USSR

SOURCE--BRIT. 1,185,481

DATE PUBLISHED--25MAR70

SUBJECT AREAS--CHEMISTRY, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--SODIUM, ELECTROLYSIS, SODIUM CHLORIDE, ELECTROLYTE, CHLORINE, PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1972 STEP NO--UK/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0115771

UNCLASSIFIED

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2/2 018 UNCLASSIFIED

CIRC ACCESSION NO--AA0115771 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTROLYTIC CELL FOR THE PRODUCTION OF METALLIC NA BY THE ELECTROLYSIS OF A FUSED SALT BATH CONTG. NACL COMPRISES A CENTRAL CYLINDRICAL ANODE BUILT UP OF GRAPHITE BARS, PROVIDED WITH WATER COOLING, AND SEALED IN THE BASE OF A STEEL SHELL, LINED WITH FIRE BRICK, WHICH CONTAINS THE MOLTEN SALT BATH. THE ANODE IS ENCIRCLED BY A CAST STEEL CATHODE SEPD. FROM THE ANODE BY AN FE OR ALLOY MESH SCREEN SUSPENDED FROM A COLLECTOR OR DOME TO PREVENT RECOMBINATION OF THE NA AND CL SUB2. THE NA EVOLVED AT THE CATHODE RISES INTO THE OUTER RING OF THE DOME AND THENCE TO A COLLECTOR, WHILE THE CL SUB2 GAS RISES THROUGH THE CENTRAL DOME TO A GAS COLLECTING SYSTEM.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--THE ROLE OF COLLATERAL CIRCULATION IN A COMPENSATION OF CEREBROISCHEMIC HYPERTENSION APPEARING IN LIGATION OF SOME BRANCHES OF

AUTHOR-(03)-SUCHKOV, V.V., OVRUTSKIY, YA.S., BRONSHTEYN, R.I.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970, VOL 70, NR 6, PP 834-840

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BRAIN, BLOOD CIRCULATION, ANGIOGRAPHY, MEDICAL EXPERIMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0240 STEP NO--UR/0246/70/070/006/0834/0840

CIRC ACCESSION NO--AP0126017

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AP0126017 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN 20 RABBITS WHO HAD UNDERGONE IPSILATERAL LIGATION OF SOME BRANCHES OF THE GENERAL CAROTID ARTERIES A CHRONIC HYPERTENSIVE REACTION APPEARED. A REPEATED LIGATION OF SIMILAR ARTERIES ON THE OTHER SIDE AFTER 6-7 MONTHS IN 16 ANIMALS WAS NOT ACCOMPANIED BY AN INCREASE OF ARTERIAL PRESSURE. IN 12 EXPERIMENTS THE COLLATERAL BRAIN CIRCULATION WAS STUDIED BY ANGIOGRAPHY AND A FILLING OF THE CEREBRAL VESSELS BY LATEX. IN 10 ANIMALS THE AUTHORS STUDIED THE INTRAOCULAR PRESSURE AND OPHTHALMOGRAPHY OF THE VESSELS OF THE EYE GROUND. THE ACHEIVED DATA WERE COMPARED WITH THE RESULTS SEEN IN 5 CONTROL ANIMALS AND 5 INTACT ANIMALS. IT WAS ESTABLISHED THAT A RECONSTRUCTION OF COLLATERAL CIRCULATION BEGINS DIRECTLY AFTER LIGATION OF THE CAROTID ARTERIES. AFTER 242-389 DAYS THERE IS A DILATATION OF THE SPINAL AND BASILLAR ARTERY, THE ARTERIES OF THE CIRCLE OF WILLIS, A DILATATION OF THE EXISTING AND A FORMATION OF NEW ANASTOMOSIS, VASCULAR NEOPLASMS IN THE PLACE OF ARTERY LIGATIONS BETWEEN THE INTRA AND EXTRACEREBRAL VESSELS. THE AUTHORS DISCUSS THE ROLE OF COLLATERAL CIRCULATION IN THE COMPENSATION OF BRAIN CIRCULATORY INSUFFICIENCY.

FACILITY: INSTITUT KARDIOLOGII, AMN, MOSKVA.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

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TITLE—THE INFLUENCE OF ANGIOTENZINE P ON CEREBRAL CIRCULATION -U-

PROCESSING DATE--17JUL70

AUTHOR--SUCHKOV, V.V.

COUNTRY OF INFO--USSR

SOURCE—ZHURNAL NEVPOPATOLOGII I PSIKHIATRII, 1970, VOL 70, NR 2, PP 203-205

DATE PUBLISHED ------70

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24

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—BRAIN, BLOOD CIRCULATION, DRUG EFFECT, DOG, CAROTID SINUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1979/0669

STEP NO--UR/0246/70/070/002/0203/0209

CIRC ACCESSION NO--AP0047174

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5"

"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

Acc. Nr: AP0047174

Ref. Code: UR 0246

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhiatrii, 1970, Vol 70, Nr 2, pp 263-269

# THE INFLUENCE OF ANGIOTENZINE P ON CEREBRAL CIRCULATION

V. V. Suchkov

The action of angiotenzine P (0.5 mkg/kg) on cerebral circulation was studied in acute experiments on dogs and rabbits under urethan-chloralozol narcosis. Cerebral circulation was registered by a flow-meter invented by the author. There was almost a total humoral isolation of the brain in experimental animals. The author studied the $pO_2$ and redox potential in the stem reti.ular formation. It was established that despite a short increase in the systemic arterial pressure and cerebral blood flow the resistency of the cerebral vessels increases significantly, the redox dropped despite the increase of $pO_2$. These phenomena grew in disturbances of the normal functions of baroreceptors of the carotid sinus. The use of atropine, aminazine and brain perfusion with a constant pressure gives ground to speak of a complex neuro-humoral action of angiotenzine P on cerebral vessels.

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USSR

UDC 576.851.45.097.22:615.334

LEBEDEVA, S. A., MISHAN'KIN, B. N., and SUCHKOV, YU. G., Rostov-on-Don Scientific Research Antiplague Institute

"Episome Resistance of Plague Microbes to Penicillins"

Moscow, Antibiotiki, Vol 17, No 10, 1972, pp 908-910

Abstract: In a mixture of penicillin-resistant Sh. newcastlei (donor) and penicillin-sensitive P. pestis (recipient) incubated for 3 hrs., conjugation and recombination results in transfer of an R-episome with a frequency of n x 10-5. The recombinant plague bacteria become resistant to benzylpenicillion, ampicillin, cephorin, cephline, metycillin, oxacillin, cloxacillin, and piopen. Donors, receipients, and recombinants are sensitive to merthiolate, and therefore, the episome in question has no gene resistant to Hg ions. The penicillin-resistance factor is eliminated by acriflavine in 1% of the cases and, upon incubation of the recombinants with other sensitive strains of plague bacteria, it is transferred to the latter with a frequency of n x 10-3. Since acquisition of resistance to penicillins is accompanied by acquisition of the ability to produce beta-lactamase (a highly active extracellular penicillinase) and since loss of one property is accompanied by loss of the other, it is concluded that beta-lactamase is the main factor determining resistance to penicillins.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 575.111:575.24:576.858

RYAPIS, I. V., KOROL', V. V. SUCHKOV, Yu. G., and DOMARADSKIY, I. V.,
Rostov-na-Donu Scientific Research Antiplague Institute

"The Use of Auxotrophic Mutants to Study the Possibility of Mutual Conversion of Cysteine and Methionine in Pasteurella pestis"

Moscow, Genetika, No 9, 1971, pp 155-159

Abstract: Treatment of P. pestis with N-nitroso-N-methylurea yielded 139 auxotrophic mutants, of which 35 required sulfur-containing amino acids - 28 cys$^-$, 6 met$^-$, and 1 met$^-$(cys$^-$). After one year of storage, 25 mutants reverted to the original phenotype, 13 being cysteine-dependent. There was a high frequency of occurrence of revertants in 4 of 11-cysteine-dependent mutants. All the met$^-$ mutants remained auxotrophs and only rarely reverted to the original phenotype. The mutants were indistinguishable from the parent strain in cultural, morphological, and biochemical properties except for one of the cysteine-dependent mutants, which did not form typical colonies on Hottinger's agar and fermented mannose, xylose, arabinose, and galactose slowly. Study of the capacity of the mutants to grow on media with cysteine and methionine precursors showed that they differ in nutritional requirements. The cysteine-cystathionine-homocystine-methionine reaction is apparently catalyzed by the prototrophic variant of P. pestis in both directions.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 615.372:576.851.45].036.8

DURIKHIN, K. V., and SUCHKOV, Yu. G., Rostov-on-Don Antiplague Institute

"The Effect of the Injection Site of Adsorbed Water-Soluble Antigen (Fraction I of Pasteurella pestis) on the Antibody Level in the Blood Serum of White Rats"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, Aug 70, pp 49-52

Abstract: Rats were injected in an extremity with P. pestis antigen. The injected leg was amputated one or 17 days later. Investigation of the antibody level up to 2-1/2 months later showed that it was substantially higher in experimental animals than in controls (intact rats). Local antibody formation thus appears to play an important role in maintaining the titer at a relatively constant level for some time after a single inoculation. Another series of experiments showed that significant immunological rearrangement requires the retention of antigen at the injection site for more than 24 hours. Revaccination resulted in appreciable antibody formation in animals in which the injection site was excised 17 days later but had no statistically significant effect when the amputation was performed 24 hours later.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

KOL'TSOVA, Ye. G., SUCHKOV, Yu. G., and LEBEDEVA, S. A., Rostov-na-Dona Anti-plague Institute

UDC 575.191.576.8

"Transfer of the Bacteriocinogenic Factor in Pasteurella pestis"

Moscow, Genetika, No 4, 1971, pp 118-122

Abstract: Crossing a pesticin producing donor having a drug resistance episome with non-pesticin producing recipients produced recombinants with the R factor. The frequency of transfer of the pesticinogenic factor (Pg) ranged from $10^{-2}$ to $10^{-6}$. Determination of the pesticin producing capacity of antibiotic-resistant variants revealed the presence of recombinants which upon conjugation received not only the R episome but the Pg factor, as manifested by their ability to produce pesticin. Pesticin production did not disappear in the course of spontaneous or induced elimination of the R factor, an indication that these episomes are not linked in the recombinants. The markers of pesticin production and coagulase-fibrinolytic activity were transferred both together and separately. These markers are apparently controlled by different genes closely linked in the episome.

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UDC 576.851.45.095.3

LEBEDEVA, S. A., SUCHKOV, Yu. G., and DOMARADSKIY, I. V., Corresponding Member of the Academy of Medical Sciences USSR, Scientific Research Antiplague Institute, Rostov-na-Donu

"Syntrophism in Plague Bacteria and the Possible Biological Role of this Phenomenon"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 3, 1970, pp 79-81

Abstract: Experimental data are reported on the existence of intraspecies and interspecies syntrophism among plague bacteria differing in amino-acid requirements. The ability of auxotrophic strains to multiply on a synthetic medium devoid of amino acids by means of syntrophism with prototrophic mutants is the factor responsible for the survival of these bacteria under adverse conditions.

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1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--SYNTROPHISM MICROBE AND POSSIBLE BIOLOGICAL ROLE OF THIS PHENOMENON -U-

AUTHOR--LEBEDEVA, S.A., SUCHKOV, YU.G., DOMARADSKIY, I.V.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN'EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 3, PP 79-81

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PLAGUE, BACTERIA, AMINO ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0838 STEP NO--UR/0219/70/069/003/0079/0081

CIRC ACCESSION NO--AP0052272

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CIRC ACCESSION NO--AP0052272 UNCLASSIFIED PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER GIVES EVIDENCE FOR OCCURENCE OF INTRASPECIES SYNTROPHISM IN PLAGUE CAUSATIVE AGENTS FOUND AMONG STRAINS DIFFERING BY AMINO ACID REQUIREMENT. A DISCRIPTION IS GIVEN OF SYNTROPHISM OF A POPULATION OF SOME MUSEUM STRAINS HETEROGENEOUS BY FOOD REQUIREMENT, WHICH ALONG WITH MUTATION TO PROTOTROPHY, CAN PROVIDE SURVIVAL OF AUXOTROPHIC BACTERIA MAINAINED ON MEDIA DEFICIENT BY GROWTH FACTOR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--SYNTROPHISM IN PLAGUE MICROBE AND POSSIBLE BIOLOGICAL ROLE OF THIS PHENOMENON -U-

AUTHOR--LEBEDEVA, S.A., SUCHKOV, YU.G., DOMARADSKIY, I.V.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN'EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 3, PP 79-81

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PLAGUE, BACTERIA, AMINO ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0838 STEP NO--UR/0219/70/069/003/0079/0081

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CIRC ACCESSION NO--AP0052272 PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER GIVES EVIDENCE FOR OCCURENCE OF INTRASPECIES SYNTROPHISM IN PLAGUE CAUSATIVE AGENTS FOUND AMONG STRAINS DIFFERING BY AMINO ACID REQUIREMENT. A DISCRIPTION IS GIVEN OF SYNTROPHISM OF A POPULATION OF SOME MUSEUM STRAINS HETEROGENEOUS BY FOOD REQUIREMENT, WHICH ALONG WITH MUTATION TO PROTOTROPHY, CAN PROVIDE SURVIVAL OF AUXOTROPHIC BACTERIA MAINAINED ON MEDIA DEFICIENT BY GROWTH FACTOR.

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

Acc. Nr: AP0036569 Ref. Code: UR 0301

PRIMARY SOURCE: Voprosy Meditsinskoy Khimii, 1970, Vol 16, Nr 1, pp 72 - 77

# PATHWAYS OF EXOGENOUS ADENINE TRANSFORMATIONS INTO UNCLEIC ACID GUANINE IN PLAGUE GERM

Mayskiy, V. G.; Suchkov, Yu. G.

Research Anti-Plague Institute of Caucasus and Regions beyond Caucasus, Stavropol; Research Anti-Plague Institute, Rostov on Don

From two possible ways of exogenous adenine transformations into nucleic acid guanine in Pasteurella pestis the way via hypoxanthine and IMP is blocked on "adenine-hypoxanthine" route and the way via AMP, AICAR and IMP is realized in the conditions of hystidine insifficiency. In P. pestis hyst− mutant both pathways were blocked. Inability of bacteria to the convertion of adenine to hypoxanthine, i. e. insufficiency on adeninedeaminase is the characteristic feature of plague germ and that differs it from the taxonomycally similar P. pseudotuberculosis.

D.M.

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19721421

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC 576.881.45.098.396.332

MAYSKIY, V. G. and SUCHKOV, YU. G., Scientific Research Antiplague Institute of the Caucasus and Transcaucasus, Stavropol', and Scientific Research Antiplague Institute, Rostov-na-Donv

"Path Ways of Conversion of Exogenous Adenine into Guanine in Nucleic Acids of Pasteurella pestis"

Moscow, Voprosy Meditsinskoy Khimii, Vol 16, No 1, 1970, pp 72-77

Abstract: It was found in earlier work that P. pestis under certain conditions is incapable of converting exogenous adenine into nucleic acid guanine. This conversion was studied further on the vaccinal strain P. pestis EV, a prototrophic mutant derived from it, and a histidine-dependent strain P. pestis hist$^-$, using 8-$C^{14}$-adenine. The results obtained indicated that the conversion of adenine by way of hypoxanthine and IMP is blocked in P. pestis at the step adenine $\longrightarrow$ hypoxanthine. Another pathway of conversion is possible, i.e., by means of AMP-pyrophosphory-lase to ATP, 5-amino-4-imidazole carboxamide ribotide (AICAR), and IMP, unless histidine is present in the nutrient medium. In the case of P. pestis hist$^-$, this pathway is also blocked. Inability to convert adenine into hypoxanthine because of

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MAYSKIY, V. G., et al., Moscow, Voprosy Meditsinskoy Khimii, Vol 16, No 1, 1970, pp 72-77

an insufficiency of adenine deaminase is a species characteristic of P. pestis, which distinguishes it from many other species of microorganisms, including P. pseudotuberculosis (which is similar taxonomically and resembles P. pestis in many other respects).

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"APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203210015-5

USSR

UDC: 681.2.083.8.082.7:681.121:531.751.3

DEMENT'YEV, A. M., KATANOVA, M. D., SUCHKOV, Yu. S.

"Use of Vibration-Frequency Force-Measurement Pickups to Determine Mass Flow"

V sb. Vibratsionno-chastotn. preobrazovateli. Ch. 2 (Vibration-Frequency Transducers--collection of works. Part 2), Moscow, "Energiya", 1970, pp 36-42 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 9, Sep 70, Abstract No 9.32.728)

Translation: The weight method is most accurate for measuring mass flow of liquids. In contrast to volume methods, this procedure is independent of the change in density of the liquid, and consists in measuring the difference in weight of a flow tank mounted on a balnce or installed in a force-measuring device. It is advisable to use force-measurement pickups which have fairly high accuracy and a low time constant as the force-measuring device. Two cases are considered: measurement of the rate of flow over a constant time interval, and with a constant change in weight. The second case gives less error in measuring rates of flow over a wide range. Analysis shows that adequate precision can be achieved only when the change in weight of the flow tank is constant or nearly so. The extensive computations make it difficult to design self-contained flowmeters, but are no obstacle to the

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DEMENT'YEV, A. M., et al, Vibratsionno-chastotn. preobrazovateli. Ch. 2, "Energiya", 1970, pp 36-42

operation of flowmeters based on vibration-frequency pickups in automatic measurement systems with computers. Three illustrations, Bibliography of one title.

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ROZENTAL', L. V., LAPAURI, A. A., MEYERZON, M. B., and SUCHKOVA, O. M.
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"An Instrument for Measuring Internal Stresses in Films, and Film Deformation"

Moscow, Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematofotografii, Vol I, No 1, Jan-Feb 72, pp 22-26

Abstract: The authors have designed, and thoroughly tested an apparatus, provisionally called the IMPS, which is distinguished from other known units for testing and evaluating the mechanical processes of photographic films, by virtue of the possibility of the synchronous measurement, under the same climatic conditions, of the deformation kinetics at constant tension in one sample, and in another sample of the same film, measurement of the kinetics of the increase and relaxation of tensions with the maintenance of constant length of the sample. 5 figures. 9 references.

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