

USSR

UDC 612.275.1

MEYERSON, F. Z., ISABAYEVA, V. A., IVANSHINA, A. Z., KRUGLIMOV, P. I., and GLUKOV, G. M., Institute of Normal and Pathological Physiology, Academy of Sciences USSR, and Kirgiz State Medical Institute, Ministry of Health, Kirgiz SSR

"Formation and Retention of Conditioned Reflexes During Concentrated and Protracted Training of Animals of Two Different Genetic Lines in the Course of Adaptation to High-Altitude Hypoxia"

Frunze, Sovetskoye Zdravookhraneniye Kirgizii, No 4, Jul/Aug 70, pp 38-46

Abstract: Conditioned reflexes of avoidance and escape (from electric shocks) were formed in BALB/c and C57BL/6 mice in Moscow (control) and in a mountain locality (3200 m above sea level). Reflexes were established 5, 10, 20, and 40 days after arrival by concentrated training (short intervals of time between presentation of stimuli) and protracted training (long intervals between stimulation). The C57BL/6 mice are known to adapt to hypoxia much better than the BALB/c mice. With concentrated training, the adapted C57BL/6 mice developed avoidance and escape reflexes three times more rapidly than before exposure to high altitude, whereas the rate of reflex formation in the BALB/c mice remained the same. With protracted training, the C57BL/6 mice developed the reflexes just as quickly as or even more quickly than before exposure to the high altitude. The situation

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MEYERSON, F. Z., et al, Sovetskoye Zdravookhraneniye Kirgizii, No 4, Jul/Aug 70,  
pp 38-46

was the opposite in Moscow. Here it took two to three times as long to form the reflexes in the BALB/c mice as in the C57BL/6 mice. The degree of retention of the reflexes increased with increasing adaptation to hypoxia in both genetic lines and with both methods of training.

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1/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--OXIDATION OF A NICKEL ELECTRODE IN CONTACT WITH A SOLID OXIDE  
ELECTROLYTE DURING ANODIC POLARIZATION -U-

AUTHOR--(04)--GLUMOV, M.V., CHEBOTIN, V.N., PALGUYEV, S.F., NEUIMIN, A.D.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(3), 391-4

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NICKEL, ELECTROLYTIC OXIDATION, METAL ELECTRODE, ELECTROLYTE,  
ZIRCONIUM OXIDE, ANODE POLARIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0856

STEP NO--UR/0364/70/006/003/0391/0394

CIRC ACCESSION NO--AP0124519

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124519

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DETAILED ANAL. IS GIVEN OF PHENOMENA OCCURRING AT THE INTERFACE NI ELECTRODE SOLID ELECTROLYTE 0.9 ZRO SUB2 PLUS 0.1 Y SUB2 O SUB3 DURING ELECTROCHEM. OXIDN. OF THE ELECTRODE. THE CHANGES OF THE ANODIC POTENTIAL OF THE ELECTRODE AFTER APPLYING THE POLARIZATION CURRENT WERE DETD. INVESTIGATIONS WERE MADE BY THE OSCILLOGRAPHIC METHOD IN A 0.3 CO PLUS 0.7 CO SUB2 ATM. AT 1000DEGREES. TO PROVIDE SATISFACTORY CONTACT BETWEEN THE ELECTRODE AND THE ELECTROLYTE, THE CONTACTING SURFACES WERE GROUND TO FIT. THE GREAT CHANGE OBSERVED IN THE RELATION BETWEEN OVERVOLTAGE AND THE CURRENT WAS CAUSED BY THE PASSAGE OF IONS THROUGH THE FORMED OXIDE FILM (NiO) DURING THEIR DISCHARGE. CONSIDERING THE DIFFICULTY OF ESTABLISHING A SATISFACTORY CONTACT BETWEEN SOLIDS, GOOD AGREEMENT WAS OBTAINED BETWEEN EXPTL. AND THEORETICAL DATA. FACILITY: INST. ELEKTROKHM., SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC 666.704.23

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GLIMOV, M. V., REYUMIN, A. D., PAL'GUYEV, S. F., and STREKALOVSKIY, V. N.

"Influence of Particle Size, Atmosphere, and the Addition of  $Fe_2O_3$  to the Process of Stabilization of Zirconium Dioxide by Yttrium Oxide"

Tr. In-ta Elektrokimii. Ural'skiy Fil. AN SSSR (Works of the Institute of Electrochemistry. Ural Affiliate, Academy of Sciences USSR), No 12, pp 130-134, 1969 (from Referativnyy Zhurnal--Khimiya, No 2, 1970, Abstract No 2N59)

Translation: The influence of particle size of the initial  $ZrO_2$ , annealing atmosphere, the addition of  $Fe_2O_3$ , and the method of preparing a mixture of oxides of the composition  $0.9 ZrO_2 + 0.1 Y_2O_3$  on the formation of cubic solid solutions is investigated. With mechanical means of preparing the mixture with an annealing temperature up to  $1500-1600^\circ$ , sintering and formation of the cubic solid solution is determined to a significant extent by the quality of the initial  $ZrO_2$ . With low  $ZrO_2$  activity, introduction to the mixture of  $0.9 ZrO_2 + 0.1 Y_2O_3$  of  $Fe_2O_3$  additive in a quantity of 2-5 mol.% in an oxidizing or weakly reducing atmosphere makes it possible to accelerate the process of sintering and formation of the solid solution. The sintering temperature and temperature of formation of the cubic solid solution is essentially decreased when the oxide mixture is prepared by precipitation of hydroxides and subsequent decomposition. In the temperature range studied ( $\leq 1500^\circ$ ),

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GLUMOV, M. V., et al., Tr. In-ta Elektrokimii. Ural'skiy Fil. AN SSSR (Works of the Institute of Electrochemistry. Ural Affiliate, Academy of Sciences USSR), No 12, pp 130-134, 1969 (from Referativnyy Zhurnal--Khimiya, No 2, 1970, Abstract No 2 459)

a strongly reducing CO or H<sub>2</sub> atmosphere has a negative influence on sintering of mixtures of oxides produced mechanically. However, sintering of mixtures produced by coprecipitation of hydroxides is practically insensitive to the gas medium in which the sintering is performed. Eleven biblio. refs.

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USSR

UDC 616.441-091/-092-02:615.832.9

GLUNOVA, V. A., and DOLGOVA, Z. YA., Department of Histology and Department  
Of Biochemistry, Semipalatinsk Medical Institute

"Thyroid Function During Hypothermy and Thereafter"

Moscow, Arkhiv Patologii, No 5, 1971, pp 20-25

Abstract: Thyroid function was studied in white rats during and after hypothermy and against a background of hypo- and hyperthyroidism. Thyroid function was assessed from morphological and radiometric changes, enzymic activity, and ascorbic acid level. Chilling the animals to a rectal temperature of 18 to 19<sup>o</sup> (deep hypothermy) markedly inhibited thyroid activity. The morphological (e.g., hyperemia of the blood vessels, dilatation of the lumens of the capillaries, and focal hemorrhages) and other changes characteristic of thyroid hypofunction were accompanied by a drop in ascorbic acid level and depression of enzyme (dehydrogenase, ph, phosphatase, cytochrome oxidase) activity. Thyroid function did not return to normal until about one month after chilling. Hypothyroidism (induced with 6-methylthiouracil) after chilling inhibited thyroid function more deeply than did hyperthyroidism (induced with thyroindin). The results of the study show that thyroid hormones are involved in the alteration of thyroid tissue after deep hypothermy.

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USSR

UDC 612.441.014.43

DOIKOVA, Z. Ya., and GLINOVA, V. A., Chair of Biochemistry and Histology, Semi-palatinsk Medical Institute

"Characteristics of the Functional State of the Thyroid Gland Upon Lowering the Temperature of the Internal Environment of the Organism"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 8, Aug 70, pp 39-43

Abstract: Artificial hypothermia was produced in rats by cooling the animals to a rectal temperature of 18-19°C. The activity of dehydrogenases, phosphatases, and cytochrome oxidase, as well as the level of ascorbic acid in the thyroid gland tissue, decreased. In addition, the capacity of the thyroid gland to accumulate I<sup>131</sup> was reduced. When hypothyrosis was produced in animals by administration of 6-methyluracil, changes in the thyroid gland due to hypothermia were more pronounced. These changes were less pronounced when hyperthyrosis was produced by the administration of thyrelodin.

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1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--CRYSTAL AND MOLECULAR STRUCTURE OF PI COMPLEXES OF GROUP V  
TRANSITION METALS WITH ACETYLENE LIGANDS. IV. BIS (CARBONYL PI  
AUTHOR--(03)--GLUSEV, A.I., KIRILOVA, N.I., STRUCHKOV, YU.T.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 62-70

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CRYSTAL STRUCTURE, MOLECULAR STRUCTURE, COMPLEX COMPOUND,  
ACETYLENE, NIOBIUM COMPOUND, X RAY STUDY, PARAMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1987/0447

STEP NO--UR/0192/70/011/001/0062/0070

CIRC ACCESSION NO--AP0104060

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104060

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLETE X RAY ANAL. OF THE STRUCTURE OF THE TITLE BI NUCLEAR COMPLEX IS CONDUCTED. THE STRUCTURE IS INTERPRETED BY THE HEAVY ATOM METHOD AND MADE MORE PRECISE BY THE METHOD OF LEAST SQUARES IN ISOTROPIC APPROXN., R EQUALS 11.3PERCENT. THE GEOMETRY OF THE MOL. AND THE CHARACTER OF THE COORDINATION OF THE BRIDGE ACETYLENE LIGANDS IS PRACTICALLY NO DIFFERENT FROM THAT FOUND EARLIER IN THE COMPLEX ((PI C SUB5 H SUB5)NB(CO)(PH SUB2 C SUB2)) SUB2. THE GEOMETRIC PARAMETERS ARE COMPARED OF THE COORDINATED TRIPLE BOND AND ITS FREQUENCIES IN PI ACETYLENE COMPLEXES OF NB. C. J. STEINBERG.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--CRYSTAL AND MOLECULAR STRUCTURE OF PI COMPLEXES OF GROUP V  
TRANSITION METALS WITH ACETYLENE LIGANDS. IV. BIS (CARBONYL PI  
AUTHOR--(03)-GLUSEV, A.I., KIRILOVA, N.I., STRUCHKOV, YU.T.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 62-70  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CRYSTAL STRUCTURE, MOLECULAR STRUCTURE, COMPLEX COMPOUND,  
ACETYLENE, NIOBIUM COMPOUND, X RAY STUDY, PARAMETER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1987/0447 STEP NO--UR/0192/70/011/001/0062/0070  
CIRC ACCESSION NO--APO104060  
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104060

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLETE X RAY ANAL. OF THE STRUCTURE OF THE TITLE BI NUCLEAR COMPLEX IS CONDUCTED. THE STRUCTURE IS INTERPRETED BY THE HEAVY ATOM METHOD AND MADE MORE PRECISE BY THE METHOD OF LEAST SQUARES IN ISOTROPIC APPROXN., R EQUALS 11.3PERCENT. THE GEOMETRY OF THE MOL. AND THE CHARACTER OF THE COORDINATION OF THE BRIDGE ACETYLENE LIGANDS IS PRACTICALLY NO DIFFERENT FROM THAT FOUND EARLIER IN THE COMPLEX ((PI C SUB5 H SUB5)NB(CO)(PH SUB2 C SUB2)) SUB2. THE GEOMETRIC PARAMETERS ARE COMPARED OF THE COORDINATED TRIPLE BOND AND ITS FREQUENCIES IN PI ACETYLENE COMPLEXES OF NB. C. J. STEINBERG.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--CRYSTAL AND MOLECULAR STRUCTURE OF PI COMPLEXES OF GROUP V  
TRANSITION METALS WITH ACETYLENE LIGANDS. IV. BIS (CARBONYL PI  
AUTHOR--(03)-GLUSEV, A.I., KIRILOVA, N.I., STRUCHKOV, YU.T.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 62-70

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CRYSTAL STRUCTURE, MOLECULAR STRUCTURE, COMPLEX COMPOUND,  
ACETYLENE, NIOBIUM COMPOUND, X RAY STUDY, PARAMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1987/0447

STEP NO--UR/0192/70/011/001/0062/0070

CIRC ACCESSION NO--AP0104060

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104060

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLETE X RAY ANAL. OF THE STRUCTURE OF THE TITLE BI NUCLEAR COMPLEX IS CONDUCTED. THE STRUCTURE IS INTERPRETED BY THE HEAVY ATOM METHOD AND MADE MORE PRECISE BY THE METHOD OF LEAST SQUARES IN ISOTROPIC APPROXN., R EQUALS 11.3PERCENT. THE GEOMETRY OF THE MOL. AND THE CHARACTER OF THE COORDINATION OF THE BRIDGE ACETYLENE LIGANDS IS PRACTICALLY NO DIFFERENT FROM THAT FOUND EARLIER IN THE COMPLEX ((PI C SUB5 H SUB5)NB(CO)(PH SUB2 C SUB2)) SUB2. THE GEOMETRIC PARAMETERS ARE COMPARED OF THE COORDINATED TRIPLE BOND AND ITS FREQUENCIES IN PI ACETYLENE COMPLEXES OF NB. C. J. STEINBERG.

UNCLASSIFIED

USSR

UDC: 618.3

GLUSHACHENKO, A. D.

"Organization of Intermachine Connections in a Decentralized Computer System Constructed on the Basis of the 'Minsk-2/22' Computer"

V sb. Kibernetika. Donetsk. obl. Vyn. 2 (Cybernetics--collection of works. Donetsk Oblast. No 2), Kiev, 1970, pp 33-43 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V883)

Translation: The author considers an algorithm of intermachine coupling constructed on the main-line principle between "Minsk-2/22" computers in a decentralized computer system. The principal algorithm is as follows: by means of hardware and software, logical communication is established between the computers, this communication being a reversible transmission channel for a complete machine word of the coupled computers; the channel provides for bilateral exchange of information relating to address indication for the computer which has been selected and the one being selected, codes of state, and tags of the controlling and information words; the process of establishing communication and the servicing of the communica-

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GLAUSHACHENKO, A. D., Kibernetika. Donetsk. obl. Vyd. 2, Kiev, 1970,  
pp 33-43

tion is accomplished by means of systems automata assigned to each computer and identical in electrical, structural and functional respects; coupling of the systems automata to their central processing devices with respect to input and output variables is represented by an aggregate of standard states of the central processing devices, and is realized either by simple connection, or by action on the appropriate condition-signaling device; the systems automata have seven facilities for data transmission control and do not block the activity of the computer to which reference is made, while the computer which initiates the communication is synchronized with the coupling operation only during reception or transmission of one word. V. Mikheyev.

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USSR

UDC: 681.3

GLUSHACHENKO, A. D.

"A Multiple-Machine Decentralized Computer System Based on Computers of the 'Minsk-2/22' Type"

V sb. Kibernetika. Donetsk. otd. Vyp. 2 (Cybernetics--collection of works. Donetsk Oblast. No 2), Kiev, 1970, pp 22-32 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V882)

Translation: The author considers a method of constructing a computer system based on the main-line principle of coupling where automatic systems are assigned to each computer which are identical in electrical and functional respects providing logical connection between computers through main-line coupling as well as servicing of this logical connection. It is noted that the proposed organization ensures total decentralization of the computer system and is especially convenient for homogeneous computers.

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USSR

UDC 536.24

DYBAN, YE. P., and GLUSHCHENKO, V. G., Institute of Technical Thermophysics,  
Academy of Sciences Ukrainian SSR

"Heat Transfer and the Flow of Air in the Cascade of Turbine Blades"

Moscow, Teploenergetika, No 4, Apr 73, pp 78-81

Abstract: Experimental results obtained on two types of stationary blades located in a stream of hot and cooling air are compared with the known literature data. In the course of the experiments the following basic parameters were used: the Mach number, from 0.32 to 1.092; the ratio of hot air temperature to the air temperature at the inlet, from 1.3 to 3.58; and Reynolds number, from  $2.48 \cdot 10^5$  to  $8.89 \cdot 10^7$ . Discussion and comparison of the experimental data with those obtained by other authors were centered mainly around the following topics: (a) distribution of the local heat-transfer coefficients and of the relative velocities of air along the periphery of blades; (b) heat transfer between the hot air and profiles of the blade cascade; (c) heat transfer between air and the leading edge of the turbine blade; (d) heat transfer in the center of the turbine blade; (e) heat transfer between the air and the outlet edge of the turbine blade; (f) distribution of the local heat-transfer coefficients along the cascade parameters.

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USSR

UDC 612.014.43:612.744

USHAKOV, B. P., and GLUSHANKOVA, M. A., Laboratory of Comparative Cytology,  
Institute of Cytology, Academy of Sciences USSR, Leningrad

"The Thermostability of Muscle Tissue and Proteins of *Bombina bombina* During  
Acclimatization to Cold"

Leningrad, Tsitologia, Vol 12, No 4, 1970, pp 510-515

Abstract: The thermostability of muscle tissue and proteins was studied in toads  
from the Kiev region. Experiments were performed on freshly caught specimens,  
and on toads kept in a cooler at 5-8°C for a few days or a few weeks. The  
thermostability of proteins was tested in muscle-tissue preparations of homo-  
genized specimens and in extracts.

Results of tests with intact muscle show a marked decrease of thermostability in  
the gastrocnemius after cooling (the maximum after cooling at 5-8°C for 6-9 days).  
The decrease was less in the rectus abdominis muscle, and least in the myocardium.  
Tests with various protein fractions derived from homogenized specimens showed  
almost no change in thermostability. No significant changes on enzymatic activ-  
ity or transphosphorylation were demonstrated.

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1/2 CC9 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--EFFECT OF GROWTH SUBSTANCES ON THE MALE REPRODUCTIVE SYSTEM OF  
PLANTS -U-  
AUTHOR--GLUSHCHENKO, G.I. **G**  
COUNTRY OF INFO--USSR  
SOURCE--SEL'SKOKHOZ. BIOL. 1970, 5(1), 37-43  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--PLANT GROWTH REGULATOR, CHLORINATED ORGANIC COMPOUND, BENZENE  
DERIVATIVE, GIBBERELIC ACID, ORGANIC ACID, PLANT PHYSIOLOGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3007/0299 STEP NO--UR/9062/70/005/001/0037/0043  
CIRC ACCESSION NO--AP0135794  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135794

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLNS. (0.1PERCENT) OF 2-4D, GIBBERELLIN, AND ALPHA,NAPHTHALENEACETIC ACID IN H SUB2 O SUSPENSION AND AS A POWDER WERE APPLIED TO 5 HYACINTH VARIETIES. GIBBERELLIN AND 2-4D INCREASED THE GROWTH OF THE POLLEN TUBES AND THEIR BRANCHING. IN CONTRAST TO GIBBERELLIN, 2-4D CAUSED A PRONOUNCED ELONGATION OF THE VEGETATIVE NUCLEUS AND THE GENERATIVE CELL. ALPHA,NAPHTHALENEACETIC ACID INHIBITED POLLEN GERMINATION AND CAUSED POLLEN TUBES TO BURST.

FACILITY: INST. BOT., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 536.24:536.423.1

GLUSHCHENKO, L. F.

"Comparison and Analysis of Formulas for Determination of Heat-Transfer Coefficients During Boiling"

Vestn. Kiyevsk. Politekhn. In-ta. Ser. Teploenerg. (Herald of Kiev Polytechnical Institute, Heat and Power Engineering Series), No 7, 1971, pp 101-107 (from Referativnyy Zhurnal-Yadernyye Reaktory, No 3, 1971, Abstract No 3.50.87)

Translation: A comparison of the calculated values of heat transfer coefficients during boiling, determined using various known formulas, with experimental data for water, freon-12, and ethyl alcohol is performed. The heat transfer coefficients must be known in order to design apparatus using the process of cooling of the heat exchange surface by the boiling liquid. 14 figures, 1 table, 18 biblio. refs.

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UDC 536.24:536.423.1

GLUSHCHENKO, L. F.

"Comparison and Analysis of Formulas for Determination of Heat-Transfer Coefficients During Boiling"

Vestn. Kiyevsk. Politekhn. In-ta. Ser. Teploenerg. (Herald of Kiev Polytechnical Institute, Heat and Power Engineering Series), No 7, 1971, pp 101-107 (from Referativnyy Zhurnal-Yadernyye Reaktory, No 3, 1971, Abstract No 3.50.87)

Translation: A comparison of the calculated values of heat transfer coefficients during boiling, determined using various known formulas, with experimental data for water, freon-12, and ethyl alcohol is performed. The heat transfer coefficients must be known in order to design apparatus using the process of cooling of the heat exchange surface by the boiling liquid. 14 figures, 1 table, 18 biblio. refs.

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1/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--SELENOCYANATE COMPLEXES OF ZINC AND CADMIUM -U-  
AUTHOR-(03)-SKOPEAKO, V.V., ALASANIYA, R.M., GLUSHCHENKO, L.V.  
COUNTRY OF INFO--USSR  
SOURCE--UKR. KHIM. ZH. 1970, 36(2), 129-33  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ZINC COMPLEX, CADMIUM COMPLEX, CYANATE, SELENIUM COMPOUND,  
CHEMICAL STABILITY, ACETONITRILE, SOLVENT ACTION  
CONTRL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/2123 STEP NO--UR/0073/70/036/002/0129/0133  
CIRC ACCESSION NO--AP0125707  
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125707

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ZN SELENOCYANATES DECOMP. IN  
EXISTANCE OF ZN (SECN)SUBM. PRIME2 PRIME NEGATIVE N, N EQUALS 1-3, CAN BE  
DEMCNSTRATED. THE FOLLOWING POTENTICMETRICALLY DETD. STABILITY CONSTS.  
REPORTED (SOLVENT AND CONSTS. FOR N EQUALS 1-4, RESP., GIVEN): AS  
SHOWN ON MICROFICHE. THE INCREASED STABILITY OF THESE COMPLEXES IN  
MECN OVER THAT IN HCCNME SUB2 IS ATTRIBUTED TO THE STRONGER ASSOCN. OF  
THE METAL CATIONS WITH THE LATTER SOLVENT. FACILITY: KIEV. GOS.  
UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--THE PACIFIC FLEET ON "OKEAN" WAR GAMES -U-  
AUTHOR--(02)-GLUSHCHENKO, N., RYBAKOV, M.  
COUNTRY OF INFO--USSR  
SOURCE--SOVETSKAYA MOLDAVIYA, APRIL 19, 1970, P 5, COLS 5-8  
DATE PUBLISHED--19APR70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MILITARY SCIENCES  
TOPIC TAGS--WAR GAMES, FLEET OPERATION, NAVAL FORCE ORGANIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1986/0181 STEP NO--UR/9021/70/000/000/0005/0005  
CIRC ACCESSION NO--AN0102252  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AN0102252

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SUBMARINES, SURFACE SHIPS, THE AIR FORCE, AND MARINES OF THE RED BANNER PACIFIC FLEET PARTICIPATE IN "OKEAN". THIS FLEET IS EQUIPPED WITH FIRST CLASS SHIPS INCLUDING ATOMIC SUBMARINES, MISSILE SHIPS, AND IS ABLE TO SOLVE COMPLEX OPERATIONAL, TACTICAL PROBLEMS. TEST ROCKETS WERE FIRED. THE SIX MONTHS CRUISE WAS UNDER THE COMMAND OF CONTR ADMIRAL N. I. KHOURIN, VICE ADMIRAL N. I. SMIRNOV, COMMANDER OF THE RED BANNER PACIFIC FLEET SMCLN AND ADMIRAL M. N. ZAKHAROV, MEMBER OF THE MILITARY COUNCIL AND COMMANDER OF THE KTOF POLIT ADMINISTRATION.

UNCLASSIFIED

AN0040360

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AUTHORS-- GLUSHCHENKO, N., AND RYBAKOV, M., CORRESPONDENTS

NEWSPAPER-- PRAVDA UKRAINY, APRIL 19, 1970, P 3, COLS 6-8

ABSTRACT-- THE FOLLOWING SHIPS ARE NAMED AS PARTICIPANTS IN THE "OKEAN" EXERCISE-- THE "DMITRIY POZHARSKIY", A CRUISER, AND THE "STEREGUSHCHIY", THE "VDOKHONOVENNYY", AND THE "UPORNYY", WHICH ARE REFERRED TO SIMPLY AS "SHIPS".

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GLUSHCHENKO, N. P., Biological Institute, Academy of Sciences USSR, Siberian Branch

"Blood-Sucking Midges (Diptera, Ceratopogonidae) Along the Northeastern Shores of Lake Baykal"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, No 10, 1972, pp 108-111

Abstract: Field studies along the northeastern shores of Lake Baykal and adjacent areas (particularly the Bagruzinskiy Preserve) from June to September 1969 resulted in the discovery of 24 species of blood-sucking midges from the genus *Culicoides*, 23 found for the first time in Transbaykalia. Some 18 species attack human beings. The abundance increases from early July to middle August. *C. okunemsis* and *C. pulicaris* are the two commonest and most vicious species; the former reaches a peak at the end of July and the latter in mid-August. Temperature and light are major factors in the circadian rhythms of the insects. They are most aggressive at 7 to 20°C and light of 500 to 5000 lux. The main shelters of the midges when conditions become unfavorable are the grass and shrubs growing in swamps and along the banks of small streams.

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1/2 051 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--EFFECT OF NUCLEAR RADIATION ON THE PHYSICOMECHANICAL PROPERTIES OF  
PAINT ENAMEL COATINGS -U-  
AUTHOR--KNYAZEV, V.K., NOVIKOV, V.S., IZOTOV, G.T., GLUSHCHENKO, V.M.,  
SEREGINA, G.P.  
COUNTRY OF INFO--USSR  
SOURCE--LAKOKRASOCH. MATER. IKH PRIMEN. 1970, (1) 42-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--PROTECTIVE COATING, PLASTIC COATING, RADIATION EFFECT, GAMMA  
IRRADIATION, HARDNESS, POLYVINYL CHLORIDE, EPOXY RESIN, ENAMEL, AMINE  
DERIVATIVE, RADIATION RESISTANT PLASTIC/(U)GF020 UNDERCOATING, (U)AGIOS  
UNDERCOATING, (U)PF220 ENAMEL, (U)NK06 NITRATED GLYPTAL RESIN, (U)EP74T  
EPOXY MELAMINE RESIN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1989/0549 STEP NO--UR/0303/70/000/001/0042/0044  
CIRC ACCESSION NO--AP0107154  
UNCLASSIFIED

2/2 051

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107154

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STABILITY WAS STUDIED OF MULTILAYERED COATINGS AGAINST GAMMA IRRADN. AT DOSES OF SMALLER THAN OR EQUAL TO 100 MEGARADS APPLIED AT 10 PRIMES R-HR. THE COATINGS WERE COMPOSED OF GF-020, FL-03K, OR AG-10S UNDERCOATINGS AND 1-2 COATS OF THE FOLLOWING ENAMELS: PF-220 (POLYPHTHALATES) WITH ML-25 (MELAMINE ALKYD RESIN), 2062F GLYPTAL RESIN, NKO-6 (NITRATED GLYPTAL RESIN), EP-74T (EPOXY-MELAMINE RESIN), OR KHSE-23(CHLORINATED POLY(VINYL CHLORIDE) RESIN). NONE OF THESE COATINGS WITHSTOOD 100 MEGARAD DOSES. THE MOST RESISTANT, AS DETD. BY MEASURING HARDNESS, ELASTICITY, AND IMPACT STRENGTH BEFORE AND AFTER THE IRRADN., WERE GLYPTAL RESINS AND PF 220.

UNCLASSIFIED



USSR

UDC 669.295-145.2

SOROKIN, I. P., BABICH, D. D., KUDRICHENKO, S. A., GLUSHCHENKO, Zh. N., and KOYGUSHSKIY, N. N.

"On the Nature of Chlorine Contained in Electrolytic Titanium"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 72-77

Translation: Data are given on the effect of hydroprocessing conditions and nature of the solvent on the content of deposited chlorine in electrolytic titanium. A description is given of the results of research on the influence of groups of tetravalent titanium, contained in working solutions, on the content of surface and overall chlorine in metal. Statistical data on the content of chlorine in electrolytic titanium are considered. It is demonstrated that deposited chlorine in electrolytic titanium after hydroprocessing of cathode deposits in 1% HCl is not a product of hydrolysis of titanium chlorides. Five tables and two bibliographical entries.

1/1

USSR

UDC 669.295/145.2

BABICH, D. D., SOROKIN, I. P., SHAPOVALOVA, O. M., and GLUSHCHENKO, Zh. N.

"Effect of the Medium on the Degree of Pulverization and the Quality of Electrolytic Titanium Powders"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 62-71

Translation: Results of research to study the effect of conditions for pulverizing the cathode deposit in a ball mill in different media on the fractional composition and quality of electrolytic titanium are described. Pulverizing the cathode deposit was done under the following conditions: in a medium of electrolyte under argon; in water after leaching in 2% HCl; in the process of leaching in 2% hydrochloric acid; and in a medium of potassium chloride and sodium. As a result of the research, it is established that the most effective pulverization is observed where the cathode deposit is leached directly in a ball mill in 2% HCl. However, with this method the compactability of the powder is somewhat worsened. With pulverization in the other media, compactability does not change. The powder was subjected to X-ray and microscopic study. Four illustrations, three tables, and one bibliographic entry.

1/1

- 60 -

USSR

UDC 539.67

VILLEMS, Kh. B., GLUSHCHETS, A. M., KEKALO, I. B., and LIVSHITS, B. G.

"Certain Magnetic and Magnetoelastic Relaxation Effects in Invar, Governed by Carbon Atom Diffusion"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka", 1970, pp 182-187

Abstract: The temperature dependence of relaxed and nonrelaxed initial permeability is studied. It is shown that processes inducing a temporary drop in permeability take place in the 20-200°C temperature range. It is concluded from an analysis of data on the effect of elastic vibration amplitude on  $Q^{-1}$  in the carbon peak region (200°C) that two relaxation processes take place in invar. A mechanism on the onset of the relaxation process is presented. 4 figures, 14 references.

1/1

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1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--INCREASING GYROTRON EFFICIENCY AT THE FUNDAMENTAL GYRORESONANCE BY  
WAY OF CORRECTING THE MAGNETOSTATIC FIELD DISTRIBUTION -U-  
AUTHOR--(03)-GLUSHENKO, V.N., KOSHEVAYA, S.V., PRUS, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--IZV VUZ. RADIOELEKTRONIKA, VOL. 13, JAN. 1970, P. 12-17  
DATE PUBLISHED----JAN70  
SUBJECT AREAS--NAVIGATION  
TOPIC TAGS--MAGNETIC RESONANCE, GYRO, MAGNETORESISTANCE, TRANSVERSE  
MAGNETIC FIELD  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1991/0142 STEP NO--UR/0452/70/013/000/0012/0017  
CIRC ACCESSION NO--AP0110108  
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0110108

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL AND EXPERIMENTAL STUDY OF A PHASE METHOD OF INCREASING GYROTRON EFFICIENCY AT FUNDAMENTAL GYRORESONANCE, BASED ON THE USE OF AN MAGNETOSTATIC DIRECTIVE FIELD WHICH VARIES ALONG THE LENGTH OF THE INTERACTION SPACE. IT IS SHOWN THAT THE MAXIMUM TRANSVERSE ELECTRONIC EFFICIENCY OF A GYROTRON WITH CORRECTED MAGNETOSTATIC FIELD DISTRIBUTION IS ABOUT 70PERCENT. THE MAXIMUM ELECTRONIC EFFICIENCY OF AN EXPERIMENTAL GYROTRON REACHED 40PERCENT, DEMONSTRATING THAT THE DEVICE OPERATED IN A NONOPTIMAL REGIME. THE OPTIMAL REGIME COULD BE ACHIEVED BY INCREASING THE VOLTAGE (WHICH WAS NOT FEASIBLE DUE TO TECHNICAL CONSIDERATIONS) OR BY USING LONGER RESONATORS. THE BEST IMPROVEMENTS IN EFFICIENCY WERE OBTAINED WHEN THE MAXIMUM OF THE SUPPLEMENTARY MAGNETOSTATIC FIELD WAS 0.7L FROM THE FRONT OF THE RESONATOR, WHERE L IS THE RESONATOR LENGTH.

UNCLASSIFIED

GLUSHINSKIY, M.V.

50RS 56, 499  
14 JULY 72

155

Our investigations were made under conditions characterized by atmospheric contamination by finely dispersed aerosols whose concentration in individual cases exceeded the maximum admissible concentration (MAC). The investigations were made at several working places in precise accordance with the method described in the paper by G. I. Glushinskiy, V. I. Medvedev, and I. I. Medvedev, "Investigation of the Effectiveness of the 'Lopostok' Respirator (under operating conditions)". The time required for breathing a sample was 30-60 minutes. The duration of presence of the subjects continuously at the working place varied from two to three hours. During rest in a clean room the respirator was removed and then used again.

The results of the investigations revealed that the effectiveness of air purification in 5% of the cases exceeded 90%, and in 16% of the cases attained 100%. However, in 80% of the cases the effectiveness did not exceed 75%. The mean weighted effectiveness was 87%. It should be noted that when

for individual protection of the organs of respiration, the theoretical protective capability of the respirator, according to the instructions on use of the "Lopostok" respirator, is about 95%, that is, it almost does not differ from the intercepting properties of filters made of PPF fabric. However, information on the actual effectiveness of respirators used under working conditions could not be found in the available literature.

Article by G. I. Medvedev, V. I. Medvedev, G. I. Glushinskiy, and G. I. Medvedev, "Investigation of the Effectiveness of the 'Lopostok' Respirator (under operating conditions)", Trudy Vsesoyuznogo Nauchno-Issledovatskogo Instituta Khimicheskoy Meditsiny, Moscow, 1971, pp 33-34.

SARITANK-NEIEMIC EVALUATION OF THE PROTECTIVE EFFECTIVENESS OF THE 'LOPOSTOK' MASK FOR FINELY DISPERSED AEROSOLS

USSR

UDC 621.372.5

PEREPELYATNIK, P. A., KLIMENTOV, P. P., GLUSHKO, K. P.

"Cascade Inclusion of Active Quadripoles"

Tr. Mosk. in-ta elektron. mashinostr. (Works of Moscow Institute of Electronic Machine Building), 1970, vyp. 13, pp 88-99 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A156)

Translation: In the case of cascade inclusion of identical active nonmutual quadripoles the input and output impedances of the quadripole turn out to be equal to its iterative resistances. The coefficient  $K_+$  characterizing the ratio of the increment of the input impedance of the quadripole to the increment of the load resistance at the point where the load resistance is equal to the iterative resistance is introduced. The coefficient  $K_+$  is used to construct a unique definition of the input and output iterative resistances and the transmission coefficient of quadripoles when operating on iterative resistances.

1/1

USSR

UDC 612.822.08

ABDULADZE, G. V., and GLUSHKOV, N. N., Laboratory of Neurophysiology and Pharmacology of Behavior, Institute of Physiology, Siberian Department of the Academy of Sciences USSR, Novosibirsk

"Statistical Treatment by Means of a Dnepr-1 Computer of Induced Brain Potentials in Experiments"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenova, Vol 59, No 6, Jun 73, pp 963-965

Abstract: A system of programming of a Dnepr-1 computer for the statistical treatment of induced brain potentials was worked out and tested in connection with experiments on cats. The system can be used for the study of the mechanisms of induction of potentials in the cortex upon single stimulations of sensory systems and of the hypothalamus. It was applied in the study of the action of pharmacologically active compounds. Statistical analysis with the aid of the system developed showed that the characteristics of the mean response of the somatosensory cortex and of the standard deviation function of the induced response changed in a specific manner upon application of cholinergic substances directly to the cortex or by intravenous administration.

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USSR

UDC 533.652/.661.013

GLUSHKOV, N. N., KROTKOV, D. P., SHKADOV, L. M.

"Variation in the Aerodynamic Shape of a Body Leading to a Decrease in Its Resistance"

Uch. zap. Tsentr. aero-gidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamic Institute), 1972, Vol. 3, No. 2, pp 11-20 (from RZh-Mekhanika, No 8, Aug 72, Abstract No 8E43E)

Translation: A direct gradient method is proposed for improving the aerodynamic characteristics of an aircraft by a small variation in its surface. An expression is obtained for the variation in local angles of attack which lead to a decrease in the resistance of the pressure of the aircraft while conserving volume, lift, longitudinal moment, etc. An expression is obtained within the framework of the linear theory using a theorem on the reversibility of the flow. It is proposed that the pressure distribution over the surface of bodies selected in a certain way, which must be known for constructing the improving variation, be found experimentally. The effect of viscosity forces and of the nonlinear dependence of pressure on the local angle of attack is analyzed in individual examples of a plane flow. It is shown that in all cases considered the expressions obtained

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USSR

GLUSHKOV, N. N., et al, Uch. zap. Tsentr. aero-gidrodinam. in-ta, 1972,  
Vol. 3, No. 2, pp 11-20

within the framework of the linear theory for improving the variation  
ensures deformation of the surface in a direction corresponding to a  
decrease in resistance. Resume.

2/2

USSR

GLUSHKOV, V. M., DERKACH, V. P., MAKAROV, G. T., RAKITSKIY, V. R., ZGUROVETS, L. YA., KLIMENTOVICH, V. A., BLASENKO, V. M. and ZHURIBIDA, V. I.

"Automated System for Control of Technological Processes in the Microelectronics of the 'Kiev-70'"

Metody Minnatyuriz. i Avtomatiz. Proiz-va Komponentov EVM [Methods of Miniaturization and Automation of the Production of Computer Components -- Collection of Works], Kiev, 1972, pp 3-11 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V662)

Translation: An automated control system for technological processes in microelectronics (Kiev-70) is described on the example of the basic application of automated programmed control of a cathode-ray (ion-ray) installation. A structural plan of the "Kiev-70" system is presented.

1/1

III. Mathematical Cybernetics  
A. Theory of Controlling Systems

USSR

GLUSHKOV, V. M. and LETICHEVSKIY, A. A.

"Theory of Discrete Converters"

Izbr. Vopr. Algebr i Logiki. [Selected Problems of Algebra and Logic -- Collection of Works], Novosibirsk, Nauka Press, 1973, pp 5-59 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V365)

Translation: A review based on the works of the authors. A definition is given of a discrete information converter, many examples of discrete converters are presented (Turing machines, normal Markov algorithms, logic systems of algorithms, computers, etc.). A special algebraic apparatus is suggested, allowing rather deep equivalent transforms of discrete converters. The problem of the equivalence of discrete converters is studied.

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USSR

UDC 622.011.43

GLUSHKO, V. T.

"Exhibition of Rock Pressure in Deep Mines"

Proyavleniya gornogo davleniya v glubokikh shakhtakh (cf. English Above), Kiev, Naukova Dumka Press, 1971, 195 pp, ill., 1 r. 35 k. (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11V706K)

Translation: Chapter 1 contains a brief survey of the published papers devoted to study of the stability of mines and analytical methods of calculating rock pressure developed by various researchers. A study was made of the problems of the effect of geological and mining engineering factors on the stability of mines, and methods are proposed for forecasting the stability of the deep shaft mines of the Donets Basin. In Chapter 2 there is a study of the stress-strained state of an isotropic rock mass around an unreinforced mine of circular cross section considering the physical and geometric nonlinearity and also around a reinforced mine considering the time factor. The problem of loads on the supports is investigated considering the jointing of the rock. In Chapter 3 an analogous study is made for an anisotropic mass weakened by one or two mines of round or elliptic cross section. In Chapter 4 a study is made of the physical, strength, elastic and plastic properties of the Donets Basin rock as applied to forecasting mine stability. The next chapter contains the results

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USSR

GLUSHKO, V. T., Proyavleniya gornogo davleniya v glubokikh shakhtakh, Kiev, Naukova Dumka Press, 1971, 195 pp, ill., 1 r. 35 k.

of experimental studies of the effect of the rock pressure (measurement of the loads on the supports and displacements of the rocks in the mines). Chapter 6 contains a study of the problems of selecting the optimal location of mines, safety procedures and measures to control heaving. The book generalizes the results of many years of research by the author in a number of coal mines in the Donets Basin. It is designed both for workers at the scientific research organizations in the field of rock mechanics and for teachers and students of the mining and construction institutions of higher learning.

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- 18 -

USSR

UDC 678:539.376

GLUSHKO, V. T., ROZOV'S'KYY, M. I., and SHAKALOVA, O. I., Institute of Geotechnical Mechanics, Academy of Sciences Ukrainian SSR, Dnepropetrovsk Mining Institute

"Study of Plasticity Zone With Strengthening Around a Hole Under Creep"

Kiev, Dopovidi Akademiyi Nauk Ukrayins'koyi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky, No 11, Nov 70, pp 1001-1004

Abstract: The article considers an unbounded plane which exists under plane strain, weakened by a round hole, along whose contour a normal force  $p$  is applied, and at infinity the stresses  $\sigma_r^{(\infty)} = \sigma_\theta^{(\infty)} = q$  are given. Under the action of a system of external forces a plastic zone arises around the hole, completely encompassing the hole. This zone varies with time as a result of the rheological properties of the material. The problem is to find the radius of the plasticity zone. The relationship between

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USSR

GLUSHKO, V. T., et al., Dopovidi Akademiyi Nauk Ukrayins'koyi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky, No 11, Nov 70, pp 1001-1004

stress and strain in the plastic zone is described by integro-operator equations, the corresponding representation of A. YU. ISHLINSKIY and A. A. IL'YUSHIN for plane elasticoplastic strain with linear strengthening. A nonlinear integral equation in operator form is obtained to determine the law of the time variation of the radius of the plasticity zone with strengthening. The solution of this equation is found by the method of successive approximations. Inequalities limiting the exact solution are established.

2/2

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USSR

UDC 66.045.5:621.51.001.24

USHAKOV, V. I., Candidate of Technical Sciences, SOPIN, B. N., Engineer, and  
GLUSHAKOV, A. A., Engineer

"Determination of the Heat-Exchange Surface of Terminal Cooler of Compressor"

Moscow, Khimicheskoye i Neftyanoye Mashinostroyeniye, No 10, Oct 72, pp 17-18

Abstract: The article examines the question of air dehumidification, given certain ratios between the compressed-air and cooling-water temperatures and ambient temperature. A formula is given for determining the heat-exchange surface of the terminal cooler. The compressor station at the Kursk Portable Unit Plant is equipped with four VP20/8 reciprocating compressors with KKh-20 terminal coolers, the heat-exchange surface for each of which is 6.3 sq m. The cooling water temperature is no higher than 10° C and the consumption about 16 liters/min. Such a heat-exchange surface, even with maximum water consumption, is insufficient in order for the compressed air temperature at the cooler outlet to become less than the ambient temperature. According to the suggested formula, at an ambient temperature of 22° C the heat-exchange surface of each cooler must be equal to 9.4 sq m. For design considerations and assembly conditions, the four coolers should be replaced with a single  
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USSR

USHAKOV, V. I., et al., *Khimicheskoye i Neftyanoye Mashinostroyeniye*, No 10, Oct 72, pp 17-18

cooler with the appropriate heat-exchange surface. A four-pass heat exchanger with a heat-exchange surface of 45 sq m was installed. The water consumption was 65 liters/m. During the year and a half that this cooler has been in operation there has been no condensate at any point of the pneumatic system. The temperature of the air coming into the system has not exceeded 18° C. There has been an economic effect of about 20,000 rubles per year.

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Acc. Nr:

AP0054190

Abstracting Service:

NUCLEAR SCI. ABST. 5770

Ref. Code:

4R 0084

18620 HETEROGENEOUS REACTORS FLATTENING BY  
FUEL RODS ARRANGEMENT. Ponomarev-Stepnoi, N. N.;  
Glushkov, E. S.; Nosov, V. I.; Barkov, S. N. At. Energ. (USSR);  
28: 58-60(Jan 1970). (In Russian).

Tabulated data show variations of fuel element distributions and  
effective coefficient of breeding during flattening as functions of  
the number of heat transfer areas along the gradient. (8 refer-  
ences) (R.V.J.)

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USSR

UDC 629.78.015:533.6

GLUSHKOV, N. N., KROTKOV, D. P., and SHKADOV, L. M.

"Variation of Aerodynamic Shape for Decreased Resistance"

Uch. Zap. Tsentr. Aerodinam. In-ta (Scientific Writings of the Central Aerohydrodynamics Institute), Vol 3, No 2, 1972, pp 11-20 (from Referativnyy Zhurnal--Raketostroyeniye, No 8, 1972, Abstract No 8.41.86)

Abstract: A direct method of improving the aerodynamic characteristics of aircraft by means of a small variation of its surface is proposed. In the limits of linear theory with the use of inverse flow theorems an expression for variation of local angles of attack, leading to decreased resistance of an aircraft while preserving size, lift, longitudinal moment, etc., was examined. Pressure distribution on the surface of a specific shape of assembled bodies, which is necessary to know for plotting the improving variation, should be found experimentally. The effect of viscosity forces and the nonlinear relationship of pressure to local angle of attack can be analyzed on individual examples of plane flow. It was shown that in all the examined cases, obtained in the limits of linear theory, the expression for the improving variation provides deformation of the surface in the direction corresponding to decreased resistance. Author's view, 2 figures, 2 bibliographical references.

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1/2 015 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--OPENING THE AZEPINE RING IN 2,3,4,5-TETRAHYDRO,1H,AZEPINO(3,4  
B)INDOLE DURING ALKYLATION BY ALCOHOL IN THE PRESENCE OF RANEY NICKEL  
AUTHOR--GLUSHKOV, R.G., VOLSKOVA, V.A., KOSTYUCHENKO, N.P., SHEYNKER,  
YU.N., MAGTOSON, D.YU.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970; (2), 277-8  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY  
TOPIC TAGS--NICKEL, CATALYST ACTION, ALKYLATION, INDOLE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1984/1805

STEP NO--UR/0409/70/000/002/0277/0273

CIRC ACCESSION NO--AP0100379

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0100379

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REDUCTION OF  
1, METHOXY, 4, 5, DIHYDRO, 3H, AZEPINO(3, 4, B)INDOLE (I) WITH LIALH SUB4-ET  
SUB2 O GA VE 71PERCENT 2, 3, 4, 5, TETRAHYDRO, 1H, AZEPINO, (3, 4, B)INDOLE (II),  
M. 182-6DEGREES; HYDROCHLORIDE M. 280-20DEGREES. ATTEMPS TO ALKYLATE II  
WITH MEI, ME SUB2 SO SUB4, OR CH SUB2 O IN THE PRESENCE OF HCO SUB2 H TO  
OBTAIN THE 2, ME DERIV. OF II WERE UNSUCCESSFUL. THE ALKYLATION OF I  
WITH ETOH OVER RANEY NI YIELDED  
2, METHYL, 3, (3, (DIETHYLAMINO)PROPYL)INDOLE, B' SUB2 165-7DEGREES.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--NON STEROID ANTIPHLOGISTIC DRUGS -U-

AUTHOR-(03)-GLUSHKOV, R.G., LIBERMAN, S.S., YAKHONTOV, L.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 185-92

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIINFLAMMATORY DRUG, INDOLE, DRUG EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3009/0121

STEP NO--UR/0063/70/015/002/0185/0192

CIRC ACCESSION NO--AP0138986

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0138986

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW COVERING AROM. AND  
HETEROCYCLIC DERIVS. OF ORG. ACIDS WITH ANTIPHLOGISTIC PROPERTIES, AND  
INCLUDING DERIVS. OF INDOLE, TRIAZOLE AND RELATED RING SYSTEMS, WITH A  
BRIEF DISCUSSION OF THE MODE OF ACTION OF THESE DRUGS.

UNCLASSIFIED



AP0053428

CHEMICAL ABST.

6170 4R 0079

111415v Pyrimidines. VII. Synthesis and structure of some bis(2-chloroethyl)hydrazinopyrimidines. Ivin, B. A.; Glushkov, R. K.; Sochilin, E. F. (Leningrad. Tekhnol. Inst. im. ~~Lensoveta, Leningrad, USSR~~). *Zh. Obshch. Khim.* 1970, 40 (1), 202-9 (Russ). Adding 9.2 g 2,4,6-trichloropyrimidine (I) in dioxane to 19.35 g (CICH<sub>2</sub>CH<sub>2</sub>)<sub>2</sub>NNH<sub>2</sub>.HCl and 20.1 g Et<sub>3</sub>N in dioxane over 1 hr, followed by addn. of 20.1 g Et<sub>3</sub>N and 9.2 g I, and keeping the mixt. 3-4 hr at 70° gave 5% 2-[bis(2-chloroethyl)hydrazino]-4,6-dichloropyrimidine (II), m. 104°, and 73% 4-[bis(2-chloroethyl)hydrazino]-2,6-dichloropyrimidine (III) m. 117°, sepd. on Al<sub>2</sub>O<sub>3</sub>. Adding 18.4 g I and 10.1 g Et<sub>3</sub>N to 12 g (HOCH<sub>2</sub>CH<sub>2</sub>)<sub>2</sub>NNH<sub>2</sub> in dioxane and keeping the mixt. 3 hr at 60° gave 5% hygroscopic 2-[bis(2-hydroxyethyl)hydrazino]-4,6-dichloropyrimidine, m. 104°, and 72% 4-[bis(2-hydroxyethyl)hydrazino]-2,6-dichloropyrimidine (IV) m. 112°, sepd. on Al<sub>2</sub>O<sub>3</sub>. II heated 1 hr with concd. HCl and adjusted to pH 7.5 gave 2-[bis(2-chloroethyl)hydrazino]-4-oxo-6-chloro-3,4-dihydropyrimidine, m. 138°. III refluxed 3 hr with HCl gave 92% 2-oxo-4-[bis(2-chloroethyl)hydrazino]-6-chloro-2,3-dihydropyrimidine, m. 164°; HCl salt m. 198°. Similarly was prepd. 2-oxo-4-[bis(2-hydroxyethyl)hydrazino]-6-chloro-2,3-dihydropyrimidine, isolated as HCl salt, m. 190°. Heating IV with NaOH in aq. MeOH 1.5 hr gave 54% 2-chloro-4-[bis(2-hydroxyethyl)hydrazino]-6(5H)pyrimidinone as Na salt, decompd. 165°; free substance m. 157°. Uv and ir spectra are reported.

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REEL / FRAME

G. M. Kosolapoff

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USSR

GLUSHKOV, V. M.

"Basic Principles of Construction of Automatic Control Systems"

Kibernet. i Vychisl. Tekhn. Resp. Mezhved. Sb. [Cybernetics and Computer Technology. Republic Interdepartmental Collection], 1971, No 12, pp 5-19 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V663, by the author).

Translation: The basic principles are studied of construction of automated control systems. The significance of electronic computers and information collection devices in the system is demonstrated. Problems of standardization of the solution of software development problems are discussed. Particular attention is given to organizational and technical measures. Problems to be solved in automated control systems at the present time are formulated.

1/1

USSR

GLUSHKOV, V. M.

"Basic Principles of Construction of Automated Systems for Organizational Control"

Upravlyayushchiye Sistemy i Mashiny [Control Systems and Machines], 1972, No 1, pp 9-18 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V673, by the author).

Translation: The concepts of the two basic types of ACS, systems for control of technological processes and systems of organizational control, are formulated, and the basic principles of construction of organizational control systems are outlined.

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USSR

GLUSHKOV, V. M., NIKITIN, A. I., RABINOVICH, Z. L.

"Some Trends in the Development of Structures and Software of Digital Computers"

Upravlyayushchiye Sistemy i Mashiny [Control Systems and Machines], 1972, No 1, pp 79-85 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V594, by the authors).

Translation: Certain trends in the development of the structures and software of digital computers related to the possibility of creation of multiprocessor machines on the basis of new hardware and also to the necessity of supporting their functioning in the collective use mode for the solution of various types of problems are studied.

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USSR

UDC 8.74

GLUSHKOV, V. M., DOVGYALLO, A. M., PLATONOV, B. A., YUSHCHENKO, YE. L.

"Standard Pedagog Dialog Training System with the Avtor Service Mode for Teaching Programming Languages. Part 2"

V sb. Teoriya yazykov i metody postroyeniya sistem programmir. (Language Theory and Methods of Constructing Programming Systems--collection of works), Kiev-Alushta, 1972, pp 98-110 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V476)

Translation: A study was made of the basic characteristics of the Pedagog training system with the Avtor service mode for teaching programming languages. All of the software for the training system is divided into two parts: general including the training process control program and the program for interpreting the input operator; a special program including the programs defining the correct response to the system assignment (reactors) and the service files. Data is stored in the files on the basis of which the training process is controlled and the files also include data relating the control programs to the training material. The system is designed to teach the COBOL language to one student in the dialog mode (the DD-3 dispatcher of the Dnepr-2 digital computer offers the possibility of paralleling the training process for several trainees).  
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USSR

GLUSHKOV, V. M., et al., Teoriya yazykov i metody postroyeniya sistem programmir. Kiev-Alushta, 1972, pp 98-110

The system programs are organized by the modular principle. The functioning of the module programs does not depend on their allocation in the common memory which permits changes to be introduced into the system. The volume of the system modules is on the average 100-140 instructions, and the information exchange between the modules is realized via the dynamic memory in the base register field. The Avtor mode of the training system is designed for correcting the service information files. It is noted that the specific nature of organization of the training system in which the general and special sections are clearly separated permits changing the operation of the system by correcting only the service information. These changes can, in particular, pertain to the sequence of assignments to the training, and in connection with this, the training algorithm and also the training subject. For the Avtor mode a special language has been created which permits correction of all the files of the special section of the training system. The presence of such possibilities in the training system permits efficient variation of the training process, dropping of the necessary and incorrect assignments, insertion of new ones, introduction of new assignment sequences, provision of new auxiliary material, and so on. It is possible to use the Avtor mode both after accumulating certain statistics on the course of the training process and directly during the course

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USSR

GLUSHKOV, V. M., et al., Teoriya yazykov i metody postroyeniya sistem program-  
mir., Kiev-Alushta, 1972, pp 98-110

of training. The programs in the Avtor mode are designed for operation in the dialog mode. The basic device for the Avtor dialog is teletype. The operators of the Avtor language input from teletype are recognized by the Monitor program which then transfers control to the corresponding programs -- interpreter -- which performs all the operations given in the operator. After processing, these programs return control to the Monitor program which goes to the state of waiting for the next message from the user. The operators of the Avtor mode are divided with respect to purpose into two groups: the operators for printing the file contents, the operators for correcting the files. Illustrative examples are presented for the Dnepr-2 training system. The bibliography has 8 entries.

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USSR

UDC 8.74

GLUSHKOV, V. M.

"Paths of Development of Computer Engineering and Software Systems"

V sb. Avtomatizir. sistemy upr. (Automated Control Systems--collection of works), Moscow, Ekonomika, 1972, pp 175-180 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V406)

Translation: The problems in the Ninth Five Year Plan on the path of development of computer engineering and software systems are formulated. They include the creation and broad application of automated enterprise control systems, automated control systems for technological processes, the creation of branch automated control systems and a national automated data gathering and processing system for accounting, planning and control of the national economy. It is noted that when creating local systems it is expedient to approach the solution of the problems which arise from the point of view of insuring the methodological, technical, information and program unity of the systems. The primary problem in the field of computer engineering in the next Five-Year Plan consists in the development and creation of a scientific and design library for designing fourth-generation computers such that in the next Five-Year Plan we can convert to their series production. The next practical problem is the

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GLUSHKOV, V. M., Avtomatizir. istemy upr., Moscow, Ekonomika, 1972, pp 175-180

solution of the problems of organizing the industrial output of the technical and mathematical base for the automated control system. There is a detailed discussion of the advantages and disadvantages of the Minsk series computers available at the present time and the newly built YeS EVM and Ryad series computers. The possibility and necessity for insuring compatibility of the Minsk and YeS EVM computers on the level of the data gathering devices is analyzed. Recommendations are made with respect to creating one of the basic components of the automated control system -- the information bank and the programmed apparatus for the control of it: reception, storage, dissemination and output of information on demand -- and also another important component part of the automated control system -- the program library for processing the data. A statement of the basic problems of the operation system of the automated control system -- the sets of programmed media designed to control the course of the computation process of the automated control system -- is given. The great role of organizational control systems for effective development and creation of automated control systems for technological processes is noted.

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USSR

UDC 8.74

GLUSHKOV, V. M., DOVGYALLO, A. M., PLATONOV, B. A., YUSHCHENKO, YE. L.

"Standard Dialog Training System Training System Pedagog with the Avtor Service Mode for Teaching Programming Languages. Part 1"

V sb. Teoriya yazykov i metody postroyeniya sistem programmir. (Language Theory and Methods of Constructing Programming Systems--collection of works), Kiev-Alushta, 1972, pp 82-97 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V475)

Translation: A standard program training system Pedagog is described. The system is designed to teach programming languages in the dialog mode. The Pedagog training system performs the following functions with respect to training control: it makes the assignments to the trainee to which he must respond (which is realized by indicating the assignment coordinates in a special aid with the assignment); it receives and analyzes the trainee answers to the assignment; it gives the trainee the possibility of correcting the responses input to the computer memory from an individual device (teletype); it gives assistance to the trainee on request, indicating where the materials are located for the given assignment in the text; it offers the possibility to the trainee of repeating the assignment; it returns the answers to the assignment  
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USSR

GLUSHKOV, V. M., et al., Teoriya yazykov i metody postroyeniya sistem programmir., Kiev-Alushta, 1972, pp 82-97

from the memory to the trainee on his request or automatically if on completion of the correction of the answers he halts the operation of the system; it insures adaptation to the trainee, giving information on the errors in the answers at different levels of detail, helping him at the same time detect errors and simultaneously adapting to the capabilities of the user; it collects statistics on the course of the training process with respect to each user; it insures mastery by the user of the training material on a guaranteed level without allowing the user to carry out the next assignment to obtaining a direct response to the present one from it. In addition, the system executes the functions connected with the specific nature of the training process by applying a digital computer with time sharing operating in the dialog mode as the instructor. These basically are functions aimed at maintaining contact between the trainee and the computer: the information about what external systems devices must be used by the trainee at the defined points in time; the information about which operations it should perform on the external devices, what operators of the operation training language and in what cases it must be input; holding recording dialog with the trainee in which the system receives certain data from the user for its subsequent identification in the system; the control of the dialog with user in the training process (or in the process of joint solution of the training problem). There is 1 illustration and a 7-entry bibliography.

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UDC: 8.74

GLUSHKOV, V. M.

"Estimation of the Effectiveness of Complex Systems and Organization of Computer Processes"

Mat. Obespechniye ETsVM [Digital Computer Software--Collection of Works], Kiev, 1972, pp 3-17 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V501, by V. Mikheyev)

Translation: Problems of estimating the effectiveness of complex computer systems are discussed. The basic criteria used for estimation include productivity of systems and complexity of computer algorithms. An example of the problem of inversion of a matrix is presented as an illustration. The concept of the switching complexity of a task is introduced with a fixed hypothesis of the distribution of the parameters, and a method of its estimation is described. A method is suggested for selection of systems of instructions for a planned machine, as well as methods of construction of the program realization. The necessity is demonstrated of planning an operational system together with the hardware. Two approaches are noted. In the first approach, all processes are standardized but the set of instructions built into the processes is looked

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Glushkov, V. M., Mat. Obespechchiye ETsVM, Kiev, 1972, pp 3-17

upon not only on the basis of the type of jobs to be run, but also from the point of view of the problems of control of the system. The second approach involves the creation of specialized processors: processors for mathematical analysis and numerical analysis; processors designed for processing of pictures, drawings and graphic information, transformation of formulas, etc.

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USSR

UDC 681.3.01

GLUSHKOV, V. H.

"Basic Principles of Constructing Automatic Control Systems"

Kiev, Kibernetika i Vychislitel'naya Tekhnika, Organizatsionnyye Printsipy i Tekhnicheskii Kompleks Avtomatizirovannykh Sistem Upravleniya Predpriyatiyami, No 12, 1971, pp 5-19

Abstract: A study was made of the basic principles of constructing automatic control systems. Two basic types of automatic control systems are distinguished: systems for controlling technological processes in the broad sense of the word (controlling an aircraft, a rocket, a blast furnace process) and so-called systems for organizational or administrative control which deal primarily with subjects of an economic nature. The role of computers and data gathering devices in the systems is demonstrated, and the problems of standardizing the solution of the problems of developing software are discussed. Special attention is given to technical organizational measures. Problems subject to solution by automatic control systems at the present time are formulated. The capability of various elements of the control systems, such as the data input and output, punch tape, and other units is discussed. The planning of input and output documents is discussed. Examples of automation of the Reno plant in France and 3 large department stores in New York are discussed.

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USSR

GLUSHKOV, V. M.

"Generalized Dynamics Systems and Processional Prediction"

Probl. Prikl. mat. i Mekh. [Problems of Applied Mathematics and Mechanics -- Collection of Works], Moscow, Nauka Press, 1971, pp 27-29, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V595 by the author).

Translation: A prediction method is studied, based on construction of a generalized dynamic model of the process being predicted. In order to expand the range of phenomena described in the system of indicators characterizing the model, so-called qualitative parameters are introduced, quantities fixed by finite sets of values. If we know the initial values of the models and are provided with a sufficient number of limitations (dependences) applied to the parameters by experts, we can solve the prediction problem, i.e., the problem of construction of trajectories of the system for fixed moments in time, by computer. If the parameters include parameters, the values of which can change depending on the course of the process, the problem of prediction becomes a problem of control of the dynamic system in question.

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USSR

UDC 681.3.06:51

GLUSHKOV, V. M., KOSTYRKO, V. F., LETICHEVSKIY, A. A., ANUFRIYEV, F. V.,  
~~SEL'DEROV, Z. M.~~

"A Language for Recording Formal Theories"

Teor. Kibernetiki. vyp. 3 [Theory of Cybernetics, No 3 -- Collection of Works],  
Kiev, 1970, pp 4-31, (Translated from Referativnyy Zhurnal, Kibernetika, No 6,  
1971, Abstract No 6 V591 by V. Mikheyev).

Translation: A version is suggested of the first portion of a formal language, YaP for recording of mathematical theorems and their proofs -- language YaT for recording of formal theories. It is noted that the second portion of the YaP language -- language YaA for recording of algorithms for transformation of numerical and non-numerical information -- will be presented in a later article. YaT includes means taken from the language of narrow predicate calculus with equalities and functional variables, a language of expanded calculus, the language of set theory, as well as certain special devices. The syntax of the language, structure of the formalized mathematical text, symbols representing subjects, objects and structural functions are described in detail. The rules for usage of language YaT are presented.



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FROM: FBIS Daily Report, Soviet Union, 19 Feb 1970, Vol III, Nr 35,  
USSR pp C 3 - C 7

ASU'S APPLICATION TO ADMINISTRATION DISCUSSED

Moscow NEDELYA No 6, Signed to Press 5 February, 2-8 February 70 p 4 L

[Academician V. Glushkov article: "Machines in the Sphere of Control."]

There are two subjects for automation: technology and administration. It is now most important to apply automated systems in the administrative direction. This task is dissimilar to the former and requires a new approach to design from the creators.

Naturally, it is ideal that a control system for technological processes (say a blast furnace, a lathe, or an aircraft) be automatic.

This type of control system exists entirely without man and herein lies its fundamental difference from systems created for administrative control which is aimed at organizing the work of people who are the subject of automation). Therefore, in this instance, we speak of automated and not automatic systems.

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The chief effect of applying automated systems is improving the quality of control itself. There are in economics the kind of fundamental tasks that simply cannot be resolved today because they are beyond the capacity of any human activity. Only a computer can deal with them.

The second principle holds that the size of the saving made is determined by the size of the system. The relationship here is direct--the larger the system the greater the saving.

However, what is the standard here? Which is larger, the ministry system or the plant system? To state the question this way is to oversimplify it and distort its essence.

The fact is that the ministry system must be supplied with a large amount of raw data, and only then will it be able with the help of this data to control effectively all the matters subordinate to the ministry apparatus. However, this turns out to be impossible if there is no low-level automation.

The validity of information is very important because it is impossible to feed information into an automated system that is collected by the traditional manual methods. Errors will undoubtedly occur and they will be incorporated into the computer's memory.

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Moreover, as a rule information will be belated because of the difficulties involved in its handling. Therefore, when we speak of a system within a ministry it is already a question of a computer center capable of automatically sharing data with enterprise computer centers and with the computer centers of other ministries.

It is very important that these are not isolated points (information processing centers) but a system of computer centers--a single, well thought-out complex, organizationally and technically.

There is every reason to think that a global system for processing information--a system using computers on the national economic scale--and a control system based on this will produce at least a 100 percent effect. And this means that our progress rates will be accelerated twofold while the same given proportions for the division of national income are maintained.

The third (and also the most obligatory) condition for success is independence of the processes by which data is gathered and decisions taken.

Consequently, the idea is to gradually accumulate information in the computer memory so that all data reach the computer's "input" at the time they come into existence. And they become "output" data only when they are needed. In addition, all changes in these data should also be fed constantly into the computer. It is

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impossible to collect information just once and not follow its dynamism. At any moment the computer should "know" everything.

From the very start a definition must be made of the content of the documents that are exchanged both between the control organ and the controlled subject and with other subjects. After the list of output documents has been analyzed, the system designer can get an idea of which data are needed for formulation in the computer. The most detailed information is stored in the lowest link of the system at enterprises. At the higher level, in the ministry computer, it is impossible to store everything that is stored in computers at a lower level. This is irrational. Nevertheless, in order to resolve tasks, the computer at the higher link sometimes needs information that it does not have in storage. It is then possible to have downward access through the lines of communications--to the plant--and select any kind of detailed information. This means that the higher level computer does not have complete information about the controlled subject, but can always obtain it.

This principle might be called the principle of one-time only information gathering. It is supplemented by one more thing--the need to combine the preparation of output data with the preparation of the computer's memory.

A few words about automated control system typification. This is also one of the most fundamental principles in the creation of systems. Obviously they should be introduced only as standard systems.

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However, this does not mean that it is possible to set up one system and satisfy the requirements of all organizations and enterprises with it. A sensible approach must be made to these questions and a sense of the extreme excluded. |

It is essential not only that the system is adopted to the subject but also that the subject takes steps to meet the system. The logic of an automated system's work must prompt rational forms for organizing administrative control, and on the other hand should exert influence over the structure, composition, and content of the automated system.

It is impossible to set up a system of state network of computer centers and a system for the automated control of the economy in isolation from the economic reform--an automated system provides new possibilities for the development of the economic reform. On the other hand, if we do not incorporate into the automated control system the criteria, indicators, and other aspects stemming from the economic reform we will not obtain a complete return.

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Branch systems for planning control are now being devised in many ministries. A state network of computer centers (GSVTS) and an automated system of planning calculations and national economic control will be set up on the basis of these centers.

In addition to the multiple-user centers, several dozen large computer centers equipped with large capacity computers and interlinked by communications centers, should be included in the network. The information stored in the computers will make it possible on the demand of government organs to automatically supply needed information and to prepare economically sound alternative decisions on questions of rational planning and control.

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FROM: FBIS. Foreign Press Digest, Cybernetics in the USSR, 28 Jan 70, FPD 0006  
6. USSR UDC 62-50:65b

GLUSHKOV, V. M., Academician, PETROVSKIY, S. O., Director of the L'vov Television Plant

"Automatic Production Control -- Necessity and Reality"

Kiev, Mekhanizatsiya i Avtomatizatsiya Upravleniya, No 3 (45), May-June 1969, pp 2-3

Translation: The operation of an enterprise under modern conditions should be set up according to a highly detailed plan tied together with respect to all items in space and in time. Only under these conditions is it possible to achieve high production profitability indexes for the socially required production and high growth rates for the productivity of labor.

The operation of an enterprise according to an optimal production plan and organization of the administrative activity requires continuous improvement of the information service. Only in the presence of timely, complete, systematized information can management make the most objective and efficient decisions, analyze and predict trends in production development and management activity, predict possible

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interruptions in the course of production in advance, and prepare for these interruptions in a timely manner or even completely prevent them.

Under modern conditions of specialized and cooperative production, coordination problems play an ever-increasing role. Coordination is an information problem, and its solution depends on what attention is given in the enterprise not only to production but also to "extraction," "processing" and "consumption" of information.

Modern technical media and mathematical methods are permitting basic changes in the information production at enterprises and the organization of reception, storage and processing of information on the same clear production principles as basic production. Moreover, on the basis of modern data processing techniques and equipment most complete all-around automation of information processes is realized within the framework of a united automatic enterprise control system.

In 1963 the Cybernetics Institute jointly with the L'vov Television Plant proceeded to the development of an automatic enterprise control system subsequently receiving the name of the "L'vov" system.

The basic purpose of the joint development was construction and implementation of new principles of all-around automatic enterprise control on the basis of application of modern mathematical methods of optimal planning and operative production control and its material and technical supply, the creation of an integrated data processing system permitting more efficient automation of information processes.

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the enterprise control system and also significant increase in the efficiency of control and production management activity of the enterprise as a whole. The system was introduced in stages at the plant. In 1967 the first link of the system underwent acceptance testing, and in the beginning of 1969 the second link was accepted.

In the first link basic attention was concentrated on the development and introduction of the technical complex of the system and its operational programs permitting efficient organization of the interconnected solution of problems in the system. In this rich, meaningful plan the first link of the system was mainly oriented toward the solution of operative planning and production dispatching problems and its material and technical supply. In the second link the technical possibilities of the system were expanded, the number of problems solved in the system was increased appreciably, and basic attention was given to automation of accounting and reporting at the enterprise, the solution of problems of technical and economic planning and forecasting.

It must be noted that during the first months of operation of the system at the plant a significant savings was obtained, the productivity of labor increased sharply, the industrial production output increased, the reserves of materials and incomplete production were reduced, the production cycle was reduced, and the turnover of circulating capital was accelerated.

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Positive results from introduction of the system permitted the plant to adopt a program for producing television sets in 1969 which was previously planned for 1970.

The basic mathematical and technical solutions of the system are used at the present time by a number of organizations and enterprises of the country including at the Leningrad Combine Svetlana, the Nikolayev Computation Center, the Tula Weapons Plant, the Dnepropetrovsk Radio Plant and other enterprises of the country.

Management agencies have recognized the necessity of introducing the system at the enterprises of the country with an analogous nature of production, utilization of experience and solutions worked out in the system at other enterprises. At the present time, on the basis of this system a standard design has been developed for an automatic control system for industrial enterprises engaged in mass and large-series discrete-type production.

The Lvov system was developed and created as an all-around system solving procedural, technical and organizational problems of production control.

The complex of technical data processing equipment at the information computation center of the enterprises insuring solution of the problems of accounting and optimal control includes the Minsk-22 computer as the central data processing device. This computer has been essentially modified and supplemented by a number of special devices permitting more efficient organization of the processes of solution of problems.

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gathering primary data, outputting the results of solving problems and preparation of the required systematized data for the administration workers of the enterprise.

The means of depicting the state of equipment, the recorders and sensors for movement of production during the production process, the dispatch panels in the basic shops of the plant, and light indicators on which the information is displayed for visual production monitoring -- all are tied into a united technical complex.

The creation of this interrelated complex of technical devices, algorithms and organization of the solution of problems of optimal control have required that the workers resolve complex theoretical, design and technological process problems. When developing the L'vov system, theoretical problems of automatic control of enterprises engaged in mass production (discrete type) were solved, methods of solving mathematical problems of scheduling theory were developed, and a set of data processing equipment was built permitting the solution of the problem of enterprise control on a real time scale, and experience was accumulated in solving economic planning problems in systems for organization of general enterprise control processes under the conditions of automatic control systems and in the development and creation of information control systems. Important results were obtained determining the directions of further development of general theoretical and technical problems of organization of automatic control of the national economy.

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At the plant the information computation center which processes the production planning plant data functions as an independent subdivision. Continuous improvement of the system, checkout of the algorithms and technical equipment (at the present time 2 Minsk-22 computers are operating as a single complex in the system) are promoting a situation where each day administrative workers and section foremen are spending less and less time in an unproductive fashion and they can give more and more attention to creative organization and modernization of production.

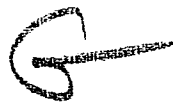
Completion of the development of the D'vov system was slated for the glorious occasion of the 50th Anniversary of the Great October Revolution, and it was accomplished in the planned period.

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A NO 012009



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AUTHOR-- GLUSHKOV, V. M., ACADEMICIAN, LAUREATE OF THE LENIN AND STATE PRIZES, HERO OF THE SOVIET LABOR

TITLE-- A SET OF INNOVATIONS

NEWSPAPER-- RABOCHAYA GAZETA, JANUARY 11, 1970, P 2, COLS 1-3

ABSTRACT-- ACCORDING TO GLUSHKOV, THE INSTITUTE OF CYBERNETICS OF THE UKRAINIAN ACADEMY OF SCIENCES HAS ACHIEVED SOME SUCCESS IN DEVELOPING SYSTEMS FOR AUTOMATING ALL STAGES OF THE ELECTRONIC COMPUTER DESIGN, AS WELL AS THE PRODUCTION OF COMPUTERS. THE "KIYEV-67" COMPUTER, FOR EXAMPLE, HAS BEEN DEVELOPED TO AUTOMATE THE ASSEMBLY OF MICRO CIRCUITS FOR ELECTRONIC COMPUTERS. THE "KIYEV-67" IS CONTROLLED BY AN ION BEAM. OTHER INSTITUTE-DEVELOPED COMPUTERS ARE "PROMIN", "MIR", "MIR-2", AND "DNEPR". THE INSTITUTE ALSO COLLABORATED WITH THE L,VOV TELEVISION PLANT TO DEVELOP A COMPUTERIZED INDUSTRIAL MANAGEMENT SYSTEM "L,VOV".

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1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--PROBLEMS ON AUTOMATION OF COMPUTER AND SYSTEM DESIGN -U-

AUTHOR-(03)-GLUSHKOV, V.M., KAPITONOVA, YU.V., LETICHEVSKY, A.A.

COUNTRY OF INFO--USSR

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CIRC ACCESSION NO--AP0123878

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. IT IS NOTED THAT COMPLETE SYNTHESIS OF COMPUTER DESIGN IS FEASIBLE AND CONSIDERABLE PROGRESS HAS BEEN MADE IN THIS DIRECTION, BUT IT IS NOT YET PRACTICAL. DIFFICULTIES AND COMPLEX PROBLEMS REMAIN AND THEY ARE DISCUSSED ALONG WITH THE BASIC DESIGN STAGES WHICH ARE DESIGNATED SYSTEM, LOGICAL AND TECHNICAL, LANGUAGE PROBLEMS ARE CONSIDERED AS WELL AS PROGRAMS WHICH HAVE BEEN DEVELOPED IN THE INSTITUTE OF CYBERNETICS IN KIEV FOR DESCRIBING COMPUTER MODELS AND COMPUTER STRUCTURES IN THE SYSTEM AND LOGICAL STAGES OF DESIGN. OPTIMIZATION PROBLEMS IN COMPUTER SYNTHESIS ARE COMPLEX AND OPTIMIZATION MUST BE DONE ON A SUBSYSTEM, SUBOPTIMAL BASIS AT THE PRESENT TIME ALTHOUGH RECENTLY DEVELOPED SPECIAL ALGORITHM TRANSFORMATIONS AND MICRO PROGRAMS HAVE BEEN FOUND VERY USEFUL. FINALLY, VARIOUS STEPS AND PROBLEMS WHICH MUST BE ENCOUNTERED IN AN AUTOMATED DESIGN SYSTEM ARE DEFINED, AND DISCUSSED. EXAMPLES ARE GIVEN IN APPENDICES TO ILLUSTRATE VARIOUS CONCEPTS WHICH ARE REPRESENTED IN THE PAPER.

UNCLASSIFIED

Acc. Nr.: AM0104084

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Glushkov, V. M.; Barabanov, A. A.; Kalinichenko, L. A.; Mikhnovskiy, S. D.;  
Rabinovich, Z. I.

Computers With Developed Interpretation Systems (Vychislitel'nyye mashiny s razvitymi sistemami interpretatsii) Kiev, 1970, 258 pp (SL:2012)

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Titanium

USSR

UDC 621.669.27

MEYERSON, G. A., KREYMER, G. S., ~~GLUSHKOV, V. N.~~ PANOV, V. S., Moscow Institute of Steels and Alloys

"Study of the Influence of Conditions of Production of Metallic Tungsten on the Properties of T15K6 Alloy"

Kiev, Poroshkovaya Metallurgiya, No 6, Jun 72, pp 31-35.

Abstract: The possibility is studied of producing fine-grained, homogeneous tungsten powder in commercial muffle furnaces using direct input of hydrogen, and the influence of the grain size of the tungsten powder produced on the physical, mechanical and cutting properties of the hard alloys is investigated.  $WO_3$  was reduced to W in one stage in an industrial type GSPI muffle furnace. Direct input of hydrogen allows a homogeneous, fine-grained tungsten powder with adsorption of over 0.2 mg/g and mean grain size less than 1 micron to be produced. The properties of T15K6 alloy were studied as functions of sintering temperature. It was found that the alloy has a finer WC-phase grain structure and higher physical, mechanical and cutting properties than standard T15K6 alloy. The cutting properties are 10-30% higher than the standard alloy.

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UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

235866 ROLLS FOR TUBE ROLLING MILLS are manufactured with a high wear resistance on the surface and a good gripping power by hard-facing the working surface with a layer of high-carbon steel. This is annealed, by not allowing the fused metal to cool below 350°C, to a granular perlite structure with a Brinell hardness of 150-200. 3.10.66. as 1108992/25-27. V.N.GLUSHKOV et al. (12.6.69.) Bul.6/24.1.69. Class 21h. Int.Cl. B23k.

AUTHORS: Glushkov, V. N.; Goncharov, V. P.; and Ust'yantsev, V. P.

LD 18

19750388

1/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--NATURE OF CROSSLINKS FORMED DURING THE VULCANIZATION OF RUBBERS BY  
A THIOUREA HEXACHLOROETHANE COMPLEX IN THE PRESENCE OF SULFUR -U-  
AUTHOR--(03)-GLUSHKOV, V.V., SHERSHNEV, V.A., DOGADKIN, B.A.

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA 1970, 29(3), 14-15

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TUPIC TAGS--POLYMER CROSSLINKING, VULCANIZATION, THIOUREA, CHLOROETHANE,  
COMPLEX COMPOUND, SULFUR, SYNTHETIC RUBBER, STYRENE, STRESS  
RELAXATION/(U)SKMS30ARK STYRENE RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0455

STEP NO--UR/0138/70/029/003/0014/0015

CIRC ACCESSION NO--AP0119391

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119391

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF 2 WT. PARTS OF THE  
TITLE COMPLEX (I) AND 2 WT. PARTS S TO SYNTHETIC RUBBER SKMS-30ARK  
DECREASED ITS ELONGATION AT BREAK TO 55PERCENT AND ITS FLEX RESISTANCE  
TO 9 TIMES 10 PRIME4 CYCLES AS COMPARED WITH 100PERCENT AND 11 TIMES 10  
PRIME4 CYCLES FOR THIS RUBBER VULCANIZED WITH S 2 AND DIPHENYLGUANIDINE  
2 PARTS. HOWEVER, I CONSIDERABLY REDUCED THE DYNAMIC STRESS RELAXATION  
OF THIS RUBBER. FACILITY: MOSK. INST. TONKOL. IM. LOMONOSOVA,  
MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 629.7.036.3:536.46

GLUSHKOV, V. YE., KALINCHAK, V. V., and FEDDOSEYEVA, N. V.

"Calculation of the Evaporation Rate of Drops at High Temperatures"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972 -- Sbornik (11-th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972 -- Collection of Articles), 1972, pp 34-35 (from Referativnyy Zhurnal -- Aviyatsionnyye i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.10. Resumé)

Translation: When calculating the evaporation rate of drops, it is necessary to know the relationship of their temperature  $T$  to the conditions of evaporation (the temperature  $T_{med}$  and pressure  $P_{med}$ , etc.). The temperature of an evaporating drop is found from the solution of a system of heat- and mass-exchange equations. The solution of this system leads to a transcendental equation with respect to  $T_s$ . The conducted analysis showed that disregarding the Stefan flow in heat- and mass-exchange equations at high temperatures leads to the physically unjustifiable expression  $T_s \rightarrow T_{med}$  when  $T_{med} \rightarrow \infty$ .

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USSR

GLUSHKOV, V. YE., et al., 11-th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972 -- Collection of Articles, 1972, pp 34-35

Taking the Stefan flow into account leads to the physically valid solution  $T_s \rightarrow T_{\text{boil}}$  (boiling point) when  $T_{\text{med}} \rightarrow \infty$ . The obtained relationship permits the evaporation rate of the drop to be calculated directly at various temperatures. Taking into account the relationship of the boiling point of the liquid to its composition and the temperature of the surrounding medium provides the possibility of calculating the evaporation rate of drops of multi-component liquid mixtures at high-temperatures nonisobaric conditions.

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USSR

UDC 536.46:533.6

GLUSHKOV, V. Ye., SELIVANOV, S. Ye., FEDOSEYEV, V. A., TODES, O. M.

"Thermal Combustion of Metal Particles"

V sb. Fiz. aerodispersn. sistem. Vyp. 5 (Physics of Aerodisperse Systems. No. 5 -- Collection of Works), Kiev, Kiev University, 1971, pp 65-71 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6B893)

Translation: The period of induction is obtained in implicit form as a function of the temperature of the medium  $T$ , particle size  $d$  and the functional relationships  $t_i(d)$ ,  $T = \text{const}$ , and  $t_i(T)$ ,  $d = \text{const}$  are analyzed. The relationship  $t_i(d)$  in explicit form shows that as  $d \rightarrow d_0$ , where  $d_0$  is the minimum dimension of the particles for which the particles still ignite,  $t_i \rightarrow \infty$  and for a sufficiently large  $d$  increases in proportion to  $d$ . That particle dimension  $d^*$  is found for which the period of induction reaches the minimum value. It was found that  $d^* \approx 1.5 d_0$ . It follows from the relationships found for  $t_i(T)$  that  $t_i$  increases monotonically with a decrease in  $T$  and tends toward infinity as  $T \rightarrow T_0$  (combustion temperature). The dependence of "conventional" combustion temperatures for finite periods of induction on particle size was investigated. Authors abstract.

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1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--NEGATIVE MAGNETORESISTANCE OF P TYPE GAAS AT 77 K -U-

AUTHOR--(02)-BARANSKIY, P.I., GLUSHKOV, YE.O.

COUNTRY OF INFO--USSR

SOURCE--UKRAIN'SKII FIZICHNII ZHURNAL, VOL. 15, MAR. 1970, P. 510-512

DATE PUBLISHED----MAR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETORESISTANCE, GALLIUM ARSENIDE, MAGNETIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0560

STEP NO--UR/0185/70/015/000/0510/0512

CIRC ACCESSION NO--AP0121232

UNCLASSIFIED



2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121232

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEASUREMENT OF THE PARALLEL AND PERPENDICULAR MAGNETORESISTANCE AS A FUNCTION OF THE APPLIED MAGNETIC FIELD IN N TYPE GAAS AT A TEMPERATURE OF 77 K. MEASUREMENTS PERFORMED ON SAMPLES CUT FROM DIFFERENT CRYSTALS SHOW THAT IN MAGNETIC FIELDS UP TO 23 KOE BOTH THE PARALLEL AND THE PERPENDICULAR MAGNETORESISTANCE ARE NEGATIVE, WITH THE PARALLEL MAGNETORESISTANCE BEING LARGER. THE PARALLEL MAGNETORESISTANCE BECOMES SATURATED AT FIELDS STRONGER THAN 10 KOE AT THIS TEMPERATURE. FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, INSTITUT NAPIVPROVIDNIKIV, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--A STUDY OF THE FRACTIONAL COMPOSITION OF CL OEDEMATIENS TOXINS AND  
TOXOIDS -U-  
AUTHOR--(05)-KULAK, V.G., GOLSHMID, V.K., NENASHEV, V.P., GLUSHKOVA, A.I.,  
YANISHEVSKAYA, M.N.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6,  
PP 112-115  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CLOSTRIDIUM, BACTERIAL TOXIN, TOXOID, FRACTIONATION, GEL,  
FILTRATION, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0394

STEP NO--UR/0016/70/000/006/0112/0115

CIRC ACCESSION NO--AP0126149

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--A0126149

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY FILTRATION ON GEL SEFADIX G-100  
CL. OEDEMATIENS TOXINS TYPE A WERE DIVIDED INTO THREE FRACTIONS  
DIFFERENTIATED BY TOXICITY AND FERMENTING ACTIVITY. THE FIRST FRACTION  
INCLUDED THE LETAHL DERMONECROTIC AND ANTITOXIN BINDING ACTIVITY, THE  
SECOND LECITHINASE AND HEMOLYTIC ACTIVITY, AND THE THIRD AMYLASE. GEL  
FILTRATION OF OEDEMATIENS TOXOIDS PROVED TO INCREASE THEIR SPECIFIC  
ACTIVITY. FACILITY: MOSKOVSKIY INSTITUT VAKTSIN I SYVOROTOK IM  
MECHNIKOVA.

UNCLASSIFIED

USSR

UDC 576.851.555.097.29

KULAK, V. G., GOLSHMID, V. K., NENASHEV, V. P., GLUSHKOVA, A. I. and YANISHEVSKAYA, M. N., Moscow Institute of Vaccines and Sera imeni Mechnikov

"Study of the Fractional Composition of *Cl. oedematiens* Toxins and Toxoids.  
Report I. Fractionation of Toxins and Toxoids by Gel Filtration"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 47, No 6,  
Jun 70, pp 112-115

Abstract: *Cl. oedematiens* toxin has a mosaic structure. It contains lethal necrotic factors and hemolysin. The fractional composition of a toxin nutrient medium on Sefadex G-100 gel, including crude and purified *Cl. oedematiens* toxoids, type A, was studied. The toxins were separated into three fractions, differing from one another in their biological and enzymatic activity. The first fraction contained the lethal dermonecrotic and antitoxin-binding activity; the second fraction contained the lecithinase and hemolytic activity; and the third fraction contained amylase. Two peaks were observed in the fraction of crude toxoid and toxin. All of the antitoxin-binding activity of the toxoids was contained in the high-molecular-weight proteins eluted in the first peak. The significance of the different components in *Cl. oedematiens* immunity requires further study.

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