

USSR

UDC 621.391:519.2

*P*  
PESTRYAKOV, V. B., SUDOVITSEV, V. A., SENYAVSKIY, A. L.

"Distortion of the Amplitude-Phase Structure of Complex Signals in Linear Four-Terminal Networks"

Tr. Mosk. Elektrotekhn. in-ta svyazi (Works of Moscow Electrotechnical Communications Institute), 1970, vyp. 1, pp 22-36 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A40)

Translation: The investigated distortions are evaluated with respect to the type of mutual correlation function between the expected signal and the signal coming to the input of the matched filter the expression for which was derived earlier (see RZh-Radiotekhnika, 1968, 11A25). There is one illustration and a one-entry bibliography.

1/1

USSR

UDC: 621.391:519.2

PESTRYAKOV, V. B., SENYAVSKIY, A. L., SUDOVITSEV, V. A.

"Noise Suppression in a Small-Channel Communications System"

V sb. Metody pomekhoustoychivogo priyema ChM i FM (Methods of Interference-Free FM and PM Reception--collection of works), Moscow, "Gov. radio", 1970, pp 231-237 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A31)

Translation: The authors examine problems of the passage of several signals of different power through a channel which contains an ideal band limiter. It is shown that in the case of a small number of signals with stable phase ratios, noise suppression is qualitatively different from power suppression. The magnitude of the suppression in this case depends on the aggregate of parameters acting on the input. It is noted that the difference in the initial phases of the signals has an appreciable effect on the magnitude of suppression. The results found in the work may be used in analyzing communications systems with a rebroadcaster in the case of a small number of input signals. Resumé.

1/1

Ion Exchange Phenomena

USSR

UDC 541.183.24:661.183.123

MELESHKO, V. P., SHAPOSHNIK, V. A., and PESTUCHKO, N. N., Voronezh  
Technological Institute

"Kinetics of Electrochemical Regeneration of Highly Ionized Anion  
Exchange Resin AV-17"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 47, No 8, Aug 73, pp 2153-2154

Abstract: The aim of the study was to evaluate the possibility of applica-  
tion of the equation  $a=1-e^{-k}$  to the study of the kinetics of the process of  
electrochemical regeneration of the anion exchange resin AV-17. It was  
established that the rate of determining the stage of electrochemical  
regeneration is the removal of the regeneration products from the ion  
exchange granules into the solution.

1/1

USSR

UDC: 621.791.856.3.011

RABKIN, D. M., and RYABOV, V. R., Institute of Electric Welding imeni Ye O. Paton, Academy of Sciences Ukrainian SSR; YEREMENKO, V. N., LESNIK, S. D., and PESTUN, I. S., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Surface Phenomena in Welding Aluminum Directly to Armo Iron"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 70, pp 20-23

Abstract: The behavior of liquid aluminum with respect to solid iron is of great theoretical interest for a number of metallurgical processes. This study concerns the effect of temperature-time conditions on the spreading of aluminum over iron and the intermetallide phases  $Fe_3Al$ ,  $Fe_2Al_5$ ,  $FeAl_3$ . The kinetics of spreading was analyzed in vacuum ( $1-3 \cdot 10^{-5}$  mm Hg, at maximum temperatures of the experiment) using filming and telescopic lens photography for recording the process. Use was made of AV-000 (99.99% Al) and armo iron. Considered were the possible mechanism for contact interaction of liquid aluminum with iron and the conditions for producing welded joints of

1/2

USSR

RABKIN, D. M., et al, Avtomaticheskaya Svarka, No 11, Nov 70, pp 20-23

iron with aluminum with a minimum interlayer of brittle intermediate phases. Wetting was found to improve with temperature. Quality welding of armco iron with aluminum is achieved by minimum contacting time of iron with its melts and high dissolution rate of iron in aluminum.

1/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--NITROGEN CONTAINING ORGANOSILICON COMPOUNDS, XIX.  
N,3,TRIALKYL Sily,ALLYL AND N,3,TRIALKYL Sily,PROPARGYL DERIVATIVES OF  
AUTHOR--(04)-LUKEVITS, E., PESTUNOVICH, A.YE., PESTUNOVICH, V.A., VORONKOV,  
M.G.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 624-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANOSILICON COMPOUND, PYRROLIDINE, MORPHOLINE, ORGANIC  
NITROGEN COMPOUND, CATALYTIC ORGANIC SYNTHESIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0926 STEP NO--UR/0079/70/040/003/0624/0626  
CIRC ACCESSION NO--AP0124587  
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124587

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFLUXING HSIET SUB3 WITH 1,PROPARGYLPIPERIDINE IN THE PRESENCE OF H SUB2 PTCL SUB6 CATALYST 10 HR GAVE 27.4PERCENT ET SUB3 SICH:CHCH SUB2 R (I) (R EQUALS PIPERIDINO), B SUB19 141-3DEGREES, N PRIME20 SUBD 1.4756, D PRIME2D 0,8696. SIMILARLY WAS PREPD. THE 1,PYRROLIDINYL ANALOG, B SUB3 131-2DEGREES, 1.4743, 0.8657, AND MORPHOLINO ANALOG, B SUB17 145-7DEGREES, 1.4765, 0.9155. REACTION OF ET SUB3 SICL WITH BRNGC TRIPLE BOND CCH SUB2 R (R EQUALS PIPERIDINO) GAVE 40PERCENT ET SUB3 SIC TRIPLE BOND CCH SUB2 R (III), B SUB5 123-6DEGREES, 1.4782, 0.7891. HEATING 4.3 G PYRROLIDINE WITH 8.42 G 3,TRIMETHYLSILYL,1,CHLORO,2,PROPYNE IN C SUB6 H SUB6 WITH 6.1 G ET SUB3 N 5 HR GAVE 38PERCENT ME SUB3 SIC TRIPLE BOND CCH SUB2 R (R EQUALS 1,PYRROLIDINYL) (III), B SUB48 98-100DEGREES, 1.4650, 0.8686. TREATMENT WITH HCL-ET SUB2 D GAVE THE HCL SALTS OF: I, M. 157-9DEGREES; II, M. 241.5-2.5DEGREES; III, M. 129.5-31DEGREES. FACILITY: INST. ORG. SIN., RIGA, USSR.

UNCLASSIFIED

1/2 014

UNCLASSIFIED

PROCESSING DATE—30OCT70

TITLE—NITROGEN CONTAINING ORGANOSILICON COMPOUNDS. XV. MORPHOLINO,  
N-METHYLPIPERAZINYL, AND PERHYDRODAZEPIN, 1, YL, SILANES --U--  
AUTHOR—(05)—LUKEVITS, E., PESTUNOVICH, A.YE., GAYLE, R., PESTUNOVICH,  
V.A., VORONKOV, M.G.

COUNTRY OF INFO—USSR

SOURCE—ZH. OBSHCH. KHIM. 1970, 40(3), 620-3

DATE PUBLISHED—70

*P*

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—AMINE, MORPHOLINE, ORGANIC SILANE, THERMAL EFFECT, ORGANIC  
SYNTHESIS

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—2000/0889

STEP NO—UR/0079/70/040/003/0620/0623

CIRC ACCESSION NO—AP0124552

UNCLASSIFIED



2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124552

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING ME SUB3 NEGATIVE SINET  
 SUB2 OR ME SUB2 SINET SUB2) SUB2 WITH HIGHER AMINES SUCH AS MORPHOLINE,  
 1, METHYLPIPERAZINE OR PERHYDROAZEPINE GAVE: TRIMETHYL(MORPHOLINO)  
 SILANE, B SUB18 61-2DEGREES, N SUBD PRIME20 1.4385, D PRIME20 0.9014;  
 DIMETHYLDIMORPHOLINOSILANE, B SUB4 106-10DEGREES, 1.4743, 1.0163.  
 METHYLTRIMORPHCLINOSILANE, M. 109-12DEGREES.  
 TRIMETHYL(1, METHYL, 4, PIPERAZINYLSILANE, B SUB35 65DEGREES, 1.4461,  
 0.8590. TRIMETHYL(PERHYDROAZEPIN, 1, YLSILANE, B SUB21 74-6DEGREES,  
 1.4525, C. 8547. DIMETHYLOIPERHYDROAZEPIN, 1, YLSILANE, B SUB2  
 117-20DEGREES, 1.4860, 0.9380.  
 USSR. FACILITY: INST. ORG. SIN., RIGA,

UNCLASSIFIED

2

USSR

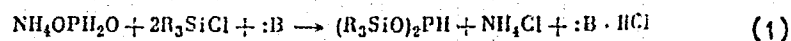
UDC 547.245

VORONKOV, M. G., MARMUR, L. A., DOLGOV, O. N., PESTUNOVICH, V. A.,  
POKROVSKIY, Ye. I., and POPEL, Yu. I., Leningrad Institute of Textile and  
Light Industry imeni S. M. Kirov; Institute of Organic Synthesis, Academy  
of Sciences Latvian SSR

"Bis(trialkylsilyl) Hypophosphites"

Leningrad, Zhurnal Obshchey Khimii, Sep 70, Vol 41, No 9, pp 1987-1991

Abstract: This is the first report on the synthesis of organosilicon --  
bis(trialkylsilyl) hypophosphites  $(R_3SiO)_2PH$ . One method is based on the  
reaction of ammonium hypophosphite with trialkylchlorosilanes in the  
presence of secondary and tertiary amines:



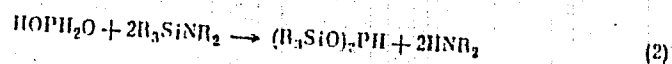
R = alkyl, : B = amine

1/2

USSR

VORONKOV, M. G., et al., Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1987-1991

The hypophosphite yield reaches 35-45%. The second method produces a much higher yield (80-90%) and is based on the reaction of hypophosphorus acid with trialkyl(dialkylamino)silanes:



Some of the properties of these compounds are discussed. The compounds readily disproportionate in the presence of alkyl halides, transsilylate are oxidized by oxygen, and add to double bonds. The IR and NMR spectra of bis(trialkylsilyl) hypophosphites are presented in a table.

2/2

1/2 014

UNCLASSIFIED

PROCESSING DATE—30OCT70

TITLE—NITROGEN CONTAINING ORGANOSILICON COMPOUNDS. XV. MORPHOLINO,  
N,METHYLPYPERAZINYL, AND PERHYDROAZEPIN, 1,YL, SILANES —U—  
AUTHOR—(05)—LUKEVITS, E., PESTUNOVICH, A.YE., GAYLE, R., PESTUNOVICH,  
V.A., VORONKOV, M.G.

COUNTRY OF INFO—USSR

SOURCE—ZH. OBSHCH. KHIM. 1970, 40(3), 620-3

DATE PUBLISHED—70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—AMINE, MORPHOLINE, ORGANIC SILANE, THERMAL EFFECT, ORGANIC  
SYNTHESIS

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—2000/0889

CIRC ACCESSION NO—AP0124552

STEP NO—UR/0079/70/040/003/0620/0623

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124552

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING ME SUB3 NEGATIVE SINET  
SUB2 OR ME SUB2 SI(NET SUB2)SUB2 WITH HIGHER AMINES SUCH AS MORPHOLINE,  
1,METHYLPIPERAZINE OR PERHYDROAZEPINE GAVE: TRIMETHYL(MORPHOLINO)  
SILANE, B SUB18 61-2DEGREES, N SUBD PRIME20 1.4385, D PRIME20 0.9014;  
DIMETHYLDIMORPHOLINOSILANE, B SUB4 106-10DEGREES, 1.4743, 1.0163.  
METHYLTRIMORPHCLINOSILANE, M. 109-12DEGREES.  
TRIMETHYL(1,METHYL,4,PIPERAZINYL)SILANE, B SUB35 65DEGREES, 1.4461,  
0.8590. TRIMETHYL(PERHYDROAZEPIN,1,YL)SILANE, B SUB21 74-6DEGREES,  
1.4525, C.8547. DIMETHYLDIPERHYDROAZEPIN,1,YLSILANE, B SUB2  
117-20DEGREES, 1.4860, 0.9380. FACILITY: INST. ORG. SIN., RIGA,  
USSR.

UNCLASSIFIED

172 011

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--NITROGEN CONTAINING ORGANOSILICON COMPOUNDS. XIX.  
N,3,TRIALKYL Sily,ALLYL AND N,3,TRIALKYL Sily,PROPARGYL DERIVATIVES OF  
AUTHOR--(04)-LUKEVITS, E., PESTUNOVICH, A.YE., PESTUNOVICH, V.A., VORONKOV,  
M.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 624-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOSILICON COMPOUND, PYRROLIDINE, MORPHOLINE, ORGANIC  
NITROGEN COMPOUND, CATALYTIC ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0926

STEP NO--UR/0079/70/040/003/0624/0526

CIRC ACCESSION NO--AP0124587

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124587

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFLUXING HSIET SUB3 WITH  
 1,PROPARGYLPIPERIDINE IN THE PRESENCE OF H SUB2 PTCL SUB6 CATALYST 10 HR  
 GAVE 27.4PERCENT ET SUB3 SICH:CHCH SUB2 R (I) (R EQUALS PIPERIDINO), B  
 SUB19 141-3DEGREES, N PRIME20 SUBD 1.4756, D PRIME20 0,8696. SIMILARLY  
 WAS PREPD. THE 1,PYRROLIDINYL ANALOG, B SUB3 131-2DEGREES, 1.4743,  
 0.8657, AND MORPHOLINO ANALOG, B SUB17 145-7DEGREES, 1.4765, 0.9155.  
 REACTION OF ET SUB3 SICL WITH BRMGC TRIPLE BOND CCH SUB2 R (R EQUALS  
 PIPERIDINO) GAVE 40PERCENT ET SUB3 SIC TRIPLE BOND CCH SUB2 R (III), B  
 SUB5 123-6DEGREES, 1.4782, 0.7891. HEATING 4.3 G PYRROLIDINE WITH 8.42  
 G 3,TRIMETHYLSILYL,1,CHLORO,2,PROPYNE IN C SUB6 H SUB6 WITH 6.1 G ET  
 SUB3 N 5 HR GAVE 38PERCENT ME SUB3 SIC TRIPLE BOND CCH SUB2 R (R EQUALS  
 1,PYRROLIDINYL) (III), B SUB48 98-100DEGREES, 1.4650, 0.8686.  
 TREATMENT WITH HCL-ET SUB2 O GAVE THE HCL SALTS OF: I, M. 157-9DEGREES;  
 II, M. 241.5-2.5DEGREES; III, M. 129.5-31DEGREES. FACILITY:  
 INST. ORG. SIN., RIGA, USSR.

UNCLASSIFIED

Acc. Nr:

AP0049783

Abstracting Service:

CHEMICAL ABST. 5170

Ref. Code:

2180409

100391h Chemistry of ethylenimine. IV. Heterolysis of the 1-aminoethylenimine ring under the action of sulfonyl halides. Hillers, S.; Eremeev, A. V.; Lidaks, M.; Festunovitch, V. *Zh. Khim. Fiz.* (Inst. Org. Sin., Riga, USSR). *Khim. Geterosikl. Soedin.* 1970, (1), 8-II (Russ). In the reaction of 1-aminoethylenimine (I) with  $RC_6H_4SO_2Cl$  (II), the aziridine ring was opened to give substituted 1-( $\beta$ -chloroethyl)-2-(phenylsulfonyl)hydrazines  $RC_6H_4SO_2NHNH(CH_2)_2Cl$  (III) as the main products. The structure of III was supported by NMR ir, and uv spectra, and synthesis. Slow addn. of 0.02 mole I in 10-15 ml abs. EtOH to a stirred soln. of 0.02 mole II in 10-15 ml abs. EtOH at  $-10^\circ$ , stirring 1 hr at  $-10^\circ$ , warming up to  $20-25^\circ$ , stirring 0.5-2 hr at that temp., filtering the ppt. in an inert atm., and drying in desiccator gave the following III [R and m.p. (EtOH) given]: H, 103-5 $^\circ$ ; p-Me, 200-1 $^\circ$ ; p-AcNH, 145-7 $^\circ$ . Satg. a soln. of 0.1 mole I in 50 ml abs. EtOH with dry HCl in an inert atm. at gradually elevated temp. from  $-30^\circ$  to  $20^\circ$  gave  $CICH_2CH_2NHNH_2 \cdot HCl$  (IV), m. 34-6 $^\circ$  (EtOH-Et<sub>2</sub>O). The reaction of IV with II catalyzed by NaOH also gave III. On standing at room temp., III slowly decompd. to deeply colored oils, in which the presence of N:N groups was proved by ir spectra. The hydrolysis of these oils gave PhSO<sub>3</sub>H. Similar changes were obsd. in the reaction of Br with III in EtOH soln. The oxidn. of III to azo compds. took place. V. Stepan

1/1

REEL/FRA  
19801701

27



USSR

UDC 541.183.24

MELESHKO, V. P., SHAPOSHNIK, V. A., ISAYEV, M. I., and PESTUSHKO, N. N.  
Voronezh Technological Institute

"Kinetics of Electrochemical Regeneration of Ion Exchange Resins"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 1, Jan 71, p 196

Abstract: Electrochemical regeneration of ion exchange resins is based on removal of the adsorbed ions by the action of electric potential gradient applied to it, and replacement of these ions by hydrogen or hydroxyl ions formed by electrode reactions. With high values of the applied potential gradient, the kinetics of the process is determined by the rate of removal of adsorbed ions from the resin. A simplified formula is proposed for calculation of the degree of regeneration:

$$Q = 1 - e^{-k\tau}$$

1/1

USSR

UDC 541.135.2 + 621.359.7

MELESHKO, V. P., ISAYEV, N. I., FESTUSKHO, N. P., DEREVYANKO, L. A.,  
TSYGUROVA, L. I., and BORISOVSKIY, I. V., Voronezh Technological  
Institute

"Electrochemical Regeneration of the Mixed Salt Forms of Anion Ex-  
changer AV-17"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 2, Feb 71, p 482

Abstract: Completeness of regeneration of mixed chloride and sulfate forms of the anion exchanger AV-17 was studied as a function of current density, time and the ratio of above ionic forms. It was shown that the chloride-form regenerates better than the sulfate form. When the current density applied was 15 ma/cm<sup>2</sup>, after 5 hrs of regeneration and Cl:SO<sub>4</sub> ratio 1:1, 32.5% of the Cl-form regenerated, and 30% of the SO<sub>4</sub>-form; with a 3:1 ratio of Cl:SO<sub>4</sub> the values were 34% and 31% respectively.

1/1

- 17 -

USSR

UDC 543.13.541.183

MELESHKO, V. P., ZOLOTAREVA, R. I., PESTUSHKO, N. N., and ISAYEV, N. I.,  
Voronezh Technological Institute

"The Question of the Sources of Regenerating Ions During Electrochemical  
Regeneration of Ion Exchange Resins"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 5, May 72, pp 1188-1190

Abstract: It has been shown that the ion exchange resins may be regenerated with hydrogen or hydroxyl ions forming on the interphases: ion exchange membrane -- solution, or ion exchange resin -- solution in the process of their polarization with current densities exceeding the threshold level. Maximal effect is achieved when the regeneration is a result of a combined action of two sources of regenerating ions: the electrode reaction and the process on the bipolar border or on the border between the membrane and solution. The degree of the regeneration of ion exchange resin alters down the electric field line of forces, increasing from the anode to cathode for the anion exchange resin and decreasing for the cation exchange resin regardless of the source of regenerating ions.

1/1

USSR

UDC 620.193.5

ZELENSKIY, V. F., PETEL'GUZOV, I. A., and FULIMOV, N. A., Academy of Sciences UKrSSR, Khar'kov Physico Technical Institute

"Oxidation of Magnesium and Metal Ceramic Mg-Be Alloys in Carbon Dioxide at 60 atm"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr 71, pp 132-136

Abstract: The oxidation resistance of magnesium and its metal ceramic alloys with beryllium (0.5-5% Be) is studied in carbon dioxide gas with varying moisture content at 60 atm pressure and 470-580° temperature. In carbon dioxide gas containing over 0.5-1.0% H<sub>2</sub>O, the magnesium and Mg-Be alloys are damaged by intercrystalline and intracrystalline oxidation and an increase in size resulting from penetration of hydrogen into the structure of the metal or alloy. Sublayers of metals which absorb hydrogen intensively increase the oxidation resistance of magnesium and Mg-Be alloys in moist CO<sub>2</sub>. Type MG-1 magnesium is oxidation resistant up to 580° for over 1,000 hours in carbon dioxide gas with moisture content 0.001-0.01% at pressures of up to 60 atm. Increasing the moisture content over 0.2% causes intercrystalline

1/2

USSR

ZELENSKIY, V. F., et al., Zashchita Metallov, Vol 7, No 2,  
Mar-Apr 71, pp 132-136

and intracrystalline oxidation. Mg-Be alloys resist oxidation for crystalline and intracrystalline oxidation. Mg-Be alloys resist oxidation for over 10,000 hours in carbon dioxide containing 0.1-0.2% H<sub>2</sub>O under the same conditions. Moisture contents of 2% and more cause the formation of a rough, flaking scale on the alloys.

2/2

18

USSR

UDC: 621.317.335

PETELIN, I. G.

"Measurement of the Relative Permittivity of Ferroelectric Ceramics in the Millimeter Wavelength Range"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 103-104 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A352)

Translation: The author presents the theory of a wave method of measurement based on excitation of electromagnetic oscillations in a specimen made in the form of a plate of rectangular cross section, and on measurement of field distribution with respect to the length of the specimen. The method was used for studying a VK-7 ferroelectric ceramic in the 8-10 mm range. One illustration, one table, bibliography of two titles. N. S.

1/1

USSR

UDC 612.822.3.0.87+612.766.1

CHUBAROV, A. V., and PETELINA, V. V., Special Design Bureau of Biomedical Cybernetics and Laboratory of Comparative Physiology and Pathology, Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Evaluation of Operator Work Capability From Electroencephalograms"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenova, Vol 57, No 3, Mar 71, pp 341-347

Abstract: In connection with the fact that the electrical activity of the brain is a generalized indicator of the state of the central nervous system, an attempt was made to study the possibility of qualitative determination of a person's work capability from electroencephalographic data. A special experimental method was developed by the authors in their study of seven healthy persons. The work of these operators consisted of restoring a light beam deviating from its vertical position to the marked center of an oscillographic screen. This was to be accomplished by means of a special device equipped with an indicator. The quality by which the task had been achieved was evaluated by the integral of the time discrepancy determining the operator error (in mm/sec) in terms of the discrepancy amplitude (mm) and the time ( $F = \int A dt$ ).  
1/2

USSR

CHUBAROV, A. V., and PETELINA, V. V., *Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova*, Vol 57, No 3, Mar 71, pp 341-347

In spite of the marked individual differences in motor reactions and a different level of tonic activity of the central nervous system in the test subjects, there was a pronounced constant relationship between the quality of task achievement and the background of electrical activity against which it is produced. The level of electrical activity was clearly indicated by a parameter P which related the average electroencephalogram amplitude and frequency. The F and P parameters were evaluated on a complex of analog computers. It was established that the value of F increases with increasing P. The conclusion was drawn that the most accurate and quickest task achievement was accompanied by the highest level of excitation of the cerebral cortex in combination with the effects of diencephalic parts of the reticular complex. In this way, the changes in the P parameter reflected short-term changes in the functional state of the higher portions of the cerebrum caused by phase effects of the diencephalo-reticular complex.

2/2

- 73 -



USSR

UDC 591.481.1:576.312

PETELINA, Ye. V., Department of Cytology and Histology, Leningrad State University imeni A. A. Zhdanov

"Afferent Endings in the Trapezoid Body Nucleus of the Dolphin"

Leningrad, Arkhiv Anatomii, Gistologii i Embriologii, Vol 64, No 5, 1973, pp 106-108

Abstract: This investigation studied the endings in the medial nucleus of the trapezoid body of the Black Sea dolphin, *Delphinus delphis*. The material for study was fixed in formaldehyde and then treated by the silver impregnation method. It was established that the afferent endings in the medial nucleus are formed by a thick myelinated fiber 5.5-6 microns in diameter which separates into a cluster of between 5 and 15 thinner fibers of the second order at a considerable distance (40-110 microns) from the cell body. Some of these fibers may also ramify and form "nest-type" interlacings. The fibers of the second order intersect and, as a result, approach different poles or processes of the neuron. The fibers of the third order also cross. Often the second-order fibers form spiral coils around the dendrites. When the cells have pronounced coils, the "nest" on the perikaryon is not distinct. The information gained from the

1/2

USSR

PETELINA, Ye. V., Arkhiv Anatomii, Gistologii i Embriologii, Vol 64, No 5, 1973, pp 106-108

investigation shows the great difference between dolphins and all other animals in the structure of terminal nerve apparatuses in the trapezoid body nucleus. The primary fiber may be the source of 15-20 terminal branches; we were unable to find a description of a similar structure for any other segment of the central nervous system.

2/2

- 60 -

USSR

UDC 62.357.13

PETENEV, O. S., IVANOVSKIY, L. Ye.

"Influence of Pulsed and Reversing Current on Purification of Zirconium of Hafnium During Electrolysis of Chloride-Fluoride Melts"

Tr. In-ta Elektrokhemii. Ural'sk. Nauch. Tsentr. AN SSSR [Works of Institute of Electrochemistry, Ural's Scientific Center, Acad. Sci. USSR], No 17, 1971, pp 127-130 (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 L356 by A. V. Dribinskiy).

Translation: The influence of pulsed and reversing current on the separation of Zr and Hf during electrolysis of chloride-fluoride melts is studied. It is shown that the use of reversing or pulsed current allows the separation factor to be increased by 2-3 times in comparison with constant current.

1/1

1/2 015 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--COPOLYMERS STUDIED FROM GELATION CURVES -U-

AUTHOR--(05)-PETERBURGSKAYA, L.D., BALAKIRSKAYA, V.L., KRONMAN, A.G.,  
SVETUZARSKIY, S.V., KOCHNEVA, N.N.  
COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 9-11

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--COPOLYMER, GELATION, PLASTICIZER, POLYVINYL CHLORIDE,  
ACRYLATE, PHTHALATE, LATEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1992/1823

STEP NO--UR/0191/70/000/003/0009/0011

CIRC ACCESSION NO--AP0112607

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112807

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GELATION CURVES MAY BE USED TO DET. CONTENT AND HOMOGENEITY OF SIMILARLY PREPD. COPOLYMERS BY DETG. TEMP. BEHAVIOR IN PLASTICIZERS. GELATION CURVES FOR POLYVINYL CHLORIDE (I) AND ME ACRYLATE (II) VINYL CHLORIDE (III) COPOLYMERS (IV), PREPD. BY (NH SUB4) SUB2 S SUB2 O SUB88 CATALYZED EMULSION POLYMN., IN BU BENZYL PHTHALATE PLASTICIZER DIFFERED WITH CONTENT OF II. THE TEMPS. OF SWELLING AND OF SOLN. DECREASED LINEARLY WITH INCREASE IN COMONOMER (II OR VINYL ACETATE (V)) CONTENT SO THAT COMPS. OF NEW COPOLYMERS CAN BE DETD. FROM SUCH CURVES. A MIXT. (A) OF I WITH IV SHOWED THE CHARACTERISTIC VISCOSITY MAX. OF IV AND I AND THE GELATION CURVE OF A WAS BROADER THAN THAT OF I. GELATION CURVES OF III-V COPOLYMERS PREPD. BY 3 DIFFERENT METHODS (DISPERSION, LATEX, AND SOLN. POLYMN.) DIFFERED BY SWELLING TEMPS. AND SOLN. TEMPS. AND IN WIDTH (DISTANCE FROM EACH OTHER).

1/2 033

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--TERPOLYMER OF FLUORO SUBSTITUTED STYRENES WITH STYRENE AND WITH DIENES -U-

AUTHOR--(05)--ANISIMOVA, V.V., GORSHKOVA, I.A., DOKUKINA, A.F., PETERKIN, B.D., SMIRNOVA, Z.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 256-8

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYMERIZATION, FLUORINATED ORGANIC COMPOUND, STYRENE, DIENE, ISOPRENE, COPOLYMER, ELASTICITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/0780

STEP NO--UR/0153/70/013/002/0256/0258

CIRC ACCESSION NO--AP0124449

UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124449

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE OF COMONOMER MIXT. COMPN. ON THE COMPN. AND PROPERTIES OF THE TITLE TERPOLYMERS WAS STUDIED. EMULSION OR BULK POLYMN. OF STYRENE (I), BUTADIENE (II) OR ISOPRENE (III), AND P PHC SUB6 H SUB4 CF:CF SUB2, PHCF:CF SUB2 (IV), C SUB6 F SUB5 CME:CH SUB2, PHCF: CFCL, OR RPHC SUB6 H SUB4 CF: GAVE 12 HIGH MOL. WT. TERPOLYMERS, IN 17.9-72.4PERCENT YIELDS, WHOSE FLUOROSTYRENE CONTENTS (05.-24PERCENT) WERE SIGNIFICANTLY LOWER THAN THOSE IN THE ORIGINAL MONOMER MIXT. (3.66-49-82 MOLE PERCENT). EMULSION POLYMN. OF A I-II-III MIXT. AND BULK POLYMN. OF I, III, AND C SUB6 F SUB5 CH:CH SUB2 DID NOT GIVE TERPOLYMERS. REACTIONS WITH ISOPRENE REQUIRED SIMILAR TO 4 TIMES LONGER. THE HIGHER THE II CONTENT OF A TERPOLYMER, THE HIGHER ITS MOL. WT. TERPOLYMER CONTG. GREATER THAN 20PERCENT II WERE RUBBERS; FILMS CAST FROM BENZENE SOLN. WERE MORE ELASTIC THAN THOSE OF COPOLYMERS NOT CONTG. II. FACILITY: LENINGRAD. POLITEKH. INST. IM. KALININA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--ON THE THRESHOLD BEHAVIOUR OF THE CROSS SECTION FOR IONIZATION OF  
ATOMS BY ELECTRONS -U-  
AUTHOR-(02)-PETERKOP, R.K., TSUKERMAN, P.B.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,  
NR 2, PP 699-705  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--IONIZATION CROSS SECTION, ELECTRON BOMBARDMENT, EXCITATION  
ENERGY, NUMERIC SOLUTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1976/2069 STEP NO--UR/0056/70/058/002/0699/0705  
CIRC ACCESSIGN NO--AP0043596  
UNCLASSIFIED



2/2 025

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0043596  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACCORDING TO WANNIER'S THEORY THE  
 DIMENSION OF IONIZATION REGIONS IN THE INITIAL CONDITION SPACE DECREASES  
 IN THE THRESHOLD BY ONLY ONE. THEREFORE FOR VERIFICATION OF THE  
 THRESHOLD LAW IT SHOULD BE SUFFICIENT TO INVESTIGATE THE VARIATION OF  
 THE LINEAR SIZE I.E. SOLVE PROBLEMS WITH A SINGLE VARIABLE PARAMETER IN  
 THE INITIAL CONDITIONS. NUMERICAL CALCULATIONS OF THE CLASSICAL  
 IONIZATION CROSS SECTION ARE CARRIED OUT FOR A MODEL OF THIS TYPE. THE  
 RESULTS OBTAINED CONFIRM THE WANNIER FORMULA (SIGMA SIMILAR TO E  
 PRIME1.127). IT IS ALSO FOUND TO BE VALID FOR A TOTAL ORBITAL MOMENTUM  
 L GREATER THAN 0. CONTEMPORARY EXPERIMENTAL DATA ARE DISCUSSED.

UNCLASSIFIED

USSR

UDC 576.858.75.083.35:576.858.75.095.383

TIMAKOV, V. D., ZUYEV, V. A., and PETERS, V. V., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences, Moscow

"Latent Infection of Cell Cultures Not Sensitive to the Cytopathic Effect of a Virus. 1. Reaction of L Cell Cultures to Infection With Influenza Virus Type A"

Moscow, Voprosy Virusologii, No 3, May/Jun 71, pp 281-185

Abstract: Influenza A viruses (WSN, PR8) do not reproduce in L cells and do not produce any cytopathic effect; rather, they exert a stimulating effect. The study of the properties of L cells was undertaken to ascertain differences between intact and infected cells. In particular, the capability of L cells to adsorb WSN virus and to maintain replication of the latter was studied. It was found that L cells can adsorb 90-95% of the virus. As a rule, intact L cells did not maintain replication of WSN and PR8 influenza viruses, as shown by results obtained from a study of the infectious and hemagglutinin titers. However, differences were found between intact and infected L cells as far as their proliferation patterns and mitotic indices were concerned. WSN-infected L cells had four times the mitotic index of normal cells. The observed changes are of hereditary character. WSN-infected L cells retained a high resistance to inoculation with homologous and unrelated viruses

1/2

USSR

TIMAKOV, V. D., et al., *Voprosy Virusologii*, No 3, May/June 71, pp 281-285

(for instances herpes). The possibility of a latent virus carrier state in such cells is discussed. It was concluded that infection of insensitive cells by a virus leads to a change in some cellular properties of hereditary character, which is particularly important for the possible formation of a latent form of viral infection in such cells. This is confirmed by data on the increased dimensions of cells and nuclei during the viral transmission process, as well as by the enhanced vital capacity of such cells.

2/2

- 21 -

USSR

ZUYEV, V. A., ISAYEVA, Ye. A., PETERS, V. V., and MIRCHINK, Ye. P., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences, USSR

"The Ability of the Viruses of Smallpox Vaccine and Fowl Plague of Birds to Form Plaques Under a Semiliquid Methylcellulose Cover"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, p 491

Translation: A cover medium containing methylcellulose was used to study the ability of vaccinia viruses and fowl plaque virus of birds to form plaques. After 48-72 hours of inoculation, the viruses form distinct macroplaques with a diameter of 1.5-2.5 mm. The method requires no concentrated media, is easy to perform, and yields reproducible results.

1/1

- 49 -

USSR

PETERSEN, I. F.

"Identification and Optimization by Smoothing"

Tr. IV. Vses. Soveshch. po Avtomat. upr., 1968. Teoriya Avtomat. upr. [Works of Fourth All-Union Conference on Automatic Control, 1968. The Theory of Automatic Control], Moscow, Nauka Press, 1972, pp 154-160, Discussion 256-262 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V281 by the author).

Translation: The problem is studied of identification of nonlinear functional  $\phi(x)$  in metric space  $X$  on the basis of a finite number of results of measurements of  $\phi(x)$  with noise. An estimate of  $\phi(x)$  is defined which is linear as a result of measurements which are unbiased and have minimum mean square error. The method of identification described is applied for the construction of a gradient method of estimation of the stable point of an unknown functional in a finite-dimensional Euclidian space.

1/1

USSR

UDC 519.281

PETERSEN, I. F.

"Method of Reproducing Kernels and Identification of Polynomials on a p-dimensional Sphere"

Identifikatsiya [Identification -- Collection of Works], Moscow, Nauka Press, 1970, pp 3-11 (Translated from Referativnyy Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V137 by A. Barybain).

Translation: Let  $Q$  be a certain compact set in a p-dimensional Euclidian space and  $F$  be a certain class of functions continuous in  $Q$ . At  $N$  points of a certain sequence of points  $x_1, \dots, x_N$  of set  $Q$ , values of the unknown function  $f(x) \in F$  are fixed with additive non-correlated random errors

$$Z_i = f(x_i) + n_i, \quad Mn_i = 0, \quad Mn_i n_k = \sigma^2 \delta_{ik},$$

where  $\delta_{ik}$  ( $i, k = 1, \dots, N$ ) is the Kronecker symbol. This work solves the problem of estimating any function  $f \in F$ ,  $x \in Q$  on the basis of values  $z_1, \dots, z_N$ . In order to solve this problem, the theory of reproducing nuclei, theory of cubature formulas and the theory of optimal continuous planning of regressive experiments

1/2

- 19 -

USSR

UDC 519.281

PETERSEN, I. F., Identifikatsiya, Moscow, Nauka Press, 1970, pp 3-11

are used. The estimate  $\hat{f}_N(x)$  of function  $f \in F$ , using the values of  $Z_i$  at points  $x_i (i = 1, \dots, N)$  has the form

$$\hat{f}_N(x) = \sum_{i=1}^N c_i K(x, x_i) Z_i,$$

where  $K(x, x_i)$  is the reproducing kernel of class  $F$  with respect to measure  $\xi(dx)$ . The properties of the estimate  $\hat{f}_N(x)$ , are studied, if points  $x_i$  are either deterministic or random, independently (among themselves and of measurement errors) distributed points of set  $Q$  with distribution  $\xi(dx)$ . Cases are presented when the estimates  $\hat{f}_N(x)$  correspond with the estimate of least squares. The maximum dispersion of estimate  $\hat{f}_N(x)$  in identification of a polynomial of power  $d$  of  $p$  variables is indicated, if  $Q$  is a  $p$ -dimensional sphere.

2/2

PETERSON, D. Ye.

SPRS 60034  
27 NOVEMBER 1973

CURRENT COEFFICIENTS OF A CONDUCTION MAGNETOHYDRODYNAMIC CONVERTER CONSIDERING THE H-SHAPE OF THE VELOCITY PROFILE  
[Abstract of a Paper by Yu. A. Birsault, D. Ye. Peterson Given at the Magneto-hydrodynamic Conference, pp 137-138]

The shape of the velocity profile predicted by Shercliff [1] was investigated in reference [2] for the case of nonconducting channel walls. In the paper, the same problem was solved for the condition of  $\phi = \text{const}$  on electrodes (Figure 1), which corresponds to the magnetohydrodynamic channel operating in the pump mode (for  $U_0 > E - v_0 b$ ) or a generator (for  $U_0 < E - v_0 b$ ). The solution of the problem turned out to be qualitatively similar to the results of reference [2]: in the liquid, vorticity occurs and the H-configuration of the velocity profile connected with this (Figure 1). The vorticity factor  $\eta_{\text{alt}}$  is smaller, the larger  $k_u = U_0/v_0$ , that is, in the pump mode H-configuration of the profile, is expressed more sharply than in the generator mode. Accordingly, the coefficients  $F_{1k}$  ( $k = 1, 2$ ) also depend on  $k_u$  (Figure 2; here  $k_g = k/b = 2$ ), and the primary equations of the magnetohydrodynamic channel [1] acquire the form (1 — the channel feed current,  $I_0$  — the operating current):

$$I_0/c_0 = \eta_{11} U_0 - \eta_{12} E = (\eta_{11} - \eta_{12}) U_0 - \eta_{12} E \quad (1)$$

where  $\eta_{11} = \eta_{11}^0 + \eta_{11}^1 k_u$ ,  $\eta_{12} = \eta_{12}^0 + \eta_{12}^1 k_u$  (Figure 2). Consequently, for the linear dependence of  $\eta_{12}$  and  $\eta_{11}$  on  $k_u$ , the equations of the magnetohydrodynamic converter remain linear (1), but in them the principle of duality does not remain in effect ([3], equation (6)); [4], pages 418-419];  $\eta_{12}^0 \neq \eta_{11}^0$ ,  $\eta_{12}^1 \neq \eta_{11}^1$ . This leads to the fact that, in particular, the maximum efficiency in the pump and generator modes turn out to be different.

In Figure 2 for comparison we also have the calculus values of  $\eta_{11} = 2.441$  (indicated by the circles) and  $\eta_{12} = \eta_{11} - \eta_{01}$ ,  $\eta_{22} = \eta_{21} + \eta_{02}$  borrowed



USSR

UDC 615.779.932+541.697

PETERSON, I. O., KASTRON, Ya. A., VEYNBERG, G. A., and KIMENIS, A. A., Order of Labor Red Banner Institute of Organic Synthesis, Academy of Sciences Latvian SSR

"Acute Toxicity of Some Semisynthetic Nitrofurans and Furan Penicillins"

Riga, Izvestiya Akademii Nauk Latvyskoy SSR, No 7(276), 1970, pp 111-114

Abstract: To determine their toxicity, 23 penicillins were administered intraperitoneally to white mice. With the exception of 2-furyl-penicillin and beta-(2-furyl) ethylene-penicillin, all of the compounds were 2-12 times more toxic than benzylpenicillin. Certain of the nitrofurans and furan compounds have a toxicity level comparable to that of furazolin, solafur, or furagin (furazidine). The other penicillins are less toxic than the nitrofurans derivatives. The presence of a nitro group appears to have only a slight effect on the toxicity of these compounds, however.

1/1

PETERSON, D.P.

*Medicine / Virology*

SO: SPRS 53872  
02 JUNE 91

UDC: 576.858-001.5(47) "1969-1970"

PRINCIPAL RESULTS OF SCIENTIFIC RESEARCH IN 1969-1970 ON A PROBLEM OF NATIONAL IMPORTANCE: GENERAL VIROLOGY

*Microbiology / Virology*

Article by O.P. Peterson, A.I. Danilov, Ye.N. Kabanovitch, Moscow; Hoscow, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 4, April 1971, pp 61-601.

In our country 22 scientific institutions are involved in development of the problem of "general virology." In this survey we discuss a number of works performed in 1969 and in the first quarter of 1970.

Greatest advances were made in the study of synthesis of viral particles and components thereof. Work in this field was done on a high, modern methodological level and resulted in a series of acquired data. For example, at the Institute of Virology USSR ANS (Academy of Medical Sciences) replicative forms of RNA were discovered and investigated, which are formed upon reproduction of three viruses: Sendai, Newcastle disease, and Venezuelan encephalomyelitis. These data constitute a substantial supplement to the hypothesis of universality of the process of formation of double-stranded and multistranded intermediate forms of RNA upon replication of animal virus RNA.

There were some unique investigations dealing with the coding functions of viral genetic material in Sendai parainfluenza. It was demonstrated that viral ribonucleoprotein penetrates into the cell and in the cytoplasm it associates with polyosomes and codes virus-specific proteins. These data were confirmed in experiments in an cellular system, in which a study was made of the coding properties of viral RNA and RNP. The results obtained disclose wide possibilities for solving a series of basic problems, in particular the problem of whether this phenomenon extends to other viruses. In particular the problem of whether this phenomenon extends to other viruses, does the protein of ribonucleoprotein play a specific role in realization of information deposited in nucleic acid, and others.

Some interesting work was done with regard to investigation of virus-induced synthesis in the mitochondrial-microsomal fraction in an extracellular system (model: VEE abortus virus). It was demonstrated that this fraction, obtained from infected cells, which has a high level of RNA polymerase activity synthesizes in vitro RNA of both the cellular and viral type.

610274  
610274

USSR

UDC 576.858.75.097.22:615.332

KANTOROVICH, YE. N., CHEBURKINA, M. V., and PETERSON, O. P., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Partial Incorporation of Influenza Virus RNA into an RNA-ase-Resistant Form, and the Effect of Actinomycin D on This Process"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 72, pp 405-408

Abstract: Chick embryo cells were infected with influenza A virus, strain WSN and then labeled with uridine- $H^3$  so that the fate of virus RNA could be traced and the effect of actinomycin D on this fate could be revealed. It was found that about 20% of the parental RNA becomes incorporated into an RNA-ase-resistant form 4-6 hours after infection. Actinomycin D had no effect on adsorption and elution of the virus, but it completely inhibited transition of parental RNA into the RNA-ase-resistant form. Apparently the drug does not degrade virus RNA. Instead it appears to inhibit either the formation of RNA strands complementary to the parental template, or the combination of such strands into the RNA-ase-resistant form.

1/1

1/2 012

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--ON STUDIES OF THE INDUCTOR OF DEPROTEINIZATION ENZYME OF VACCINIA  
VIRUS NUCLEOCAPSID -U-

AUTHOR--(02)-PETERSON, O.P., KOZLOVA, I.A.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 156-161

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VIRUS, ENZYME ACTIVITY, NUCLEIC ACID, PROTEIN, TRYPSIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0744

STEP NO--UR/0402/70/000/002/0156/0161

CIRC ACCESSION NO--AP0108950

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108950

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE EFFECT OF DIFFERENT PROTEOLYTIC ENZYMES ON THE INFECTIVE PROPERTIES OF VACCINIA VIRUS AND SOME FEATURES OF INDUCTION OF DEPROTEINIZATION FACTOR WAS STUDIED. ENZYMES SUCH AS TRYPSIN, CHEMOSTRYPSIN, CARBOPEPTIDASE WERE SHOWN TO CAUSE DIGESTION OF SOME QUANTITY OF VIRUS PROTEIN WITHOUT, HOWEVER, ANY LOSS OF THE INFECTIVE PROPERTIES AND WITHOUT DESTRUCTION OF THE CAPACITY OF VIRIONS TO INDUCE IN CELLS A FACTOR HELPING RELEASE OF VIRUS NUCLEIC ACID. PRONASE CAUSED MORE INTENSIVE DESTRUCTION OF VIRUS PROTEIN WHICH RESULTED IN A MARKED REDUCTION OF INFECTIVE PROPERTIES AS WELL AS THE CAPACITY TO INDUCE THE ENZYME OF DEPROTEINIZATION IN CELLS. USE OF LARGE DOSES OF THE ENZYME RESULTED IN A REDUCTION OF REACTIVABILITY OF THE TREATED VIRUS. THE REPRODUCTIVE CAPACITY OF THE VIRUS APPEARED TO BE ASSOCIATED WITH DEEPLY LOCATED PROTEIN STRUCTURES OF THE VIRION. IT CANNOT BE EXCLUDED THAT THE PROTEIN INDUCING THE "UNDRESSING" ENZYME IS LOCATED NOT IN THE EXTERNAL MEMBRANE OF THE VIRION BUT IN NUCLEOID MEMBRANE.

UNCLASSIFIED

USSR

UDC 576.858.095.383:576.312.31

BEREZINA, O. N., SKLYANSKAYA, Ye. I., SEMENOVA, N. P., and PETERSON, O. P.,  
Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences,  
Moscow

"Changes in the Matrix Activity of Chromatin in Response to Viral Infection"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, pp 397-402

Abstract: The matrix activity of DNP preparations was determined in the RNA-polymerase system in vitro. The tests were performed on 10-day old chick embryos infected with  $3 \times 10^3$  ID<sub>50</sub> of A/WSN influenza virus and with  $3 \times 10^7$  ID<sub>50</sub> of vaccinia virus. Control tests showed that the presence of DNA matrixes, magnesium ions, and ribonucleoside triphosphates was required for RNA synthesis. The DNP matrix activity decreased to 60% of the control level early in the course of infection with either pathogen. The development of the infection was accompanied by inhibition of the euchromatin complex in the cell genome and stimulation of the heterochromatin complex. Inhibition coincided with a decrease in the concentration of RNA and of residual proteins in the DNP preparations, while an increase in the concentration of these components coincided with stimulation of matrix activity.

1/1

USSR

UDC 576.858.43

BEREZINA, O. N., SKLYANSKAYA, Ye. I., KOZLOVA, I. A., PETERSON, O. P., and ZHDANOV, V. M., Academician, Academy of Medical Sciences USSR

"Electrophoretic Separation of the Principal Proteins from Cells Infected with Different Viruses"

Moscow, Doklady AN SSSR, Vol 190, No 5, 1970, pp 1225-1228

Abstract: Changes in the synthesis of total histones and their fractions in nuclei of infected cells and in desoxyribonucleic acid complex were studied. The dynamics of accumulation and of changes in principal cytoplasm protein was studied also. One hour after infection the number of protein bands increases, most with moderate electrophoretic mobility. After 3 hrs, additional slow-moving bands appear, and this increase continues for 5 hrs. After 7 hrs, the protein bands begin to disappear, but various minor bands appear. Analogous results were observed 24 hrs after infection with pox vaccine, some increase with influenza virus, and no change in protein bands with Herpes virus. After 48 hrs, no increase in the protein bands was noted. The results obtained correspond to the dynamics of accumulation of viruses in chick embryo tissue. Four histone fractions were isolated from infected tissues: lysine-rich histones -  $f_1$ , relatively lysine-rich fractions  $f_{2a}$ ,  $f_{2b}$ , and a fraction rich in arginine -  $f_3$ . Electrophoretic analysis of individual fractions showed that a continuous disappearance of lysine-rich fractions

2/2

HEREZINA, O. N., et al., Doklady AN SSSR, Vol 190, No 5, 1970, pp 1225-1228  
(F<sup>1</sup>) occurs in cells infected with the pox virus and influenza vaccine, while in  
fractions F<sup>2a</sup> and F<sup>2b</sup>, additional principal and minor bands appear. The arginine-  
rich fraction in the infected material does not differ from that in controls.

USSR



1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ELECTROPHORETIC SEPARATION OF BASIC PROTEINS OF CELLS INFECTED WITH  
DIFFERENT VIRUSES -U-  
AUTHOR--(05)-BEREZINA, O.N., SKLYANSKAYA, YE.I., KOZLOVA, I.A., PETERSON,  
O.P., ZHDANOV, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1225-8 VIROL  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ELECTROPHORESIS, SMALLPOX, VACCINE, INFLUENZA VIRUS, HERPES  
SIMPLEX VIRUS, TISSUE CULTURE, PROTEIN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/0704 STEP NO--UR/0020/70/190/005/1225/1228  
CIRC ACCESSION NO--AT0122790

UNCLASSIFIED

2/2 021

.UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0122790

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTROPHORESIS IN POLYACRYLAMIDE GEL WAS USED TO FRACTIONATE CHICK FIBROBLAST CULTURES GROWN ON MATRICES WITH ADDN. OF BULL SERA OR ON TISSUES FROM 11 DAY CHICK EMBRYOS. THE INFECTION WAS INTRODUCED INTO ALLANTOIDAL SPACE AND EMPLOYED THE VIRUS MATERIAL OF SMALLPOX VACCINE, INFLUENZA, OR HERPES. THE TYPICAL ELECTROPHOREGRAMS WERE SHOWN FOR THE TREATED CULTURES; THE CHANGES IN THE ACCUMULATION OF BASIC PROTEINS VARY WITH DURATION OF THE EXPT. WITHIN 1 HR OF INFECTION TO NO. OF SEPD. PROTEINS INCREASES MAINLY IN THE GROUP OF MEDIUM ELECTROPHORETIC MOBILITY; WITHIN 3 HR, PROTEINS WITH SLOW MOBILITY APPEAR AND BY 5 HR THE BASIC PROTEIN FRACTIONS EXCEED THOSE OF THE CONTROLS BY A FACTOR OF 4 OR MORE; BY 709 HR THE NO. OF DISTINCT PROTEIN ZONES DECLINES, BUT MINOR ZONES APPEAR AT THE SAME TIME. THE INCREASED TOTAL AMOUNT OF BASIC PROTEINS IS CAUSED BY INCREASED FRACTIONS OF HISTONES WITH MODERATE LEVELS OF LYSINE; IT IS PROBABLY THIS PROTEIN FRACTION THAT IS CONNECTED WITH THE INHIBITING ACTIVITY OF BASIC CYTOPLASM PROTEINS.

UNCLASSIFIED

AA0040707

Pet'k, A.S.

UR 0482

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

235786 REFINED MOLTEN SLAG is ignited by a cartridge containing aluminium and magnesium together with nitre and ferrous oxides, in conjunction with a ni-chrome filament coil at the base which contacts the most flammable part of the slag mix. These cartridges are placed at the base of the ladle, and their ends led out for firing electrically at the correct moment. The cartridge ignites and with it the entire exothermic mix in the ladle. 100-150 kg mix burns in 5-8 minutes and gives refined slag at 1350-1450°C. Combustion products are exhausted clear of the shop. 23.11.66. as 1115027/22-2. KRUPMAN, L.I et al. Donetsk Ferrous Metals Inst. (12.6.69.) Bul.6/24.1.69. Class 18b. Int.Cl. C21c.

2

18

19750341

AA0040707

AUTHORS: Krupman, L. I.; Sochnev, A. Ye.; and Petik, A. S.

Donetskiy Nauchno - Issledovatel'skiy Institut  
Chernoy Metallurgii

19750342

Nuclear Science and Technology

USSR

UDC 669.296:5:621.039.5

ANDREYEVA, A. B., BELOKOPYTOV, V. S., VOTINOV, S. N., DEREZIZOV, M. D.,  
PETIN, B. P., PAKHOMOV, Z. I.

"Study of Fuel Assemblies of the VK-50 Boiling Reactor"

Radiatsion. fiz. tverd. tela i reaktornoye materialoved. -- V sb. (Radiation  
Solid State Physics and Reactor Material Science -- collection of works),  
Moscow, Atomizdat Press, 1970, pp 208-212 (from RZh-Metallurgiya, No 4, Apr  
71, Abstract No 41842)

Translation: The results of studying the fuel assemblies of a boiling re-  
actor after operation in the reactor core for 5,000 hours are described.  
The fuel element cores are briquettes of sintered  $UO_2$  with 2% enrichment.  
The can material was Zr + 1% Nb alloy, and the jacket material was Zr + 2.5%  
Nb alloy. A significant amount of the hydride phase was detected in the cans  
of ruptured fuel elements in defective places. The article contains 1 illus-  
tration and a 4-entry bibliography.

1/1

PETIN, V. G.

50: JPR3 55100

4 Feb 72

UDC 582.282.23.037:629.78.048

Article by V. I. Koropov, V. G. Petin, G. A. Naddson and G. S. Pilyay, *Trudy Vsesoyuznogo Nauchno-Issledovatskogo Instituta Meditsinskoy Genetiki*, Moscow, 1971, No. 1, pp. 1-14, 147-148.

Abstract: During the flight experiment genetic stability of yeast cells *Saccharomyces stiposides*, strain Hg31-139-B, was studied by registering saltant colonies, qualitative or quantitative differences between flight and ground samples were found with respect to changes in salt emergence frequency or morphology.

G. A. Naddson and G. S. Pilyay, by exposure of the mold fungus *Mucor genevensis* to X-rays, were able to obtain strains of these microorganisms during vegetative reproduction. Later, in papers on the formation and study of new strains, G. A. Naddson and his colleagues used primarily yeast cells. The strains obtained by using ionizing radiations were called radiostrains by these authors.

In obtaining radiostrains they irradiated either an aqueous suspension of yeast cells with their subsequent seeding on agarized must or on a medium among the growing colonies. It was possible to discover colonies containing modified sectors or sectors completely changed in comparison with the control. These colonies also served as initial material for separating radiostrains by means of their repeated rearing.

Thus, radiostrains of several types were obtained. They differed from the initial strains in size, shape and color of the colonies, size and shape of the cells, rate of growth, intensity of fermentation, etc. Many radiostrains retained their properties over the course of ten and sometimes hundreds of rearings. On this basis G. A. Naddson was inclined to classify them as mutants, but later as "saltants," thereby endeavoring to emphasize that the nature of the hereditary changes leading to the appearance of radiostrains is unknown.

USSR

UDC 577.891:663.19/14

PETIN, V. G. and MYASNIK, M. N., Scientific Research Institute of Medical Radiology, Academy of Medical Sciences USSR, Obnisk

"Analysis of Using Alpha-Particles for Suppressing Recovery of Bacterial Cells"

Moscow, Radiobiologiya, Vol 12, No 1, Jan/ Feb 72, pp 85-91

Abstract: A detailed analysis is made of the seven "facts" constituting radiobiological evidence for the role of recovery processes in the radio-resistance of bacterial cells. This system of evidence was based on a hypothesis that alpha irradiation suppresses reparative systems in cells. The concept was based on the correlation between recovery processes registered biochemically on the molecular level and the radiosensitivity of cells. A careful analysis of experimental data revealed that this evidence is either artificial, arising from methodological errors, or the result of insufficiently critical analyses. The original hypothesis about alpha-particles is proved incorrect. The authors mention that there is no literature to assess correctly the role of postradiation recovery in microorganisms' sensitivity to radiation with differing linear energy losses.

1/1

USSR

UDC 621.382.82

GORYUSHEIN, M. I., ZAIKA, V. V., KEREMESHER, I. P., LYAKHOVICH, V. V.,  
PETH, Yu. A., SEMENOVA, N. V.

"Integrated Circuit of a Low-Frequency Amplifier Based on MOS Transistors"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic  
Technology. Scientific and Technical Collection. Microelectronics),  
1971, vyp. 1(27), pp 14-19 (from RZh-Radiotekhnika, No 8, Aug 71,  
Abstract No 8591)

Translation: The paper describes integrated amplifiers with high input impedance which can be realized on the basis of MOS transistors which ensure high input impedance, temperature stability of high input impedance, high packing density and low power consumption. Resumé.

1/1

- 85 -



USSR

UDC 621.396.6-181.5

GORYUSHKIN, M. I., KRYLOVA, I. A., PETIN, Yu. A., SEMENOVA, W. V.,  
USTILKO, V. Ye.

"Combining MOS and Bipolar Transistors in Integrated Circuits"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic  
Technology. Scientific and Technical Collection. Microelectronics),  
1971, vyp. 1(27), pp 33-38 (from RZh-Radiotekhnika, No 8, Aug 71,  
Abstract No 8v246)

Translation: The authors consider the possibilities of developing com-  
bination integrated elements based on MOS and bipolar transistors.  
Circuit characteristics may be appreciably improved by combining these  
devices in integrated circuits. The special technological character-  
istics of making integrated circuits combining MOS and bipolar tran-  
sistors are described, and it is shown that the processes of making  
them are compatible. The characteristics of P-channel MOS and NPN  
bipolar transistors are presented for units made under compatible con-  
ditions on N-type epitaxial films with insulating junctions. Resumé.

1/1

- 98 -

Recorders and Transducers

USSR

UDC: 621.382.2

SUKHANOV, S., ~~PETINOV, V. P.~~, Physicotechnical Institute,  
Academy of Sciences of the Turkmen SSR

"Investigation of a Two-Channel Reproducer Based on a Hall  
Element"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR: Seriya  
Fiziko-Tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk,  
No 6, 1971, pp 23-29

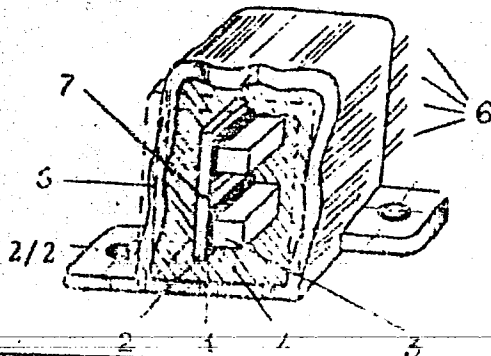
Abstract: The paper gives a description and the basic characteristics of a two-channel playback head based on an indium antimonide Hall element. The design of the device is shown in the accompanying figure. The base half of the magnetic circuit consists of two plates measuring 4 x 3 x 2 mm cemented together by EKS-1 adhesive so that the resultant plate measures 8 x 3 x 2 mm. The closing plates for each channel are separate with dimensions determined by the active section of the Hall elements -- 2.3 x 1.5 x 2 mm. After the Hall element is cemented to the ferrite base, it is ground off to a thickness

1/2

USSR

SUKHIANOV, S., PETINOV, V. P., IAN TurkmSSR: Ser. Fiz.-Tekhn.,  
Khim. i Geol. Nauk, No 6, 1971, pp 23-29

of a few microns. The thickness of the Hall element and the width of the working gap are checked by microscope. After potting with epoxy resin, the working surface of the head is machined. Tests show that the semiconductor head has satisfactory parameters and certain advantages over other types of reproducers. The parameters of the head can be improved by effective utilization of the magnetic system and the Hall element, and by improved manufacturing techniques. The resolution of the unit could be increased by finishing the working gap to a width of 2 microns or less. Four figures, three tables, bibliography of four titles.



1--Hall element; 2--Main ferrite; 3--  
Closing ferrite; 4--Epoxy resin; 5--  
Shield; 6--Connecting leads; 7--  
Nonmagnetic gap.

Recorders and Transducers

USSR

UDC 621.382.2

SUKHANOV, S., PETINOV, V. P.

"Study of a Two-channel Hall Element Reproducing Head"

Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Fiziko-tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk, No 6, 1971, pp 23-29

Abstract: A study was made of a two-channel InSb Hall element reproducing head. The design of the head and the process of manufacturing it are discussed. A two-channel transistorized amplifier to amplify the output signal of the head to the required value is also described. The results of testing the head under operating conditions are presented in a table, and its operating characteristics are discussed. The method of joint manufacture of the Hall element and the magnetic circuit was used in building the two-channel magnetic head. The magnetic material used for the magnetic circuit was ferrite, and the semiconductor material for the Hall element plate was indium antimonide. The amplifier was executed according to a symmetric circuit and encompassed deep negative feedback. Stabilization of the amplifier parameters was achieved by including resistors in the emitter circuit which improved the frequency characteristic by decreasing the dynamic capacitance.

1/2

USSR

SUKHANOV, S., et al, Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Fiziko-  
tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk, No 6, 1971, pp 23-29

Two identical amplifiers on separate boards combined into a common unit are required for the two-channel head. InSb with  $n = 7.8 \cdot 10^{16} \text{ cm}^{-3}$  was used in the Hall element to expand the temperature range. The Hall element operates stably up to  $40^\circ \text{C}$ . The head has satisfactory parameters and some advantages over heads of other types. The resolution can be expanded by making the width of the operating gap 2 microns and less.

2/2

- 69 -

USSR

UDC 632.954:633.11

PETINOVA, A. A., KAZARINA, YE. M., YAKUBTSOV, S. I., All-Union  
Scientific Research Institute of Plant Protection

"Resistance of 'Diamant' and 'Zarya' Strains of Spring Wheat to  
Various Herbicides"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 10 (84), Oct 70,  
pp 46-49

Abstract: The article is a report on an investigation of the resistance of "Diamant" and "Zarya" strains of spring wheat to herbicides with various types of action applied for three consecutive years (1966-1968). The wheat was treated in the tillering stage with contact herbicides (dinitro-0-cresol, nitraphene, ioxinyl and bromoxinyl) and systemic herbicides (2,4-D, 2M-4Cl, 2,3,6-TB, 2M-4ClM, 2,4-DM, 2M-4ClP and 2,4-DP). The resistance of the grain to the herbicides was determined by plant weight in the early stages, and by grain harvest, protein and starch content and seed quality in later stages. Differences in reactions of the wheat strains to the herbicides were most pronounced in the first days after spraying. The "Zarya" strain proved to be less susceptible to contact chemicals, while the "Diamant" strain was more resistant to systemic herbicides.

USSR

PETUNOVA, A. A., et al. Khimiya v Sel'skom Khozyaystve, Vol 8, No 10 (84), Oct 70, pp 46-49

(especially 2,4-D). Of the contact chemicals, ioxinyl had the least effect on wheat. "Zarya" wheat was more resistant to derivatives of phenoxypropionic and phenoxybutyric acids. Both strains showed fairly high resistance to 2M-4Cl, and 2,3,6-TB. The differences between the strains leveled off in later stages. However, the harvest of the "Zarya" strain was reduced by the use of 2,4-D and harvests of both strains were reduced by application of derivatives of phenoxypropionic and phenoxybutyric acids. The protein content of "Zarya" wheat was higher when sprayed with 2M-4ClP, 2,4-DM and ioxinyl. In the case of "Daimant" wheat, protein content was increased by spraying with 2,3,6-TB, while ioxinyl treatment reduced protein content. Analysis for residues of the herbicide showed no traces.

2/2

- 41 -

1/2 018

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--QUANTITATIVE ESTIMATE OF MARINE BACTERIOPLANKTON AS A SOURCE OF  
FOOD -U-

AUTHOR--(03)-SOROKIN, YU.I., PETIPA, T.S., PAVLOVA, YE.V.

COUNTRY OF INFO--USSR

SOURCE--OKEANOLOGIYA, 1970, VOL 10, NR 2, PP 332-340

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BACTERIA, FOOD, PLANKTON, OCEAN, PHYTOPLANKTON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1277

STEP NO--UR/0213/70/010/002/0332/0340

CIRC ACCESSION NO--AP0109361

UNCLASSIFIED



2/2 018

UNCLASSIFIED

PROCESSING DATE--02JCT70

CIRC ACCESSION NO--AP0109361

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RADIOCARBON METHOD WAS USED TO EVALUATE THE ROLE OF BACTERIA AS A SOURCE OF FOOD FOR THE MASS FORMS OF PLANKTONIC ANIMALS FROM THE BLACK SEA AND THE TROPICAL PACIFIC. THE NATURAL BACTERIOPLANKTON WHOSE 30 TO 40PERCENT ARE FORMED BY AGGREGATE BACTERIAL CELLS WAS FOUND TO BE CONSUMED AS INTENSIVELY AS PHYTOPLANKTON BY THIN AND ROUGH FILTRATORS AND TO A LESSER DEGREE BY CAPTURING CARNIVORES. OPTIMUM CONCENTRATIONS OF THE NATURAL BACTERIOPLANKTON AT WHICH IT IS INTENSIVELY CONSUMED BY FILTRATORS ARE 0.3 TO 0.7 G-M PRIME3. SIMILAR CONCENTRATIONS WERE FOUND IN THE GRADIENT LAYERS OF THE OLIGOTROPHIC WATERS OF THE OCEAN WHERE ZOOPLANKTON IS CONCENTRATED.

FACILITY: INSTITUT BIOLOGII VNTRENNIKH VOD AN SSSR.

FACILITY: INSTITUT BIOLOGII YUZHNYKH MOREY AN USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--GLUCOCORTICOID FUNCTION OF THE ADRENAL CORTEX IN ULCER DISEASE -U-  
AUTHOR-(02)-KRYZHANOVSKAYA, I.I., PETIY, S.I. P  
COUNTRY OF INFO--USSR  
SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 112-115  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ADRENAL CORTEX, DUODENUM, CORTICOSTEROID, DIGESTIVE SYSTEM  
DISEASE, STOMACH  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/1706 STEP NO--UR/0475/70/000/004/0112/0115  
CIRC ACCESSION NO--AP0129076  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129076

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PATIENTS WITH GASTRIC AND DUODENAL  
ULCER SHOWED AN INCREASED GLUCOCORTICOID FUNCTION OF THE ADRENAL CORTEX  
MAINLY AT THE EXPENSE OF FREE 17, OXYCORTICOSTEROIDS. TREATMENT OF  
ULCER RESULTED IN SOME NORMALIZATION OF THE GLUCOCORTICOID FUNCTION OF  
THE ADRENAL CORTEX, BUT IN DUODENAL ULCER DURING EXACERBATION THE  
PERCENT OF FREE 17, OXYCORTICOSTEROIDS REMAINS HIGH INSPITE OF CLINICAL  
REMISSION. DETERMINATION OF FREE 17, OXYCORTICOSTEROIDS IS OF CERTAIN  
VALUE IN ANALYZING THE DURATION OF ULCER EXACERBATION AND EFFICIENCY OF  
TREATMENT. FACILITY: DNEPROPETROYSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

1/2 015

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--INTERMEDIATE COMPOUNDS IN THE CATALYTIC AUTOXIDATION OF BENZOIC ACID IN THE PRESENCE OF CUPRIC OXIDE AND CUPRIC BENZOATE -U-

AUTHOR--(02)-YEROFEYEV, B.V., PETKEVICH, T.S.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. KHIM. NAVUK 1970, (1), 12-15

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BENZOIC ACID, ORGANOCOPPER COMPOUND, BENZENE DERIVATIVE, HETEROCYCLIC OXYGEN COMPOUND, CATALYST, REACTION RATE, COPPER OXIDE, CATALYTIC OXIDATION, ORGANIC COMPLEX COMPOUND, COPPER COMPLEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1079

STEP NO--UR/0419/70/000/001/0012/0015

CIRC ACCESSION NO--AP0104477

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104477

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTERMEDIATE IN THE OXIDN. OF BZOH AT 220DEGREES USING CUO AND CU(OBZ) SUB2 CATALYSTS, ARE STUDIED. THE INTERMEDIATE IN THE CU(OBZ) SUB2 OXIDN. IS CU(OBZ) SUB2. BZOH. THE PRODUCT ISOLATED IN OXIDN. WITH CUO COULD BE A BASIC BENZOATE OF COPPER CONTG. A COORDINATED MOL. OF BZOH. THE IR SPECTRA OF THE PRODUCTS ARE DISTINCT FROM THE SPECTRUM OF BENZOYLSALICYLATE OF COPPER. REACTION RATE STUDIES SHOW THAT BENZOYLSALICYLATE IS NOT A BASIC INTERMEDIATE PRODUCT. I AND II ARE THOUGHT TO OCCUR IN THE 1ST STAGE OF BZOH OXIDN. WITH CU(OBZ) SUB2.

UNCLASSIFIED

1/2 024

TITLE--COMPLEX EQUIPMENT FOR LABORATORY TESTS OF PNEUMATIC AND SOLID TYRES  
-U- UNCLASSIFIED PROCESSING DATE--230C170

AUTHOR--(04)-PETKOV, B., VALCEV, K., GALABOV, J., JURUKOV, V.

COUNTRY OF INFO--BULGARIA, USSR

SOURCE--MASHINOSTROENE, 1970, VOL 19, NR *P*, 156-158

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, METHODS AND EQUIPMENT

TOPIC TAGS--MOTOR VEHICLE TIRE, TEST METHOD, STATIC TEST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1999/1743

STEP NO--BU/9002/70/019/004/0156/0158

CIRC ACCESSION NO--AP0123544

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123544

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPLEX EQUIPMENT DESCRIBED WHICH IS USED IN THE TESTING OF COMPACT AND PNEUMATIC TYRES PROVIDES FOR CARRYING OUT COMPLETE INVESTIGATION OF AUTOMOBILE AND ELECTRIC TRUCK TYRES BOTH UNDER LABORATORY AND FIELD CONDITIONS. THE RESULTS ARE GIVEN OF STATIC AND DYNAMIC TESTS OF TYRES OF BULGARIAN AND SOVIET MANUFACTURE.

UNCLASSIFIED

1/2 012

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--VITAMIN B SUB12 CONTENT IN THE HUMAN MILK -U-

AUTHOR--(05)-DUMA, KH., VASKOV, B., PETKOV, G., PESHEVA, V., PETKOV, K.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PITANIYA, 1970, NR 2, PP 54-57

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VITAMIN B COMPLEX, ESCHERICHIA COLI, FOOD CHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1640

STEP NO--UR/0244/70/000/002/0054/0057

CIRC ACCESSION NO--AP0101695

UNCLASSIFIED



2/2 012

CIRC ACCESSION NO--AP0101695  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT. MILK OF 22 PARTURIENT WOMEN WAS ANALYZED STARTING FROM THE FIRST TILL THE SEVENTH LACTATION DAY. THE MILK WAS TAKEN EVERY DAY AT 9 A. M. N. V. BAKUNIN'S MICROBIOLOGICAL METHOD, AS MODIFIED BY LOGANOVSKY WAS USED TO DETERMINE THE VITAMIN B SUB12 CONTENT WITH THE AID OF ESCHERIHIA COLI, 113-3. AT THE TIME OF INVESTIGATION THE VITAMIN B SUB12 CONCENTRATION LEVEL TENDED TO DECLINE FROM 0.515 MUG. THE FIRST DOWN TO 0.252 MUG ON THE SEVENTH DAY. INDIVIDUAL FLUCTUATIONS OF THE VITAMIN CONCENTRATION WERE RECORDED. IT WAS LOW IN THE MILK OF PARTURIENT WOMEN WHOSE NUTRITION HAPPENED TO BE PROTEIN DEFICIENT AT THE TIME OF GESTATION.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--VITAMIN B SUB12 CONTENT IN THE HUMAN MILK -U-  
AUTHOR--(05)-DUMA, KH., VASKOV, B., PETKOV, G., PESHEVA, V., PETKOV, K.  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY PITANIYA, 1970, NR 2, PP 54-57  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--VITAMIN B COMPLEX, ESCHERICHIA COLI, FOOD CHEMISTRY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1985/1640 STEP NO--UR/0244/70/000/002/0054/0057  
CIRC ACCESSION NO--AP0101695  
UNCLASSIFIED

2/2 Q12

UNCLASSIFIED

PROCESSING DATE--18SEP70

IRC ACCESSION NO--AP0101695

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MILK OF 22 PARTURIENT WOMEN WAS ANALYZED STARTING FROM THE FIRST TILL THE SEVENTH LACTATION DAY. THE MILK WAS TAKEN EVERY DAY AT 9 A. M. N. V. BAKUNIN'S MICROBIOLOGICAL METHOD, AS MODIFIED BY LOGANOVSKY WAS USED TO DETERMINE THE VITAMIN B SUB12 CONTENT WITH THE AID OF ESCHERICHIA COLI, 113-3. AT THE TIME OF INVESTIGATION THE VITAMIN B SUB12 CONCENTRATION LEVEL TENDED TO DECLINE FROM 0.515 MUG. THE FIRST DOWN TO 0.252 MUG ON THE SEVENTH DAY. INDIVIDUAL FLUCTUATIONS OF THE VITAMIN CONCENTRATION WERE RECORDED. IT WAS LOW IN THE MILK OF PARTURIENT WOMEN WHOSE NUTRITION HAPPENED TO BE PROTEIN DEFICIENT AT THE TIME OF GESTATION.

UNCLASSIFIED

USSR

UDC 669.017.13.296.297.12.25.24

SVECHNIKOV, V. N., MARKIV, V. YA., and PET'KOV, V. V., Institute of Metal Physics, Academy of Sciences Ukr SSR and Kiev State University

"Interaction of Laves' Phases in  $Zr\{Fe,Co,Ni\}_2$ - $Hf\{Fe,Co,Ni\}_2$  Systems"

Kiev, Metallofizika, No 40, 1972, pp 95-97

Abstract: The interaction of Laves' phases in  $Zr\{Fe,Co,Ni\}_2$ - $Hf\{Fe,Co,Ni\}_2$  systems was investigated by methods of differential thermal, x-ray, and microstructural analyses. The system  $ZrFe_2$ - $HfFe_2$  is a quasi-binary peritectic type. It is characterized by significant solubility of hafnium in the metallide  $ZrFe_2$  (approximately 21 at.% at 1500°C and almost 18 at.% at 900°C); solubility of zirconium in  $HfFe_2$  is insignificant. Compounds  $ZrCo_2$  and  $HfCo_2$  form a continuous series of solid solutions. In the Zr-Hf-Ni system at the section of 66.7 at.% Ni of the ternary compounds no Laves' phases were detected. 2 figures, 12 bibliographic references.

1/1

- 56 -

USSR

UDC 669.15'25'24'296'  
74'017.3

PETUKOV, V. V., Kiev

"Investigation of the Interaction of Laves Phases in  $Zr(Fe,Co,Ni)_2-ZrMn_2$  Systems"

Moscow, Izvestiya Akademii Nauk USSR, Metally, No 5, Sep-Oct 72, pp 155-157

Abstract: The interaction of Laves phases in ternary systems  $Zr(Fe,Co,Ni)_2-ZrMn_2$  was investigated on cast and heat-treated alloys by differential thermal, X-ray, and microstructural methods. The results are analyzed by reference to microstructures of cast alloys ( $Zr+Mn+Fe$  and  $Zr+Mn+Co$ ) and diagrams showing the interaction of  $\lambda$ -phases and the change of periods of the lattice of solid solutions in systems  $Zr(Fe,Co)_2-ZrMn_2$  and of  $\lambda$ -phases at  $900^\circ C$  in the system  $ZrNi_2-ZrMn_2$ . The results confirm the principle of Dwight (Trans. Amer. Soc. Metals, 1961, No 59, 479) on the character of interaction of Laves phases with development of limited solid solutions, if the initial phases belong to different zones,  $\lambda_1(ZrMn_2)$  and  $\lambda_2(ZrFe_2, ZrCo_2, ZrNi_2)$ . Three figures, eight bibliographic references.

1/1

- 55 -

USSR

UDC 621.386.8

KOCHERZHINSKIY, Yu. A., and PET'KOV, V. V., Institute of Physics of Metals of the Academy of Sciences of the UkrSSR, Kiev

"High-Temperature Attachment to the X-Ray Diffractometer"

Moscow, Pribery i Tekhnika Eksperimenta, No 1, Jan-Feb 72, pp 191--194

Abstract: The attachment to the X-ray diffractometer with a built in sorption pump providing a  $10^{-5}$  torr vacuum and the possibility of free rotation of the attachment on the goniometer axis is described. The special features of the attachment, including the built in pump, the hermetic all-welded beryllium opening for preheating the body by pumping out the facility for fixing, heating, and temperature measuring of specimens up to 2000 °C, and the insertion of a vacuum-metering lamp in immediate proximity to the specimen, are discussed by reference to the schematic drawing and the circuit of the attachment. The temperature measuring accuracy is  $\pm 1\%$ , the accuracy in maintaining the temperature is  $\pm 1^\circ\text{C}$ , the

1/2

USSR

KOCHERZHINSKIY, YU. A., and PET'KOV, V. V., Pribory i Tekhnika Eksperimenta,  
No 1, Jan-Feb 72, pp 191-194

interval of diffraction angles is 0--80 deg., and the power input  
is up to 3 kw. The attachment weighs 7.5 kg, it can be used for  
the investigation of metallic and non-metallic materials. Frag-  
ments of diffraction patterns of Fe, Hf, and HfO<sub>2</sub> obtained with  
the help of the described attachment are shown. Three illustr.,  
six biblio. refs.

2/2

- 173 -

## Instrumentation and Equipment

USSR

UDC 621.386.1

KOCHERZHINSKIY, Yu. A., and PET'KOV, V. V.

"X-ray Cameras for High-Temperature (above 1000°C) Studies"

Kiev, Metallofizika, No 32, 1970, pp 130-142

Translation: A survey is made of the designs of Debye X-ray cameras and attachment cameras for X-ray diffractometers for investigations at high temperatures (1000-3000°C). Their advantages and disadvantages of these cameras in investigations of phase equilibria in metal systems are discussed and prospects for further improvement are reviewed.

Bibliography: 38 entries. Illustrations: 17

1/1

UDC 669.245.290.277.017.535.072

USSR

PET'KOV, V. V., MARKIV, V. YA., and GORSKIY, V. V.

"Compounds with an  $MgCu_2$ -Type Structure in Zr-Ni and Hf-Ni Alloys"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 2, Mar-Apr 72, pp 188-192

Abstract: The Zr-Ni systems was investigated using seven alloys containing the following amounts of nickel (at.%): 64.8, 65.5, 66.7, 67.5, 68, and 69. The Zr-Ni alloys were made by electric-arc melting of a charge consisting of zirconium iodide (99.96%) and electrolytic nickel (99.99%). Hafnium with a purity of 99.93% was used to produce the HfNi<sub>2</sub> alloy. Heat treatment of the alloys consisted of a 200-hour anneal at 900°C followed by cold water quenching. Both cast and hardened alloys were studied by methods of x-ray diffraction, microstructural, local x-ray spectral, differential thermal, and durometric analyses.

In both systems, for compositions of ZrNi<sub>2</sub> and HfNi<sub>2</sub>, compounds are formed with a structure of the type  $MgCu_2$  with lattice constants equal to 6.925 and 6.906 Å, respectively. The compound ZrNi<sub>2</sub> forms according to a peritectic reaction at 1190°C while compounds Zr<sub>2</sub>Ni<sub>5</sub> and ZrNi<sub>3</sub> form at 1265 and 1575°C. Three figures, 3 tables, 10 bibliographic references.

1/1



USSR

UDC 8.74

PETKYAVICHUS, I. YU., MUDENAS, V. K., and VINOGRADNIY, V. S., Institute of  
Physics and Mathematics, Academy of Sciences Lithuanian SSR

"Increasing the External Memory of BESM-4 Computer to Eight Magnetic Drums"

Uvelicheniye vneshney pamyati mashiny BESM-4 do 8 magnitnykh barabanov (cf.  
English above), Vil'nyus, 1970, 46 pp, ill., bibliography with four titles  
(No 3493-71 Dep.) (from RZh-Matematika, No 5, May 72, Abstract No 5V482DEP  
from authors' abstract)

Translation: A description is given of one of the variants for enlarging the  
external magnetic-drum memory of the BESM-4 computer. The authors consider  
the eight-drum variant which operates on computer No 39 and present a diag-  
nostic test which they have compiled for the external magnetic-drum memory,  
a block diagram of its program, as well as the program itself.

1/1

USSR

UDC: 8.74

PETKYAVICHUS, I. Yu., DOVIDENAS, L. Yu.

"A Device for Keyboarding and Keypunching Seven-Place Symbols"

Klavishnoye ustroystvo dlya nabora semirazryadnykh simvolov s posleduyushchey perforatsiyey. In-t fiz. i mat. AN LitSSR (cf. English above. Institute of Physics and Mathematics, Academy of Sciences of the Lithuanian SSR), Vil'nyus, 1970, 11 pp, ill., bibliogr. 2 titles (No 3492-71 Dep.) (from RZh-Kibernetika, No 5, May 72, Abstract No 5V483 DEP]

Translation: The paper presents the diagram of a keyboard device for preparation of punched cards in seven-place codes for the BESM-4 computer. The work involves use of the shift keyboard of the "Vil'nyus" computer, the ShI 8/25 step switch and RKM relays for the memory unit. A standard M-20 keypuncher is used for perforation. Authors' abstract.

1/1

- 39 -

USSR

UDC: 8.74

PETKYAVICHUS, I. Yu., MUDENAS, V. K., VINOGRADNIY, V. S.

"Enlargement of the External Memory of the BESM-4 Computer to Eight Magnetic Drums"

Uvelicheniye vmeshney pamyati mashiny BESM-4 do 8 magnitnykh barabanov. In-t fiz. i mat. AN LitSSR (cf. English above. Institute of Physics and Mathematics, Academy of Sciences of the Lithuanian SSR), Vil'nyus, 1970, 46 pp, ill., bibliogr. 4 titles (No 3493-71 Dep.) (from RZh-Kibernetika, No 5, May 72, Abstract No 5V482 DEP)

Translation: The paper gives a description of one modification of an expansion of the external magnetic-drum memory of the BESM-4 computer. An operating version for eight drums on computer No 39 is considered. A diagnostic test developed by the authors for an external magnetic-drum memory is presented as well as a flowchart of the program, and the program itself. Authors' abstract.

1/1

USSR

UDC 534.863.5;534.843.5

PETLENKO, B. I., All-Union Scientific Research Institute of Organization, Administration and Economics of the Oil and Gas Industry, Moscow

"Intelligibility of Speech Pronounced in a Helium-Oxygen Atmosphere"

Moscow, Akusticheskiy Zhurnal, Vol XVIII, No 1, 1972, pp 82-89

Abstract: An analysis was made of the intelligibility of speech pronounced in a helium-oxygen mixture at various pressures, and the perception of certain phonemes was traced in order to discover the sounds which change the intelligibility most significantly. The speech intelligibility was determined by the method of articulation measurements performed for a speech flow formed at fixed values of the helium-oxygen mixture pressure: 1, 4, 7, 9, 12, 17, 21 atmospheres. The partial pressure of the oxygen was kept at 1.3 atmospheres in all cases. The speech intelligibility was also measured while breathing ordinary air and under the same acoustic conditions of speech formation.

With an increase in pressure and concentration of helium in the helium-oxygen mixture, the intelligibility of speech drops steadily. The intelligibility of the consonants drops more than that of the vowels. The voiced stops and affricates have minimum recognizability. The decrease in intelligibility of the consonants is exhibited in an increase in the number of sounds not perceived in general, erroneous recognition as shorter and weaker sounds and also

USSR

PETLENKO, B. I., Akusticheskiy Zhurnal, Vol XVIII, No 1, 1972, pp 82-89

as higher frequency sounds. The decrease in intelligibility of the vowels arose from an increase in errors in identification of them. The nature of the erroneous transition is somewhat similar to that of the perception of normal speech with a proportional increase in frequencies of all the spectral components as obtained by accelerated reproduction of a recording.

2/2

- 96 -

Automatic Control: Systems

USSR

UDC 262-5:62-19

PETLENKO, B. I., Candidate of Technical Sciences, and SOBOLEV, L. K., Engineer

"Determination of Optimal Reliability of Redundant Control System"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 11, 1971, pp 33-34

Abstract: Let a control system consist of  $i$ -th functional data transmission and processing elements, the number of which is  $N$ , and let them all be connected in series. Each of the  $i$ -th elements has a cost  $c_i$  and a failure rate  $\lambda_i$ , the  $j$ -th communications in the control loop circulating at a mean frequency of  $f_j$  and the flow of communications and failures being governed by Poisson's law. The reliability of each  $i$ -th element can be raised through unloaded redundancy, most often used in practice, with the working element being duplicated by  $(n_i - 1)$  nonoperating standby elements. It is assumed that failure detection and the switch to a standby element occurs instantaneously with a probability equal to unity, and each failed element is

1/2

USSR

PETLENKO, B. I., and SOBOLEV, L. K., *Mekhanizatsiya i Avtomatizatsiya Proizvodstva*, No 11, 1971, pp 33-34

restored in the course of a mean time  $\bar{\tau}_i$ , distributed according to exponential law. The problem is to find a probability of system survival  $P_0$ , as well as a redundancy rate for the  $i$ -th elements such that the annual economic effect from introduction of the system is maximal. In estimating system optimality, allowance is made for capital expenditures on the system and operating costs, as well as losses resulting from unreliability of the system. The control system for an automatic drilling rig is considered as an example.

2/2

- 44 -

1/4 024 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--MODELING MENTAL ACTIVITY -U-  
AUTHOR--PETLENKO, V. *P*  
COUNTRY OF INFO--USSR  
SOURCE--PCSCW, MEDITSINSKAYA GAZETA, 23 JAN 70, P 3  
DATE PUBLISHED--23JAN70  
SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES  
TOPIC TAGS--MENTAL PROCESS, MODEL, PSYCHIATRY, PSYCHOLOGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605037/D10 STEP NO--UR/9034/70/000/000/0003/0003  
CIRC ACCESSION NO--AN0142456  
UNCLASSIFIED



2/4 024

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AN0142456

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEVELOPMENT OF MODERN SCIENTIFIC KNOWLEDGE IS CHARACTERIZED BY INTENSIVE PENETRATION OF THE MODELING METHOD IN DIFFERENT SCIENCES, INCLUDING PSYCHOLOGY AND PSYCHIATRY. HOWEVER, UNTIL NOW, SIMULATION OF NORMAL AND PATHOLOGICAL MENTAL ACTIVITY WAS CONSIDERED SEPARATELY. IN THE MONOGRAPH BY A. A. BRATKO, P. P. VOLKOV, A. N. KOCHERGIN AND G. I. TSAREGCROOTSEV, ENTITLED "MODELING MENTAL ACTIVITY" PUBLISHED BY MYSL\*PRESS, THE THEORETICAL AND PRACTICAL ASPECTS OF SIMULATING THE PSYCHE UNDER NORMAL AND PATHOLOGICAL CONDITIONS ARE CONSIDERED TOGETHER. THE TEAM OF AUTHORS IS ALSO REMARKABLE, CONSTITUTING AN ALLIANCE OF PHILOSOPHERS, A PSYCHOLOGIST AND A PSYCHIATRIST. THE MONOGRAPH CONSISTS OF THREE PARTS: THEORETICAL ASPECTS OF SIMULATING MENTAL ACTIVITY; SIMULATING THE CHIEF FORMS OF MENTAL ACTIVITY; AND SIMULATING MENTAL DISORDERS. THE FIRST PART DESCRIBES THE ESSENCE AND SPECIFICS OF MODELING AS A METHOD OF INVESTIGATION AND THE MIND AS THE OBJECT OF MODELING. MODELING IS NOT INTERPRETED SIMILARLY BY DIFFERENT RESEARCHERS. THEREFORE, THE AUTHORS OF THIS MONOGRAPH MAKE A DETAILED ANALYSIS OF THE ESSENCE AND LOGICAL BASIS OF THIS METHOD, FOR WITHOUT A PRECISE DEFINITION OF ITS CONTENT ITS CAPABILITIES CANNOT BE DEMONSTRATED. THE INCONSISTENCY OF A BROAD OR ANGROR INTERPRETATION OF MODELING IS SHOWN. MODELING IS DEFINED AS A "METHOD OF MEDIATED COGNITION WITH THE HELP OF ARTIFICIAL OR NATURAL SYSTEMS CAPABLE OF REPRESENTING THE OBJECT UNDER STUDY IN SPECIFIC RELATIONS AND OF FURNISHING NEW INFORMATION ABOUT IT".

UNCLASSIFIED

3/4 024

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--ANO142456

ABSTRACT/EXTRACT--SINCE MODELING IS BASED ON CONCLUSION BY ANALOGY, EVEN THE BEST MODEL COULD REPLACE THE OBJECT MODELED ONLY WITH REFERENCE TO ONE OR SEVERAL OF ITS FUNCTIONS OR PROPERTIES, AND THIS LIMITATION IS INHERENT TO ALL MODELS, EVEN THE MOST COMPLEX. MODELING DOES NOT REPLACE OTHER METHODS, BUT SUPPLEMENTS THEM. DISCUSSING THE MIND AS A MODELING OBJECT, THE AUTHORS DO NOT AVOID EVEN THE MOST ACUTE DEBATABLE ISSUES WHICH INCLUDE, IN PARTICULAR, THE PROBLEM KNOWN AS "CAN A MACHINE HAVE A MIND"? WE FIND THEIR CONCLUSION QUITE VALID: THAT DEBATE ON THIS ISSUE WAS DUE, IN MANY RESPECTS, TO CONFUSION OF DIFFERENT QUESTIONS: "CAN A MACHINE THINK?", "CAN THINKING BE SIMULATED?" AND "CAN A LIVING, THINKING BEING BE ARTIFICIALLY CREATED?". IN THEIR DISCUSSION OF THESE QUESTIONS THE AUTHORS SHOULD HAVE GIVEN A MORE COMPREHENSIVE CRITICAL ANALYSIS OF THE DIFFERENT VIEWS ON THE SUBJECT. IT IS BELIEVED THAT MODELING OF THE PSYCHE IS IMPOSSIBLE BECAUSE OF THE IMPERFECTION OF THE LATTER. IN THE AUTHORS OPINION THE MIND OR PSYCHE CAN BE PLACED TO THE "IDEAL" CATEGORY ONLY IN THE PHILOSOPHICAL SENSE, BUT IN THE NATURAL SCIENTIFIC SENSE IT SHOULD BE CONSIDERED AS TANGIBLE AND SHOULD BE RELATED TO THE INFORMATION CONCEPT. IT WAS CONCLUDED THAT ONE CANNOT HAVE SUBSTANTIAL OR CONVINCING OBJECTIONS TO THE POSSIBILITY OF MODELING ACTIVITY ON INFORMATION LOGIC MACHINES. SUCH AN APPROACH IS, IN OUR OPINION, QUITE PROMISING. THE SECOND PART OF THE MONOGRAPH DEALS WITH PROBLEMS OF MODELING THE MAIN FORMS OF NORMAL MENTAL ACTIVITY.

UNCLASSIFIED

4/4 024

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AN0142456

ABSTRACT/EXTRACT--USING EXTENSIVE FACTUAL MATERIAL, THE AUTHORS DISCUSS MODELING OF DIFFERENT COGNITIVE PROCESSES OF PURPOSEFUL ACTIVITY AND PERSONALITY MANIFESTATIONS. CLASSICAL INVESTIGATION METHODS DO NOT COMPLETELY SATISFY THE INCREASING DEMANDS MADE OF PSYCHOLOGICAL KNOWLEDGE. THERE MUST BE A SHIFT FROM GENERAL DESCRIPTIONS OF PROCESSES AND PHENOMENA TO PRECISE, CONCRETE DESCRIPTIONS OF THE STRUCTURE AND MECHANISMS OF MENTAL ACTIVITY. NEW INVESTIGATIVE METHODS ARE NEEDED, AND MODELING IS ONE OF THEM. IN SPITE OF THE DEBATABILITY OF MANY POSITIONS, THE AUTHORS' CONCLUSION, THAT SCIENTIFIC PSYCHOLOGICAL THEORY SHOULD BE CONSTRUCTED ON THE MAIN PRINCIPLES OF THE MODELING METHOD, IS LOGICALLY CONVINCING. MODELING DOES NOT RULE OUT BUT RATHER IMPLIES THE USE OF TRADITIONAL MEANS OF INVESTIGATING THE MIND. AT THE SAME TIME, ANALYSIS OF THIS PROBLEM, WITHOUT BROAD COMPARATIVE INVESTIGATION OF THE CYBERNETIC AND PSYCHOLOGICAL APPROACH TO INVESTIGATION OF THE MIND, HAS THE FAULT OF BEING SOMEWHAT ABSTRACT AND SCHEMATIC. HOWEVER, THE IDEA OF EVALUATING THE PROSPECTS OF MODELING MENTAL ACTIVITY; AVOIDING ABSOLUTE NIHILISM AND THOUGHTLESS OPTIMISM, DESERVES SUPPORT. THE THIRD PART ANALYZES A WIDE SPECTRUM OF ISSUES PERTAINING TO MODELING DISORDERS IN MENTAL ACTIVITY. SPECIAL ATTENTION WAS PAID TO SUBSTANTIATION OF THE POSSIBILITY AND NEED TO USE BIOLOGICAL MODELING IN PSYCHIATRY, WHICH REVEALS NEW POSSIBILITIES FOR STUDY OF THE PATHOGENESIS AND THERAPY OF A NUMBER OF DISEASES. THERE IS STILL MUCH TO SOLVE. BUT WHAT HAS ALREADY BEEN DONE INDICATES THE NEED FOR THE POSSIBILITY OF USING MODELING AS A METHOD OF STUDYING NORMAL AND PATHOLOGICAL MENTAL ACTIVITY.

UNCLASSIFIED

Psychiatry

USSR

PETLENKO, V., Docent

"Modeling Mental Activity"

Moscow, Meditsinskaya Gazeta, 23 Jan 70, p 3

Translation: The development of modern scientific knowledge is characterized by intensive penetration of the modeling method in different sciences, including psychology and psychiatry. However, until now, simulation of normal and pathological mental activity was considered separately. In the monograph by A. A. Bratko, P. P. Volkov, A. N. Kochergin and G. I. Tsaregorodtsev, entitled "Modeling Mental Activity" published by Mysl'Press, the theoretical and practical aspects of simulating the psyche under normal and pathological conditions are considered together. The team of authors is also remarkable, consisting of an alliance of philosophers, a psychologist and psychiatrist.

The monograph consists of three parts: theoretical aspects of simulating mental activity; simulating the chief forms of mental activity; and simulating mental disorders.

1/5

USSR

PETLENKO, V., Docent, Moscow, Meditsinskaya Gazeta, 23 Jan 70, p 3

The first part describes the essence and specifics of modeling as a method of investigation and the mind as the object of modeling. Modeling is not interpreted similarly by different researchers. Therefore, the authors of this monograph make a detailed analysis of the essence and logical basis of this method, for without a precise definition of its content its capabilities cannot be demonstrated. The inconsistency of a broad or narrow interpretation of modeling is shown. Modeling is defined as a "method of mediated cognition with the help of artificial or natural systems capable of representing the object under study in specific relations and of furnishing new information about it." Since modeling is based on conclusion by analogy, even the best model could replace the object modeled only with reference to one or several of its functions or properties, and this limitation is inherent to all models, even the most complex. Modeling does not replace other methods, but supplements them.

Discussing the mind as a modeling object, the authors do not avoid even the most acute debatable issues which include, in particular, the problem known as "can a machine have a mind?" We find  
2/5

USSR

PETLENKO, V., Docent, Moscow, Meditsinskaya Gazeta, 23 Jan 70, p 3

their conclusion quite valid: that debate on this issue was due, in many respects, to confusion of different questions" "can a machine think?", "can thinking be simulated?" and "can a living, thinking being be artificially created?"

In their discussion of these questions the authors should have given a more comprehensive critical analysis of the different views on the subject.

It is believed that modeling of the psyche is impossible because of the perfection of the latter. In the authors opinion the mind or psyche can be placed to the "ideal" category only in the philosophical sense, but in the natural scientific sense it should be considered as tangible and should be related to the information concept. It was concluded that one cannot have substantial or convincing objections to the possibility of modeling activity on information-logic machines. Such an approach is, in our opinion, quite promising.

3/5

USSR

PETLENKO, V., Docent, Moscow, Meditsinskaya Gazeta, 23 Jan 70, p 3

The second part of the monograph deals with problems of modeling the main forms of normal mental activity. Using extensive factual material, the authors discuss modeling of different cognitive processes of purposeful activity and personality manifestations.

Classical investigation methods do not completely satisfy the increasing demands made of psychological knowledge. There must be a shift from general descriptions of processes and phenomena to precise, concrete descriptions of the structure and mechanisms of mental activity. New investigative methods are needed, and modeling is one of them.

In spite of the debatability of many positions, the authors' conclusion, that scientific psychological theory should be constructed on the main principles of the modeling method, is logically convincing.

Modeling does not rule out but rather implies the use of traditional means of investigating the mind.

4/5

- 119 -

USSR

PETLENKO, V., Docent, Moscow, Meditsinskaya Gazeta, 23 Jan 70, p 3

At the same time, analysis of this problem, without broad comparative investigation of the cybernetic and psychological approach to investigation of the mind, has the fault of being somewhat abstract and schematic. However, the idea of evaluating the prospects of modeling mental activity; avoiding absolute nihilism and thoughtless optimism, deserves support.

The third part analyzes a wide spectrum of issues pertaining to modeling disorders in mental activity.

Special attention was paid to substantiation of the possibility and need to use biological modeling in psychiatry, which reveals new possibilities for study of the pathogenesis and therapy of a number of diseases.

There is still much to solve. But what has already been done indicates the need for and possibility of using modeling as a method of studying normal and pathological mental activity.

5/5



USSR

Computers: Applications & Programing

UDC: 8.74

PETLEVAYA, A. I.

"Realization of an Algorithm on the 'Minsk-22' Computer for Obtaining the Excitation Functions of an Automaton"

Dnepropetrovsk, V sb. Mekh. i avtomatiz. inzh.--opr. i nauch.-  
issled. rabot (Mechanization and Automation of Engineering Control and Scientific Research Work--collection of works) 1972, pp 98-100 (from RZh--Matematika, No 8, 1972, Abstract No SV654)

Translation: The author considers an approximation algorithm for solving the problem of minimizing the disjunctive normal form of an incompletely determined Boolean function and realizing it in the form of a program on the "Minsk-22" computer.

1/1

USSR

UDC: 8.74

PETLEVAYA, A. I.

"'Minsk-22' Computer Realization of an Algorithm for Obtaining Functions of Excitation of an Automaton"

V sb. Mekh. i avtomatiz. inzh., upr. i nauch.-issled. rabot (Mechanization and Automation of Engineering, Control and Scientific Research Work--collection of works), Dnepropetrovsk, "Promin", 1972, pp 98-100 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V654)

Translation: An approximate algorithm is considered for solving the problem of minimizing a disjunctive normal form of an incompletely defined Boolean function, and realization of the algorithm is presented in the form of a "Minsk-22" computer program.

1/1

- 72 -

1/2 019

UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--EFFECT OF SURFACE ACTIVE ADDITIVES IN THE ANNEALING MEDIUM ON THE  
TEXTURE OF SECONDARY RECRYSTALLIZATION -U-

AUTHOR--(03)--AVRAMOV, YU.S., GRIGORYEV, G.A., PETLYAKOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 384-7

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL TEXTURE, TRANSFORMER STEEL, HALIDE, MOLTEN CHLORIDE,  
FLUORIDE, ANNEALING, SURFACE ACTIVE AGENT, BROMIDE, METAL  
RECRYSTALLIZATION, GRAIN BOUNDARY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1995/0184

STEP NO--UR/0048/70/034/002/0384/0387

CIRC ACCESSION NO--AP0115888

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115888

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRANSFORMER STEEL SPECIMENS WERE ANNEALED IN A BACL SUB2 MELT AT 1000-1100DEGREES FOR 30-180 MIN WITHOUT AND WITH AN ADDN. OF K HALIDES. ON THE BASIS OF THE ETCHED FIGURES, DIFFERENT RESULTS WERE OBSD. OWING TO THE PREVIOUS TREATMENT. FOR THE SPECIMENS, HIGH TEMP. ANNEALED AFTER DEFORMATION, THE FRACTION OF CUBIC COMPONENT INCREASED IN THE SECONDARY RECRYSTN. TEXTURE PROPORTIONALLY BOTH TO INCREASING ANNEALING TIME AND TEMP. UNDER THE SAME CONDITIONS, THE (110)(001) TEXTURE OF LAMINAR COMPONENT WAS IMPROVED IF THE SAMPLES WERE HEATED PREVIOUSLY IN VACUUM AT 750DEGREES FOR 30 MIN. THE SURFACE ACTIVITY OF HALIDES IN THE BACL SUB2 MELT INCREASES IN A SERIES BR-CL-F AND IN ESP. PREVIOUSLY HEATED SAMPLES. DURING THE ANNEAL OF SPECIMENS AFTER DEFORMATION ONLY THE PRIMARY RECRYSTN. ALSO OCCURRED AS A RESULT OF A BOUNDARY AND GRAIN ENERGY ACTION. FACILITY: MUSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED