

USSR

UDC 546.841:543.432.062

LUKIN, A. M., TITOV, V. I., (DECEASED), CHERNYSHOVA, T. V., and YEVDOKIMOVA, N. N.

"Spectrophotometric Determination of Thorium with Chlorophosphonazo III in Phosphoric Acid"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 10, Oct 73, pp 1174-1175

Abstract: In the determination of thorium with chlorophosphonazo III in phosphoric acid, the reaction takes place in the interval of 2-0.003 molar phosphoric acid with Bear's law observable up to concentrations of 20 micrograms/5 ml thorium for a reagent concentration of  $2.5 \cdot 10^{-5}$  molar. This method makes it possible to increase the selectivity of thorium determination in comparison to Zr, Ti, Fe, and other metals and is also more selective than the method using hydrochloric acid. This method has been used for analysis of monazite ores. Two figures, one table, three bibliographic references.

1/1

USSR

UDC 599.323.4:616.986.7(470.42)

YEVDOKIMOVA, O. A., and SHISHKINA, Z. S., Laboratory of Leptospiroses,  
~~Institute of Epidemiology and Microbiology~~, Academy of Medical Sciences USSR,  
Moscow

"The Role of the Muskrat in a Natural Focus of Leptospirosis in Ul'Yanovskaya  
Oblast"

Moscow, Zoologicheskii Zhurnal, Vol 50, No 7, 71, pp 1,116-1,119

Abstract: The area surrounding Yaik and Peschanoye lakes in Ul'yanovskaya oblast is a focus of leptospirosis. It is also a natural habitat of *Ondrata zibethica* (muskrat), *Arvicola terrestris*, and *Microtus oeconomus*. In an investigation performed in 1967 and 1968, 64 muskrats were caught along with other rodents. Bacteriological, and serological tests revealed the presence of four *Leptospira* strains: three *L. grippotyphosa* and one *L. bataviae*. Of 104 *Microtus oeconomus* specimens examined, 26 were infected with *L. grippotyphosa* one with *L. bataviae*, and four with both. Of 54 *Arvicola terrestris* examined 9 were infected with *L. grippotyphosa*. Of 64 *Ondrata zibethica*, 21 were infected with *L. grippotyphosa* and three with *L. grippotyphosa* and *L. bataviae*. This was the first time that *Leptospira* of the *bataviae* serotype were isolated from 1/2

USSR

YEVDOKIMOVA, O. A., and SHISHKINA, Z. S., Zoologicheskiy Zhurnal, Vol 50, No 7, 1971, pp 1,116-1,119

muskrats in the USSR. Since the percentage of muskrats infected with Leptospira was high (37.5%), it is concluded that muskrats play an important role in the maintenance and spread of leptospirosis in the area surrounding Yaik and Peschanoye lakes.

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USSR

UDC 547.26'118

PUDOVIK, A. N., ZIMIN, M. G., YEVDOKIMOVA, V. V., Kazan' State University  
imeni V. I. Ul'yanov-Lenin

"Reaction of  $\alpha$ - and  $\beta$ -Ketophosphonates With Compounds Containing Labile  
Hydrogen Atoms"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1907-1910

Abstract: It was shown that dimethyl- and diethylphosphonoacetone is capable of condensing with cyanoacetic ester and dinitrile of malonic acid forming the diethyl ester of 2-methyl-3-cyano-3-carboethoxyallylphosphonic acid and the dialkyl ester of 2-methyl-3-cyano-3-carbamidoallylphosphonic acid. The reaction of chloral and benzaldehyde with the dibutyl esters of aceto- and benzoylphosphonic acids and N,N-tetraethyldiamidoacetophosphonic acid take place at the carbonyl groups of the latter, forming dibutyl  $\alpha$ -trichloroacetoethyl(benzoylbenzyl)phosphates and N,N-tetraethylalkyldiamido-phosphates.

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1/2 010  
UNCLASSIFIED  
PROCESSING DATE--30OCT70  
TITLE--ADDITION OF ALDEHYDES TO ALPHA,OXOPHOSPHONIC ACID ESTERS -U-  
AUTHOR-(03)-PUDOVIK, A.N., NIKITINA, V.I., YEVOOKIMOVA, V.V.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 294-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHEMICAL SYNTHESIS, PHOSPHATE ESTER, ALDEHYDE, BENZENE  
DERIVATIVE, CHLORINATED ORGANIC COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/1750  
STEP NO--UR/0079/70/040/002/0294/0298  
CIRC ACCESSION NO--AP0112736  
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112736

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING (RO) SUB2-P(O) AC OR (RO)  
SUB2 P(O)BZ WITH SLIGHT EXCESS ALDEHYDE AND A TRACE OF PIPERIDINE IN  
MEPH OR C SUB6 H SUB6 20-5 HR GAVE THE FOLLOWING ADDUCTS: SHOWN ON  
MICROFICHE.

UNCLASSIFIED

USSR

UDC 547.26'118

PUDOVIK, A. N., NIKITINA, V. I., and LEVDOKIMOVA, V. V.

"Addition Reactions of Aldehydes to  $\alpha$ -Ketophosphonic Acid Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 2, Feb 70, pp 294-298

Abstract: Continuing their study of addition and condensation reactions of organophosphorus compounds with an active methylene group, the authors studied reactions of aceto- and benzoylphosphonic acids with aldehydes. It was found that reactions of chloral with dimethyl and diethyl esters of acetophosphonic acid and diethyl ester of benzoylphosphonic acid in benzene at 80° in the presence of piperidine proceed on the carbonyl groups to give dialkyl esters of  $\alpha$ -hydroxy- $\alpha$ -acetoxy- or  $\alpha$ -hydroxy- $\alpha$ -benzoylhydroxyethylphosphonic acids. At a higher temperature (110°) in toluene there is a phosphonate-phosphate rearrangement to give phosphates. The reactions of dimethyl and diethyl esters of acetophosphonic acid with benzaldehyde and butyl ester of glyoxylic acid, as well as of diethyl ester of benzoylphosphonic acid with benzaldehyde in toluene in the presence of piperidine give the corresponding phosphates.

1/1

1/2 006 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--SOLUBILITY OF SULFUR DIOXIDE IN SULFOLANE AND IN SULFOLENE  
SOLUTIONS IN SULFOLANE -U-  
AUTHOR--(02)-LANGE, S.A., YEVDOKIMOVA, ZH.A.  
COUNTRY OF INFO--USSR  
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (3), 27-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--SULFUR OXIDE, ORGANIC SULFUR COMPOUND, SOLUBILITY, THIOPHENE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/0968 STEP NO--UR/0318/70/000/003/0027/0029  
CIRC ACCESSION NO--AP0134686  
UNCLASSIFIED



UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 006  
CIRC ACCESSION NO--AP0134686  
ABSTRACT/EXTRACT--(U) GP-Q-

ABSTRACT. SO SUB2 SOLY. IN FULFOLANE (1) IS  
EXPRESSED BY THE KRICHEVSKII IL\*IN EQUATION, WITH THE LN K AND T VALUES  
FROM WHICH THE DIFFERENTIAL HEAT OF SOLN. WAS 6700 CAL-MOLE. AT  
30DEGREES, SULFOLENE, LIKE I IN ATTRACTING SO SUB2 MOLS, HAD NO EFFECT  
ON SO SUB2 SOLY. IN I. FACILITY: SALAVAT. NEFTEKHIM. KOMB.,  
SALAVAT, USSR.

UNCLASSIFIED

USSR

UDC: 666.764.32

IGNATOVA, T. S., BELYAKOVA, N. P., PERMIKINA, N. M., SEMKINA, N. V.,  
MYAKISHEVA, N. A., and YEVDOKIMOVA, Z. U., Eastern Institute of Refractories

"Effect of Technological Factors on the Density and Microstructure of  
Corundum Ceramics Containing 1% Titanium Oxide"

Moscow, Ogneupory, No 8, 70, pp 32-35

Abstract: This study demonstrates the dependence of the microstructure and the density of corundum ceramics on the method of grinding, the dispersity of the silica, the method of molding and the annealing temperatures of the finished product. A higher dispersity, vibratory grinding, high annealing temperatures, and  $\text{TiO}_2$  additions promote the formation of a macrocrystalline structure, which in turn is responsible for the greater heat resistance of the material. A higher dispersity of the silica increases the intensity of

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USSR

IGNATOVA, T. S., et al, Ogneupory, No 8, 70, pp 32-35

crystallization at high temperatures and initiates recrystallization of corundum at a much lower annealing temperature. Vibratory grinding intensifies recrystallization and the formation of a macrocrystalline structure, which causes loosening of the body and decreases the density. It appears that the higher thermal resistance and lower strength of corundum parts with macrocrystalline structures are related to some increase in apparent porosity.

2/2

1/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--ISOLATION OF POLY,STYRENESULFONIC ACID, FROM A REACTION MIXTURE -U-

AUTHOR-(05)-ALEKSANDROV, I.V., YEVDOKIMOVSKOPINSKIY, A.N., PETROVA, N.A.,  
DUSHEYKO, D.A., ZAYTSEVA, V.N.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,439

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMER, STYRENE, SULFONIC ACID, CHEMICAL SEPARATION, CHEMICAL  
PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3007/1763

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0137003

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0137003

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

ABSTRACT. POLY(STYRENESULFONIC ACID) IS  
SEPD. FROM A REACTION MIXT. IN THE FORM OF ITS SALT. THE MIXT. IS  
TREATED WITH AMMONIA AND THEN ACETONE UNTIL IMMISCIBLE LAYERS ARE  
OBTAINED.

UNCLASSIFIED

USSR

YEVELIN, LEONID, Horizont (German), No 44, Oct 70, p 22

Enterprises of the USSR electrical engineering industry have begun developing such materials. The total scientific-technical efforts in this direction are being carried out on all fronts inasmuch as the development of turbogenerators with such an enormous capacity require the concomitant development of transformers and other electrical equipment with corresponding capacities. These will also require new solutions.

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USSR

UDC 621.51

YEVENKO, V. I., Candidate of Technical Sciences, Docent

"The Exergetic Efficiency of a Compressor"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, pp 121-124

Abstract: When characterizing compressor efficiency, isothermal, adiabatic, and polytropic efficiencies do not take into account the fact that the real temperature of the compressed gas is higher than the theoretical temperature, and therefore that the work capacity of the gas delivered to the compressor is higher than the theoretical value. Consequently, these efficiencies are not real efficiencies, but are merely conventional values, and for this reason cannot serve as objective criteria of compressor economy. An unconditionally objective indicator for comparing the economy of various compressors can be established on the basis of the concept of gas exergy this being defined as the maximum work capacity of an energy source under given environmental conditions. The process of exergy conversion is accompanied by irrevocable losses of exergy (due to irreversibility phenomena). Exergetic efficiency is determined by all forms of exergy losses in the working processes of a compressor, and is a value which characterizes the economy of any type of compressor, both of the cooled type and of the uncooled type. In the case of the compression of an ideal gas,

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### Therapy

USSR

ANDRYEVA, YEVGENIYA, Central Research Laboratory, Riga Medical Institute

"The Threat of Rhesus Incompatibility Is Receding"

Riga, Nauka i Tekhnika, No 2, 1971, pp 33-36

Abstract: After describing the disease caused by rhesus incompatibility, the genetic aspects, etc, the author outlines the new Soviet method of prevention now undergoing trials in several Moscow and Leningrad clinics. Immediately after a Rh-negative woman gives birth to her first child in a maternity hospital, she receives a small quantity of antirhesus gamma globulin containing Rh antibodies. These antibodies bind the fetal Rh factor which together with fetal blood penetrate into the bloodstream of the mother during childbirth. In combining with the particles of the Rh factor, the antibodies neutralize it long before the mother begins to elaborate her own antibodies aimed at combatting the Rh factor of the fetus. The resulting antibody-fetal Rh factor complex is gradually excreted.

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YEV' GENYEV, M.B.

THE FIRST KOL'TSOV LECTURES

Article by Candidate of Biological Sciences M. B. Yevgenyev  
 Moscow, U.S.S.R. Academy of Sciences, Russian Fed. 119884  
 November 1973, pp. 122-123

On 9 June, in the large Zoological Auditorium of the  
 Russian Academy of Sciences, which were held the first  
 of the birth of N. K. Kol'tsov. A report on the life and even-  
 tuality of the scientist was presented by D. L. Arshavsky.

The scientific interests of N. K. Kol'tsov were unusually  
 broad. It suffices to say that his bibliography lists annually  
 about 350 publications devoted to quite varied questions of  
 theoretical biology, of which he is the acknowledged founder.  
 Among them will even be the hypothesis of the matrix replication of  
 information, which was developed by him and now has been con-  
 sidered to its basic principles. It was precisely N. K. Kol'tsov  
 who in early 1928 formulated the at first view paradoxical  
 hypothesis which is now known as the "molecular" hypothesis.  
 This hypothesis of the basic concepts of contemporary molecular  
 biology, the difference being that the genetic information is  
 reported to Kol'tsov to be coded not in DNA but in the high-  
 polymer protein chain.

The predictions of N. K. Kol'tsov in other areas of gene-  
 tic are also surprising. More than 10 years before the discovery  
 of radiation mutagenesis (1927) he called for the use of x-ray  
 to obtain new life forms. He directed researches also in  
 the direction of chemical mutagenesis -- and soon chemically  
 induced mutations were discovered in his institute by V. V.  
 Pavlov (Simulansky) and I. A. Nappoport and M. Ye. Lo-  
 bashov in Leningrad).

MS 53011

18 Jan 73

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YEVGEN'YEV, V. S.

50: JPRS 59354  
12 June 73

UDC 62.752.4

CHOICE OF SEVERAL PARAMETERS OF ADJUSTABLE GYROCOMPASSES

[Article by G. L. Dublik and V. S. Yevgen'ev, Kiev Polytechnic Institute; Leningrad, Iskustva VUZ, Prikladnaya Mekhanika, No. 3, 1973, pp. 75-83]

This article examines the question of selecting basic parameters for adjustable gyrocompasses with the aid of monograms.

Any number of papers have been devoted to analyzing errors in adjustable gyrocompasses with indirect control. The questions of designing these instruments, which are receiving increasingly wide use in systems of navigation and control of moving objects, have been discussed inadequately in the literature. In the present article we examine questions of selecting the basic parameters of adjustable gyrocompasses in which compensation is carried out of the moments of the forces of inertia producing ballistic errors in the instrument.

The equations of motion of an adjustable gyrocompass with indirect control can be written in the form:

$$\begin{aligned} H\ddot{\alpha} + H\omega_0\dot{\alpha} + A_2\alpha &= -h\frac{V}{g} + L_1^2, \\ H\ddot{\alpha} - (H\omega_0 + A_2)\dot{\alpha} &= A_2\frac{V}{g} + L_2^2. \end{aligned} \quad (1)$$

where  $H = V^2 \cos^2 \alpha$ ,  $L_1^2$  and  $L_2^2$  are the external moments applied to the axes of the gyrocompass support for compensation of the ballistic errors formed in accordance with the expressions:

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YEVGEN'YEVA, T. P.

Kak Kletki Obshchayutsya Drug s. Drugom (How Cells Communicate With One Another), Moscow, Znaniye Publishing House, Seriya Biologiya, No 2, 1974, 64 pp

Translation: Annotation: The author tells of the behavior of homogeneous and qualitatively different cells in tissue cultures, their movement by means of undulating membrane, contact inhibition, the process by which cells recognize one another, and many other aspects of cellular relations which are of prime theoretical and practical importance.

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USSR

UDC: 591.821

YEVGENIYEVA, T. P., Institute of the Evolutionary Morphology and Ecology of Animals imeni A. N. Severtsov, Academy of Sciences USSR, Moscow

"Heterotransplantation of Some Human Carcinomas Using Diffusion Chambers"

Moscow, Doklady Akademii Nauk SSSR, Vol 194, No 6, 1970, pp 1447-1449

Abstract: Small pieces (no larger than  $0.5 \text{ mm}^3$ ) of human tumors (solid gastric cancer, metastasis of solid gastric cancer to regional lymph nodes, mammary adenocarcinoma, mammary cirrhosis, bronchogenic lung cancer, and pseudomucinous testicular cystocarcinoma) were placed in diffusion chambers made of No. 1 millipore filters impermeable to cells (pore size, 0.1 to 0.3 microns in diameter) and implanted in rats and hamsters intraperitoneally or subcutaneously. The chambers were removed from the animals 3, 7, 10, 14, and 30 days after implantation. The malignant tissue continued to grow in the diffusion chambers in 90% of the cases regardless of the type of tumor or method of implanting the chambers. The morphology of the cells and nature of their growth were almost identical to those of the original tumors.

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USSR

UDC 621.762.001(088.8)

YEVGRAFOV, A. V., KORSAKOV, V. V., SKALDIN, B. A., ALEKSEYEV, G. I., KOZLOVA, G. N., and LEVANT, B. G.

"Instrument for Determining Concentration of Magnetic Powder in Suspension"

USSR Author's Certificate No 265554, Cl. 42 1, 13/04, (G01 n), filed 8 Aug 68, published 26 Jun 70 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3G351P by A. Epik)

Translation: A block diagram is presented and a description given of the working principle and operation of an instrument for determining the magnetic powder content of a suspension. The instrument contains a power unit, generator, buffer amplifier, sensing element, detector, d-c amplifier, and indicator. To increase measurement accuracy, assure linearity of readings, and simplify the scheme of the instrument, it is supplied with a magnetizer in the form of two coaxially situated annular permanent magnets. Two ferroprobe half-cells, connected via the d-c amplifier to the indicator, are installed in the magnet gap perpendicular to the axis of the magnets, with a vessel containing the medium under study mounted in the annular gap of the upper magnet. Two illustrations.

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USSR

UDC: 621.372.852.1

YEVGRAFOVA, G. A.

"Broadband Microwave Filters"

Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-izmerit. apparatura (Electronic Engineering, Scientific-Technical Collection of Control and Measurement Equipment) 1970, No. 3(21), pp 124-127 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3B156)

Translation: The computation of a broad-band UHF filter is presented and its structural dimensions and characteristics are given.

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YEVGRAFOVA, T. I.

JPRS 55570  
29 Nov 72

UDC: 362.11.007.4:658.351

INVESTIGATION OF WORK SCHEDULE OF HOSPITAL ATTENDANTS IN CLINICAL DEPARTMENTS OF HOSPITALS (BASED ON DATA FOR THE MUNICIPAL CLINICAL HOSPITAL IMeni S.P. BOININ, MOSCOW)

(Article by I.S. Sluchansko, Z.V. Zhebrachanskaya, Ye.K. Gelliyana, T.I. Yevgrafova; Moscow, Sovetskaya Zdravookhraneniye, Russian, No 2, 1972, submitted 12 August 1971, pp 31-33.)

Researchers are devoting more and more attention to organization of work of medical personnel. Studies are made of the work of doctors and nurses in polyclinics and hospitals. Yet we failed to encounter data in the literature dealing with analysis of the work done by male and female hospital attendants. The hiring and training of such workers as well as organization of their work are urgent problems in modern public health.

At the request of the public health commission of the Moscow Council of Workers' Deputies, in July and August 1970 we made a study of the training of female hospital attendants, their availability in a clinical institution, their activities, schedule of work time, existing system of organizing their work, for the purpose of reexamining it. This investigation was conducted using a method developed and used in the department of scientific organization of labor of the All-Union Scientific Research Institute of Social Hygiene and Public Health Organization (Imeni N.A. Semashko) as it applies to the objectives and tasks set before us. Specially trained nurses designated by the administration of the Hospital (Imeni S.P. Boinin) clocked the work done by the female attendants. The work of these attendants at each work place was studied around the clock for six days by the method of photographic work time and clocking. The material was processed statistically using variation statistics methods. Two therapeutic, two surgical, one neurological, and one neurosurgical department were selected for the study. We investigated the work of 19 attendants (female) including seven in the therapeutic departments, five in the surgical ones, three in the neurosurgical, and four in the neurological department.

The attendants studied ranged in age from 37 to 75 years, over 50 percent of them were 50-55 years of age and about 25 percent over 60 years old.

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--HYDROGENATION OF SUCCINIMIDE TO 2-PYRROLIDINONE. I. SOLVENT EFFECT  
ON THE CATALYTIC REDUCTION OF SUCCINIMIDE -U-  
AUTHOR--(03)--YEVGRASHIN, V.M., IOFFE, I.I., YAKUSHKIN, M.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (3), 355-8

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYTIC HYDROGENATION, NICKEL, DIOXANE, BUTANOL, SUCCINIC  
ACID, AMIDE, SOLVENT ACTION, PYRROLIDINE, KETONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/0981

STEP NO--UR/0409/70/000/003/0355/0358

CIRC ACCESSION NO--AP0124640

UNCLASSIFIED



272 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124640

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPD. (I) WAS  
HYDROGENATED AT 230DEGREES-200 ATM WITH 1:6:0.1 I SOLVENT RANEY NI. THE  
HIGHEST CONVERSIONS WERE OBTAINED IN DIOXANE (60.5PERCENT) AND IN BUOH  
(56.8PERCENT) AFTER 120 MIN. FACILITY: VSES. NAUCH.-ISSLED.  
INST. NEFTEKHIM. PROTSESS., LENINGRAD, USSR.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--APPROXIMATE EQUATIONS FOR THE TURBULENT MOTION OF AN INCOMPRESSIBLE  
FLUID -U-  
AUTHOR--YEVIYEV, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA MEKHANIKA ZHIKOSTI I GAZA,  
JAN.-FEB. 1970, P. 91-103  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--TURBULENT FLOW, INCOMPRESSIBLE FLUID, PROBABILITY  
DISTRIBUTION, FLOW VELOCITY, VELOCITY DISTRIBUTION, FLOW STABILITY  
EQUATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/1793 STEP NO--UR/0421/70/000/000/0091/0103  
CIRC ACCESSION NO--AP0112779  
UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0112779

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE PROBLEMS ASSOCIATED WITH THE DERIVATION OF AN APPROXIMATE SYSTEM OF EQUATIONS IN CLOSED FORM FOR THE TURBULENT FLOW OF AN INCOMPRESSIBLE FLUID. AN APPROACH TO THE FORMULATION OF APPROXIMATE CONDITIONS WHICH CLOSE THE SYSTEM OF EQUATIONS IS PROPOSED, AND A CLOSED SYSTEM OF APPROXIMATE EQUATIONS, WITHOUT EMPIRICAL CONSTANTS, FOR THE PROBABILITY DISTRIBUTIONS OF VELOCITIES AT FINITE POINT GROUPS IN TURBULENT FLOW IS OBTAINED.

UNCLASSIFIED

USSR

UDC 533.15

ZAKHAROV, A. P., SHARAPOV, V. M., and YEVKO, E. I., Institute of Physical Chemistry, Moscow

"Hydrogen Permeability of Molybdenum and Tungsten Polycrystals and Single Crystals"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 2, 1973, pp 29-33

Abstract: The coefficients of permeability and diffusion of hydrogen in polycrystals and single crystals of molybdenum and tungsten were determined and relationships describing these processes were obtained for the 400-1200 C temperature range 1-200 torr hydrogen pressure interval. It was established that as grain size increases, hydrogen permeability in polycrystals gradually decreases, approaching values possessed by single crystals. Thus it was concluded that grain boundaries have a decided effect on diffusion of hydrogen in polycrystals. Expressions for diffusion coefficients of hydrogen in molybdenum and tungsten were obtained from test results. 4 figures, 2 tables, 14 bibliographic references.

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Water and Water Treatment

USSR

UDC 543.3:537.533.35+537.533.73

DERYAGIN, B. V., YEVKO, E. I., KISIN, V. I., LUK'YANOVICH, V. M.,  
RABINOVICH, YA. I., CHURAYEV, N. V., and BARONCVA, R. V., Institute of Physical  
Chemistry, Academy of Sciences USSR; and Institute of Crystallography imeni  
A. V. Shubnikov, Academy of Science USSR

"Electron Diffraction Study of Modified Water"

Moscow, Doklady Akademii Nauk SSSR, Vol 208, No 3, 1973, pp 603-605

Abstract: Modified water (m.w.) was prepared by three processes on a quartz film in order to study the "anomalous component" (a.c.), e.g. that part of the m.w. which is nonvolatile at room temperature. The bulk of the sample is amorphous. The polytypic character of the different crystalline modifications of the a.c., seen earlier in electron micrographs and ascribed to impurities of  $\text{Na}^+$  and  $\text{K}^+$ , was evident in the electron diffraction patterns; in the latter case, however, it could not be correlated with  $\text{Na}^+$  or  $\text{K}^+$ . It was thus assumed that the crystalline part was composed of different contaminants. The diffraction pattern, autoradiographs of tritiated samples, and electron micrographs are included.

- END -

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CSO: 1841-W

USSR

UDC: 8.74

BABKO, L. D., YEVLADENKO, V. N.

"Automated System for Syntactical Testing of Responses of 'Recognizer' Students"

Mat. i Inform. Probl. Prognozir. i Upr. Naukoy [Mathematics and Information Problems in Prediction and Control of Science--Collection of Works], Kiev, 1971, pp 165-172 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V556, by V. Utkin)

Translation: The component parts of the "recognizer" system are defined: a recoder, models of automatic systems for syntactical checking of answers, including a model of an alpha-recognizer of syntactical correctness of students' answers, and an error locator. The system runs on the VESM-6 computer, occupies approximately 1000 words of memory and checks an average of 8000 symbols per second. A grammatical system describing one version of ALGOL-60 is presently connected to it.

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USSR

UDC 8.74

YEVLADENKO, V. N.

"A Method of Constructing Parametric Systems of Syntactic Adjustment"

Kiev-Alushta, Teoriya yazykov i metody postroyeniya sistem programmir.--  
sbornik (Theory of Languages and Methods of Constructing Programming Systems--  
collection of works), 1972, pp 357-368 (from RZh-Matematika, No 1, Jan 73,  
abstract No 1V818 by V. Mikheyev)

Translation: The paper presents a general approach to construction of a  
parametric system of syntactic adjustment. By syntactic adjustment the  
author means: 1) finding syntactic contradictions (syntactic errors) in the  
program; 2) printing out information on these program contradictions in a  
form of maximum convenience to the user from the standpoint of detecting and  
eliminating these contradictions; 3) automatic and automated correction of  
the contradictions found in the program. A general model of the parametric  
system of syntactic adjustment is presented together with a functional dia-  
gram. The parametric system of syntactic adjustment is oriented toward the  
class of input languages. The basic components of the system are: a control  
unit; a syntactic check unit; syntactic tables which give the syntax of the

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USSR

YEVLADENKO, V. N., Teoriya yazykov i metody postroyeniya sistem programmir.,  
1972, pp 357-368

input languages; an interpreter of syntactic errors. The principal characteristics of realizations of the parametric system of syntactic adjustment on the BESM-6 and M-220 computers are presented.

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USSR

YEVLADENKO, V. N.

"Method of Construction of Parametric Syntactical Debugging Systems"

Teoriya Yazykov i Metody Postroeniya Sistem Programmir. [The Theory of Languages and Methods of Construction of Programming Systems], Kiev-Alushta, 1972, pp 357-368 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V818 by V. Mikheyev).

Translation: A general approach is presented to the construction of a parametric syntactical debugging system (PSDS). Automatic debugging means: 1) determination of syntactical contradictions (syntactical errors) in a program; 2) output of information on these contradictions in the program in the form most convenient to the user from the point of view of their detection and correction; 3) automatic and automated correction of contradictions noted in a program. A general model of a PSDS and diagram of its functioning are presented. The PSDS is a system oriented to a class of input languages. Its basic components are: control section; syntactical control sections; syntactical tables fixing the syntax of the input languages; syntactical error interpreter. The basic characteristics of realizations of PSDS using the BESM-6 and M-220 computers are presented. 14 Biblio. Refs.

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AN0036668

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USSR

YIVLADOV, B., Pravda Correspondent

JPRS 49948

"Reporting by Neurons"

Moscow, Pravda, 12 Jan 70

Translation: Novosibirsk 11. Strange, semitransparent structures, odd interlacings appear on the screen. In a second the whole fantastic picture reappears; the capillaries begin to pulsate, extend, form new angles and networks, expand. Time-lapse photography permits the observer to see the secrets of development of nerve cells, of brain neurons. This is not just a popularized scientific film. Rather, it is genuine reporting, conducted, as it were, by the neurons themselves. This fine filmed study was done for the first time in the country by scientists at the Institute of Physiology, Siberian Department of the Academy of Sciences USSR. The authors of this film, Candidates

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of Science V. Bystrov, S. Olenov and M. Shtokman, traced the development of nerve cells outside the body for 24 hours. This new method has great possibilities for understanding the surprising transformations and the marvelous communication which characterize brain development. The filmed study was shown at the opening of an exhibition of the achievements of biological and medical institutes of Novosibirsk.

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USSR

YEVLADOV, B., Pravda Correspondent

"Reporting by Neurons"

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Translation: Novosibirsk 11. Strange, semitransparent structures, odd interlacings appear on the screen. In a second the whole fantastic picture reappears; the capillaries begin to pulsate, extend, form new angles and networks, expand. Time-lapse photography permits the observer to see the secrets of development of nerve cells, of brain neurons. This is not just a popularized scientific film. Rather, it is genuine reporting, conducted, as it were, by the neurons themselves. This fine filmed study was done for the first time in the country by scientists at the Institute of Physiology, Siberian Department of the Academy of Sciences USSR. The authors of this film, Candidates of Science V. Bystrov, S. Olenov and M. Shtokman, traced the development of nerve cells outside the body for 24 hours. This new method has great possibilities for understanding the surprising transformations and the marvelous communication which characterize brain development. The filmed study was shown at the opening of an exhibition of the achievements of biological and medical Institutes of Novosibirsk.

USSR

UDC 632.7:632.937

YEVLA KHOVA, A. A., All-Union Institute for Plant Protection, Leningrad

"Prospects for the Use of Entomopathogenic Fungi in the Biological Control of Insect Pests"

Leningrad, Mikologiya i Fitopatologiya, Vol 5, No 2, 1971, pp 105-114

Abstract: This is a comprehensive and detailed literature review on the fungus pathogens which may be suited for insect control. Fungi can penetrate into the insect organism not only perorally, but also through integument and breathing orifices, so that hosts in the inactive phase can be infected as well. Work done in the Soviet Union and abroad is covered by this review. Although the use of fungi in the fight against insects has not yet been wide-spread or on a large scale, further research into the problem of producing effective fungus preparations with enhanced virulence and the development of methods for the mass production of such preparations, perhaps by radiation or chemical mutagenesis and subsequent selection of the most promising variants, will broaden the use of these promising pathogens.

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USSR

UDC 621.646.958

BERMAN, L. G., YEVLAMPIYEV, A. I., KARLOV, V. I.

"GTI-6 Halide Leak Detector"

Moscow, Kholodil'naya Tekhnika, No 6, 1971, pp 27-30

Abstract: The GTI-6 pressure-vacuum halogenated gas leak detector is described. The sensor of the leak detector comprises two platinum electrodes (a collector and an incandescent emitter) reacting to the partial pressure of the test gas. It operates on the principle of emission of positive ions by incandescent platinum and a sharp increase in this emission in the presence of halide compounds. The operation of the device is described, and schematics of its assemblies are presented. Curves for the leak detector signal as a function of the volumetric flow rate of the test gas through the sensor at various temperatures of the emitter show that longer presence of halides in the sensor caused by a decrease in the volumetric flow rate to  $V = 0.05-0.1$  liters/minute increases the ionization efficiency and, consequently, the reading and sensitivity of the detector. Below 0.05 liters/minute contamination of the emitter takes place. A table is presented showing the comparative characteristics of various Soviet and the best foreign halide leak detectors. The GTI-6 will go into series production in 1971.

1/1

USSR

UDC 613.5:628.8(98)

MURAV'YEVA, G. I., and YEVIAMPIYEVA, M. N., Institute of General and Communal Hygiene imeni A. N. Sytin, Academy of Medical Sciences USSR; Central Institute of Advanced Training for Physicians, Moscow.

"Differential Parameters of the Microclimate for Living Areas in the Far North"

Moscow, Gigiyena i Sanitariya, No 1, Jan 71, pp 20-23

Abstract: Tests were conducted in an aerodynamic cold chamber on healthy subjects 19-30 yrs old to determine permissible conditions that must exist in living areas in the Far North. The temperature in the chamber was varied from minus 15 to minus 19°C and the velocity of air in it from 0 to 4.5 m/sec. The clothing and activities of the subjects were varied to imitate those under actual conditions. The skin temperature, heat production, and the intensity of body thermoregulation were determined. Furthermore, the degree of comfort of the subjects was established. On the basis of the results obtained, the wind velocity at temperatures down to minus 20°C should not exceed 3 m/sec in outdoor areas destined for rest (slow walking), while it may be as high as 4-4.5 m/sec at the same temperatures in outdoor areas for games and physical training. In tests conducted at 3-15°C, it was established that the temperature in covered, heated passages between inhabited buildings should not be lower than 12-15°C.

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AN0032391

LR 9012

FROM: FBIS Daily Report, Soviet Union, 2 March 1970, Vol III, Nr 41, p D 1

USSR

SIBERIAN SCIENTISTS REVIEW YEAR'S ACHIEVEMENTS

Moscow PRAVDA 25 Feb 70 L

[B. Yevlandov report: "Siberian Scientists Have Met"]

[Text] Novosibirsk, 24 February--In the House of Scientists at Akademgorodok a general meeting of the Siberian Section of the USSR Academy of Sciences opened today.

Scientific research centers in Siberia continue to grow and extend. Last year the section was supplemented by some new institutes. In Tomsk, for example, atmospheric-optics and petro-chemical institutes were organized. Training cadres with higher qualifications was performed faster and better than in preceding years.

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USSR

UDC 62-501.22

YEVLANOV, L. G.

"Methods of Analysis of Dynamic Systems Containing Random Parameters. III"

Moscow, Avtomatika i Telemekhanika, No 7, 1970, pp 21-27

Abstract: Nonlinear dynamic systems having random quantities as parameters and additive perturbations are analyzed. Equations are produced for the probability density and moments of the vector of phase coordinates of the system. A method is suggested for determination of the distribution and moments of phase coordinates of dynamic systems containing these parameters and perturbations by analyzing the random quantities as system variables, for which additional equations are derived. The total dimensionality of the equations describing the operation of the system is  $n + m$ , where  $n$  is the order of the differential equations of the system, and  $m$  is the number of random parameters in the system and perturbing functions. The influence of additive gaussian white noise is also considered.

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Acc. Nr: **AP0040871**

Ref. Code:

**UR.0103**

PRIMARY SOURCE: Avtomatika i Telemekhanika, 1970, Nr 1, pp 45-53

**STATISTIC INVESTIGATION OF NONLINEAR AUTO-OSCILLATORY  
SYSTEM UNDER NONSTATIONARY CONDITIONS**

Yevlanov, L. G.; Kazakov, I. Ye.

There is considered the problem of determining the correlation functions of the phase coordinates of nonlinear systems under nonstationary conditions on the basis of the method of statistic linearization. It is shown that the application of the method allows to effectively investigate transient processes and moving conditions in auto-oscillatory, extremal and in variable structure systems under random initial conditions and disturbances as well as to analyse transient processes in auto-oscillatory systems in the absence of random disturbances.

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UDC 62-50

YEVLANOV, L. G.

Kontrol' Dinamicheskikh Sistem (Dynamic System Control), Moscow, Chief Editorial Board on Physicomathematical Literature of "Nauka" (Science) Publishing House, 1972, 424 pp, Annotation p 4

Translation of Annotation: The book sets forth the principles of the synthesis of control characteristics of complex dynamic systems, considered as mathematical models of various kinds of moving objects, automatic complexes, electronic and electromechanical equipment, and other devices.

The technical condition of controlled plants is evaluated; control characteristics are determined; and the synthesis of optimal decision-making and parameter-measuring systems is considered. Questions of predicting the data obtained during the control process and methods of statistical analysis and systems synthesis are taken up. Controlled plants are treated as dynamic systems with random parameters. This makes it possible to synthesize control characteristics in the planning and development stage of the devices.

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USSR

YEVLANOV, L. G., Kontrol' Dinamicheskikh Sistem, Moscow, "Nauka," 1972, p 4

The book is intended for engineers, scientists, and students specializing in the research and development field of automatic systems and control systems for them.

Three tables; 67 illustrations; bibliography with 108 titles.

2/2

Nickel

3

USSR

UDC: 669.243.45

SHAMRO, E. A., VYAZ'MIN, O. A., YEVLANOV, S. F., GOLGER, S. P., BONDARENKO, B. I., and PEKACH, V. F.

"Reduction Kinetics of Commercial Nickel Oxide in a Fluidized Bed Using Gas Mixtures as Reducing Agents"

Moscow, Tsvetnyye Metally, No. 12, Dec 70, pp 10-13

Abstract: Results of laboratory studies are presented on the reduction of sintered nickel oxide in a fluidized bed. The experiments were conducted in quartz reactors, 35-38 mm in diameter, with external electric heating. The degree of reduction of the material was measured by weight differences between the initial and reduced samples. Allowances were made for weight losses related to natural analysis of visual observations of the quality of fluidization and data on the beginning of conglomeration of the material, providing an optimum value of fluidization of  $w_{fl} = 2$ . The experimental.

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USSR

SHAMRO, E. A., et al, Tsvetnyye Metally, No. 12, Dec '70, pp 10-13

results on reducing nickel oxide with hydrogen-carbon monoxide ( $H_2:CO=1:1$ ) and hydrogen-methane ( $H_2:CH_4=2:1$ ) mixtures have shown that the reduction capacity of hydrogen-carbon monoxide mixtures depends largely on hydrogen content since hydrogen is chemically more active. In the hydrogen-methane mixture both are fairly active reducing agents. Figures in the original article demonstrate the dependence of the degree of reduction on reduction duration with converted gas at various temperatures and the dependence of the degree of gas utilization on the duration of reduction with hydrogen at various temperatures. The gas utilization efficiency is a linear function of the height of the layer of material being reduced. It was found that the gas utilization efficiency in reduction with converted gas is higher than that with hydrogen.

2/2

- 37 -

Nickel

UDC 669.24.492

USSR

BONDARENKO, B. I., PERACH, V. F., SHAMPO, E. A., VYAZ'MIN, O. A., YEVLANOV, S. F., and GOLGER, S. P.

"Fluidization of Industrial Nickel Powder"

Moscow, Tsvetnyye Metally, No 5, May 70, p 24

Abstract: The results of an experimental determination of the fluidization onset rate of nickel powder containing 5-6% Cu and 3% Fe, with 2010 kg/l bulk density and apparent weight of 5.36 kg/l, for various powder fractions are presented in tabular form, together with data on Reynolds (Re) and Fedorov numbers calculated for each test condition. An equation for determining the first critical rate of fluidization onset is derived on the basis of experimental data.

1/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--MONOCHROMATIC MORPHOLOGY OF POLAR AURORA ACCORDING TO THE DATA OF  
THE PATROL SPECTROGRAPH IN MURMANSK -U-  
AUTHOR--YEV LASHIN, L.S.  
COUNTRY OF INFO--USSR  
SOURCE--KAZDEL IV, POLYARNYYE SIYANIYA, 1970, NR 19, PP 12-26  
DATE PUBLISHED-----70  
SUBJECT AREAS--ATMOSPHERIC SCIENCES, EARTH SCIENCES AND OCEANOGRAPHY,  
PHYSICS  
TOPIC TAGS--AURORA, POLAR AREA, SPACE TIME, SPECTROGRAPH, IONOSPHERIC  
DISTURBANCE, GEOMAGNETIC FIELD  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1994/0108 STEP NO--UR/3307/70/000/019/0012/0025  
CIRC ACCESSION NO--AP0114504  
UNCLASSIFIED



2/2 020

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0114504

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

ABSTRACT. ON THE BASIS OF THE ANALYSIS OF SPACE TIME DISTRIBUTION OF DIFFERENT TYPES OF AURORAE AND THEIR ASSOCIATION WITH PARAMETERS OF THE DISTURBED IONOSPHERE AND THE GEOMAGNETIC FIELD THE PAPER DETERMINES THE DEGREE OF CHANGES OF CHARACTERISTICS OF THE STREAMS OF PARTICLES CASUING AURORA FROM THE YEAR OF THE MAXIMUM TO THE YEAR OF THE MINIMUM OF SOLAR ACTIVITY. DURING THAT PERIOD THE PROPERTIES OF THESE STREAMS HAVE SHOWN CONSIDERABLE CHANGES. THE INTENSITY OF THE ELECTRON AND PROTON STREAMS PRECIPITATING IN THE ZONE OF MAXIMAL AURORAE RECURRENCE HAS CONSIDERABLY SUBSIDED TOWARDS THE YEARS OF THE MINIMUM OF SOLAR ACTIVITY. THE ENERGY SPECTRUM OF THE PROTON STREAMS PRACTICALLY DID NOT CHANGE. THE ENERGY SPECTRUM OF ELECTRONS, BEING VERY WIDE IN THE YEARS OF THE MAXIMUM, BECAME MORE MONOCHROMATIC AS THE RESULT OF A CONSIDERABLE REDUCTION OF THE LOW ENERGY PART OF THE ELECTRON STREAMS. THE CHARACTER OF SPACETIME RELATIONS OF THE ELECTRON AND PROTON STREAMS IN THE EARTH'S ATMOSPHERE REMAINS UNCHANGED DURING SEVERAL YEARS FROM THE MAXIMUM TO THE MINIMUM OF SOLAR ACTIVITY.

UNCLASSIFIED

1/2 037 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--THE DIFFERENTIAL DIAGNOSIS OF SOME OCCUPATIONAL ANEMIAS -U-  
AUTHOR--(02)-SORKINA, N.S., YEVLASHKO, YU.P.  
COUNTRY OF INFO--USSR  
SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 3, PP 83-89  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ANEMIA, PORPHYRIN, METABOLISM, TEST, POISON EFFECT, LEAD,  
HYDROCARBON  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/1689 STEP NO--UR/0497/70/048/003/0083/0089  
CIRC ACCESSION NO--AP0129059  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0129059

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER PRESENTS DATA ON THE DIFFICULTIES ENCOUNTERED IN THE DIFFERENTIAL DIAGNOSIS BETWEEN ANEMIAS ASSOCIATED WITH THE ACTION OF LEAD AND BENZOL, AND ANEMIA OF NONOCCUPATIONAL ETIOLOGY. THE AUTHORS STUDIED ALL THE INDICES OF PORPHYRIN METABOLISM, USING THEM IN A NUMBER OF CASES AS AN EARLY AND RELIABLE DIFFERENTIAL DIAGNOSIS TEST (IN LEAD POISING). SUBJECT TO DISCUSSION IS THE POSSIBILITY OF UTILIZING INDICES OF THE PORPHYRIN METABOLISM AS ONE OF THE DIFFERENTIAL TESTS IN BENZOL POISONING.

UNCLASSIFIED

172 050 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--GROWTH OF METALLIC FILMS IN CONDENSATION FROM AN ATOMIC BEAM  
IRRADIATED WITH ELECTRONS -U-  
AUTHOR--(04)-POSTNIKOV, V.S., ZOLOTUKHIN, I.V., MORGUNOV, V.N., YEVLEV,  
COUNTRY OF INFO--USSR  
SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 441-442  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, MATERIALS  
TOPIC TAGS--EPITAXIAL GROWTH, METAL FILM, METAL VAPOR DEPOSITION, GAS  
IONIZATION, ELECTRON BEAM, GOLD, SILVER, ALUMINUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--3002/1822 STEP NO--UR/0126/70/029/002/0441/0442  
CIRC ACCESSION NO--AP0129190  
UNCLASSIFIED

2/2 050

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129190

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, THE EFFECT OF IONIZED METAL ATOMS ON THE EPITAXIAL GROWTH OF FILMS CONDENSED FROM THE GAS PHASE WAS STUDIED BY IRRADIATING EVAPORATED ATOMIC BEAMS OF AU, AG, AND AL FROM THE SIDE WITH AN ELECTRON BEAM, SO AS TO CREATE A PROPORTION OF IONIZED PARTICLES PRIOR TO DEPOSITION. THE ELECTRON IRRADIATION GREATLY PROMOTED THE EPITAXIAL GROWTH OF THE METALLIC FILMS ON ROCK SALT, THE IONIZED PARTICLES HAVING A FAVOURABLE EFFECT ON COALESCENCE AND CONTINUITY.

UNCLASSIFIED

YEVLOYEV, S. I.

JPRS 55-341  
677ab 72

UDC: 611.127:611.83].014.477-019

THE EFFECT OF TRANSVERSE G FORCES ON ATRIAL NERVE CELLS (EXPERIMENTAL MORPHOLOGICAL INVESTIGATION)

(Article by S.S. Mikhaylov, V.M. Klebanov, S.I. Yevloyev, Chair of Normal and Topographic Anatomy (headed by Professor S.S. Mikhaylov), Moscow Medical Stomachological Institute, and Chair of Operative Surgery (headed by Doctor V.M. Klebanov), Toelinoegrad Medical Institute; Leningrad, Arkhiv Anatomii, Gistologii i Embriologii, Russian, No 11, 1971, submitted 28 January 1971, pp 37-47)

In view of the successful development of space medicine in the last decade, one of its special directions, space morphology, is beginning to form. A great achievement in this direction consisted of the numerous investigations of changes in the vascular system occurring under the influence of gravitational stress performed under the supervision of M.G. Prives (1963-1970). Some interesting studies were made of the effect of G forces on cells and organs (V.G. Yeliseyev, 1956, 1964; Yu.N. Kopyev, 1963, 1967; V.G. Petrukhin, 1962, 1963; L.S. Sutulov, 1970, and others).

However, to date, there have been relatively few studies of changes in the nervous system following accelerations, the possibility of developing tolerance and adaptation to gravitational stress, as well as cumulation of gravitational factors.

It was shown in some investigations (V.P. Kurkovevsky, 1957; V.G. Petrukhin, 1962; B.S. Glushkov, 1963, 1965; D.I. Medvedev, 1963, 1965, and others) that dystrophic and degenerative changes, consisting of swelling, wrinkling of cells; chromatolysis, vacuolization of neuronal cytoplasm, etc occur under the influence of moderate gravitational stress. Under the influence of single [negative] accelerations (Beckmann and Ratcliffe, 1956) many nerve cells perish. M.G. Prives, V.V. Stepanov, and A.V. Yeremin (1970) demonstrated changes in the nerve endings.

There have been practically no studies of changes in cardiac nerve cells under the influence of accelerations, and this was the objective of the study whose results are submitted herein.

USSR

UDC 632.911

YEV MENENKO, A. F., Senior Laboratory Assistant, Nikitskiy Botanical Garden,  
Yalta

"The Use of Punch Cards in Phytopathological Examinations"

Moscow, Zashchita Rasteniy, No 10, 1971, pp 44-45

Abstract: Information on the diseases of fruit trees was formerly recorded in journals, but now the same information is coded on punch cards with a double row of edge perforations. Each tree has its own card, containing such information as the number of the tree, the year it was planted, the stock it belongs to, and its diseases (evaluated on a 5-point scale when feasible). The new system makes it possible to process data rapidly and accurately and to carry out a simultaneous multiple search on a chosen topic.

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1/2 024 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--KINETICS OF ETHANOL OXIDATION ON AN IRON MOLYBDENUM CATALYST -U  
AUTHOR--YEV MENENKO, N.P., GOROKHAVATSKIY, YA.B.  
COUNTRY OF INFO--USSR  
SOURCE--KINET. KATAL. 1970, 11(1), 130-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ETHANOL, CATALYTIC OXIDATION, IRON, MOLYBDENUM, METHANOL,  
CHEMICAL KINETICS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1989/0202 STEP NO--UR/0195/70/011/001/0130/0133  
CIRC ACCESSION NO--AP0106858  
UNCLASSIFIED



2/2 024

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106858

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF ETOH OXIDN. ON A  
FE-MO CATALYST WAS STUDIED AT 180-240DEGREES. AT 200DEGREES, THE RATE  
CONST. OF THE OXIDN. WAS 1.68 TIMES 10 PRIME7 MOLE-L. HP. THE  
ACTIVATION ENERGY IS 14.9 KCAL-MOLE. THE STUDY REVEALS THAT THE  
KINETICS OF ETOH OXIDN. IS ANALOGOUS TO THAT MECH OXIDN.

UNCLASSIFIED

USSR

UDC 621.221.2

~~YRMEYEV, V. P.~~, KOZHUKHOV, I. V., NICHIPORENKO, N. T., and  
KHULAP, G. D., Leningrad Higher Engineering Nautical School  
imeni Admiral S. O. Makarov, Ventspils Commercial Seaport Admin-  
istration

"Experience in Determination of Sea Wave Elements by the Radar  
Method"

Kiev, Gidromekhanika, No 18, 1971, pp 22—26

Abstract : Observational opportunities of the radar method of  
measuring horizontal parameters of a developed swell in the  
coastal zone are discussed and the experience in determining  
some swell parameters in the Ventspils port zone with the help  
of a radar station of single-wire transmission line in the mm-  
band is described. The radar pictures of steady sea swell ob-  
served by wind velocities of 16—23 m/sec show a sufficiently  
clear plane swell pattern from which some parameters of wave  
motion could be determined. Calculated average values of phase

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USSR

YEVGENOV, V. F., et al., Gidromekhanika, No 18, 1971, pp 22-26

velocity, wave length, and angle of approach of wave crests are tabulated. The radar method is considered to be sufficiently exact, simple, and reliable by working under unfavorable meteorological conditions. Two illustr., one table, five formulas, three biblio. refs.

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USSR

UDO 621.397.34

YEVNEVICH-CHEKAN, O.V.

"Computation Of Equalizers Of Amplitude-Frequency Characteristics For Television Connecting Lines"

Elektrosvyaz', No 2, 1972, pp 6-13

Abstract: Preliminary requirements are given for the amplitude-frequency characteristics of television connecting lines. The circuits of AFC equalizers are described. The order of computation of the generalized characteristics of the equalizers is shown and the results of computation are presented. A number of cable types are listed with which the equalizers can be used. 7 fig. 3 tab. Received by editors 2 Aug 71.

1/1

USSR

UDC 616.53-008.6-02: [616-008.922.1.04+616.12-008.46] (047)

YEVNINA, I. I., and IVASHKEVICH, E. I., Novosibirsk Scientific Research  
Institute of Pathology of Blood Circulation RSFSR Ministry of Health

"The Effect of Oxygen Deficiency and Cardiac Insufficiency on Glucocorticoid  
Activity of the Adrenal Cortex"

Moscow, Terapevticheskiy Arkhiv, Vol 43, No 2, Feb 71, pp 13-18

Abstract: A brief review of the literature on the effect of chronic hypoxia and pulmonary-cardiac insufficiency on adrenocortical activity is presented. The opinions expressed are highly contradictory, but despite the contradictions, it has been established that oxygen deficiency induces deep changes in metabolic processes, particularly affecting the excretion of corticosteroids. Changes in adrenocortical activity induced by pulmonary-cardiac diseases are analogous to those caused by chronic hypoxia. Studies of patients with cardiac insufficiency showed morphological changes in the adrenals such as glandular hypertrophy, hyperplasia in the nodal zones, and the development of cavities and hemorrhages in these zones. The changes are also characterized by progressive adrenal inadequacy due to the muscular load required for breathing, energy for which is furnished chiefly by carbohydrate metabolism. Literature data on adrenocortical hypofunction of  
1/2

USSR

YEVNINA, I. I., and IVASHKEVICH, E. I., Terapevticheskiy Arkhiv, Vol 43, No 2, Feb 71, pp 13-18

rheumatic etiology, and hypofunction due to cyanotic and other types of cardiac diseases are also reviewed. The literature data, despite contradictions on the effect of hypoxia on the secretion of corticosteroids and metabolites, confirm the fact that prolonged chronic hypoxia depresses and in the end exhausts adrenocortical functional activity.

2/2

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USSR

VINOKUROV, V. G., DIMITRIYEV, Yu. K., YEVREINOV, E. V., KOSTELYANSKIY, V. M.,  
LEKHNOVA, G. M., MIRENKOV, N. N., REZANOV, V. V., KHOROSHEVSKIY, V. G.

"A Homogeneous Computer System of Minicomputers"

Vychisl. Sistemy [Computer Systems -- Collection of Works], No 51, Novosibirsk,  
1972, pp 127-145 (Translated from Referativnyy Zhurnal Kibernetika, No 6,  
1973, Abstract No 6V600, by the authors).

Translation: The expediency is demonstrated of constructing homogeneous com-  
puter systems (HCS) of minicomputers. A two-dimensional computer system, the  
MINIMAKS is described. The elementary machines of this system are based on  
ASVT-M modules. The composition of typical HCS software is presented. 20  
biblio. refs.

1/1

1/2 037 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--MODEL OF A REACTOR-SEPARATOR FOR FLUIDIZED-BED PROCESSES WITH A  
SEPARABLE HEAT-TRANSFER AGENT -U-  
AUTHOR--(03)-BRUNTSEKHOVCI, A.R., KATSOBASHVILI, YA.R., YEVREYNOY, A.V.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. PRGM. (MOSCOW) 1970, 46(1), 53-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS  
TOPIC TAGS--MODEL, FLUIDIZED BED, CHEMICAL SEPERATION, INDUSTRIAL  
PRODUCTION, HYDROGEN, CATALYST, HEAT TRANSFER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1990/2047 STEP NO--UR/0064/70/046/001/0053/0055  
CIRC ACCESSION NO--AP0109979  
UNCLASSIFIED



2/2 037

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109979

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN A FLUIDIZED BED REACTOR SEPARATOR FOR THE PRODUCTION OF  $H_2$  BY CONVERSION OF HYDROCARBON GASES (B.-T., ET AL., 1964), THE CATALYST CONC. AT THE OUTLET OF THE APP. 1ST DECREASED AND THEN INCREASED WITH INCREASING GAS VELOCITY,  $W$ , IN THE COLUMN; THE MIN. IN CATALYST CONC. CORRESPONDED TO  $W$  OF THE ORDER OF 0.30-0.35 M, SEC, BUT ITS EXACT VALUE DEPENDED ON THE GAS VELOCITY IN THE BLOWING ZONE OF THE APP. THE FREE CROSS SECTION OF THE TRAYS HAD LITTLE EFFECT ON THE CATALYST CONC. AT THE OUTLET AND ON THE DETREE OF SEPN., PROVIDED THAT THE HOLE DIAM. WAS LESS THAN OR EQUAL TO 1.2 MM. AN EQUATION FOR THE CALC. OF THE MIN. CATALYST CONC. IN THE GAS IS PROPOSED.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--MOLECULAR WEIGHT DISTRIBUTION AND FUNCTIONALITY OF OLIGOMERIC  
POLYDIETHYLENE GLYCOL ADIPATES -U-  
AUTHOR--(04)--YEVREINOV, V.V., GERBICH, V.I., SARYNINA, L.I., ENTELIS, S.G.  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 829-35  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ETHYLENE GLYCOL, MOLECULARWEIGHT, CHROMATOGRAPHIC ANALYSIS,  
HYDROXYL RADICAL, SILICA GEL/(U)ASK SILICA GEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/1263 STEP NO--UR/0459/70/012/004/0829/0835  
CIRC ACCESSION NO--AP0134937  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134937

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. OLIGOMERIC POLY(DIETHYLENE GLYCOL ADIPATES) (I) (OF MOL. WT. 370-2240) WERE FRACTIONATED BY ELUTION CHROMATOGRAPHY (BY USING SILICA GEL ASK (II) AS A SOLID PHASE AND NECTOET AS AN ELUENT). THE FRACTIONATION OF I DEPENDED PRIMARILY ON THE ADSORPTION INTERACTION OF TERMINAL OH GROUPS WITH II. THE PERCENTAGE OF I MOLS. CONTG. FEWER THAN 2 TERMINAL OH GROUPS AND THEIR MOL. WT. DISTRIBUTION WAS EVALUATED FROM THE DEVIATION OF THE  $\mu$  SUBN PRIMEOH:MN RATIO FROM UNITY ( $\mu$  SUBN IS THE NO. AV. MOL. WT. AND  $\mu$  SUBN PRIMEOH IS THE MOL. WT. DETD. FROM THE NO. OF TERMINAL OH GROUPS).  
FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--DOUBLE MEMBRANE DILATOMETER -U-  
AUTHOR--(05)-SARYNINA, L.I., ANTROPOV, A.A., YEVREINOV, V.V., ENTELIS,  
S.G., BOZHKOV, A.K.  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 705-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--DILATOMETRIC ANALYSIS, POLYMERIZATION, CHEMICAL REACTION RATE,  
OLIGOMER, ADIPATE, POLYETHYLENE, ORGANIC ISOCYANATE, CHEMICAL LABORATORY  
APPARATUS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1992/0312 STEP NO--UR/0459/70/012/003/0705/0709  
CIRC ACCESSION NO--AP0111506  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111536

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DILATOMETER CONSISTS OF 2 HERMETICALLY SEALED CHAMBERS SEPD. BY A MEMBRANE. THE POLYM. IS CONDUCTE IN 1 CHAMBER AND THE OTHER IS CONNECTED TO A REGULATING RECORDING SYSTEM, WHICH AUTOMATICALLY EQUALIZES THE PRESSURE ON BOTH SIDES OF THE MEMBRANE AND RECORDS ITS CHANGES. THE APP. WAS CHECKED BY DETG. THE RATE CONSTS. OF THE REACTION BETWEEN OLIGOMERIC POLY(ETHYLENE ADIPATE) AND ALPHA NAPHTHYLENE DIISOCYANATE, HEXAMETHYLENE DIISOCYANATE, OR 4,4PRIME DIPHENYLMETHANE DIISOCYANATE, DILATOMETRICALLY AS WELL AS BY A CHEM. METHOD (H. E. STAGG, 1946).

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--FORMATION OF CARBON BLACK DURING THE THERMAL DECOMPOSITION OF  
HYDROCARBONS -U-  
AUTHOR--(03)-TSYGANKOVA, E.I., ZYUEV, V.P., YEVREINOVA, M.D.  
COUNTRY OF INFO--USSR  
SOURCE--GAZOV. PROM. 1970, 15(2), 40-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CARBON BLACK, THERMAL DECOMPOSITION, PYROLYSIS, ANTHRACENE,  
NAPHTHALENE, XYLENE, BENZENE, TOLUENE, PENTANE, CYCLOHEXANE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/0055 STEP NO--UR/0492/70/015/002/0040/0043  
CIRC ACCESSION NO--AP0125890  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125890

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

ABSTRACT. THE PYROLYSIS OF SMALLER THAN 5PERCENT HYDROCARBON IN N WAS STUDIED AT A FEED RATE OF 500 ML-MIN IN 10, 20, AND 30 MM DIAM. TUBES OVER A 360-MM ZONE HEATED TO 1100DEGREES. THE HYDROCARBONS STUDIED WERE ANTHRACENE, NAPHTHALENE, TETRALIN, DECALIN, XYLENE, PHME, C SUB6 H SUB6, PENTANE, CYCLOHEXANE, AND SOME OF THEIR MIXTS. REDUCING THE TUBE DIAM. LOWERED THE YIELD OF C AND INCREASED ITS SPECIFIC SURFACE. YIELDS FROM ALL COMPOS. WERE SIMILAR AND REACHED A MAX. OF 0.5-0.6 G-G HYDROCARBON AT 3PERCENT CONCN., EXCEPT NAPHTHALENE (0.65 G-G AT 1PERCENT), AND ANTHRACENE (0.9 AT 2.5PERCENT AND STILL INCREASING). SPECIFIC SURFACE FOR ALL COMPOS. BECAME CONST. AT 20 M PRIME2-G AT SIMILAR TO 2PERCENT CONCN. BINARY MIXTS. BEHAVED LIKE THE SUM OF THE INDIVIDUAL COMPOS. COMPOS. PRESENT IN LOW CONCN. HAD NO EFFECT.

UNCLASSIFIED

Exobiology

USSR

UDC "50".001.1:576.1

YEVREINOVA, T. N., Department of Plant Biochemistry, Moscow State University  
Imeni M. V. Lomonosov, Moscow

"50 Years of the Theory of the Origin of Life"

Moscow, Biologicheskiye Nauki, No 12, (108), 1972, pp 73-76

Abstract: Fifty years have elapsed since A. I. Oparin conceived and published his monumental study on the origin of life on earth. Oparin's materialistic approach led to his theory that, under certain conditions, living matter can arise from nonliving matter through the formation of complex molecules of carbon without the participation of living systems. This abiogenic approach has been extended to the point where today we know that proteins and nucleic acids could also have arisen in this manner. In essence, Oparin's theory, which is now universally accepted, consists of four stages. Stage 1 involved the formation of hydrocarbons, cyanides and their derivatives in outer space and during Earth's formation. The second stage involves the formation in our atmosphere and the oceans of more complex organic molecules and the oceans became, in a manner of speaking, nutrient media which contained the precursors of the biopolymers (i.e., protopolypeptides, protopolysaccharides, protolipids, protopolynucleatides, etc.). The third stage involved the interaction of these

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USSR

YEVREINOVA, T. N., Biologicheskiye Nauki, No 12, (108), 1972, pp 73-76

molecules with the formation of spherical structures, the so-called probionts. Presently, analogous precellular examples of these probionts consist of Goldacre's lipoprotein vesicles, Fox's microspheres, and coacervate drops. Finally, the fourth stage consists of the formation of more complex molecules, catalytic functions, and, eventually, the appearance of living organisms. Consideration of these various factors has led to the conclusion that about 5 billion years ago the earth was formed, and 3.5 billion years ago life appeared. Active research is now being carried out the world over along the lines first designated by A. I. Oparin. In 1972 the International Scientific Society for Studies on the Origin of Life was founded and A. I. Oparin was elected its first president.

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USSR

UDC 632.95

YEVREYEV, V. N., KOTLYAR, G. A., KLIMOVA, L. K., MIZYUKOVA, I. G., and  
PETRUN'KIN, V. Ye., All-Union Institute of Hygiene and Toxicology of Pesticides,  
Polymers, and Plastics

"A Method of Obtaining Trivalent Cobalt Compounds with Diethanolamine"

USSR Author's Certificate No 356322 published 23 Jan 73 (from RZh-Khimiya, No 22,  
25 Nov 73, Abstract No 22N569 by T. Ya. Ogibina)

Translation: Compounds with the formula  $\text{Co}[\text{NH}(\text{C}_2\text{H}_4\text{O})_2\text{NH}(\text{C}_2\text{H}_4\text{O})\cdot(\text{C}_2\text{H}_4\text{OH})]$  (I)  
and active as pesticides are obtained by splitting (with an alkaline agent)  
binuclear complexes containing bi- and trivalent Co in the ratio of 1:1 like  
 $\text{Co}_2\text{NH}(\text{C}_2\text{H}_4\text{OH})_2[\text{NH}(\text{C}_2\text{H}_4\text{O})_2]_2\text{X}$  (II) or  $\text{Co}_2[\text{NH}(\text{C}_2\text{H}_4\text{O})_2]_2\text{X}$  (III) ( $\text{X} = \text{Cl}$ ). Example.  
10 ml of water and 0.1 mole of an NaOH solution in 20 ml of water are added to  
0.01 mole of II hydroxide. The mixture is filtered and the filtrate evaporated  
over  $\text{CaCl}_2$  and 10 days later I,  $\text{C}_8\text{H}_{18}\text{N}_2\text{O}_4\text{Co}\cdot 9\text{H}_2\text{O}$  is isolated, yield 60%. I is  
obtained with a yield of 72% by splitting  $\text{III}\cdot 4\text{H}_2\text{O}$  under the same conditions.

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1/2 028

UNCLASSIFIED

PROCESSING DATE--30OCT7

TITLE--CYTOCHEMICAL INVESTIGATION OF LYMPHOID TISSUE IN THE CASE OF  
CHRONIC LYMPHATIC LEUCOSIS IN MAN -U-

AUTHOR-(04)-KOGARKO, I.N., KOGARKO, B.S., YEVSEYENKO, L.S., FUKS, B.B.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 6,  
PP 348-355

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LYMPHOID TISSUE, RNA, DNA, AUTORADIOGRAPHY, LEUKOCYTOSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3001/1377

STEP NO--UR/0216/70/000/006/0348/0355

CIRC ACCESSION NO--AP0126921

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126921

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CELLS OB BIOPSIZED LYMPHATIC NODES OF 8 HEALTHY PEOPLE AND 6 PATIENTS SUFFERING FORM HUMAN LYMPHATIC LEUCOSIS WERE EXAMINEA. RNA AND DNA BIOSYNTHESIS (AUTORADIOGRAPHY) AS WELL AS DNA CONTENTS (CYTOPHOTOMETRY) WERE DETERMINED IN A SINGULAR CELL. IT WAS SHOWN THAT IN THE COURSE OF THE PROGRESS OF THE DISEASE AN INCREASE IN OBSERVED OF RNA SYNTHESIS SPEED IN MEDIUM AND LARGE LYMPHOCYTES AS WELL AS IN BLASTS. AT THE SAME TIME THE NUMBER OF CELLS SYNTHESIZING DNA (FROM 8PERCENT, TO 0.7PERCENT) DROPS DOWN. IN SPITE OF IT THE CELL FRACTION RICH IN DNA BECOMES DEFINITELY INCREASED. THESE CELLS DISPLAY A RELATIVE HIGH RNA SYNTHESIS. APPEARANCE OF A CONSIDERABLE NUMBER OF CELLS WITH A HIGH DNA CONTENTS BUT NO LONGER SYNTHESIZING THE COMPOUND MAY BE A RESULT OF LAGGING DURING THIS PERIOD. THE RELATIVELY HIGH ELVEL OF RNA SYNTHESIS IN SUCH CELLS EVIDENTLY CANNOT BE CONNECTED WITH GENE ACTIVITY CONTROLLING PROLIFERATION. ONE MAY SUGGEST THAT THE OBSERVED PHENOMENA MAY DEPEND ON AN UNUSUAL BREAKAGE OF THE PROLIFERATION MECHANISM IN LYMPHOID CELLS IN THE CASE OF CHRONIC LYMPHOLEUCOSIS. AN ACTIVATION OF SOME GENES OF A MALIGNIZED LYMPHOCYTE BECOMES MOVE EVIDENT ON THIS BACKGROUND. FACILITY: INSTITUTE OF CHEMICAL PHYSICS, ACADEMY OF SCIENCES, USSR.

UNCLASSIFIED

Oncology

USSR

UDC 616-006

GOR'KOV, V. A., and YEVSEYENKO, L. S., Institute of Chemical Physics,  
Academy of Sciences USSR

"Mathematical Aspects of the Kinetics of Distribution, Transformation, and  
Elimination of Antitumor Agents in an Organism"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1973,  
pp 545-552

Abstract: Mathematical consideration was given to the distribution, metabolism, and elimination from the organism of antitumor agents and other drugs. The mathematical treatment proceeds on the assumption that the organism consists of a definite number of compartments which are homogenous and isotropic with respect to the agent, and takes into consideration the transfer of the agent across cell membranes, binding to cellular and tissue components, and metabolic transformations as well as elimination. A set of first-order differential equations is used to describe changes in the concentration of the agent and its metabolic products, and the solution represents a sum of the exponents; the coefficients and exponents are known functions of the rate constants of the individual processes and initial concentrations of the agents. This approach is most applicable to a system of up to three compartments, and has  
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GOR'KOV, V. A. and YEVSEYENKO, L. S., Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 4, 1973, pp 545-552

been applied to some clinical and experimental cases. Such an approach may lead to the determination of the optimum doses and rates of administration of agents useful in the treatment of malignancies and other conditions.

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1/2 032 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--FREE AMINO ACIDS OF BLOOD SERUM OF PATIENTS WITH ACUTE LEUCOSIS -U-

AUTHOR--(02)-ABRAMOVICH, A.B., YEVSEYENKO, L.S.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 3, PP 263-265

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AMINO ACID, BLOOD SERUM, CHROMATOGRAPHY, METABOLISM, LEUKEMIA,  
BLOOD DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/0267

STEP NO--UR/0301/70/016/003/0263/0265

CIRC ACCESSION NO--AP0120957

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120957

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AMINO ACID CONTENT OF BLOOD SERUM OF 6 HEALTHY INDIVIDUALS AND 27 PATIENTS WITH HAEMOCYTOBLASTOSIS HAS BEEN STUDIED BY MEANS OF ION EXCHANGE CHROMATOGRAPHY WITH THE USE OF HITACHI AMINO ACID ANALYZER. THE STATISTICALLY SIGNIFICANT INCREASE IN VALINE, LYSINE, PROLINE, LEUCINE, ISOLEUCINE, TYROSINE, PHENYLALANINE, AND METHIONINE CONTENT IN BLOOD SERUM OF PATIENTS WITH LEUCOSIS TOOK PLACE. IN THE COURSE OF STUDIES OF CHANGES IN CONTENT OF EACH AMINO ACID RELATIVELY TO THEIR TOTAL SUM IT WAS DISCLOSED THAT THE CONTENT OF HISTIDINE AND GLYCINE IN BLOOD SERUM OF PATIENTS WITH ACUTE LEUCOSIS IS DECREASED. ON THE OTHER HAND THE AMOUNT OF METHIONINE IS INCREASED. THE CONCLUSION IS DRAWN ON THE CHANGES IN AMINO ACID METABOLISM IN PATIENTS WITH ACUTE LEUCOSIS. FACILITY: INSTITUTE OF CHEMICAL PHYSICS USSR ACADEMY OF SCIENCES MOSCOW.

UNCLASSIFIED



Acc. Nr.: AP0029499

Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp 25-28

A STUDY OF THE CHEMICAL COMPOSITION AND ANTITUMOR ACTIVITY  
OF PROTAMINES, ISOLATED FROM STURGEON MILT

Yermol'yeva, Z.V.; Silayev, A.B.; Yulikova, Ye.P.;

Pokidova, N.V.; Pasternak, N.A.; Kolosova, I.V.;

Yevseyenko, L.K.; Shenderovich, V.A.

Central Post Graduate Medical Institute, Moscow State University

Triprotamines in the form of sulfates were isolated from the milt of individual sturgeon stocks. The amino acid composition of triprotamines was determined and their antitumor activity was studied. It was shown that protamine from *Ac. guldenstadti* and *Ac. stellatus* inhibited tumor growth by 60-80 per cent, while protamine from *Ac. nudiventris* was practically inactive.

REEL/FRAHE

19681100

1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--SAILORS AT HOME -U-  
AUTHOR--YEVSEYEV, A.  
COUNTRY OF INFO--USSR  
SOURCE--NEDELYA, JULY 20-26, 1970, NR 30, P 12, COLS 1-4  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, BEHAVIORAL AND SOCIAL  
SCIENCES  
TOPIC TAGS--PHOTOGRAPH, AMPHIBIOUS WARFARE TRAINING, NAVAL TRAINING,  
TORPEDO  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/0900 STEP NO--UR/9030/70/000/030/0012/0012  
CIRC ACCESSION NO--AN0122944  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AN0122944

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE GIVES A VERY BRIEF ACCOUNT OF TRAINING EXERCISES PERFORMED BY SOVIET MARINES, AND CREWS OF ROCKET ARMED BOATS, AND TORPEDO BOATS. THREE PHOTOGRAPHS ARE GIVEN WHICH SHOW LOADING OF A TORPEDO ABOARD THE SUBMARINE, MARINES LANDING PARTY, AND A RECOILESS BOMB, DEPTH CHARGE, QUESTION, LAUNCHER. THE SUBMARINE IS REFERRED TO AS "NOT THE NEWEST ONE".

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--MECHANISM OF THE RADIATION CROSSLINKING OF SOLID RUBBERS -U-  
AUTHOR--(051)-KOZLOV, V.T., GURYEV, M.V., YEVSEYEV, A.G., KASHEVSKAYA, N.G.,  
ZUBOV, P.I.  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(13), 592-601  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--GAMMA RADIATION, POLYMER CROSSLINKING, FREE RADICAL, EPR  
SPECTROMETRY, GEL, NATURAL RUBBER, POLYISOPRENE, POLYCHLOROPRENE,  
POLYBUTADIENE, BUTADIENE STYRENE RESIN, COPOLYMER, POLYSILOXANE,  
CHLOROFLUOROCARBON COMPOUND, FLUORINATED ORGANIC COMPOUND, SYNTHETIC  
RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1995/1207

STEP NO--UR/0459/70/012/003/0592/0601

CIRC ACCESSION NO--AP0116672

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116672

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SAMPLES OF 22 DIFFERENT RUBBERS WERE IRRADIATED BY A PRIME60 CO SOURCE. THE FREE RADICAL YIELDS (G SUBR) WERE DETD. BY EPR SPECTROMETRY. THE CROSSLINK YIELDS (G SUBC) WERE DETD. BY THE SWELLING DEGREE OF THE SAMPLES AND/OR THE GEL FRACTION CONTENTS. FOR MOST OF THE SAMPLES (NATURAL RUBBER, POLYISOPRENES, POLYCHLOROPRENES CONTG. S BONDS, POLYBUTADIENES, BUTADIENE STYRENE COPOLYMERS, BUTADIENE METHYLSTYRENE COPOLYMER, ETHYLENE PROPYLENE COPOLYMERS, POLY(DIMETHYLSILOXANE), POLY(DIMETHYLMETHYLVINYLSILOXANES, POLY (DIMETHYLMETHYLPHENYLSILOXANES), POLY(DIMETHYLDIPHENYLSILOXANE)) G SUBC GREATER THAN G SUBR-2. THE HALOGEN CONTG. RUBBERS (POLY(TRIFLUOROCHLOROETHYLENE), VINYLIDENE FLUORIDE HEXAFLUOROPROPYLENE COPOLYMER, OR VINYLIDENE FLUORIDE TRIFLUOROMETHYL PERFLUOROVINYL ETHER COPOLYMERS) HAD G SUBR-2G SUBC SIMILAR TO 1. THE RADIATION CROSSLINKING OF RUBBERS CONSISTS OF FAST PROCESSES (SIMILAR TO 10 PRIME NEGATIVE 16 SEC) WHICH FOLLOW THE ACTIVATION OR IONIZATION AT LOCATIONS CLOSE TO POTENTIAL CROSSLINKS, AND SLOWER PROCESSES INVOLVING THE TRANSFER OF EXCITONS OR CHARGES. FACILITY: NAUCH.-ISSLED. INST. REZ. PROM., MOSCOW, USSR.

UNCLASSIFIED

UDC: 541.64:678.73

USSR

KOZLOV, V. T., GUR'YEV, M. V., YEMSEYEV, A. G., KASHEVEROVA, N. G., ZUBOV, P. I., Scientific Research Institute of the Rubber Industry, Moscow, State Committee for Chemistry; Scientific Research Physico Chemical Institute imeni L. Ya. Karpov, Moscow, State Committee for Chemistry

"Investigation of the Mechanism of Radiation Cross-Linking Processes in Hard Rubber"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol XII, No 3, Mar 70, pp 592-601

Abstract: The mechanism of radiation cross-linking was studied at 77°K in 22 elastomer compounds of various structure -- saturated, unsaturated, aromatic and halogen substituted hydrocarbons and polysiloxanes with side groups -CH<sub>3</sub>, -CH=CH<sub>2</sub>, -C<sub>6</sub>H<sub>5</sub> in various combinations and ratios. In nearly all elastomers studied, the cross-link yield was considerably greater than half the radical yield, based on the assumption that two radicals may form a cross link. An exception to this rule is the case of alkyl halide elastomers in which the radical yield is approximately twice the cross-link yield. In many hydrocarbon elastomers, an increase in the capacity of the molecules to form radicals leads to a reduction in the cross-link yield, the ratio of

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USSR

KOZLOV, V. T., et al, Vysokomolekulyarnyye Soyedineniya, Vol XII, No 3, Mar 70, pp 592-601

the radical yield to twice the cross-link yield varying from 1/30 to 1/2. In a number of polysiloxanes these ratios vary depending on the presence of isolated double bonds lowers the radical yields and increases the cross-link yields. Both radical and cross-link yields are considerably reduced by aromatic groups, the cross-link yield being reduced to a greater degree. Radiation cross-linking is attributed to a mechanism which takes place during exposure and goes through a number of electron processes. These include rapid processes (of the order of  $10^{-10}$  second) immediately following ionization or excitation of regions in close proximity and oriented for molecular cross linking; the sequence also includes processes which are slowed down by transfer of an exciton or excited charge into these regions. A contribution is also made by processes of the inter-action of free radicals and the ions produced when radicals capture charges. The molecular structure of the elastomer determines the relative contribution made by each of these processes to the overall cross-link yield.

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Acc. Nr.: AN0104009

Ref. Code: UR9030

AUTHOR-- YEVSEYEV, A., CORRESPONDENT

TITLE-- THE HEIRS OF THE WAR GLORY

NEWSPAPER-- NEDELVA, MAY 4-10, 1970, NR 19, PP 10-11

ABSTRACT-- THE ARTICLE IS A CORRESPONDENT'S REPORT ON HIS FLIGHT WITH A SOVIET INTERCONTINENTAL BOMBER. AT ONE POINT OF THE FLIGHT, THE BOMBER WAS REFUELED IN THE AIR, FROM A TANKER FLYING AHEAD AND ABOVE OF THE BOMBER, BY LOWERING FROM THE TANKER A HOSE WITH A SILVERY CONE AT ITS END. WHEN THE HOSE WAS EXACTLY OPPOSITE THE GUN-LIKE DEVICE, A METAL SHAFT MOUNTED FORE ON THE BOMBER, ITS TIP WAS "FIRED" AT THE SILVERY CONE OF THE TANKER. THE AUTHOR STRESSES THE POINT THAT THIS REFUELING TECHNIQUE IS DIFFERENT FROM THE ONE DEVELOPED IMMEDIATELY AFTER THE SECOND WORLD WAR.

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REEL/FRAME

19870359

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UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--A VERY QUIET NIGHT -U-

AUTHOR--YEVSEYEV, A.

COUNTRY OF INFO--USSR

SOURCE--NEDELYA, MAY 25-31, 1970, NO. 22, P 5, COLS 1-4

DATE PUBLISHED----MAY70

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR DESCRIBES A DAY HE SPENT WITH A BORDER PATROL UNIT. WHEN THE UNIT WAS OUT PATROLLING THE BORDER, ITS COMMANDER SET UP AN ELECTRONIC SENSOR, A SMALL METAL BOX HE CARRIED IN HIS POCKET. THE SENSOR WAS EXPECTED TO GIVE AN ALARM IN CASE THE BORDER WAS VIOLATED. THE SOVIET BORDERS OF THE 70'S ARE GUARDED BY SUCH MECHANICAL DEVICES AS RADAR, PORTABLE RADIO TRANSMITTERS, ELECTRONIC COMPUTERS, AND OTHER SPECIAL AND CLEVER ALARM DEVICES.

UNCLASSIFIED

Miscellaneous

USSR

UDC 51:801

YEVSEYEV, A. I., OSTAPKO, V. T., and VOLKOVA, N. D.

"Study of the Informational Capability of Sound Groups in the Russian Language"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972,  
vyp. 82, pp 124-133 (from RZh-Matematika, No 5, May 72, Abstract No 5V591)

Translation: It is suggested that the phoneme alphabet of the Russian language be divided into seven sound groups according to the mode of phoneme formation and that in order to recognize a limited set of words an alphabet of sound groups be introduced in place of the phoneme alphabet.

The authors consider the possibility of unambiguous transition (decoding) from writing in an alphabet of seven sound groups to ordinary word-writing, given sufficiently large dictionary size, and quantitative evaluations are offered of the informational capability of the sound groups.

USSR

UDC 8.74

YEVSEYEV, A. I.

"Some Problems of the Information Approach for Pattern Recognition in Hierarchical Recognition Automata"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, vyp. 82, pp 134-145 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V648)

Translation: It was demonstrated that: 1) in a multilevel recognition system the minimum a posteriori indeterminacy is obtained only under the condition of storing the distribution functions of the investigated specimens and in the absence of decision rules; 2) in the absence of information on the distribution functions and the absence of the possibility of storing them it is necessary to convert to decision rules or to selection of the optimal number of boundaries from the condition of the cost ratio in the informativeness increment of the axis (axes) and an increase in memory size; 3) when using the decision rule subdividing the axis into two zones, the residual indeterminacy can remain significant; 4) the application of the method of subdivision of the axis of the attribute into boundaries is especially advantageous for the number of boundaries for recognition of two adjacent overlapping samples equal to two (three zones) if the boundaries are established from  $1/2$

USSR

YEVSEYEV, A. I., Tr. Mosk. energ. in-ta, 1972, vyp 82, pp 134-145

the condition  $P_e \leq [P_{\text{error}}]$ , and the probability of finding the samples inside the middle zone ( $a_1^*$  error to  $a_2^*$  error) is assumed to be the same.

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USSR

UDC: 51:801

YEVSEYEV, A. I., OSTAPKO, V. T., VOLKOVA, N. D.

"A study of the Information Content of Groups of Sounds in the Russian Language"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp. 82, pp 124-133 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V591)

Translation: It is proposed that the alphabet of phonemes of the Russian language be broken down into seven groups of sounds in accordance with the means of producing the phonemes, and that the sound-group alphabet be used in place of the phoneme alphabet for recognition of a limited set of words.

The authors consider the possibility of a one-to-one transition (decoding) from a recording in the alphabet of seven groups of sounds to the conventional recording of words for a fairly extensive vocabulary and present quantitative estimates of the information content of the groups of sounds.

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USSR

YEVSEYEV, A. I.

"Some Problems of the Use of the Information Approach to a Multilevel Pattern Recognition Problem"

VI Vses. Seminar "Avtomat. Raspoznavaniye Slukhovykh Obrazov (ARSO VI) Dokl. i Soobshch. [Sixth All-Union Seminar on "Automatic Recognition of Auditory Patterns (ARSO VI), Reports -- Collection of Works], Tallin, 1972, pp 99-103 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V853 by the author).

Translation: An information approach is used to evaluate the results of recognition of patterns assigned by fixed mutually non-intersecting volumes; formulas are suggested for simplified calculation of the slightly elevated value of residual uncertainty in recognition of a group of patterns based on a recognition matrix composed as a result of comparison of pairs of patterns.

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USSR

YEVSEYEV, A. M.

UDC 532

"The Molecular Dynamics Method in the Theory of Liquids and Physical Kinetics"

V sb. Sovrem. probl. fiz. khimii (Current Problems in Physical Chemistry --  
Collection of Works), Vol 6, Moscow, Moscow University, 1972, pp 34-78  
(from RZh-Fizika, No 1, Jan 73, Abstract No 1 Ye83)

Translation: A survey of the current state and the application of molecular  
dynamics methods in the theory of liquids and physical kinetics is presented.  
The theoretical foundations of the method and calculations of various different  
physical properties of a liquid are described. The possibility of applying  
these methods in describing phase transitions is discussed.

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Adsorption

USSR

UDC 536.421.4

YEVSEYEV, A. M., and OZHEGOV, P. I., Chair of Physical Chemistry

"Probability of the Penetration of Monoatomic Particles Through An Adsorbed Layer as a Function of the Kinetic Energy of the Bombarding Particle"

Moscow, Vestnik Moskovskogo Universiteta, Vol 12, No 2, Mar-Apr 71, pp 153-156

Abstract: Molecular dynamics calculations have shown that the probability of penetration  $\delta$  of a molecular beam through an adsorbed layer is practically independent of the initial velocity of the particles until the absolute value of the velocity component  $v_z$  exceeds some specific magnitude. With further increase in the kinetic energy of the bombarding particles, the probability of penetration through adsorbed layer increases sharply, approaching unity (injection effect).

USSR

NOVIKOVA, S. I., SHELIMOVA, L. Ye., ABRIKOSOV, N. Kh., YEVSEYEV, B. A.,  
Institute of Metallurgy imeni A. A. Baykov, Moscow

"Investigation of the Phase Transition of Germanium Telluride"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 9, Sep 71, pp 2764-2766

Abstract: The article is a continuation of previous work (Novikova et al., Fizika Tverdogo Tela, Vol 12, 1970, p 3623) in the investigation of germanium telluride in the region of the transition from the low-temperature rhombohedral lattice ( $\alpha$ -GeTe) to the face-centered cubic type ( $\beta$ -GeTe). The measurements were made on a high-temperature quartz dilatometer with a sensitivity to elongation of  $10^{-6}$  cm. Measurements in the phase transition region were made every  $0.1^{\circ}\text{C}$  with temperature variation of no more than  $0.03^{\circ}\text{C}$ . An irregularly shaped specimen was studied parallel and perpendicular to axis [111]. A single crystal grown from a 50:50 (atomic) melt of germanium and tellurium was used as the specimen. Curves for the variation with temperature of the linear coefficient of thermal expansion show that the phase transition takes place at  $626^{\circ}\text{K}$  when the temperature is

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NOVIKOVA, S. I., et al., Fizika Tverdogo Tela, Vol 13, No 9, Sep 71, pp 2764-2766

increased and at 619°K as the temperature falls. In contrast to the previously studied specimen, the results of this work showed a negative coefficient throughout the entire temperature range, with a more gradual increase in absolute value near the transition point instead of an abrupt change from positive to negative values. Measurements of the variation with temperature of the relative change in volume showed that this parameter at the phase transition is extremely sensitive to specimen composition. In the first specimen (studied in the previous paper with 50.6 atomic percent tellurium) transition takes place with an increase in volume, while in the second specimen (50 atomic percent tellurium) the volume decreases at the transition point. This indicates that there should be a composition somewhere between these two specimens where there is no change in volume at the transition point. These results are used to explain some discrepancies in the literature. Two figures, bibliography of four titles.

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UDC: 539.293.011.42

USSR

YEVSEYEV, B. S.

"Carrier Current Flow in Semiconductors"

Minsk, Izvestiya Akademii Nauk BSSR--Seriya fiziko-tekhnicheskikh nauk, No 1, 1972, pp 117-121

Abstract: The flow of current carriers in a semiconductor crystal is described by a system of five equations: two equations of migration, the Poisson equation, and two equations of continuity. This paper shows that, in those regions of the semiconductor in which the voltage drop is not excessive, the integrals of this system can be obtained in power series form by a method of successive approximations analogous to that of Picard. The semiconductor is assumed to be a monocrystal in which a region of particular impurity concentration is separated from a second region of another impurity concentration by a junction of arbitrary p-n or h-l type with an arbitrary concentration variation. The author is associated with the Electronics Laboratory of the Belorussian Academy of Sciences.

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