USSR

MULYAKAYEV, L. M., et al., Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 66-70

medium for up to 672 hrs with a diffusion coating is ten times lower than without a coating and approximately equal to the corrosion rate of CKh21N5T stainless steel in this medium. The use of a chromated diffusion coating to increase the corrosion resistance of OKh21N5T proved to be of little effect. Two figures, two tables, five bibliographic references.

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USSR

UDC 669.018.29

DUBININ, G. N.

"Some Areas in the Development of High-Strength Aviation Alloys"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 1971, vyp. 228, pp 5-19 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4I624)

Translation: The successful development of aviation materials with exceptionally high physical-chemical properties can be realized in three ways: 1) obtaining no-defect monocrystalline metals with a strength close to the theoretical strength; 2) creation of a defined structure in alloys by the method of volumetric alloying and further heat treatment and machining or a combination of the two; 3) the method of varying the structural-energy state of the surface of the alloys by diffusion alloying of the surface with elements, machining the surface, and so on. A brief analysis of the development of aviation materials is presented beginning with these three principles. Eight illustrations, 3 tables, and a 15-entry bibliography.

1/1

USSR

UDC 621.762.2:669.296

KOZLOV, A. N., DUBININ, G. N., ALEKSANDROVA, I. F., KRAVETSKIY, G. A., RUZINOV, L. P., SLOBODCHIKOVA, R. I.

"Optimization of the Processes of ObtainingSpherical Zirconium Powder by Plasma Atomization of Wire using Mathematical Statistics"

Tr. Mosk. aviats. in-ta (Works of Moscow Aviation Institute), 1971, vyp. 228, pp 130-138 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G401)

Translation: The optimal conditions of plasma atomization of Zr-wire to obtain spherical powder with a particle size of 400-800 microns sufficiently pure with respect to N_2 and O_2 (with a granule microhardness $\leq$300-500 kg/mm^2) are defined. When processing the experimental data, the ranging method was used. A vacuum plasma atomization device was designed and manufactured for obtaining spherical powders of chemically active refractory metals. The optimal conditions of the Zr atomization process are as follows: current 500 $\pm$ 60 amps, argon flow rate 3.2 m^3/hour, rarefaction in the chamber 400 mm Hg, spacing between the wire and the nozzle section 0.5 mm. The yield of the Zr powder fraction 400-800 microns in size is 60%. 5 illustrations, 3 tables, and a 13-entry bibliography.

1/1

USSR

UDC: 669.017:621.785

LAKHTIN, YU. M.; DUBININ, G. N. (Editors)

Physical Metallurgy and Heat Treatment (Metallovedeniye i termicheskaya obrabotka), Collection of Articles, No. 7, Moscow, "Mashinostroyeniye" Press, 1971, 144 p., illustrations, graphs, tables, bibliographic references.

This book is a collection of articles by various authors on problems related to the theory of alloying constructional and tool steels and alloys. Included are articles on topical problems of the theory and practice of thermal and combined chemical heat treatment of steels and alloys. Quantitative methods of studying the structure in the physical metallurgy, brittle failure, and thermomechanical treatment of steels are discussed. Data are given on the effects of heat treatment on the structure and properties of high-tensile, precipitation-hardenable martensitic steels, metals for elastic components, as well as high-temperature steels and alloys. A number of articles deal with problems of the theory and practice of carbonitriding constructional steels, high-temperature nitriding of stainless and high-temperature steels, as well as low-temperature nitriding of precipitation-hardenable martensitic steels. Analyzed are certain aspects of complex saturation of stainless steels with elements and the use of the radioactive isotope method for studying carbon

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710018-0"

USSR

LAKHTIN, YU. M., and DUBININ, G. N., Physical Metallurgy and Heat Treatment, No 7, "Mashinostroyeniye" Press, 1971, 144 p

distribution. The collection is intended for a wide circle of specialists in physical metallurgy and heat treatment, personnel of scientific research institutes and heat treating shops of machine-building plants.

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LAKHTIN, YU. M., and DUBININ, G. N., Physical Metallurgy and Heat Treatment, No 7, Moscow, "Mashinostroyeniye" Press, 1971, 144 p

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USSR

LAKHTIN, YU. M., and DUBININ, G. N., Physical Metallurgy and Heat Treatment, No 7, Moscow, "Mashinostroyeniye" Press, 1971, 144 p

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USSR

LAKHTIN, YU. M., and DUBININ, G. N., Physical Metallurgy and Heat Treatment, Moscow, "Mashinostroyeniye" Press, 1971, 144 p

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710018-0"

USSR

LAKHTIN, YU. M., and DUBININ, G. N., Physical Metallurgy and Heat Treatment, Moscow, "Mashinostroyeniye" Press, 1971m 144 p

References follow individual articles

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USSR

UDC 541.183

DUBININ, M. M., NIKOLAYEV, K. M., POLYAKOV, N. S., and PETROVA, L. I., Institute of Physical Chemistry, Academy of Sciences USSR

"Study of Adsorption Dynamics in a Wide Range of Penetration Concentrations. 2. Examination of the General Picture of the Adsorption Dynamics Process"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 72, pp 1265-1269

Abstract: The article examines the general picture of the dynamics of benzene vapor adsorption in a wide range of penetration concentrations (from 10^{-5} mg/l to initial concentration) and with varying adsorbent layer lengths (from one grain to 16 cm). It was found that the adsorption process taking place in a layer can be conditionally divided into three stages in the movement of the concentration front over the layer. The first (initial) stage is characterized by the practically instantaneous distribution of concentrations over the length of the layer, resulting in the penetration of the vapor a certain layer length. The second (and longer) stage includes the movement of the concentration front over the layer at various velocities which are characteristic of each concentration and which change during the process. This stage is characterized by nonstationarity of the process, which tends in the limit to a stationary regime (i.e., the third stage).

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USSR

UDC 541.183

DUBININ, M. M., ISIRIKYAN, A. A., RAKHMATKARIYEV, G. U., and SERPINSKIY, V. V., Institute of Physical Chemistry, Academy of Sciences USSR

"Adsorption Energy of Gases and Vapors on Microporous Adsorbents. 3. Differential Heats of Water Adsorption on Crystalline Synthetic NaA Zeolite"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 72, pp 1269-1276

Abstract: The article describes results of the measurement of the differential heats of water vapor adsorption on crystalline NaA zeolite. A Tian-Calvet microcalorimeter was used, as well as a newly built adsorption plant in which the lubricated cocks were replaced by mercury cutoffs. The results were found to be in agreement with analogous measurements previously made by the authors on preformed NaA zeolite. The adsorption equilibrium time obtained from thermokinetic curves is found to increase with coverage, passing through a maximum at $a = 2.3$ mM/g and then sharply declining to several hours at $a > 4$ mM/g. This corresponds to the blocking by adsorbed water molecules of all 8-membered oxygen openings into the large cavities. The formation of a minimum and second maximum is also noted in the thermokinetic curves. This is due to the nonequilibrium adsorption process and the specifics of the energy processes which take place therewith.

1/1 The authors thank S. P. ZHDANOV for providing the NaA zeolite specimen.

USSR

UDC 66.071.71

ASTAKHOV, V. A., DUBININ, M. M., MASHAROVA, L. P., and ROMANKOV, P. G., Belorussian Technological Institute imeni S. M. Kirova, Institute of Physical Chemistry, Academy of Sciences SSSR, and Leningrad Technological Institute imeni Lensoveta

"Calculation of the adsorption Equilibrium on Chemically and Structurally Different Adsorbents"

Moscow, Teoreticheskiye Osnovy Khimicheskoy Tekhnologii , Vol 6, No 3, 1972, pp 373-379

Abstract: A statistical method is discussed for the analysis of adsorption isotherms relative to choosing the most accurate distribution function for engineering calculations. Equations for the Poisson, Gaussian, and the Veibul [transliterated] distrubution curves are given [eqs. 1, 2, and 3 respectively] and the mathematical implications of each considered. The veibul equations seem to be the simpliest, the most general and the most amenable to engineering applications.

1/2

USSR

ASTAKHOV, V. A., et al., Teoreticheskiye Osnovy Khimicheskoy Tekhnologii, Vol 6, No 3, 1972, pp 373-379

$$F(\alpha) = 1 - \exp\left[-m\alpha\right] \sum_{p=0}^{m-1} \frac{1}{p!} (m\alpha)^p \qquad (1)$$

$$F(\delta) = \operatorname{erf}(\alpha) = \frac{1}{\sigma\sqrt{2\pi}} \int_{0}^{\alpha} \exp\left[-\frac{(\alpha - \alpha_0)^2}{2\sigma^2}\right] \qquad (2)$$

$$F(\delta) = 1 - \exp\left[-\delta^n\right] \qquad (3)$$

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USSR UDC 541.183

DUBININ, M. M., BAKAYEV, V. A., and KADLETS, O., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow and Institute of Physical Chemistry, Academy of Sciences, Czechoslovakia, Prague

"Behavior of the Adsorption Equation in the Theory of Micropore Filling"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 628-631

Abstract: Several investigators have observed experimentally that the adsorption by micropores, plotted as a function of the equilibrium pressure, has an inflection point. The second differential of the general equation, after appropriate substitutions, is set equal to zero and has the form $(nRT/E^n)A_o^n - A_o - RT(n - 1) = 0$, where A_o is the differential molar heat of adsorption at a particular partial pressure p; E is the characteristic energy of adsorption; R is the gas constant; T is the temperature; and n is the porosity constant. As can be derived from the equation, the inflection point occurs for n greater than 1 and disappears for n equal to 1. A table of data is given for the adsorption of neopentane, benzene, n-hexane and methane on various zeolites. At relatively high temperatures the isotherms become approximately linear.
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USSR

UDC 541.183

ZOLOTAREV, P. P., DUBININ, M. M., NIKOLAYEV, K. M., POLYAKOV, N. S., and RADUSHKEVICH, L. V., Institute of Physical Chemistry, Acad. Sc. USSR

"Study of the Adsorption Dynamics in a Wide Range of Concentrations. 3 Communication. Fundamentals of the Theory of the Process"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72, pp 1484-1489

Abstract: In previous papers the general picture of the adsorption dynamics of a series of compounds on active carbon was analyzed. This study is devoted to theoretical considerations. To make the analysis possible, the process has been broken down into three stages: the first stage with instantaneous distribution of the concentrations along the layer; the second -- with various concentrations being shifted at different rates, changing during the process; and the third in which the entire adsorption wave is shifted at a practically constant rate. Mathematical expressions have been derived for the distribution of concentrations along the layer of adsorbent grains for short times with consideration of the effect of longitudinal diffusion. A method has been proposed for the determination of the coefficient of internal mass exchange from the known coefficient of longitudinal diffusion and distribution

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ZOLOTAREV, P. P., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72, pp 1484-1489

of passage concentrations along the layer. A formula was derived describing the initial portion (area of low concentrations) of the output curves under conditions of stationary front. This curve appears to be a straight line in coordinates: logarithm of relative concentration -- time.

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USSR

UDC 541.183

ZOLOTAREV, P. P., and DUBININ, M. M., Institute of Physical Chemistry Acad. Sc. USSR, Moscow

"Initial Stage of Intradiffusion Kinetics of the Adsorption in Spherical Grains of an Adsorbent in the Case of Nonlinear Isotherms"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 6, Apr 72, pp 1347-1350

Abstract: Intradiffusion kinetics of the adsorption on individual grains of the adsorbent, sufficiently well studied for the case of linear and perpendicular adsorption isotherms and for cylindrical form of the adsorbent with nonpermeable side surface, has been extended to spherical grains and to continuous Langmuir adsorption isotherms. On the basis of the analyzed functions, formulas have been developed for determination of the intradiffusion coefficient D_i:

where $$D_i \approx 0.028 \delta (a_o/c_o)R^2/t_{0.5}$$

$$\delta = 1/r(1+b/c_o) \left\{1 + (b/c_o)\left[m(b/c) - m(1 + b/c_o)\right]\right\}$$

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USSR

UDC 541.183

DUBININ, M. M., and ASTAKHOV, V. A., Institute of Physical Chemistry Academy of Sc. USSR and Belorussian Technological Institute

"Development of Concepts on Micropore Volume Filling During Adsorption of Gasses and Vapors by Microporous Adsorbents. 2 Communication. General Principles of the Theory of Gas and Vapor Adsorption on Zeolites"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 11-17

Abstract: Dehydrated zeolites used as microporous adsorbents are characterized by the fact that in their micropores there are cations present which compensate the negative charges of their aluminum-silicate skeletons. These cations form adsorption centers for molecules with uneven distribution of electron density or highly polarized centers. These electrostatic interactions combine with the dispersive forces leading to considerable increase in adsorption energy. As a result, the isotherms for the adsorption of vapors on zeolites are

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DUBININ, M. M., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 11-17

much steeper in the early stages of equilibrium pressures than in the case of active carbon. The number of cations in the zeolites available for the interaction with the molecules being adsorbed depends on the composition of zeolite, its crystallographic structure, the nature of the cations and the degree of ion exchange. In case of weak electrostatic interactions the adsorption on zeolites becomes similar to adsorption on microporous adsorbents containing no cationic type of active centers in their adsorptive space.

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USSR

UDC 541.183

ASTAKHOV, V. A., and DUBININ, M. M., Institute of Physical Chemistry Acad. Sc. USSR, and Belorussian Technological Institute

"Development of Concepts on Micropore Volume Filling During Adsorption of Gasses and Vapors by Microporous Adsorbents. 3 Communication. Zeolites With Large Cavities and Considerable Number of Adsorption Centers"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 17-21

Abstract: The A and X type zeolites have a large porous volume and considerable number of cations dispersed in these spaces. A study was carried out on the adsorption of large and small molecules on such zeolites, considering the concepts of micropore volume filling. When sufficiently large molecules are used for adsorption studies, all the molecules being adsorbed are in direct contact with the adsorption centers even in case of maximum filling. It was shown experimentally that the adsorption equation of the theory of micropore volume filling

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ASTAKHOV, V. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 17-21

is applicable for certain temperature ranges which depend on the nature of the material being adsorbed. In case of small molecules, in addition to the adsorption on active centers, the filling of the remaining adsorption space of the zeolite takes place mainly as a result of dispersive forces. A binary adsorption equation was obtained describing adsorption equilibria in a wide temperature range.

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USSR

UDC 541.183

DUBININ, M. M., and ASTAKHOV, V. A., Institute of Physical Chemistry Acad. Sc. USSR and Belorussian Technological Institute

"Development of Concepts on Micropore Volume Filling During Adsorption of Gasses and Vapors by Microporous Adsorbents. 1 Communication. Carbonaceous Adsorbents"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 5-11

Abstract: Various ideas are discussed on the volume filling of micropores during the adsorption of gasses and vapors by microporous adsorbents, for which the determining factor is the dispersive power as far as the adsorptive interaction is concerned. The theory of volume filling is based on the concept of a temperature independent characteristic adsorption equation expressing the distribution of the degree of filling the microporous volume by differential molar adsorption work. In this study the differential molar adsorption work was represented by the loss of Gibbs free energy, leading to a simplified equation suitable for experimental evaluation of the adsorption on activated carbon with different microporous structures. It was determined experimentally that with very fine pores the equation gives lower values.

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DUBININ, M. M., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 5-11

For such cases the equation of Weibull was used in which the degree of filling was expressed as the loss of Gibbs free energy over characteristic adsorption energy to the power n. For most adsorbents n=2, for very fine micropores n=3. No drastic changes were observed when a transition occured from vapor to gas. It was also determined that the upper limit for temperature-independent differential molar adsorption work is limited to ΔS being less than 0.

2/2

USSR

UDC 541.183

BERING, B. P., GORDEYEVA, V. A., DUBININ, M. M., YEFIMOVA, L. I., and SERPINSKIY, V. V., Institute of Physical Chemistry, Acad. Sc. USSR

"Development of Concepts on Micropore Volume Filling During Adsorption of Gasses and Vapors by Microporous Adsorbents. 4 Communication. Differential Heats and Adsorption Entropies"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 22-28

Abstract: Equations were developed for differential molar heats and entropies of adsorption based on characteristic equations of the theory of micropore volume filling during adsorption of gasses and vapors on various types of microporous adsorbents. These equations may be used to calculate with sufficient approximation above values for various levels of adsorption or volume filling of the adsorption space from the data obtained from these characteristic equations requiring only minimal experimental information. The conditions necessary for satisfactory reliability have been discussed. Several examples have been reported showing satisfactory relationship between the calculated and experimental values for isosteric heat of adsorption.

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USSR

UDC: 541.183

DUBININ, M. M., NIKOLAYEV, K. M., POLYAKOV, N. S., and SEREGINA, N. I., Institute of Physical Chemistry, Moscow, Academy of Sciences USSR

"Study of Equilibrium Vapor Adsorption of Substances with Relatively Large Molecules
Communication I. Methods for Determination of Isotherms of Vapor Adsorption of Substances with High Boiling Points"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 1970, pp 761-767

Abstract: An apparatus and methodology for determination of the adsorption and desorption isotherms of nonvolatile vapors at normal temperatures is described. The method consists of evacuation of the adsorbent used at 350-400° for 5-6 hours, cooling to room temperature followed by "washing" of the system with vapors of the material to be adsorbed, to remove from the system gaseous impurities which are adsorbed to a lesser degree. Then the adsorbent is again evacuated as before, until the original weight is obtained. In such a system the adsorption isotherms show an identical adsorption and desorption course.
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USSR

UDC: 541.183

DUBININ, M. M., TODES, O. M., and LEZIN, YU. S., Institute of Physical Chemistry, Moscow, Academy of Sciences USSR

"Equations Characterizing Adsorption Kinetics on Porous Adsorbent for the Entire Grain as a Whole"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 1970, pp 767-772

Abstract: On the basis of theoretical analysis the authors showed that the coefficients of internal and external mass exchange in a wide range of the fluctuation of bio criterion are additive. An empirical equation for the determination of the coefficient of internal mass exchange with linear adsorption isotherm was developed. Using experimental data on the kinetics of benzene adsorption on active carbon it was shown that in spite of the fact that the values of the coefficient of internal mass exchange -- β_1 -- and the coefficient of internal diffusion -- $\bar{D}$ -- change when one type of active carbon is changed for another, but the ratio of $\beta_1/\bar{D}$ remains practically the same. This agrees with theoretical equation by which β_1 is a linear function of $\bar{D}$.

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1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EQUILIBRIUM ADSORPTION OF VAPORS FROM SUBSTANCES WITH RELATIVELY LARGE MOLECULES. I. METHODS FOR DETERMINING ISOTHERMS OF ADSORPTION OF

AUTHOR-(04)-NIKOLAYEV, K.M., DUBININ, M.M., POLYAKOV, N.S., SEREGINA, N.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (4), 761-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GAS ADSORPTION, ISOTHERM, DECANE, BENZENE, ACTIVATED CARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0993 STEP NO--UR/0062/70/000/004/0761/0767

CIRC ACCESSION NO--AP0138021

UNCLASSIFIED

2/2 013 UNCLASSIFIED

CIRC ACCESSION NO--AP0138021 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADSORPTION ISOTHERMS WERE REPORTED FOR DECANE, C SUB6 H SUB6 AND ME SUB3 CPH ON ACTIVATED C SPECIMENS FROM ROOM TEMP. TO MINUS 195DEGREES. THE WT. DETG. APP. FOR SUCH DETN. IS DESCRIBED IN DETAIL. THE RELATIVELY POORLY VOLTATILE SUBSTANCES IN SUCH ADSORPTION TEND TO DISPLACE FROM THE UNHEATED APP. WALLS ANY FOREIGN MATERIALS THAT HAD BEEN PREVIOUSLY ADSORBED THERE AND AS A RESULT, THE ASCENDING AND THE DESCENDING BRANCHES OF THEIR ISOTHERMS ARE NOT COINCIDENT, UNDER SUCH CONDITIONS. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--BELYY YAR ATOMIC POWER PLANT -U-

AUTHOR-(02)-DUBININ, N., TOMICHEV, R.

COUNTRY OF INFO--USSR

SOURCE--GUDOK, JULY 15, 1970, P 4, COLS 1-6

DATE PUBLISHED--15JUL70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NUCLEAR ELECTRIC POWER PLANT, FAST REACTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0774 STEP NO--UR/9002/70/000/000/0004/0004

CIRC ACCESSION NO--AN0126466

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AN0126466

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS DESCRIBE THEIR VISIT TO THE 300,000 KW ATOMIC POWER PLANT AT BELYY YAR. THE PLANT IS POWERED BY 50 TONS OF URANIUM. ITS FIRST REACTOR IS OF TWO LOOP DESIGN, AND THE SECOND, WHICH WAS COMPLETED SOMETIME LATER, IS A SINGLE LOOP REACTOR. THE THIRD FAST REACTOR, 600,000,KW CAPACITY, IS UNDER CONSTRUCTION.

UNCLASSIFIED

USSR

UDC 575.113

DUBININ, N. P. (Editor)

Uspekhi Sovremennoy Genetiki (Advances in Modern Genetics), No 4, Moscow, "Nauka," 1972, 279 pp

Translation:

Table of Contents:

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USSR

UDC 575.1:591.526+576.8.095.14

DUBININ, N. P., SHEVCHENKO, V. A., ALEKSEYENOK, A. Ya., CHEREZHANOVA, L. V., and TISHCHENKO, Ye. M.

"Genetic Processes in Populations Exposed to Ionizing Radiation"

Moscow, Uspekhi Sovremennoy Genetiki, No 4, 1972, pp 170-205

Abstract: The article is a review of experimental and theoretical studies concerned with the effects of radiation on populations and biocenoses. It summarizes and systematizes the published data and the authors' long-term observations on the genetic processes that take place in populations chronically and protractedly exposed to radiation. It also examines and discusses the processes at work in populations of unicellular organisms (microalgae), higher plants, and mammals. The genetic adaptation of populations to chronic, protracted radiation is discussed, 13 tables, 13 illustrations, bibliography of 7 references.

1/1

DUBININ, N.P.

Genetics

SO: JPRS 55413
15 Jan 72

PROBLEMS OF GENETICS, INTERMEDIATE TASKS AND PROSPECTS

UDC: 575

[Article by Academician N. P. Dubinin, Moscow, Vestnik Akademii Nauk SSSR, Russian, No 11, November 1971, pp 11-21]

[illegible]

The field of genetics has developed at an exceedingly rapid pace throughout the entire 20th century, particularly during the last 2 decades. The crowning event of the first stage in the history of genetics following the triumph of Mendelism was creation of the chromosome theory of heredity. The transition of genetics to a new level was completed in 1953, following elucidation of the physicochemical structure and genetic nature of the DNA and DNA molecules. The most important event in the new genetics was discovery of the molecular basis of the phenomenon of heredity and the genetic code. This discovery is leading to the functioning of the genetic apparatus -- a discovery which is leading to the finding of new ways to control life. Lenin was no correct when he wrote that "the human mind has discovered many remarkable things in nature and will discover more, thus increasing man's dominion over nature" (V. I. Lenin, Poln. Sobr. Soch. [Complete Works], volume 18, page 299).

Until quite recently the pace of development in genetics was underestimated. In 1957 V. A. Engel'gardt, writing in an article entitled "Biology Will Become an Exact Science" on future genetic code research, maintained that although this is an extremely difficult task it is not the chemical coding of heredity [illegible] it is not the [illegible] 4 years later, in 1961, a new approach to the problem was developed. Only Intercontinental biochemical congress in Moscow, it was not 30 years later but by 1966 that the genetic code was not only deciphered, but scientists revealed as well the amazing picture of gene (cell to organism) molecular) interweaving of deoxyribonucleic acids in the cell. Discoveries in the field of genetics, which have astounded the biology community, have extended the biology community, this cascade of recent discoveries has radically altered old concepts of the nature of heredity and life and has in large measure defined the present status and the future of genetics.

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USSR

UDC 575.111.23:582.998.4

DUBININ, N. P., NEMTSEVA, L. S., and YURGELAYTITE, K.-N. V., Institute of General Genetics, Academy of Sciences USSR, Moscow

"Frequency of Vested Ring Chromosomes in Relation to Irradiation Dose"

Moscow, Genetika, No 6, 1971, pp 5-10

Abstract: Water-soaked Crepis capillaris seeds were exposed to Cs^{137} gamma rays at 1 and 2 kr. Irradiation produced structural mutations only of the chromosome type. Among the chromosomal aberrations were rings whose number, like the frequency of the chromosomal aberrations as a whole, was dose-dependent. Doubling the dose tripled the number. The ring chromosomes included some of the vested type. The number of the latter was also dose-dependent. At 1 kr, only one case of vesting was detected among 5,500 cells studied, whereas 20 were found among 3,000 cells after irradiation at 2 kr. Thus, doubling the dose increased the frequency of vesting about 30-fold. Vesting occurred at the time the ring chromosomes were formed. Whether the ring was free or vested on a rod-shaped chromosome depended on whether the middle fragment was enclosed without a rod-shaped fragment or included within the ring formed.

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Genetics

USSR

DUBININ, N. P., Institute of General Genetics

"Genetics: Problems and Discoveries"

Moscow, Sovetskiy Voin, No 5, 1970, pp 42-43

Abstract: Life is the most interesting result of the evolution that took place on earth. Now it is man's turn to improve the earth. Genetics will ensure a new biological basis for man's existence and thus help create a prosperous, rational, and happy life. The study of the gene -- the elementary hereditary unit -- is the central object of genetics. Every creature develops from a single fertilized cell, which contains a hereditary program recorded in the desoxyribonucleic acid (DNA). DNA is present not only in ova and spermatozoa but in the chromosomes of all cells. When man becomes familiar with the molecular basis of heredity, he may learn to change it at will and thus gain new power over nature. The many research projects currently in progress in our institute also include the theory of mutation, that is, structural changes induced in chromosomes by external factors. The old concept that such changes occur during or immediately after the action of these factors has been disproven by demonstrating that changes develop while seeds are germinating. When a mutagen affects DNA, it

USSR

DUBININ, N. P., et al., Moscow, Sovetskiy Voin, No 5, 1970, pp 42-43

does not impair the entire molecule, but only a portion of one strand of the double helix. A protective enzyme travels along the chromosome. When it arrives at the damaged place, it cuts this segment out, induces regeneration through synthesis, and eventually the chromosome is restored. Occasionally, the enzyme makes a mistake and cuts out the corresponding segment in the intact thread. During the subsequent passage, it also cuts out the damaged segment. As a result, the chromosome falls into two parts: this is mutation. Thus, to control mutation, we must understand enzymes and all processes taking place in the cell. Practical application of genetics has yielded valuable results. By producing mutations through irradiation or with chemicals, we have grown useful microbes, antibiotics, vitamins, and amino acids. Polio has been conquered through vaccination with mutant viruses. Cancer is a growth of mutated cells. By producing mutations in grain, India has gone through a successful "wheat revolution" and is now working on a "rice revolution." In human genetics, it may soon become possible to separate the X from the Y spermatozoa, and thus select the sex of the child to be born. Approximately four percent of children are born with hereditary diseases caused by mutations. Un-
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USSR

DUBININ, N. P., et al., Moscow, Sovetskiy Voin, No 5, 1970, pp 42-43

fortunately, most mutations of human cells are negative. Genetics must learn to prevent such mutations, especially those which may be induced by man-made pollutants. Genetics may contribute to the creation of a communist utopia by establishing a new agricultural basis, preserving pure human genetic codes (inherent traits), offering proper education (acquired traits), and eventually even augmenting the human genius.

3/3

USSR UDC 54-126+546.72+661.88

DUBININ, V. N., KUZ'MOVICH, V. V., SHEVTSOVA, A. F., IVKINA, N. A., and NATANSON, E. M., Institute of Physics and Institute of Colloid Chemistry and the Chemistry of Water, Academy of Sciences Ukr. SSR

"Application of the Moessbauer Effect for the Study of the Composition of Metal Polymers Derived from Inorganic Polymers"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 36, No 12, Dec 70, pp 1,298-1,299

Abstract: The Moessbauer effect was applied for the study of Fe and Sn polymers derived from silicomolybdic acid. The synthesis of these polymers has been described elsewhere. The Moessbauer effect spectra of the Fe polymers exhibited a doublet indicating the presence of amorphous $Fe(OH)_3$. Presumably highly disperse crystalline beta-FeOOH or alpha-FeOOH was present in the polymers. A second doublet corresponded to interaction of colloidal metallic Fe with the basis of the polymer. The magnitude of this doublet indicated that the amount of Fe which had reacted with the polymer basis was 15 and 30%, respectively, for polymers prepared by the electrolytic method and those prepared chemically. The spectra of Sn polymers constituted a superposition
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USSR

DUBININ, V. N., et al, Ukrainskiy Khimicheskiy Zhurnal, Vol 36, No 12, Dec 70, pp 1,298-1,299

of spectra typical for SnO_2 and metallic Sn, and of a doublet with parameters characteristic for Sn dioxide and hydroxide. The relative content of metallic Sn was approximately 10%.

2/2

1/2 012 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EXTRACTION OF VANADIUM AND MOLYBDENUM FROM TREATED CATALYSTS -U-

AUTHOR-(03)-BERG, G.A., DANILOVA, R.A., DUBININA, G.G.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,569

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNANKI 1970,

DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, METAL CATALYST, VANADIUM, MOLYBDENUM, SOLVENT EXTRACTION, HYDROREFINING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1835 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132100

UNCLASSIFIED

2/2 012 UNCLASSIFIED

CIRC ACCESSION NO--AA0132100 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. V AND MO ARE EXTD. FROM HYDROREFINING AND PLATFORMING CATALYSTS BY FIRST TREATING THE CATALYST WITH H SUB 2 S FOR 2-4 HR AT 300-500DEGREES, LESS THAN OR EQUAL TO 50 ATM GAGE, AND VOL. RATE 50-200 HR MINUS PRIME 1. THEN THE CATALYST IS TREATED WITH CL FOR 2-4 HR AT 300-500DEGREES, LESS THAN OR EQUAL TO 50 ATM GAGE, AND VOL RATE 50-200 HR MINUS PRIME 1.

UNCLASSIFIED

UDC 575.24

USSR

DUBININA, L. G., Institute of General Genetics, Academy of Sciences USSR, Moscow

"Modification of the Mutagenic Effect of Ethylenimine and Gamma-Ray Irradiation on Seeds Exposed Under Different Metabolic Conditions and Partial Anaerobiosis"

Moscow, Genetika, Vol 6, No 7, Jul 70, pp 61-72

Abstract: Soaking seeds in water creates partial anaerobiosis, which delays their development and alters the metabolic processes characteristic of germinating seeds. Irradiation of Crepis capillaris seeds after 96 hours' immersion in water had no effect on the phases of the cycle and induced only chromosome-type mutations. Mutability was higher in air-dried seeds. In seeds soaked for 24 hours and then treated with ethylenimine, the mutability level fell to a minimum, rose to a peak after 72 hours, and fell again after 96 hours. The mutability level after irradiation also varied with the duration of soaking. Air-dried seeds were the least mutable. The frequency of mutations increased with the duration of soaking, peaking after 72 hours and declining after 96 hours. These pronounced, regular changes in mutability show that the G_1 phase in soaked seeds is characterized by a succession of metabolic states that modify the level and nature of mutations.

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Acc. Nr.: AP0042558

Ref. Code: UR0293

JPRS 50162

Effect of Spaceflight on Seeds of Crepis Capillaris

(Abstract: "Effect of Spaceflight Factors on Seeds of Crepis Capillaris," by L. G. Dubinina and O. P. Chernikova; Moscow, Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 156-158)

A study was made of the effect of spaceflight factors on the seeds of higher plants. Seeds of Crepis capillaris, stored in test tubes over KOH in a dry state, were carried on a satellite-spaceship with a maximum distance of about 300 km from the earth's surface. The experiment lasted five days. The material was partially analyzed six days after landing of the ship and part of it was used in an experiment involving post-flight storage of the seeds. The storage times were 12, 20, 32, 40 and 50 days. The experiment revealed a small but statistically reliable increase in the number and chromosomal rearrangements. Differences between the control and experiment were reliable. A special experiment was run to determine the effect of ethyleneimine on seeds which had been exposed to spaceflight factors and for clarifying any possible change in their sensitivity. The results indicated an increase in sensitivity with respect to the mutangenic effect of ethyleneimine on those seeds which had been exposed to spaceflight. In this experiment the spectrum of aberrations revealed an increase in the relative number of chromosomal rearrangements. There were no differences

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Reel/Frame
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in the experiment and control with respect to germination and sprouting times. The only difference was in the experiment with storage and additional processing with ethyleneimine. In this case the sprouting of seeds on the 24th-50th days decreases greatly in comparison with the control.

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USSR

UDC 621.3.032.214

POPOV, V. A., GUSEVA, M. B., and DUBININA, Ye. M.

"Effective Electron Emitter Using a Hollow-Cathode Discharge"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 2, Feb 71, pp 327-329

Abstract: The article describes a special gas-discharge system using a hollow cathode as the effective electron source. A technique is suggested for transmitting high-density electron current without significant loss through regions with discretely varying pressure from 0.4 to 10^{-4} torr. The maximum output electron current density is 300 $a \cdot cm^{-2}$.

USSR

SAAD EL'DIN, M., DUBININA, YE. M., SPIVAK, G. V., VOLKOVA, T. V.

"Using Polymer Films for Studying Microfields With a Transmission-Type Electron Microscope"

Moscow, Izvestiya Akademii Nauk, Seriya Fizicheskaya, Vol 34, No 7, 1970, pp 1567-1569

Abstract: This paper investigates films formed on the surface of specimens under electron bombardment of condensing monomer vapor. These polymer films are used for investigating the structure of surface microfields at superoptical magnification. A curve is given showing the thicknesses of the films investigated as a function of the power of the electron beam causing the polymerization. The films were obtained both in a high vacuum and under glow discharge conditions, and the objects of the research were p-n silicon diodes. The electron beam was generated by a three-electrode gun, and the electron energy was kept at the level of tens of electron volts to increase their sensitivity to the microfields and reduce the number of secondary electrons with high velocity dispersions. Images of the cobalt domain structure were also obtained. This and other photomicrographs illustrate the article.

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710018-0"

USSR

UDC: 621.384.83

GERASIMOV, A. I., DUBINOV, Ye. G., and KUDASOV, B. G.

"Spectrometer of Electron Pulse Beams"

Moscow, Pribory i Tekhnika Eksperimenta, No. 3, 1971, pp 31-34

Abstract: An instrument which records the spectra of accelerated electrons in the course of about 40 seconds and measures their maximum energy is described. The error in determining the latter is a function of the spectrometer resolving power and the accuracy with which the magnetic field is measured; in this instrument, it did not exceed 2.5% with an average magnetic field of 835 oersteds and an energy level of 2 Mev. The measurement error of the continuous spectrum in the range of 0.6-2 Mev, without such singularities as sharp peaks or drops, was about 10%. Operating on the principle of the magnetic spectrometer, the device is said to be stable, easy to operate, and simple in construction and repair. Drawings are given of the instrument's basic structure, the construction of the magnet, and the schematic of the electrometric amplifier. Oscillograms of the signals output from the beam sensors for various modes of operation are given.

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1/2 044 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--EFFECT OF DICHROMATES ON THE PROPERTIES OF LATEX FILMS OF COPOLYMERS HAVING CARBOXYL AND METHYLOL FUNCTIONAL GROUPS -U-

AUTHOR--DUBINOVSKIY, M.Z., KOSYREVA, M.D., SIROTKIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--LAKOKRASOCH. MATER. IKH PRIMEN. 1970, (1) 29-31

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METHACRYLIC ACID, COPOLYMERIZATION, CORROSION INHIBITOR, METAL COATING, PROTECTIVE COATING, POTASSIUM CHROMATE, WATERPROOFING, PHYSICAL CHEMISTRY PROPERTY, METHYL METHACRYLATE/(U)MOL3 LATEX FILM, (U)MOL5 LATEX FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0553 STEP NO--UR/0303/70/000/001/0029/0031

CIRC ACCESSION NO--AP0107158

UNCLASSIFIED

2/2 044 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107158

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHYSICOMECH. PROPERTIES OF MBM-5 (BU ACRYLATE (I) ME ACRYLATE (II) METHACRYLIC ACID COPOLYMER) AND MOL-3 (I,II,METHYLOLMETHACRYLAMIDE COPOLYMER) LATEX FILMS MODIFIED WITH (NH SUB4) SUB2 CR SUB2 O SUB7, K SUB2 CR SUB2 O SUB7, AND GUANIDINE DICHROMATE (III) WERE STUDIED AT 20DEGREES. THE FILMS WERE PREPD. ON GLASS PLATES AT 20DEGREES, SET ASIDE FOR 7 DAYS, AND THEN SUBJECTED TO HEAT TREATMENT AT 80-190DEGREES FOR 30 MIN. DICHROMATES, ESP. III, HAD A WATERPROOFING EFFECT ON MBM-5 FILMS AND MARKEDLY INCREASED THEIR ELASTIC MODULUS AT DEFORMATIONS OF 50 AND 200PERCENT. THE PRESENCE OF MAX. ON THE H SUB2 O ABSORPTION CURVES AND CONSIDERABLE WASHING OUT OF DICHROMATES FROM MOL-3 FILMS SUGGESTED THAT CHROMATES SCARCELY REACTED WITH CH SUB2 OH GROUPS OF THE HEAT TREATED POLYMER. III WAS THE MOST REACTIVE AGENT, PRESUMABLY DUE TO ITS GOOD COMPATIBILITY WITH THE POLYMER. III MODIFIED MBM-5 AND MOL 3-LATEX FILMS CAN BE USED AS METAL PRIMERS AND CORROSION INHIBITORS.

UNCLASSIFIED

1/3 017 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF MANGANESE ON THE PHOSPHATASE ACTIVITY OF EPIPHYSEAL CARTILAGE AND FORMED BONE -U-

AUTHOR-(02)-KOVALSKIY, V.V., DUBINSKAYA, A.V.

COUNTRY OF INFO--USSR

SOURCE--DOKL. VSES. AKAD. SEL'SKOKHOZ. NAUK 1970, (1), 26-30

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BONE, CARTILAGE, TISSUE PHYSIOLOGY, PHOSPHATASE, ENZYME ACTIVITY, MANGANESE COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1004 STEP NO--UR/3275/70/000/001/0026/0030

CIRC ACCESSION NO--AT0121601

UNCLASSIFIED

2/3 017 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0121601

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN 2 SERIES OF EXPTS. IN VIVO, DAY OLD CHICKS WERE FED (1) A BASAL RATION, (2) THE BASAL RATION PLUS 10 MG OF MNSO SUB4-100 G FEED OR, (3) THE BASAL PLUS 100 MG OF MNSO SUB4-100 G FEED. ACID PHOSPHATASES WERE MOST ACTIVE AT PH 4.0-4.2 AND 5.0-5.5 IN THE FORMING BONE. PHOSPHATASE AT PH 4.0-4.2, ISOLATED FROM THE FORMING BONE, WAS ACTIVATED IN VITRO BY MN PRIME2 POSITIVE; MAX. ACTIVITY OCCURRED WITH 0.3 MG PERCENT MN PRIME2 POSITIVE IN AN EXT. OF THE FORMING BONE OF 30 DAY CHICKENS. LOWER (0.01 MG PERCENT) AND HIGHER (1.8 MG PERCENT) CONCNS. OF MN PRIME2 POSITIVE WERE LESS EFFECTIVE. IN 30 DAY OLD CHICKENS, PHOSPHATASE ACTIVITY AT PH 4.0-4.2 DEPENDED ON THE MN CONTENT IN THE RATION; IT WAS HIGHEST IN GROUP (2), LOWER IN GROUP (1) AND LOWEST IN GROUP (3). PHOSPHATASE AT PH 5.5 WAS NOT ACTIVATED BY MN PRIME2 POSITIVE ADDNS. IN EXPTS. IN VITRO, WHEN THE CONTROL ACTIVITY OF PHOSPHATASE ISOLATED FROM THE FORMATION ZONE WAS 110 UNITS, IT WAS 87, 103, AND 83 UNITS, RESP.; WITH MN PRIME2 POSITIVE ADDNS. 0.01, 0.3, AND 1.8 MG PERCENT. ALK. PHOSPHATASES WERE ACTIVATED BY MN PRIME2 POSITIVE ADDNS. IN VITRO. ALK. PHOSPHATASES (PH 8.5 AND 9.2) EXTD. FROM THE EPIPHYSEAL CARTILAGE, HAD HIGHER ACTIVITIES THAN PHOSPHATASE AT PH 7.4. THE ACTIVITY OF PHOSPHATASE AT PH 8.7 IN THE EPIPHYSEAL CARTILAGE BY THE 65TH DAY WAS CONSIDERABLY HIGHER THAN IN THE FORMING BONE. AT 30 DAYS OF AGE, THE HIGHEST ACTIVITY OF THE ENZYME WAS IN GROUP (2) AND THE LOWEST IN GROUP (3), WHILE THE OPPOSITE WAS OBSERVED AT 65 DAYS. NO DIRECT DEPENDENCE WAS DISCOVERED BETWEEN PHOSPHATASE ACTIVITY AT PH 8.7 AND MN CONTENT IN EPIPHYSEAL CARTILAGE.

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3/3 017 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0121601

ABSTRACT/EXTRACT--IN EXPTS. IN VITRO PHOSPHATASE ACTIVITY AT PH 9.0-9.2 CHANGED WITH ADDN. OF MN PRIME2 POSITIVE AND MG PRIME2 POSITIVE, DEPENDING ON THE RATIO OF THE TWO ELEMENTS. IT WAS HIGHER AT 30 DAYS WITH HIGHER MG-MN RATIO AND HIGHER P LEVEL, AND HIGHER AT 65 DAYS OF AGE WITH A LOWER MG-MN RATIO AND A LOWER P LEVEL. FACILITY: BIOGEOKHIM. LAB., INST. GEOKHIM. ANAL. KHIM. IM. VERNADSKOGO, MOSCOW.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--REACTION OF THE VINYL ETHER OF P,NITROPHENOL WITH BUTANETHIOL UNDER NUCLEOPHILIC THIYLATION CONDITIONS -U-

AUTHOR-(03)-DUDINSKAYA, E.I., FILIPPOVA, A.KH., SHOSTAKOVSKIY, M.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(3) 630

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ARYL ETHER, PHENOL, BUTANE, THIOL, ORGANIC NITRO COMPOUND, CHEMICAL SYNTHESIS, CHROMATOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1543 STEP NO--UR/0366/70/006/003/0630/0630

CIRC ACCESSION NO--AP0112537

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112537

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SEALED TUBE REACTION OF P-H SUB2 C:CHCC SUB6 H SUB4 NO SUB2 WITH BUSNA IN ETOH AT 85DEGREES GAVE P-BUSC SUB6 H SUB4 N(O):NC SUB6 H SUB4 S-BU-P AND A SMALLER AMT. P-BUSC SUB6 H SUB4 N:NC SUB6 H SUB4 SBU-P. THE COMPDS. WERE SEPD. BY CHROMATOG. ON AL SUB2 O SUB3.

UNCLASSIFIED

USSR

UDC 615.217.24.03(047)

DUBINSKIY, A. A., and LEBEDEV, S. V., Chair of Faculty and Hospital Therapy, Sanitary-Hygienic and Pediatric Faculties, Khar'kov Medical Institute

"Clinical Application of Beta-Blocking Agents"

Moscow, Klinicheskaya Meditsina, No 1, 1970, pp 7-12

Abstract: The pharmacology and results of the clinical application of drugs blocking beta-adrenotropic receptors (the excitation of which has a vasodilating effect, reduces the tonus of the ureters and the bronchial musculature, and stimulates the mycocatdium) are reviewed on the basis of literature data with particular attention to pronethalol (nethalide, alderlin) and inderal (propranolol). Drugs of this type have a strong physiological activity, which is exerted primarily on the cardiovascular system. They are very promising from the standpoint of treatment of cardiac diseases. A number of substances belonging to the class of drugs that block beta-adrenotropic receptors (beta-blocking agents) have been synthesized at the Division of Hormone Chemistry, Kahr'kov InStitute of Endocrinology and Hormone Chemistry (I. B. Simon). A systematic pharmacological

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USSR

DUBINSKIY, A. A., et al., Moscow, Klinicheskaya Meditsina, No 1, 1970, pp 7-12

study of the substances synthesized has been conducted since 1962 at the Chair of Pharmacology, Kiev Institute of Advanced Training for Physicians (V. Ya. Gorodinskaya and I. B. Simon; I. B. Simon et al). One of the substances synthesized, anaprilin (an analog of inderal), is now undergoing tests at a number of USSR clinics (A. A. Dubinskiy et al; E. T. Polivanov and N. G. Stepanov).

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USSR

UDC: 543.51

ALPAT'YEV, Yu. S., DUBINSKIY, I. N., OL'KHOVSKIY, V. L., PILIPENKO, A. P., CHEREPIN, V. T.

"A Mass Spectrometer for Analyzing Solids"

Moscow, Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 159-160

Abstract: A mass spectrometer based on the effect of secondary ion emission is developed for elementary and isotopic analysis of solids, specifically layer analysis of thin films of metals, semiconductors and dielectrics. The instrument consists of an ion source with ion-optical system of focusing and beam deflection, a turret chamber which holds the specimen, an immersion type objective lens, and a single-field rf mass spectrometer. The primary beam is accelerated to 4-14 keV and focused on the specimen to a spot with an area of 0.5-6 sq. mm. The secondary ions are collected, accelerated and prefocused by the immersion objective lens whose cathode is the specimen. The energies of the ions entering the mass spectrometer are controlled by changing the voltage across the specimen. Another lens focuses the beam of secondary ions into the input aperture of the mass spectrometer. The current of the secondary ions impinging on the collector is amplified by an electrometric amplifier and registered by an electronic

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710018-0"

USSR

ALPAT'YEV, Yu. S. et al., Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 159-160

potentiometer. The masses being analyzed can be recorded either in the panoramic mode or in a mode where the peak intensity is tracked (there is a relative change in the concentration of one component) as layers of the study specimen are successively removed by the primary ion beam. Masses from 1 to 250 can be analyzed with a mass-spectral resolution of 250 atomic mass units. Reproducibility of results is 10% in a working vacuum of 10^{-6} mm Hg.

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USSR

UDC 576.893.195.095.38:576.895.771(574)

LEVCHENKO, N. G., DUBITSKIY, A. M., and DESHEVYKH, N. D., Institute of Zoology, Academy of Sciences, Kazakh SSR

"Detection of Microsporidia in Larvae of Blood-Sucking Mosquitoes in Southeastern Kazakhstan (a Preliminary Report)"

Moscow, Meditsinakay Parazitologiya i Parazitarnyye Bolezni, No 5, 1971, pp 619-620

Abstract: Microsporidians were found for the first time in the larvae of some mosquito species along the middle and upper reaches of the Ili River in Kazakhstan: Thelohania opacita in Aedes montchadskyi and A. flavescens and Thelohania legeri in Anopheles hyrcanus. The species of microsporidians found in Aedes caspius caspius and Culex modestus larvae has not yet been conclusively determined. Diseased larvae generally were found in shallow bodies of water where the temperature was over 15°C. The protozoans are now being investigated as a possible means of controlling mosquitoes.

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USSR

UDC 624.046

DUBINSKIY, A. M., SHARAPOV, G. V., Kiev

"Supporting Power of Shells in the Form of a Hyperbolic Paraboloid"

Kiev, Prikladnaya Mekhanika, Vol VII, No 4, 1971, pp 44-50

Abstract: Results are presented from an experimental-theoretical study of the supporting capacities of mildly sloping reinforced concrete shells in the form of equilateral hyperbolic paraboloids square in the plan view under the effect of a uniformly distributed vertical load. Shells supported at the lower corners and along the outline with the lower corners secured against horizontal displacements are investigated. An analysis is performed by the kinematic method of the theory of limiting equilibrium. Tabulated data are presented for comparison of the experimental and theoretical values of the supporting capacity of shells supported along the outline with the lower corners secured against horizontal displacements. The shells with lower corner support and secured against horizontal displacements rupture with respect to the two-disc scheme. The hypar type shell supported along the outline with nondisplaceable lower corners in the state of limiting equilibrium behave the same as with lower corner support. The rigidity of the shell outline has no effect on the nature of its operation in the limiting equilibrium stage. Coverings in the form of

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710018-0"

DUBINSKIY, A. M., et al., Prikladnaya Mekhanika, Vol VII, No 4, 1971, pp 44-50

equilateral hyperbolic paraboloids transmit all the load to the lower corners, which must be secured against horizontal displacement. There is no necessity for constructing the supports along the outlines and the upper corners since the edge of the shell is lifted off the supports in the elastic stage.

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USSR

UDC 533.69

BUNIMOVICH, A. I., DUBINSKIY, A. V., Moscow

"Generalized Similarity Laws for Flow around Bodies under the Conditions of the 'Localness Law'"

Moscow, Prikladnaya matematika i mekhanika, Vol 37, No 5, 1973, pp 857-863

Abstract: Under the conditions of the localness law, that is, in cases where the flow of momentum to the surface of a body basically depends on the local properties of the surface (hypsonic flow of a gas in the Newtonian statement, flow of a rarefied gas, the effect of light, and so on), generalized similarity laws can be established which relate the aerodynamic characteristics to each other in the general case of affine-nonsimilar bodies. Methods are established for constructing the corresponding bodies, and examples of the application of the proposed similarity laws are presented.

During flow of an ideal gas around bodies in different velocity ranges the similarity laws are well known and have found broad practical application. By using these laws it is possible to recalculate the aerodynamic characteristics of the given body for another M number, and in some cases to obtain the aerodynamic characteristics of the affine-similar bodies [N. Ye. Kochin, et al. Teoreticheskaya gidromekhanika, Part 2, Moscow, Fizmatgiz, 1963; G. G. Chernyy,

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USSR

BUNIMOVICH, A. I., DUBINSKIY, A. V., Prikladnaya matematika i mekhanika, Vol 37, No 5, 1973, pp 857-863

Techeniya gaza s bol'shoy sverkhzvukovoy skorost'yu, Moscow, Fizmatgiz, 1959.
In many areas of aerodynamics and flight dynamics various theories are successfully used for determining the forces acting on the body. These theories essentially are based on the propositions that the momentum flow to the surface of the body basically depends on the local properties of the surface and the local angle between the normal to the surface and the direction of the flight velocity (the so-called localness law).

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USSR

DUBINSKIY, YA. I. and RYBAL'CHENKO, V. V.

PNEUMATIC DEVICE FOR DETERMINATION OF THE SIGN OF A DERIVATIVE

Moscow OTKRYTIYA IZOBRETENIYA PROMYSHLENNYYE OBRAZTSY TOVARNYYE ZNAKI in Russian No 8, Feb 74 p 141

[Abstract] This is a pneumatic device for determination of the sign of a derivative. It contains repeaters with positive and negative shift, the inputs of which are connected to the input channel of the device; comparison elements, the outputs of which are connected to the output channels of the device; a choke and normally open pneumatic valves. It differs in that in order to increase the reliability of the operation of the device, the outputs of the repeaters with shift are connected to the first inputs of the comparison elements, the second inputs of which are connected through a choke to the outputs of normally closed pneumatic valves, one of which is connected to the feed line, while the other is connected to the atmosphere; the controlling inputs of the pneumatic valves are connected to the output channels of the device.

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USSR

UDC: 681.8.087.92-932

DUBINSKIY, Ya. I., POPOV, A. I.

"An Electropneumatic Proportional-Plus-Integral and Differential Converter"

USSR Author's Certificate No 255681, filed 28 Jan 67, published 9 Mar 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A136 P)

Translation: This Author's Certificate introduces an electropneumatic proportional-plus-integral and differential converter. The device contains an electromagnetic controlling element with coils connected in a differential circuit, a comparison element, pneumatic capacitors, adjustable chokes, and a pneumatic divider. To improve reliability, the armature of the electromagnetic element is securely fastened to the rod of the comparison element. The output channel of the comparison element is connected respectively through a divider to the first negative feedback chamber and, through a choke and capacitance, to the second and first positive feedback chambers and, at the same time, through a choke and capacitance to the second positive feedback chamber. The forces developed by the difference in currents flowing through the coils of the comparison element are balanced by the forces developed by the action of air pressure on the negative and positive feedback diaphragms.

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USSR

DUBINSKIY, Ya.I., POPOV, A.I., USSR Author's Certificate No 255681

The variation in the pneumatic output signal is determined by pneumatic inertial links included in the feedback circuits. One illustration.

1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ROLE OF CYCLOHEXANE IN THE DEHYDROCYCLIZATION OF N-HEXANE ON A CHROMIUM CATALYST -U-

AUTHOR-(05)-ISAGULYANTS, G.V., ROZENGART, M.I., DERBENTSEV, YU.I., DUBINSKIY, YU.G., KAZANSKIY, B.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 600-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CYCLOHEXANE, HEXANE, CARBON ISOTOPE, CATALYST, BENZENE, CATALYTIC CRACKING, HEXENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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2/2 009 UNCLASSIFIED

CIRC ACCESSION NO--AT0124736 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A FLOW METHOD WAS USED TO ANALYZE THE REACTION PRODUCTS OF HEXANE CYCLOHEXANE (TAGGED WITH PRIME14 C) AT 530DEGREES CN AN ALUMINOSILICATE CATALYST. THE CRACKING PRODUCTS WERE ISOHEXANES, HEXANE, HEXENES, CYCLOHEXANE, AND C SUB6 H SUB6; IT WAS SHOWN THAT CYCLOHEXANE IS NOT FORMED IN THE OVERALL PROCESS AND CANNOT BE AN INTERMEDIATE IN DEHYDROCYCLIZATION OF HEXANE TO C SUB6 H SUB6. C SUB6 H SUB6 IS FORMED FROM CYCLOHEXANE SOMEWHAT MORE RAPIDLY THAN IT IS FROM HEXANE. THE ADSORPTION COEFFS. OF CYCLOHEXANE AND HEXANE ON THE CATALYST APPEAR TO BE VERY SIMILAR. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.317.373.023

DUBINSKIY, Yu. I., DUBRAVINA, I. L.

"Phase Error of Matching When a Signal is Transmitted Through a Directional Coupler"

Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-izmerit. apparatura (Electronic Technology. Scientific and Technical Collection. Monitoring and Measuring Equipment), 1970, vyp. 2 (20), pp 21-26 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A326)

Translation: The authors consider phase measurement error -- the phase error of matching which arises when a signal passes through a directional coupler due to channel mismatch. A formula is derived for calculating the mismatch phase error. Resumé.

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USSR

UDC595.771-12:616.9-036.2

DUBITSKIY, A. M., DESHEVYKH, N. D., LEVCHENKO, N. G., and DANEBEKOV, A. YE., Institute of Zoology, Academy of Sciences, Kazakh SSR

"A Method of Studying Natural Epizootics of Blood-Sucking Mosquitoes"

Moscow, Meditsinskaya Parazitologiya i Paraziratnyye Bolezni, No 6, 1971, pp 701-704

Abstract: To use pathogens as a means of controlling parasites and pests requires familiarity with the natural course of epizootics among them. Since disease of mosquito larvae generally have a mosaic structure, different habitats must be investigated. Larvae should be sampled from six characteristic types of sections of ponds (open, shaded, overgrown with aquatic vegetation, not overgrown, deep shallow). Mosquitoes are collected from a number of sites relatively close together to determine the degree of infestation or infection and then inspected and dissected to assess the intensity of the disease. The procedure should be repeated every month throughout the year to study seasonal patterns. Analysis of the results of investigations of the different segments of a single infected population gives some idea of the distribution, lethality and phase of the disease in which the larvae die. The initial symptoms of the disease, their development, and increase in severity combined with the subsequent death of a certain number of

USSR

DUBITSKIY, A. M., et al., Meditsinskaya Parazitologiya I paraziratnyye Bolezni, No 6, 1971, pp 701-704

individuals of the population, make it possible to determine the course and severity of the disease.

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USSR

UDC 595.771-119(574)

TUPITSYN, Yu. N., and DUBITSKIY, A. M., Eastern Kazakhstan Sanitary Epidemiological Station, Ust'-Kamenogorsk, and Institute of Zoology, Academy of Sciences Kazakh SSR, Alma-Ata

"Detection in the Kazakh SSR's Fauna of a New Subgenus and Species of Blood-Sucking Mosquito Aedes (Stegomyia) galloisi, Yamada, 1921"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 1, Jan/Feb 72, pp 106-107

Abstract: Two female and 1 male Aedes' (Stegomyia) galloisi were found for the first time in Kazakh SSR at the end of June 1971 during mowing of grass around test ponds in the Uba and Khamir River basins. This confirms previous probable catches of this species, outside its normal range, in southern areas of eastern Kazakh SSR. It was postulated that the mosquitoes originated here rather than being imported from areas within the normal range.

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USSR

UDC 776

DUBITSKIY, A. M., ILYALETDINOVA, S. G., and OBUKHOVA, V. M.

"Toxicity of Blue-Green Algae for Larvae of Blood-Sucking Mosquitoes of South-East Kazakhstan"

Alma-Ata, Vestnik Akademii Nauk Kazakhskoy SSR, No 2 (322), 1972, pp 65-67

Abstract: Of 13 species of algae tested, Microcystis aeruginosa, Hapalosiphon fontinalis, Anabaena variabilis, and Anabaena oscillarioides f. turkestanica, were toxic to larvae of Culiseta longiareolata, Aedes aegypti, Aedes caspius, and Culex pipiens. When exposed to the above algae, 44 to 99.7% of mosquito larvae perished. Microcystis aeruginosa was the most toxic, and Anabaena oscillarioides f. turkestanica, least toxic for larvae, with the remaining two species occupying an intermediate position. Analysis of the stomach contents of larvae showed that they contained 50-70% algae. However, mosquito pupae, which do not feed on algae, were not affected by any of the algae tested.

USSR

UDC 595.771

DUBITSKIY, A. M., and TUPITSIN, YU. N., Institute of Zoology, Academy of Sciences, Kazakh SSR, Alma Ata

"Description of the Larvae of Aedes (O.) rempeli Vockeroth, a New Species Among the USSR Fauna"

Leningrad, Parazitologiya, No 2, 1970, pp 171-174

Abstract: The 4th instar of this mosquito, which was recently found for the first time in Eastern Kazakhstan and in the vicinity of the diamond mines in the Yakutsk ASSR (Aykhal), is described. The new species is classified with the Ae. communis group, on the basis of structural and ecological characteristics. In Eastern Kazakhstan, larvae were found at 1950 m above sea level in heavily shaded bodies of water in forests and to a lesser extent in more open bodies of water. The population density was 3-8 larvae per m^2 of water surface. Pupation occurred during the last week in June.

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USSR

UDC 621.374.32

DUBITSKIY, L. A., L'vov Polytechnical Institute

"A Decimal Conversion Device"

USSR Author's Certificate No 341166 klH 03 k 23/00, filed 27 Mar 70, published 27 Jun 72 (from RZh Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 73, abstract No 11 A363P)

Translation: A decimal conversion device is proposed, containing an input divider with a division coefficient of 2^n, having 2^n-3 symmetrical outputs, dividers with a coefficient of division of 5, "forbidden" circuits, an "OR" circuit, and a decoder. To improve the coefficient of division of the input divider and provide an indication in the continuous counting mode, the outputs of the input divider are connected to the inputs of the appropriate dividers with a coefficient of division of 5 and to the "forbidden" circuits, connected by inhibit inputs to the outputs of the dividers with a coefficient of division of 5.

The outputs of the "forbidden" circuits are connected to the inputs of the "OR" circuit. The outputs of all dividers are connected to the inputs of the decoder, the output of which, together with the output of the "OR" circuit, constitute the outputs of the device.

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USSR UDC 681.325.65

DUBITSKIY, L. A., SHVETSKIY, B. I., YUZEVICH, Yu. V.

"Ways to Provide a Wide Dynamic Range in a High-Speed Analog-Digital Converter"

Taganrog, Region. nauch.-tekhn. seminar po stat. analizu modelir. i avtomatiz. kontrolya ob"yektov s konstrukt. slozhn. strukturoy--sbornik (Regional Scientific and Technical Seminar on Statistical Analysis, Modeling and Automated Monitoring of Objects With a Structurally Complex Design--collection of works), vyp. 6, 1972, pp 86-90 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 72, abstract No 11B310)

Translation: The paper deals with problems of constructing an analog-digital converter providing signal conversion in the 0-100 kHz range, which corresponds to a rate of variation of up to 10^7 V/s in the dynamic range of 80 dB (from 1 mV to 10 V of either polarity) with a conversion time of 5 μs and an error of about 1%. The device consists of an input unit containing a number of scaling amplifiers, a coding converter which includes comparison circuits, a channel-selection logic unit, an analog signal commutator, a high-speed analog-code converter in the pulse-time mode with a narrow dynamic

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USSR

DUBITSKIY, L. A. et al., Region. nauch.-tekhn. seminar po stat. analizu, modelir. i avtomatiz. kontrolya ob"yektov s konstrukt. slozhn. strukturoy-- sbornik, vyp. 6, 1972, pp 86-90

range, and a device which determines the sequence of interaction of the units. Two illustrations, bibliography of two titles. L. P.

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USSR UDC: 621.374(088.8)

DUBITSKIY, L. A., KUZ'MIN, Yu. I.

"An Electronic Commutator"

USSR Author's Certificate No 262958, filed 30 Sep 68, published 3 Jun 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A264)

Translation: This Author's Certificate introduces an electronic commutator which consists of n series-connected groups, each of which contains a pulse--potential coincidence circuit, a storage capacitor, and a limiter amplifier whose output is connected to one input of the coincidence circuit. As a distinguishing feature of the patent, the number of active elements is reduced and reliability is improved by adding an inhibit circuit in the commutator with an interrogation pulse source connected to one input through a differentiating circuit, while the pulse supply source is connected to the other input of this inhibit circuit and its output is connected to the second input of each of the coincidence circuits.

USSR

UDC 621.387

DUBITSKIY, L.G., KOZLOV, R.I., MOROZOV, I.I., SOKOLOV, N.A., SRETENSKIY, V.N.

"System Approach To Analysis Of Causes And Nature Of Failures Of Products Of Electronic Technology"

Elektron. tekhnika. Nauchno-tekhn. sb. Upr. kachestvom i standartiz. (Electronic Technology. Scientific-Technical Collection. Quality Management And Standarization), 1970, Issue 3, pp 3-12 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A2)

Translation: The principles are considered of a system approach which makes it possible to determine operationally the causes of failures and to increase the effectiveness of operation of a system of supervision and control of the quality of the products of electronics technology. Examples are presented of the realisation of a system approach for gas-discharge devices (with gas filling) which assumes use of a computer for processing of the results obtained. M.V.

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Communications

USSR

UDC: 621.396.2:621.371.1

VARLAMOV, G. I., DUBKOV, E. A., KOLOTYGIN, Yu. V., SPIVAK, V. B.

"Call Signal Automation for a Personal Radio Call System"

Tr. nauch.-tekhn. konferentsiy Kaluzh. obl. sovet nauch.-tekhn. o-v (Works of Scientific and Technical Conferences. Kaluga Regional Council of Scientific and Technical Societies), Kaluga, 1970, pp 73-77 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A196)

Translation: The paper describes the structure of a module in an automatic system for calling a certain subscriber by a combination of two frequencies out of eight, assuming a certain sequential order of frequencies. Call reliability is improved by multiple repetition of the signal. The principal component of the module is the subscriber identifier which is used for setting up different combinations of controlling signals corresponding to subscriber numbers. According to the signal given by the subscriber identifier, a call signal oscillator unit generates the call signal. The figures of merit are given for the circuits of various elements in the module. Three illustrations. N. S.

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USSR

Precision Mechanical & Optical

UDC 621.373:535

DUBKOV, V. I. and KISELEV, B. A.

"Photomixing of the Basic and Reference Laser Beams During Analysis of the Frequency Composition of Laser Radiation by the Method of Optical Heterodyning"

Leningrad, Optika i Spektroskopiya, Aug 73, pp 325-327

Abstract: A relationship is derived between the modulation depth of the beat signal during optical heterodyning with an external heterodyne and the degree of difference of the wave-front curvature radii. Cpnsideration is given to a photomixing method which provides a simultaneous complete frequency analysis of polymodal laser radiation. It is shown that when the method of optical heterodyning with an external heterodyne is used for this purpose, a drop in the value of the modulation depth by about one order of magnitude involves no significant difficulties in registration of the beat spectrum, since adequate power of the laser beams and the narrow-banded nature of the receiving and registration channel provide a high signal/noise ratio, and the other space effects that act upon the modulation depth may be reduced to a minimum by adjustment of the interfering beams. 1 table. 8 references.

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USSR

UDC 539.3/.385

DUBNER, G. N., Moscow

"Twisting of a Continuous Rod With a Cross Section in the Form of a Zhukovskiy Profile"

Moscow, Mekhanika tverdogo tela, No. 2, Mar/Apr 72, pp 139-145

Abstract: An exact solution is given to the problem of the twisting of a continuous rod with a cross section bounded by a Zhukovskiy wing profile. This cross section can be used as a model for the actual profile of turbine blades. The solution is obtained by making a conformal mapping of the region onto an infinite band and it is expressed in closed form in terms of the logarithmic derivative of the γ-function and its derivative. An asymptotic expansion of the rigidity into series in terms of powers of the thickness is obtained for thin profiles and the limits of applicability of the theory of thin rods is indicated. A calculation of the extremal stresses and the rigidity as a function of the thickness and curvature of the profile is given. A considerable concentration of stresses arising close to the trailing edge on the outer side of thick slightly curved profiles was observed in addition to a considerable concentration of

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USSR

DUBNER, G. N., Mekhanika tverdogo tela, No. 2, Mar/Apr 72, pp 139-145

stresses on the concave portion of thick profiles. Numerical calculations made on the M-220 computer are described.

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USSR

DUBNER, P. N.

"Calculation of Gamma Distributions"

Sb. Rabot. Vychisl. Tsentra Mosk. Un-ta. [Collected Works of Moscow University Computer Center], 1972, Vol 18, pp 155-160 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V175 by V. Pagurova).

Translation: A method is studied for producing a representation of a distribution function from a set of Pirson curves in the form of a chain fraction. The method is applied to gamma and beta distribution functions.

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USSR

UDC 519.2

DUBNER, P. N.

"Calculating Direct and Inverse Distribution Functions"

Vychisleniye pryamykh i obratnykh funktsiy raspredeleniya (cf. English above), Moscow, Moscow University, 1971, 19 pp, 3 k., Knizh. letopis', 1972, No 1, 22 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V3 K)

No abstract

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USSR

UDC 621.396.967

KASHCHEYEV, B. L., DELOV, I. A., DUBNIK, B. S., TKACHUK, A. A.

"A Radar Set for Studying Faint Meteors"

Radiotekhnika. Resp. mezhved. nauch.-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1971, vyp. 16, pp 11-18 (from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11G45)

Translation: The paper describes a set of radar equipment with the capacity for registering reflections from meteor trails with a linear electron density down to 10^{11} electrons/meter. The equipment has been successfully used for a period of three years. A schematic diagram is given as well as specimens of photographic registrations. Two illustrations, bibliography of eight titles. Resumé.

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USSR

UDC 621.396.967

ZHUKOV, V. V., DUBNIK, B. S.

"Radar Equipment for Measuring Meteor Altitudes"

Radiotekhnika. Resp. mezhved. nauch.-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1971, vyp. 16, pp 25-29 (from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11G44)

Translation: The circuitry of a phase altimeter is described. Its technical characteristics are given as well as the results of measurements: a histogram of the altitude distribution of meteors, and altitude dependences of the coefficient of diffusion and the average velocity of meteors for unsaturated trails. Bibliography of four titles. Resumé.

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Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

242194 REDUCER GAS is exposed to electric discharges before feeding to the reaction zone, then introduced along with ionisedmolecules. The ionisation which occurs when the gas contracts the metal oxides increases the reactivity and intensifies the ore processing in the reduction stage.
15.1.68 as 1211818/22-2. DUBNIKOVA.M.L. & SPEKTOR. A.N. (3.9.69) Bul 15/25.4.69. Class 18a. Int.Cl.C21b.

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USSR

UDC 621.375.82

DURNISHCHEV, Yu. N., KORONKEVICH, V. P., SOBOLEV, V. S., STOLPOVSKIY, A. A., SENIN, A. G., UTKIN, Ye. N., VASILENKO, Yu. G., SHMOYLOV, N. F.

"Development of the Doppler Method for Measuring Flow Rate"

V sb. Konf. po avtomatiz. nauch. issled. na osnove primeneniya ETsVM, 1972 (Conference on the Automation of Scientific Research on the Basis of Computer Applications, 1972 -- Collection of Works), Novosibirsk, 1972, pp 63-70 (from RZh-Fizika, No 11, Nov 72, Abstract No 11D976)

Translation: A two-channel compensation circuit for a laser Doppler device for measuring velocity is proposed. Use of this device makes it possible to lower considerably the level of the low-frequency component of the signal, which causes disturbance in processing the signal. The potential possibilities of the method of electronic processing of a Doppler signal are considered theoretically from the aspect of the accuracy of the measurements. The possibilities of the device are illustrated by an autocorrelation function for different average flow rates. A. I. Serbin.

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USSR

UDC 621.378.3

VASILENKO, YU. G., DONTSOVA, V. V., DUBNISHCHEV, YU. N., Novosibirsk

"Laser Doppler Velocity Meter Using a Fabry-Perot Interferometer"

Novosibirsk, Avtometriya, No 3, 1971, pp 90-92

Abstract: An experiment is described in which the linear local velocity of a rotating disc was measured. A single-frequency laser was used to increase the measurement accuracy. In the experimental setup, a helium-neon laser beam is passed through a lens and focused on the scattering disc. The backscattered light was observed on a Fabry-Perot etalon in front of which there was a collimating diaphragm. The experimental measurements were performed for a linear velocity of the investigated part of the disc of 60 m/sec. The mean square error of the measurements was ± 5 m/sec, and the relative error, 5%. The relative error decreases with an increase in velocity. A photograph of the interference rings obtained is presented.

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UDC: 621.373:535.06

DUBNISHCHEV, Yu. N., LOKHMATOV, A. I., KOSHCHEYEV, L. N., STOLPOVSKIY, A. A., UTKIN, Ye. N.

"Measuring the Linear Velocity of Motion of a Body by Using the Optical Doppler Effect"

Leningrad, Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 587-588

Abstract: Shown in the figure is a diagram of a device developed at the Institute of Automation and Electrometry of the Academy of Sciences of the USSR, Siberian Department, for using the Doppler shift of light to measure local linear velocity. The device uses a cadmium laser on 0.44 μm with 5 mW of output power. A light beam from the laser 1 operating in the fundamental mode passes through iris 2 and is incident on beam splitter 3. One of the split beams passes through iris 4 and is focused by lens 5 onto the surface of disc 6 whose local linear velocity is to be measured. The disc revolves with angular velocity ω. The second split beam is focused by an identical lens 7 onto the surface of a polished glass plate 8 which reflects it through the same lens back to a photodividing plate where it acts as a reference beam, recombining with the signal beam scattered by

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710018-0"

USSR

DUBNISHCHEV, Yu. N. et al., Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 587-588

disc 6. The signal and reference beams are trimmed by iris 9 and interfere on the cathode of photomultiplier 10. The Doppler difference frequency from the load of this tube is sent through high-frequency filter 11 and clipper amplifier 12 to a tracking filter made up of phase detector 13, low-frequency filter 14, DC amplifier 15 and frequency-controlled oscillator 16. The signal from the oscillator is sent to spectrum analyzer 17 and digital frequency meter 18. The readings of the meter are proportional to the linear velocity of the disc in the region where the incident beam is focused. The Doppler spectrum of the signal can be analyzed on the spectrum analyzer. The proposed device has an accuracy of 0.2% and can be used for noncontact measurement of the linear velocity of mechanical motion in rolling mills, paper-making machines, etc.

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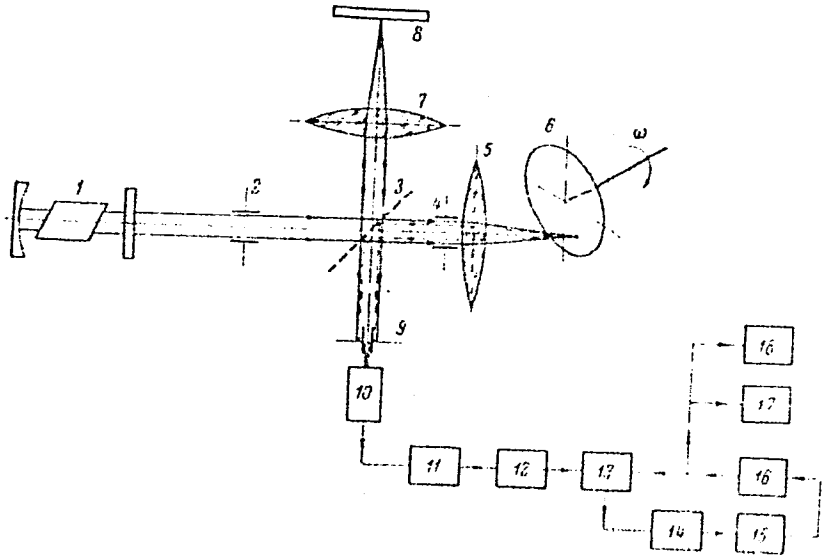
USSR

DUBNISHCHEV, Yu. N. et al., Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 587-588



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Instruments and Measurements

USSR

UDC 621.378.3

DUBNISHCHEV, YU. N., KOVSHOV, YU. M., Novosibirsk

"Laser Doppler Velocity Meter Insensitive to the Geometry of the Incident Beam"

Novosibirsk, Avtometriya, No 3, 1971, pp 87-90

Abstract: A new method of obtaining minimum instrument broadening of the doppler spectrum in laser doppler velocity meters is described. It consists in measuring the doppler frequency by obtaining the frequency beats on a photographic film from the isolated beams scattered by an object the velocity of which is subject to measurement. The instrument broadening of the doppler spectrum in this case is independent of the geometry of the incident beam and is determined by the apertures of the signal beams. In systems of this type the instrument broadening of the spectrum can be very small since the minimum size of the apertures of the signal beams is determined only by the sensitivity of the photoreceiver used. The schematic of the device implementing the new method, its operating theory and experimentally obtained doppler spectra are presented. A relative spectral width on the order of 9% was obtained under the given experimental conditions, demonstrating the usefulness of the described system when it is necessary to exclude the effect of the geometry of the incident beam on the measurement accuracy.

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USSR

UDC 541.182.02

KOMAROV, V. S., KUZNETSOVA, T. F., and DUBNITSKAYA, I. B., Institute of General and Inorganic Chemistry Academy of Sciences Belorussian SSR

"The Influence of Organic Cation-active Agents on the Structure of Absorbants Produced"

Minsk, Izvestiya Akademii Nauk BSSR Seriya Khimicheskikh Nauk, No 2, 1972, pp 63-67

Abstract: A study was made of the effect of twelve to eighteen carbon long amine salts, which are cation-active organic substances, on the structure of zerogels of aluminum hydroxide formed in their presence. These experiments were part of a larger study of the formation of gels in the presence of various surface-active substances. The maximum sorption volume, specific surface area, and mean effective pore radius were determined in the presence of four different amine salts, each at 0.01 and 0.05 weight%. The absorption isotherms and curves for the distribution of pore volume versus radius were plotted for each salt and concentration. An uninterupted rise in sorption capacity and effective pore volume were observed with increasing molecular weight and concentration of the amine, while the specific surface correspondingly decreased. The surface ionization is discussed and it is proposed that the absorption of the

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USSR

KOMAROV, V. S., et al., Izvestiya Akademii Nauk BSSR Seriya Khimicheskikh Nauk, No 2, 1972, pp 63-67

organic cations of the surface of the hydrophilic particles renders them hydrophobic and leads to a screening effect, and a lowering of the electrokinetic potential. This hydrophibic film results in a lowered stability of the aggregation, and to a lessened capacity for immediate contact between particles. A thinner hydrophobic layer is said to lead to the formation of small pore absorbants, and a thicker layer to large pore. A further increase in the concentration of the surface active absorbants again renders the particle hydrophilic due to the double layer formation illustrated. These particles form a friable aggregate. The fact that the adsorption of long chain organic cations of the surface of gel particles facilitates the formation of dispersed structures, with relatively high free energy, is indicated.

2/2

USSR

UDC 595.771.421/576.8.06

SAUBENOVA, O. G., SADOVNIKOVA, T. P., DUBNITSKIY, A. M., and SINITSINA, L. P., Institute of Zoology, Academy of Sciences, Kazakh SSR, Alma-Ata

"Effect of Microbial Preparations on Mosquito Larvae of the Genus Culex in Southeastern Kazakhstan"

Leningrad, Parazitologiya, No 3, 1973, pp 227-230

Abstract: Five microbial preparations -- entobacterin, insectin. boverin, dendrobacillin, Bac. thuringiensis exotoxin -- were tested for their insecticidal effect on Culex modestus and Culex pipiens larvae in the laboratory and under field conditions (desert, semidesert, mountain). Insectin, boverin, and dendrobacillin proved to be ineffectual both in the laboratory and in the field. Entobacterin in a 1% suspension killed 79.5% of the larvae under desert and semidesert conditions, but the high cost of the preparation is disproportionate to the results obtained. And it exhibited much lower insecticidal activity in the mountains. Bac. thuringiensis exotoxin was the most effective in laboratory experiments. At a 0.1% concentration it killed 86% of the Culex pipiens larvae. Further testing of both entobacterin and exotoxin is suggested.

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Immunology

USSR UDC 615.371:576.858.25].033+616.988.25-002.395.42-035.371-039.71

DUBOV, A. V., KOZLOV, L. B., MOLOTILOV, B. A., and FEMEVA, N. A., Tyumen' Scientific Research Institute of Regional Infection Pathology, Ministry of Health RSFSR, and Antiencephalitis Division, Ministry of Health RSFSR

"Live Vaccine Against Tick-Borne Encephalitis. Antigenic Potency"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 72, pp 703-705

Abstract: Live vaccine and inactivated formolvaccine against tick-borne encephalitis were tested on 980 individuals to determine differences in immunogenicity and to derive optimum vaccination schedules. Single live vaccination produced virus-neutralizing antibodies in 46% of the individuals, antihemagglutinating antibodies in 43%, and complement-fixing antibodies in 6%. With one vaccination schedule production of virus-neutralizing antibodies was 62% greater with live than with inactivated vaccine. The best vaccination schedule for live vaccine was 2 injections (1 ml, 5.5-6.7 $\lg LD_{50}$) 3.5 months to 1 year apart. A pronounced booster effect was noted when individuals had 2-3 previous vaccinations by inactivated vaccine. Thus use of live tick-borne encephalitis vaccine is recommended in foci in which the population had undergone immunization by formolvaccine.

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USSR

UDC:624.131+539.215

DUBOV, K.A.

"Shape of Compacted Nucleus In Clay Subsoil Under Rigid Foundation At Critical Load"

Moscow, Sb. NII Osnovaniy i Podzem. Sovruzh, Gosstroy SSSR (Symposium of Foundations and Underground Structures Research Institute. State Construction USSR), 1972, No 63, pp 22-24 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2V657 by Yu.P. Lyapichev)

Translation: In order to determine the height and shape of compacted nucleus, investigation, by means of a radioisotope installation, was made of density changes of clay subsoil in the base of foundation models. It is established that in a clay base under a rigid foundation a convex compacted nucleus is formed, as compared to a triangular nucleus shape in sandy subsoils. The nucleus height varies from 0.9 to 1.1 of the foundation width, depending on the consistence of the subsoil. Two zones were observed in the nucleus: the elastic zone next to the foundation, and the plastic one located below the elastic

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USSR

DUBOV, K. A., Sb. NII Osnovaniy i Podzem. Sovruzh, Gosstroy SSSR, 1972, No 63, pp 22-24

zone. The elastic zone of the nucleus extends to 0.4-0.5 of its height, has a higher density and a more convex shape than the compacted nucleus. The displacement of the soil in this zone is in the vertical direction with high normal stresses. The plastic zone is characterized by lower density and by gradual turning of displacement direction away from the vertical in the slip surface. Increase of density in the nucleus over the rest of the base result in considerable increase of cohesion and of internal friction angle. Functions are established, describing the nucleus boundaries in clays of various consistence.

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