1/2   014
UNCLASSIFIED
TITLE—EFFECT OF FORMATION CONDITIONS ON THE OVERALL MOLECULAR ORIENTATION
OF AN UNSTRETCHED VISCOSE RAYON FIBER -U-
PROCESSING DATE—30OCT70

AUTHOR-(02)-KOTOMINA, I.N., SERKOV, A.T.

COUNTRY OF INFO—USSR

SOURCE—KHIM VOLOKNA 1970, (2), 43-6

DATE PUBLISHED————70

SUBJECT AREAS—MATERIALS

TOPIC TAGS—RAYON, COAGULATION, MOLECULAR STRUCTURE, REFRACTIVE INDEX,
TEXTILE INDUSTRY

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—2000/0821

CIRC ACCESSION NO—AP0124488

STEP NO—UR/0183/70/000/002/0043/0046

UNCLASSIFIED

CIRC ACCESSION NO--AP0124488   UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE EFFECT WAS STUDIED OF THE COAGULATING BATH COMPN. AND TEMP. ON THE BIREFRINGENCE INDEX (DELTA N EQUALS THE DIFFERENCE BETWEEN THE REFRACTIVE INDICES IN 2 PERPENDICULAR DIRECTIONS) OF THE UNSTRETCHED RAYON FIBER.   THE INCREASE IN 2 PERPENDICULAR NA SUB2 SO SUF4, AND (OR) H SUB2 SO SUB4 CONCNS. ALL INCREASED DELTA N. THE MAX. DELTA N WAS OBTAINED AT 40--60DEGREES COAGULATING BATH TEMP. THE INCREASE IN THE DIAMS. OF SPINNERETTE OPENINGS DECREASED DELTA N. THESE RESULTS ARE EXPLAINED IN TERMS OF THE SELECTIVE DIFFUSION AND ION DESORPTION THEORY.   THE DIFFUSION CAUSES COAGULATION OF THE POLYMER MOLS. IN LAYERS AND HENCE THEIR ORIENTATION EVN WITHOUT DRAWING.

UNCLASSIFIED

1/2   019

UNCLASSIFIED

TITLE--EFFECT OF THE FORMATION RATE OF DIFFUSION PROCESSES IN VISCOSE
FIBERS -U-

PROCESSING DATE--18SEP70

AUTHOR-(02)-SERKOV, A.T., KOSYACHENKO, L.N.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VOLOKNA 1970, (1), 27-30

DATE PUBLISHED------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--RAYON, HYDROGEN, DIFFUSION COEFFICIENT, ION, SYNTHETIC FIBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1822

STEP NO--UR/0183/70/000/001/0027/0030

CIRC ACCESSION NO--AP0100396

UNCLASSIFIED

CIRC ACCESSION NO--AP0100396

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIFFUSION OF H PRIME POSITIVE
AT VARIOUS FILAMENT FORMATION RATES OF VISCOSE (I) FIBERS WAS STUDIED.
THE DIFFUSION RATE OF H PRIME POSITIVE WAS PROPORTIONAL TO THE FILAMENT
FORMATION RATE, PRESUMABLY DUE TO A DECREASE IN THE THICKNESS OF THE
DIFFUSION LAYER. AN EQUATION WAS DERIVED FOR THE PATH (L OF A I
FILAMENT IN THE BATH AS A FUNCTION OF THE FORMATION RATE (V). THUS, L
EQUALS 0.01 (RV PRIME 0.5 PLUS K) -D (WHERE R IS THE RADIUS OF THE
FIBER, D IS THE APPARENT DIFFUSION COEFF., AND K IS A CONST.). THE
CALCD. L WAS IN GOOD AGREEMENT WITH THE EXPTL. DATA. THUS, THE
DIFFUSION RATE IN THE BATH IN THE RANGE OF 80-100 M-MIN CANNOT AFFECT
THE FORMATION RATE.

UNCLASSIFIED

SERKOV, N. V.

SPRS 57208

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3

- 109 -

VIII-5a. FINE STRUCTURE OF SINGLE GALLIUM ARSENIDE CRYSTALS GROWN FROM A MELT

[Article by V. A. Selivanova, N. V. Serkov, V. V. Kotik, Tomsk; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok; Russian, 12-17 June 1972, p 105]

A study was made of the structure of single crystals of gallium arsenide by metallographic, chemical and electron microscopic methods. The presence of the fine structure of several types was demonstrated. A comparison of the structure with the morphology of the crystallization front surface and the growth conditions permits judgement of the kinetics and mechanism and crystallization. The disturbance of the united periodicity of the single crystal is caused, in our opinion, by the peculiarities of growth from a melt.

USSR

GAVRILOV, V. S., GORNOSTAYEV, V. N., ZAPOL'SKIY, B. A., SEROV, B. V.
Karelian Scientific Research Institute of the Forestry Industry

UDC: 681.325.5

"A Parallel Ring Register"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 20, Jul 72, Author's Certificate No 343305, Division G, filed 10 Mar 70,
published 22 Jun 72, p 175

Translation: This Author's Certificate introduces a parallel ring register
which contains n ring registers and AND and OR circuits. As a distinguish-
ing feature of the patent, provision is made for changing the numbers in
the register without loss of time on carry operations and the amount of
equipment is reduced by introducing one single-place adder for every two
inputs in each of the n registers. The carry output of each adder is con-
nected to one of the inputs of the adder located in the next higher
register and shifted relative to the adder of the lower register by one
digit in the direction of motion of information in the register, and the
input of the adder of the lower register is connected to the output of the
AND circuit. One input of the AND circuit is connected to the input of the
device, and the other is connected through the OR circuit to the outputs of
one of the digital places of each of the n registers.

1/1

- 14 -

TITLE--RESPONSES OF THE AUDITORY CORTEX NEURONS TO PAIRED CLICKS -U-

UNCLASSIFIED

AUTHOR-(02)-SERKOV, F.N., YANOVSKIY, YE.SH.

COUNTRY OF INFO--USSR

SOURCE--NEYROFIZIOLOGIYA, 1970, VOL 2, NR 3, PP 227-235

DATE PUBLISHED--------70

PROCESSING DATE--23OCT70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AUDITORY SYSTEM, NEURON, NEUROPHYSIOLOGY, ELECTROPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS'

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0390

CIRC ACCESSION NO--AP0121075

STEP NO--UR/0660/70/002/003/0227/0235

UNCLASSIFIED

CIRC ACCESSION NO--AP0121075
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DURATION OF REFRACTORY PERIOD
OF 75 NEURONS IN THE CAT'S AUDITORY CORTEX ACTIVATED BY A CLICK WITH A
LATENT PERIOD NOT MORE THAN 30 MSEC. WAS STUDIED BY THE PAIRED CLICK
METHOD. THE INVESTIGATION WAS PERFORMED ON CATS UNDER D TUBOCURARINE.
68 UNITS HAD NO SPONTANIOUS SPIKE ACTIVITY, IN 7 NEURONS IT WAS RARE AND
IRREGULAR. IT WAS FOUND THAT THE CONDITIONING CLICK PRODUCED IN
ACTIVATED UNITS THE STATE OF PROLONGED REFRACTORINESS TO THE TESTING
ONE. THE DURATION OF REFRACTORINESS RANGED FROM 3 TO 700 MSEC. THE
REFRACTORY PERIOD OF EACH UNIT WAS CONSTANT, BUT IT VARIED IN DIFFERENT
NEURONS. A DEPENDENCE WAS FOUND BETWEEN THE NUMBER OF CELLS ACTIVATED
BY THE TEST CLICK AND INTERCLICK INTERVAL. WHEN THE INTERVAL BETWEEN
TWO CLICKS BECAME SHORTER THE NUMBER OF NEUROUS ACTIVATED BY THE SECOND
CLICK DECREASED. IT WAS SUGGESTED THAT SUCH INTERRELATIONSHIP MIGHT BE
A NEUROPHYSIOLOGICAL MECHANISM OF SHORT TIME INTERVAL PERCEPTION
DICRIMINATION.   FACILITY: THE A. A. BOGRMOLETZ INSTITUTE OF
PHYSIOLOGY, ACADEMY OF SCIENCES, UKRAINIAN SSR, KIEV.

UNCLASSIFIED

AA0043573   S   UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243865 WATER FLOW METER is used for metering the
outflow of water from hydrotechnical
installations. In view of the necessity of
calibrating beforehand the rotor vane meters work-
ing at an angle, specially in case of very low or
very high speeds, this invention simplifies the
operation of control checking when installing
hydraulic plants of various types. This is
achieved by measuring the level of the free water
surface on the crest of the waterflow, say, in
front of the main gate and upper water of the
installation and in relation to the pressure
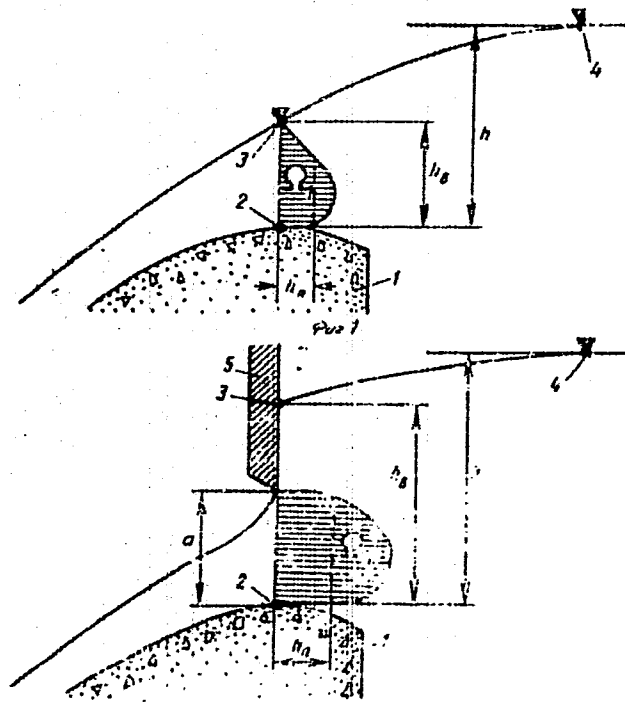exerted, a curve is drawn showing the distribution
of pressure.
30.1.67 as 1129506/18-10.V.S.SERKOV & L.N.BAYCHIKOV.
(30.9.69) Bul 17/14.5.69. Class 42e. Int.Cl.G 01f.

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19762039

Beryllium

USSR   UDC 669.725.621.039.5

GOL'TSEV, V. P., CHECHETKINA, Z. I., SERNYAYEV, G. A.

"Radiation Damage to Beryllium With Low-Temperature Neutron Bombardment"

Radiatsion. Fiz. Tverd. Tela. i Reaktornoye Materialoved. [Solid State Radiation Physics and Reactor Materials Science -- Collection of Works], Moscow, Atomizdat Press, 1970, pp. 213-220. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I807 by V. B.).

Translation: The bombardment of hot-pressed Be with an integral fast neutron flux of about $5 \cdot 10^{21}$ cm^{-2} causes no notable changes in mechanical properties. Increasing the dose to $4 \cdot 10^{22}$ cm^{-2} causes a decrease in density of 1.5% as a result of the appearance of microfissures and discrete cavities along the grain boundaries. 3 figs; 4 biblio refs.

1/1

Beryllium

USSR   UDC 669.725:621.039.5

ZAVGORODNIY, A. YA., GOL'TSEV, V. P., CHECHETKINA, Z. I., SERNYAYEV, G. A.

"Kinetics of Gas Swelling of Irradiated Beryllium"

Radiatsion. fiz. tverd. tela i reaktornoye materialoved. — V sb. (Radiation
Solid State Physics and Reactor Material Science — collection of works),
Moscow, Atomizdat Press, 1970, pp 221-231 (from RZh-Metallurgiva, No 4, Apr
71, Abstract No 41834)

Translation: Dilatometric and metallographic methods were used to study the
kinetics of gas swelling of hot-extruded Be irradiated at 70° with doses of
$3.7 \cdot 10^{21}$-$2 \cdot 10^{22}$ neutrons/cm^2 in the temperature range of 100-900°. The
presence of three sections on the temperature-swelling curves of irradiated
beryllium was detected. The bibliography has 1 entry.

1/1

Beryllium

USSR   UDC 621.039.532.5

CHECHETKINA, Z. I., GOL'TSEV, V. P., KAZAKOV, V. A., SERNYAYEV, G. A., and
BAZYUKIN, V. G.

"Radiation Damage to Beryllium by High-Temperature Irradiation"

Moscow, Atomnaya Energiya, Vol 30, No 5, May 71, pp 434-438

Abstract: Radiation damage to beryllium by high-temperature irradiation is
aggravated by the fact that the atoms of helium and tritium forming in the
irradiation process, by having sufficient diffusion mobility and by combining,
form a nucleus of gas bubbles which under certain conditions may lead to
significant swelling of the material and to changes in its mechanical proper-
ties.
        This article is concerned with the experimental results of studying the
physico-mechanical properties of beryllium following irradiation at various
temperatures by an integrated fast neutron flux of $6 \cdot 10^{20}$ neutron/cm^2. The
authors give six illustrations to demonstrate their findings.
        On the basis of their study the authors make several conclusions.
Radiation damage is manifested in beryllium in its swelling and hardening.
The swelling attained in the process of irradiating beryllium depends to a
large degree both on its structural state and on the temperature of the
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USSR

CHECHETKINA, Z. I., et al., Atomnaya Energiya, Vol 30, No 5, May 71, pp 434-438

irradiation. The fused material in the entire investigated temperature range does not undergo substantial swelling. Materials hot-extruded from powder with dimensions less than 60 and 600 μm do not undergo extensive swelling in the temperature range below 600° C. Hot-extruded materials begin to swell noticeably at a temperature of 600° C and continue to swell as the temperature of irradiation is elevated. A material, hot-extruded from powder with dimensions less than 600 μm has a greater tendency to swelling than does a material obtained from a powder with dimensions less than 60 μm.

The strength properties of beryllium depend to a very large degree on the irradiation temperature. Electron microscopic studies show that the characteristics of change in the properties of the materials correlate well with the characteristics of the behavior of the helium accumulated in them. The behavior of this same helium in materials prepared by various techniques is predetermined to a large degree by their structural states.

This article contains 6 figures and a bibliography of 6 titles.

2/2

- 13 -

Acc. Nr.: _AP0041292_   S   Ref. Code: _UR 0209_

USSR   UDC: None

SEROV, A. and SHISHINA, V, Engineers

"Thermal Control"

Moscow, Aviatsiya i Kosmonavtika, No. 1, 70, pp 26-27

Abstract: The subject of this article is defined as a complex of
methods of providing maintenance of a given thermal situation in
equipment designed for space travel. These methods may be passive
or active. The operating temperature range of apparatus in space
is from 0 to 40° C; maintaining this interval under space condi-
tions is not a simple problem. The many factors affecting the
operating conditions of the equipment may be classed as internal
and external. The first are directly connected with the peculi-
arities of the equipment itself, its makeup, and its mode of ope-
ration. Inside the space vessel, heat in the equipment is a prob-
lem since natural convection is impossible under conditions of
weightlessness. The power used by the equipment inside is also a
factor; the greater the power consumption, the greater the heat

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1/3   19751129

AP0041292

emitted. The function of space equipment can also be divided into two classes: active and standby. Active equipment uses the major portion of the energy supplied, and its chief components are those devoted to communication. Hence, in designing the heat control system, the demands of the communications system must first of all be considered. An example of this was the Soviet experience with "Venus 5" and "Venus 6" probes, when the program of the landing communications exchange was set up with an eye to equipment overheating in the thermally insulated capsule. Conditions in space are sometimes better than in the lower layers of the Venusian atmosphere; the heat accumulated in the space ship can be gotten rid of by means of radiation. External factors, such as the heat radiated by the sun, the planets, and other heavenly bodies, also affect the heating of the space ship. The sun supplies most of the radiation; its maximum output occurs at the wavelength of 0.47 microns, with more than half its total in the wavelength range of 0.2 to 1.0 microns. The ship flying near the planets must take account of the planet's natural radiation -- that of its atmosphere and surface -- as well as its albedo factor, characterized by the ratio of the reflected solar radiation to the total solar radiation incident on the planet. For the earth, the albedo factor is 0.32 in July and 0.52 in October; for

$\frac{2}{3}$ 19751130

AP0041292.-

Venus it is 0.73, and for the moon, 0.07. The natural radiation
of the planets is variable and depends on . the temperatures and
radiating characteristics of their atmospheres and surfaces. For
,artificial satellites of Mars, Venus, and the earth, the total ex-
ternal heat flow is 800, 4000, and 1600 kcal/m^2hr respectively.
The temperature of the space vessel may be controlled by making
changes in the optical characteristics of its surface. Internal
cooling, such as was done in the Soviet cosmic station "Venus 4"
with a single-contour gas system of the closed type, can also be
accomplished. In general, space equipment with high-energy in-
stallations (in tens of kilowatts) should use thermal regulators
operating on the principle of home air conditioners and fed from
the energy network on board the space vessel.

19751131

3/3

USSR

SEROV, A., Engineer

"A Pulse Packet Generator"

Moscow, Radio, No 1, Jan 70, p 33

Abstract: The author proposes a pulse packet generator which consists of two transistorized squegging oscillators with collector-base feedback and a common pulse transformer. The output prf depends on the capacitance of a capacitor connected in the emitter circuit of one of the transistors. There is a separate charging circuit for the other transistor which increases the charging current of the output capacitor at the instant when the squegging oscillator shapes the pulses. The duration and prf of the pulses are adjustable over a wide range by means of a potentiometer. The pulse transformer core consists of two crossed ferrite rings. The generator produces pulse packets with the following parameters: interval between packets -- 1-5 μs, number of pulses in a packet 2-20, pulse duration 0.2-0.4 μs, prf of pulses within the packet -- 0.5-1 μs. These parameters may be considerably varied by using higher-frequency or lower-frequency transistors and by changing the operating mode of the squegging oscillators.

1/1

USSR   UDC: 621.319.4

KUGAYEVSKIY, A. F., SEROV, A. V.

"A Capacitor With Variable Losses"

Tr. Sib. NII metrol. (Works of the Siberian Scientific Research Institute
of Metrology), 1971, vyp. 12, pp 93-97 (from RZh-Radiotekhnika, No 6,
Jun 71, Abstract No 6V380)

Translation: The paper describes one of the modifications of design of
capacitors with variable losses. The operating principle lies in alter-
nate placement of dielectric materials with different loss tangents in the
capacitor field. The capacitance of the device remains constant as the
losses vary. Resumé.

1/1

USSR

UDC: 53.07/.08+53.001.5

ZAYTSEV, L. N., KIMEL', L. R., SEROV, A. Ya., SIDORIN, V. P.

"Recovery of Neutron Spectra Behind Accelerator Shielding"

V sb. Vopr. dozimetrii i zashchity ot izluch. (Problems of Dosimetry and Radiation Shielding--collection of works), vyp. 12, Moscow, Atomizdat, 1971, pp 47-52 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A673)

Translation: The neutron spectrum was measured behind the shielding of a 10 GeV synchrophasotron with the aid of a Bonner counter -- a scintillation detector of boric anhydride and zinc sulfide alloy activated by silver and placed in spherical polyethylene moderators of various diameters. A procedure is developed for restoring the neutron spectrum from the results of Bonner counter measurements. The paper presents neutron spectra behind the shielding of the synchrophasotron at the Joint Institute for Nuclear Research which were reconstructed by the proposed method. All calculations on verifying the procedure and reconstruction of spectra were done on the BESM-6 computer. An analysis of the results shows that the neutron spectrum is approximated by a function of the form $1/E^n$ in various energy intervals, where

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USSR

ZAYTSEV, L. N. et al., Vopr. dozimetrii i zashchity ot izluch., vyp. 12, Moscow, Atomizdat, 1971, pp 47-52

$$n = \begin{cases} 1.3\text{-}1.5 \text{ for } 10^{-1} < E < 10^{2} \text{ eV} \\ 0.9\text{-}1.1 \text{ for } 10^{2} < E < 10^{6} \text{ eV} \\ 0.5\text{-}0.4 \text{ for } 10^{6} < E < 10^{7} \text{ eV} \\ 1.8\text{-}2.0 \text{ for } 10^{7} < E < 6.3 \cdot 10^{7} \text{ eV} \end{cases}$$

The reconstructed spectra agree with neutron spectra previously measured with the aid of nuclear emulsions of the BYa-2 type with a thickness of 400 microns. M. L.

2/2

Diagnosis

USSR   UDC 616-002.71-07

SEROV, G. D., Lt Col, Med Serv, Candidate of Medical Sciences;
SHARAPOVA, T. A., Candidate of Medical Sciences

"Bacteriological Diagnosis of Pseudotuberculosis"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 9, Sep 71, pp 54-57

Abstract: An improved, fast method of identifying Pasteurella
pseudotuberculosis is described. The sample material collected
in the early stage of the disease is emulsified with an indica-
tor solution (aqueous glucose and peptone solution with phenol
red as indicator), and 0.5 ml of the liquid is placed on an
indicator medium. The culture is incubated until a yellow
color develops, and then a differential medium is inoculated
with it. The growing colonies resembling P. pseudotuberculosis
are transferred onto a slant column containing urea and an agar
slant. If no gas develops in the first column but urea is
hydrolyzed (development of a red color), the culture grown on
the agar column is further tested for its biochemical properties
(fermentation of glucose, lactose, sucrose, lactose, and mannose,

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USSR

SEROV, G. D., et al, Voyenno-Meditsinskiy Zhurnal, No 9, Sep 71, pp 54-57

indole reaction, and urease activity) and for its serological properties, such as stability with respect to specific pseudo-tuberculosis bacteriophages and interaction with agglutinating sera. The proposed series of tests can be easily performed in any laboratory.

2/2

USSR   - 10 -   UDC 576.851.45.077

SEROV, G. D.

"Use of h-Mutants to Determine the Serological Type of Pasteurella pseudotuberculosis"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, Jul 70, pp 139-140

Abstract: Experiments were conducted to determine whether h-mutants of virulent phages can be used to prepare specific bacteriophages instead of the substrates in which the microbes are normally found (sewage, feces, wound discharges, etc.). Freshly isolated strains of pseudotuberculosis bacteria (serological types I, III, and IV) from patients with pseudotuberculosis and standard strains (types II and V) served as indicator cultures. Dysentery (series 100, 140, and 347), cholera, plague, and pseudotuberculosis diagnostic phages were employed. The h-mutants of the dysentery bacteriophage (series 100 and 347) had a greater lytic effect on the causative agents of pseudotuberculosis than did the homologous bacteriophage. For example, the series 100 phage mutant lysed the type IV strain, which is insensitive to pseudotuberculosis phage. A mutant of the cholera phage lysed pseudotuberculosis type II, but the plague phage did not lyse any of the cultures of pseudotuberculosis bacteria. The h-mutants of various bacteriophages can thus be used as a specific diagnostic bacteriophage for pseudotuberculosis bacteria

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USSR

SEROV, G. D., Vladivostok Institute of Epidemiology and Microbiology

"Determination of the Serotype of Pseudoti·'·erculous Bacteria Cultures Using
Standard Pseudotuberculous Bacteriophages"

Abstract: Methods have been developed for obtaining standard pseudotuberculous
bacteriophages and employing them to identify pseudotuberculous bacterial cul-
tures isolated from humans. Standard phages with which 5 bacterial serotypes
could be identified reliably could be obtained only on the conditions that
the phage-bacterial mixture is incubated at 26-27°C and freshly isolated bac-
terial cultures are employed. Subsequent use of phages to identify bacteria
necessitated adherance to strict quantitative ratios between the standard
phages and bacteria. Results of identifying 125 pseudotuberculous strains
isolated from humans by the phage method agreed with those employing the stand-
ard pseudotuberculous serum method. However, it was found that some strains
cannot be identified by this method after undergoing frequent passages or long-
term storage, most likely due to bacterial dissociation. Standard phages were
obtained on agar layers stained with phenol red. Change in color of the
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USSR

SEROV, G. D., Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 2,
1973, pp 120-123

phage-bacterial culture indicated bacterial lysis. After incubation and pH
adjustment the standard phages could be isolated from initial phage strains
within 6 passages.

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1/2   009   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--MAKING 75PERCENT FERROSILICON BY USING ANGARA SEMICOKE -U-

AUTHOR--SEROV, G.V.

COUNTRY OF INFO--USSR

SOURCE--STAL' 1970, 30(1), 38-40

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--FERROSILICON, COKE, METALLURGIC FURNACE, ELECTRIC FURNACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0157   STEP NO--UR/0133/70/030/001/0038/0040

CIRC ACCESSION NO--AP0103836
                    UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0103836   PROCESSING DATE--11SEP70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   A 50-100PERCENT SUBSTITUTION OF
THE USUAL COKE BREEZE WITH CRUSHED SEMICOKE MADE FROM ANGARA LOW
METAMORPHIZED LOW P COAL AND CONTG. 22.9PERCENT ASH IMPROVED TECHNOL.
AND ECONOMIC PERFORMANCE OF A 14,000-K W-A FURNACE MAKING THIS ALLOY.

UNCLASSIFIED

USSR   UDC 621.396.676:629.7(088.8)

BUYVOL-KOT, YU. I., SEROV, L. A., TSIFRINOVICH, I. I., TSYBAYEV, B. G.

"Landing Beam Aircraft Antenna"

USSR Author's Certificate No 253876, Filed 24 Apr 68, Published 3 Mar 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B26P)

Translation: A landing beam aircraft antenna with broad coverage is proposed.
In order to create a nonprotruding design, the antenna was executed in the
form of a segment of a shorting symmetrical ribbon line. The screen plates
of the line are shifted with respect to each other. There is one illustra-
tion.

1/1

- 21 -

SEROV, N. M.

TECHNICAL TRANSLATION

FSTC-HT-23-726-71

ENGLISH TITLE: Chemical Reinforcement of Soils in Airfield and Road Construction

FOREIGN TITLE: Khimicheskoye Ukrepleniye Gruntov V Aerodromnom I Dorozhnom Stroitel'stve

AUTHOR: N. F. Mishchenko, N. M. Sorov, L. A. Markov, N. I. Kovalev, V. N. Knat'ko, I. V. Egorov, V. G. Didura, and V. A. Filatov

SOURCE: Chemical Stabilization of Soil in Airfield and Road Construction, 1967, 212 pages

Translated for FSTC by ACSI

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UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--FILAMENTS WHICH ARE SELFFOCUSING BY MOVEMENT OF FOCAL POINTS --U-

AUTHOR-(04)-KOROBKIN, V.V., PROKHOROV, A.M., SEROV, R.V., SHCHELEV, M.YA.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PIS'MA V ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY
FIZIKA, VOL. 11, NO. 3, 5 FEB 70, PP 153-157

DATE PUBLISHED--05FEB70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--OPTIC PROPERTY, ELECTRON OPTICS, IMAGE CONVERTER, SINGLE MODE
LASER, NITROBENZENE, CARBON DISULFIDE, LASER RADIATION, LASER SELF
FOCUSING EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1463

STEP NO--UR/0386/70/011/003/0153/0157

CIRC ACCESSION NO--AP0123371

UNCLASSIFIED

CIRC ACCESSION NO--AP0123371

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE QUESTION OF WHETHER FILAMENT OF SELF FOCUSING IS THE RESULT OF MOVEMENT OF INDIVIDUAL FOCAL POINTS OR WHETHER IT EXISTS IN A STEADY STATE IS INVESTIGATED. TO CLARIFY THE PROBLEM OF WHICH THEORY IS VALID, THE AUTHORS INVESTIGATED THE KINETICS OF SELF FOCUSING IN LIQUIDS, USING AN ELECTRON OPTICAL IMAGE CONVERTER. THE RADIATION OF A SINGLE MODE LASER (ONE ANGULAR AND ONE AXIAL MODE) WAS PASSED THROUGH A CELL OF LENGTH 10 CM CONTAINING NITROBENZENE OR CARBON BISULFIDE. THE RADIATION AT THE INPUT TO THE CELL HAD A PLANE PHASE FRONT WITH AN APPROXIMATELY NORMAL TRANSVERSE DISTRIBUTION. THE DIAMETER OF THE INPUT BEAM WAS 0.25 MM AND THE POWER WAS UP TO 1.5 MW FOR A PULSE LENGTH OF SIMIALR TO 15 NSEC. A LIGHT FILTER WAS PLACES IN FRONT OF THE IMAGE CONVERTER WHICH TRANSMITTED ONLY LASER RADIATION. A TYPICAL PHOTOGRAPH SHOWS THAT AT THE OUTPUT OF THE VESSEL THE DIAMETER OF THE SELF FOCUSING SPOT IS APPROXIMATELY 5 MU, CORRESPONDING TO THE RESOLUTION OF THE RECORDING SYSTEM. THE SELF FOCUSING SPOT EXISTS SMALLER THAN 0.5 NSEC AND THEN DISAPPEARS; THEN A SUBSEQUENT SPOT APPEARS AFTER 1-2 NSEC AT THE SAME PLACE. SOMETIMES ANOTHER SELF FOCUSING SPOT APPEARS AT A DISTANCE OF SIMILAR TO 50 MU, BUT THIS IS OBSERVED VERY RARELY. UNDER THE CONDITIONS OF THIS EXPERIMENT THE MAXIMUM VALUE OF N EQUALS E-E SUBCR CONGRUENT TO 7, WHERE E IS THE INPUT FIELD STRENGTH AND E SUBCR EQUALS 1-SQUARE ROOT OF N SUB2 (KA) PRIME2 K IS THE WAVE NUMBER, A IS THE RADIUS OF THE INPUT BEAM, AND N SUB2 IS THE NONLINEAR INDES OF REFRACTION).

UNCLASSIFIED

3/3   056
CIRC ACCESSION NO--AP0123371   UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--THE STEADY STATE THEORY PRODUCTS THE EXISTENCE OF ONLY SEVEN FOCAL POINTS FOR N EQUALS 7, WHICH IS FAIRLY CLOSE TO THE EXPERIMENTAL DATA OBTAINED IN THIS PAPER. THE VELOCITY OF THE FOCAL POINTS IS ALSO IN AGREEMENT WITH THIS THEORY. THE AUTHORS FEEL THAT THE EXPERIMENTAL RESULTS SUPPORT THE VALIDITY OF THE STEADY STATE THEORY OF SELF FOCUSING.   FACILITY: PHYSICS INSTITUTE IMEN: P. N. LEBEDEV, ACADEMY OF SCIENCES USSR.

UNCLASSIFIED

Lasers & Masers

USSR

KOROBKIN, V. V., PROKHOROV, A. M., SEROV, R. V. and SHCHELEV, M. YA., Physics
Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Filaments Which Are Self-Focusing by Movement of Focal Points"

Abstract: The question of whether filament self-focusing is the result of move-
ment of individual focal points or whether it exists in a steady state is in-
vestigated. To clarify the problem of which theory is valid, the authors in-
vestigated the kinetics of self-focusing in liquids, using an electron-optical
image converter. The radiation of a single-mode laser (one angular and one
axial mode) was passed through a cell of length 10 cm containing nitrobenzene
or carbon bisulfide. The radiation at the input to the cell had a plane phase
front with an approximately normal transverse distribution. The diameter of the
input beam was 0.25 mm and the power was up to 1.5 Mw for a pulse length of
~15 nsec. A light filter was placed in front of the image converter which trans-
mitted only laser radiation. A typical photograph shows that at the output of
the vessel the diameter of the self-focusing spot is approximately 5 μ, corre-
sponding to the resolution of the recording system. The self-focusing spot
exists <0.5 nsec and then disappears;   then a subsequent spot appears after
Card 1/2

USSR

KOROBKIN, V. V., et al, Pis'ma v Zhurnal eksperimental'noy i teoreticheskoy fizika, Vol. 11, No. 3, 5 Feb 70, pp 153-157

1-2 nsec at the same place. Sometimes another self-focusing spot appears at a distance of ~50 µ, but this is observed very rarely. Under the conditions of this experiment the maximum value of $N = E/E_{cr} = 7$, where E is the input field strength and $E_{cr} = 1/\sqrt{n_2}(ka)^2$ (k is the wave number, a is the radius of the input beam, and n_2 is the nonlinear index of refraction). The steady-state theory predicts the existence of only seven focal points for $N = 7$, which is fairly close to the experimental data obtained in this paper. The velocity of the focal points is also in agreement with this theory. The authors feel that the experimental results support the validity of the steady-state theory of self-focusing.

Card 2/2

1/2   028   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--SELF FOCUSING FILAMENTS AS A RESULT OF THE MOTION OF FOCAL POINTS
-U-

AUTHOR-(04)-KOROBKIN, V.V., PROKHOROV, A.M., SEROV, R.V., SHCHELEV, M.YA.

COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, NO. 3, P. 153-7 (FEB. 1970)

DATE PUBLISHED----FEB70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON-OPTICS, FLUID PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1784   STEP NO--US/0000/70/011/003/0153/0157

CIRC ACCESSION NO--AP0133689
                        UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0133689   PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. USING AN ELECTRON OPTICAL
CONVERTER TO INVESTIGATE THE KINETICS OF SELF FOCUSING IN LIQUIDS, THE
AUTHORS SHOW THAT FILAMENTS PRODUCED ARE THE RESULTS OF MOTION OF
INDIVIDUAL FOCAL POINTS. (15 REFS.).   FACILITY: USSR ACAD.
SCIS.

UNCLASSIFIED

USSR

UDC: 681.327.11

SEROV, V. F., DEMIDOV, V. D.

"Automatic System for Measuring,   Recording, and Processing of Physical Quantities"

Translation: An automatic system is suggested for measuring,   recording, and pro-
cessing of physical quantities. In order to increase the accuracy of information
processing, the system includes collection circuits, decoders, and a control
flip-flop with three inputs, one   of which is connected to the
output of the high-order decade of the decimal mode counter, and the other two
of which are connected through the collector circuit and decoder to the outputs of
the decimal counters marking the time, while the output is connected to the input
of the motor and coded information accumulator. 1 illustration.

1/1

UNCLASSIFIED
TITLE--SPECTRUM OF PROTONS FROM THE PRIME238 U(T, PF) REACTION -U-   PROCESSING DATE--16OCT70

AUTHOR-(05)-ALMAZOV, A.V., ANDREYEV, M.F., ZAVGORODNYY, V.A., SEROV, V.I., SEROV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 136-7

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--TRITON BOMBARDMENT, NATURAL URANIUM, PROTON SPECTRUM, FISSION
    CROSS SECTION, EXCITATION ENERGY, OXYGEN ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0238
                                STEP NO--UR/0048/70/034/001/0136/0137
CIRC ACCESSION NO--AP0105314
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0105314   UNCLASSIFIED   PROCESSING DATE--15OCT70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   EXPTS. WERE PERFORMED WITH
12.4-MEV T GENERATED IN AN ELECTROSTATIC GENERATOR.   OWING TO THE LARGE
TOTAL CROSS SECTION OF THE (T,F) REACTION AND THE LARGE CONTRIBUTION OF
P FROM THE PRIME16 O (T,P) PRIME18 O REACTION TO THE TOTAL P SPECTRUM
THE CONTRIBUTION OF ACCIDENTAL COINCIDENCES INCREASED AND GOOD
STATISTICAL PRECISION OF RESULTS COULD NOT BE OBTAINED.   BY TAKING INTO
CONSIDERATION THAT IN THE VICINITY OF THE FISSION THRESHOLD THE FORM OF
THE P SPECTRUM IS DETD. ONLY BY THE FISSION PROBABILITY THE FISSION
THRESHOLD OF PRIME239 U BY N WAS 0.065 PLUS OR MINUS 0.12 MEV.   AS THE
FISSION THRESHOLD, THE ENERGY AT THE HALF HEIGHT OF THE DECREASE OF THE
P SPECTRUM IS TAKEN.   THE FISSION THRESHOLD OF PRIME234 U IN THE
REACTION PRIME233 U(T,PF) WAS 0.65 PLUS OR MINUS 0.15 MEV.   ALSO, AT
LOWER EXCITATION ENERGIES OF THE NUCLEUS PRIME240 U BELOW THE FISSION
THRESHOLD THE PRONOUNCED FISSION IS OBSD.

UNCLASSIFIED

USSR

UDC: 620.178.7

SEROV, V. I., KONONOV, V. M., Institute of Mining imeni A. A. Skochinskiy

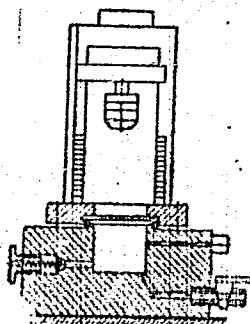"A Vertical Drop Hammer for Impact Testing Explosives"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 36, Dec 72, Author's Certificate No 360587, filed 28 Sep 70, published 28 Nov 72, pp 110-111

Translation: This Author's Certificate introduces a vertical drop hammer for impact testing explosives. The device contains a stand which carries guides for the motion of the striker, a trigger mechanism, a mechanism for preventing rebound, and measurement equipment. As a distinguishing feature of the patent, provision is made for determining the shock sensitivity of explosive gases and for bringing the test conditions close to operational conditions. The installation is equipped with a hermetically sealed chamber filled with explosive gas which is built into the stand and has an anvil cover.

1/2

USSR

SEROV, V. I., KONONOV, V. M., USSR Author's Certificate No 360587

USSR   UDC 621.372.853.1:538.573

LAZIYEV, E.M., OKSYZYAN, G.G., SEROV, V.L.

"Parametrical Radiation Of Relativistic Electron Bunches In A Waveguide Filled
With Schistose Dielectric"

Abstract: Experimental data are presented concerning excitation of an E_{01} wave
in a circular waveguide, based on the fundamental harmonic of the frequency of
beam grouping of a linear accelerator $f = 2797.2$ MHz. The energy of the acceler-
ated electrons was equal to 50 Mev. With the aid of a magnetic analyser and a
collimator of $\emptyset$ 5 mm an electron beam was cut out with the width of the spectrum
$\triangle E/E_o = \pm 0.2$ percent which corresponded to ~ 3--5° of the phase length of
the bunch. The number of electrons in the bunch amounted to $\sim 2 \cdot 10^{6}$ particles
and the angular divergence to $\sim 3 \cdot 10^{-2}$ rad. The beam of electrons passed
through a circular waveguide 9.6 cm in diameter filled with alternating layers of
air and Teflon ($\epsilon = 2.05$). The Teflon disks had a central aperture $\emptyset$ 12 mm for
passage of the beam. The power of the excited E_{01} wave was measured before and
after. The results of the experiments are presented in figures. The authors
thank K.A. Barsukov, B.M. Bolotovskiy, and E.D. Gazazyan for discussions. 2 fig.
4 ref. Received by editors, 13 September 1971.
1/1

USSR

UDC: 621.375.4:621.375.132

VOLKOV, Yu. A., KOROLEV, V. A., and SEROV, V. N.

"Designing Two-Stage Amplifier Sections With Maximum Common Inverse Feedback"

Moscow, Radiotekhnika, No 2, 1972, pp 64-68

Abstract: Computation equations and other data are provided for the design of two-stage transistorized amplifiers, each with common feedback circuits, to be used for pulse signals. Two possible circuit diagrams are given, one for voltage and the other for current feedback. A table of amplifier parameters as well as nomograms for obtaining maximum feedback capability for a given gain factor is presented. In addition, there is a recommended step-by-step procedure for the amplifier design.

1/1

1/2   030   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--INSUFFICIENCY OF THE HYPOTHALAMOHYPOPHYSEAL SYSTEM AFTER LABOR -U-

AUTHOR--SEROV, V.N.

COUNTRY OF INFO--USSR

SOURCE--VOP OKHR MATERIN DET 15(1): 81-85. 1970

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NERVOUS SYSTEM, OBSTETRICS, MEDICAL EXAMINATION, DIAGNOSTIC
   METHODS, PROPHYLAXIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605008/E03 STEP NO--UR/0608/70/015/001/0081/0085

CIRC ACCESSION NO--AP0139993
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0139993
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA ARE PRESENTED CONCERNING 30
  PATIENTS.   PROCEDURES FOR EXAMINATION, DIAGNOSIS AND DIFFERENTIAL
  DIAGNOSIS AND PRINCIPLES OF THERAPY TO BE EMPLOYED ARE GIVEN.
  FACILITY: ALL-UNION RES. INST. OBSTET. GYNECOL., MIN. HEALTH USSR,
  MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.375.121

VOLKOV, Yu. A., KOROLEV, V. A., SEROV, V. N.

"Problem of Optimizing Frequency Characteristics of Wide-Band Amplifiers"

Metody razrab. radioelektron. apparatury. No 1 (Methods of Developing Radio-electronic Equipment. No 1), Moscow, 1970, pp 72-75 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8 D87)

Translation: By an optimal amplitude-frequency characteristic $h(\omega)$ the authors mean a monotonic characteristic with the greatest upper boundary frequency ω_b determined from the algebraic equation $h^2(\omega_b) = 1/2$. The problem of maximizing ω_b with respect to variable circuit parameters is investigated. The flow diagram of programs for optimization by means of single-parametric search by the Fibonachchi method is presented. The bibliography has three entries.

1/1

TITLE--STRUCTURAL FUNCTIONAL BASES OF RENAL PATHOLOGY -U-

AUTHOR--SEROV, V.V.

COUNTRY OF INFO--USSR

SOURCE--PAGES 32-40 VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR, VOL 25, NO
3, 1970
DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--KIDNEY, ANATOMY, PATHOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0988   STEP NO--UR/0248/70/025/003/0032/0040

CIRC ACCESSION NO--AP0150034
UNCLASSIFIED

CIRC ACCESSION NO--AP0130034   UNCLASSIFIED   PROCESSING DATE--20NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RECENT REVISION OF MANY
ASPECTS OF RENAL PATHOLOGY ON THE BASIS OF NEW DATA ON STRUCTURE AND
FUNCTION OF THE KIDNEYS IS VALID. IT REFLECTS THE WISH TO UNDERSTAND
ANATOMICAL PHYSIOLOGICAL ORGANIC CORRELATIONS AT A NEW LEVEL OF
TECHNICAL CAPABILITIES AND KNOWLEDGE, ON THE BASIS OF THE POSITION THAT
THE CONSTRUCTION OF AN ORGAN IS A REFLECTION OF ITS FUNCTIONS AND THAT
IT DETERMINES MANY ASPECTS OF SUCH FUNCTIONS UNDER NORMAL AND
PATHOLOGICAL CONDITIONS.   FACILITY: FIRST MOSCOW MEDICAL
INSTITUTE IMENI I.M. SECHENOV.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--IMMUNOMORPHOLOGY OF EXPERIMENTAL GLOMERULONEPHRITIS IN THE LIGHT OF
   GENERAL PATHOLOGIC PROCESSES -U-
AUTHOR-(05)-SEROV, V.V., MITIN, K.S., VARSHAVSKIY, V.A., UFIMTSEVA, A.G.,
   TOMILINA, N.A.
COUNTRY OF INFO--USSR

SOURCE--ARKH. PATHOL. 1970, 32(1), 29-40

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IMMUNOLOGY, NEPHRITIS, RAT, SERUM PROTEIN, ALBUMIN, URINE,
   MITOCHONDRION, ENZYME ACTIVITY, DEHYDROGENASE, CYTOPLASM, PHOSPHATASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0474   STEP NO--UR/9056/70/032/001/0029/0040

CIRC ACCESSION NO--AP0117710
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0117710   UNCLASSIFIED   PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IMMUNOMORPHOL. OF NEPHROTOXIC NEPHRITIS WAS STUDIED ON 75 YOUNG RATS AT VARIOUS STAGES OF THE DISEASE BY BIOCHEM., HISTOCHEM., ELECTRON-MICROSCOPIC, AND IMMUNOFLUORESCENT METHODS. TOTAL BLOOD SERUM PROTEIN IN INTACT RATS WAS 6.38 G PERCENT, IN RATS ON THE 2ND-3RD DAYS OF THE ACUTE STAGE 3.8 G PERCENT, ON THE 4TH-12TH DAYS 5.2 G PERCENT, AND IN RATS WITH CHRONIC NEPHRITIS (31-122 DAYS) 5.65 G PERCENT; ALBUMIN WAS 38.86, 25.1, 27.8, AND 31.1PERCENT, RESP. PROTEIN IN THE URINE WAS 0, 2.27, 260, AND 0.097PERCENT, RESP. ELECTRON MICROSCOPY SHOWED STRONGLY VACUOLIZED CYTOPLASMA IN THE PROXIMAL TUBULES AND SWOLLEN MITOCHONDRIA WITH DESTRUCTED CRISTS AND VACUOLES. DESTRUCTION OF MITOCHONDRIA WAS ACCOMPANIED BY DECREASED ACTIVITIES OF SUCCINIC AND MALIC DEHYDROGENASES, NAD AND NADP DIAPHORASES, AND INCREASED ACTIVITY OF LACTIC DEHYDROGENASE. OTHER HISTOL. ALTERATIONS WERE ACCOMPANIED BY DECREASED ALK. PHOSPHATASE AND ITS DIFFUSION INTO THE CYTOPLASMA. LYSOSOMIC ACTIVITY WAS PROVEN BY A STRONG INCREASE OF HYDROLASES, ESP. ACID PHOSPHATASE. ALTERED ENXYMIC ACTIVITIES OF THE TUBULAR EPITHELIUM GAVE EVIDENCE OF SUPPRESSED CELLULAR RESPIRATION AND ACTIVATION OF GLYCOLYSIS AND HYDROLYSIS. IT WAS EMPHASIZED THAT THE GENERALLY ACCEPTED TERM GLOMERULONEPHRITIS DOES NOT REFLECT THE NATURE OF THE PHENOMENON.   FACILITY: MOSK. MED. INST. IM. SECHENOVA, MOSCOW, USSR.

UNCLASSIFIED

/2   019

UNCLASSIFIED

TLE--S ECTRUM OF PROTONS FROM THE PRIME238 U(T, PF) REACTION -U-

PROCESSING DATE--16OCT70

TH R-(05)-ALMAZOV, A.V., ANDREYEV, M.F., ZAVGORODNYY, V.A., SEROV, V.I.,
SEROV, YU.A

UNTRY OF INFO--USSR

URCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 136-7

TE PUBLISHED-------70

BJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

PIC TAGS--TRITON BOMBARDMENT, NATURAL URANIUM, PROTON SPECTRUM, FISSION
CROSS SECTION, EXCITATION ENERGY, OXYGEN ISOTOPE

NTROL MARKING--NO RESTRICTIONS

CUMENT CLASS--UNCLASSIFIED
DXY REEL/FRAME--1988/0233

STEP NO--UR/0048/70/034/001/0136/0137

RC ACCESSION NO--AP0105314

UNCLASSIFIED

/2 ··· 019

RC ACCESSION NO--AP0105314   UNCLASSIFIED   PROCESSING DATE--16OCT70
STRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WERE PERFORMED WITH
12.4-MEV T GENERATED IN AN ELECTROSTATIC GENERATOR. OWING TO THE LARGE
TOTAL CROSS SECTION OF THE (T,P) REACTION AND THE LARGE CONTRIBUTION OF
P FROM THE PRIME16 O (T,P) PRIME18 O REACTION TO THE TOTAL P SPECTRUM
THE CONTRIBUTION OF ACCIDENTAL COINCIDENCES INCREASED AND GOOD
STATISTICAL PRECISION OF RESULTS COULD NOT BE OBTAINED. BY TAKING INTO
CONSIDERATION THAT IN THE VICINITY OF THE FISSION THRESHOLD THE FORM OF
THE P SPECTRUM IS DETD. ONLY BY THE FISSION PROBABILITY THE FISSION
THRESHOLD OF PRIME239 U BY N WAS 0.065 PLUS OR MINUS 0.12 MEV. AS THE
FISSION THRESHOLD, THE ENERGY AT THE HALF HEIGHT OF THE DECREASE OF THE
P SPECTRUM IS TAKEN. THE FISSION THRESHOLD OF PRIME234 U IN THE
REACTION PRIME233 U(T,PF) WAS 0.65 PLUS OR MINUS 0.15 MEV. ALSO, AT
LOWER EXCITATION ENERGIES OF THE NUCLEUS PRIME240 U BELOW THE FISSION
THRESHOLD THE PRONOUNCED FISSION IS OBSD.

UNCLASSIFIED

USSR

UDC: 612.766.2

KOVALENKO, Ye. A., POPKOV, V. L., KONDRAT'YEV, Yu. I., MAILYAN, E. S., GALUSHKO, Yu. S., PROKHONCHUKOV, A. A., KAZARYAN, V. A., MOROZOVA, R. S., SEROVA, L. V., POTAPOV, A. N., ROMANOV, V. S., and PISHCHIK, V. B.

"Shifts in the Functions of the Organism During Prolonged Hypolinesia"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 6, Nov/Dec 70, pp 3-9

Abstract: Rats kept immobilized for up to 170 days in special cages showed an increase in general gas exchange and rate of oxygen utilization in the muscles, and a slowing of the rate of tissue metabolism in the liver and myocardium. The level of phosphotylation in the myocardium and, to some extent, in the skeletal muscles and liver dropped. Prolonged hypokinesia also stunted the animals' growth, perverted them from gaining weight, and in some cases caused them to lose weight. Besides disturbing mineral and protein metabolism, immobilization resulted in exhaustion of the hypothalamus - pituitary - adrenal cortex system.

1/1

USSR

ARUTYUNYAN, G. A., GRIGORIN, L. Z., SEROVA, G. A.

"One Physiological Model"

Sb. tr. Zangezursk. lab. Adaptivn. Sistem AN Arm SSSR [Collected Works
of the Zangezursk Laboratory of Adaptive Systems, Acad. Sci. ArmSSR
(Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract
No 1 V880).

Translation: The mechanism of the physiological theorem outlined in a
number of works has no generally accepted quantitative description. The
present work presents a description and study of a model which quantita-
tively describes known, experimental data.

1/1

1/2   013   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--MATHEMATICAL STATISTICAL OPTIMIZATION OF THE PROCESS FOR PREPARING
   DRUGS. II. OPTIMIZATION OF A PROCESS FOR PREPARING NOVOCAINE -U-
AUTHOR-(03)-SEROVA, N.A., VEKSLER, M.A., MARKOVA, YE.V.

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(3), 35-7

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANALGESIC DRUG, DRUG INDUSTRY, CHEMICAL SYNTHESIS, MATHEMATIC
   ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0555   STEP NO--UR/0450/70/004/003/0035/0037

CIRC ACCESSION NO--AP0131178
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0131178
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NOVOCAINE BASE (I) WAS PREPD. BY
REACTION OF P-H $SUB2$ NC $SUB6$ H $SUB4$ CO $SUB2$ NA (II) WITH CL(CH $SUB2$)
$SUB2$ NET $SUB2$ (III). THE BASE WAS CONVERTED TO I.HCL AND WEIGHED.
YIELDS WERE BASED ON II AND FACTORS STUDIED WERE DURATION OF REACTION (X
SUB1), TEMP. (X SUB2), EXCESS OF II (X SUB3), AND CONCN. (X SUB4) OF II
IN WT. PERCENT; 16 EXPTS. WERE MADE IN RANDOM ORDER AND RESULTS PUT IN
MATRIX FORM, Y EQUALS B SUB0 PLUS B SUB1 X SUB1 PLUS B SUB2 X SUB2 PLUS
B SUB3 X SUB3 PLUS B SUB4 X SUB4.   BASE LEVEL X SUB1 EQUALS 60, X SUB2
EQUALS 60, X SUB3 EQUALS 4, X SUB4 EQUALS 6.5 AND INTERVAL OF VARIATION
(EPSILON SUBJ), X SUB1 EQUALS 15, X SUB2 EQUALS 10, X SUB3 EQUALS 4, X
SUB4 EQUALS 3, WERE CHOSEN FROM PRELIMINARY EXPTS. AND RESULTS GIVEN IN
THE LITERATURE.   WITH THESE VALUES, THE CALCD. COEFFS. OF REGRESSION ARE
B SUB0 EQUALS 60.85, B SUB1 EQUALS 0.62, B SUB2 EQUALS 0.72, B SUB3
EQUALS 1.36, B SUB4 EQUALS MINUS 2.99.   STATISTICAL ANAL. OF EXPTL.
RESULTS SHOWED AN AV. QUADRATIC ERROR OF ONLY 1.71PERCENT. GOOD YIELDS
OF I DEPEND MAINLY ON A DECREASE IN CONCN. OF II AND AN INCREASE OF ITS
EXCESS DURING REACTION. TEMP. HAD LITTLE INFLUENCE BUT COULD BE RAISED.
LOWEST YIELD OF I WAS 52.7PERCENT, HIGHEST 71.5, LITERATURE 38. A
YIELD UP TO 77.3PERCENT WAS ATTAINED DURING 3 ADDNL. EXPTS. FOR TEST OF
ADEQUACY OF THE LINEAR MODEL BY THE STEEP ASCENT METHOD.
FACILITY: VSES. NAUCH.-ISSLED. KHIM.-FARM. INST. IM. ORDZHONIKIDZE,
MOSCOW, USSR.

013

TITLE--POLAROGRAPHIC STUDY OF THE KINETICS AND MECHANISM OF N, N
DIMETHYLFORMAMIDE HYDROLYSIS IN THE PRESENCE OF FORMIC ACID -U-

UNCLASSIFIED

PROCESSING DATE--04DEC70

AUTHOR-(04)-SEROVA, N.V., TURYAN, YA.I., MAYOROVA, G.G., VENGRYAZHINA, T.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 899-902

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL KINETICS, CHEMICAL REACTION MECHANISM, FORMIC ACID, AMIDE, HYDROLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1510

CIRC ACCESSION NO--AP0135171

STEP NO--UR/0079/70/040/004/0899/0902

UNCLASSIFIED

CIRC ACCESSION NO--AP0135171
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC DATA WERE TABULATED FOR
  HYDROLYSIS OF DMF IN SOLNS. OF HCO SUB2 NA CONTG. NACLO SUB4 OR IN HCO
  SUB2 H HCO SUB2 NA, AT 80 TO 140DEGREES. THE HYDROLYSIS IS A REACTION
  OF 1ST ORDER IN RESPECT TO H SUB2 O AND IN RESPECT TO DMF; IT IS
  CATALYZED BY ACIDS IN THE PRESENCE OF HCO SUB2 H. AT LESS THAN 20 WT
  PERCENT H SUB2 O IN THE SYSTEM, CATALYSIS BY MOL. HCO SUB2 H
  PREDOMINATES. AS H SUB2 O CONCN. IS RAISED, CATALYSIS BY H SUB3 O PRIME
  POSITIVE ALSO INCREASES IN IMPORTANCE.   FACILITY: NAUCH. ISSLED.
  INST. MONOMER. SIN. KAUCH., YAROSLAVL: USSR.

UNCLASSIFIED

1/2   020
UNCLASSIFIED
TITLE--CERTAIN ASPECTS OF THE ACTIVITY OF THE VUZ SCIENTIFIC INFORMATION
LABORATORY -U-
PROCESSING DATE--13NOV70
AUTHOR--SEROVA, YE.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SOVETSKOYE ZDRAVOOKHRANENIYE, RUSSIAN, NO 3, 1970, PP
49-52
DATE PUBLISHED-------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, BIOLOGICAL AND MEDICAL
SCIENCES
TOPIC TAGS--SCIENTIFIC INFORMATION, PUBLIC HEALTH, MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0693
STEP NO--UR/0753/70/000/003/0049/0052
CIRC ACCESSION NO--AP0132806
UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0132806
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENT STAGE OF THE
  SCIENTIFIC AND TECHNICAL REVOLUTION IS CHARACTERIZED BY THE EXTREMELY
  ACCELERATED PROCESS OF THE USE OF THE ACHIEVEMENTS OF SCIENCE. AT THE
  SAME TIME, THE DEPENDENCY OF THE LABOR PRODUCTIVITY OF SCIENTISTS ON
  PROPER ORGANIZATION OF THEIR WORK AND ON THE EFFECTIVENESS OF THEIR
  SCIENTIFIC INFORMATION SERVICE IS BECOMING MORE AND MORE EVIDENT.   IN
  ACCORDANCE WITH ORDER NO 531, DATED 5 JULY 1967, OF THE MINISTER OF
  HEALTH USSR, A SINGLE BRANCH SYSTEM OF SCIENTIFIC INFORMATION HAS BEEN
  ORGANIZATIONALLY SET UP IN PUBLIC HEALTH. THE LABORATORY (DEPARTMENT)
  OR DIVISION OF SCIENTIFIC INFORMATION OF THE VUZ OR SCIENTIFIC RESEARCH
  INSTITUTE CONSTITUTES THE FIRST STAGE OF THIS SYSTEM. KEEPING
  SCIENTISTS ABREAST OF THE ACHIEVEMENTS OF SCIENCE AND TECHNOLOGY IS ONE
  OF THE PRINCIPAL TASKS WHICH THE MEDICAL SCIENTIFIC INFORMATION
  LABORATORY IS EXPECTED TO PERFORM.   AT THE SAME TIME, THE MEDICAL
  SCIENTIFIC INFORMATION LABORATORY SHOULD PROMOTE IMPROVED KNOW HOW IN
  WORK WITH INFORMATION SOURCES AND SHOULD POPULARIZE THE ACHIEVEMENTS OF
  LIBRARY SCIENCE, BIBLIOGRAPHY, AND INFORMATION SCIENCE AMONG SCIENTISTS.
     FACILITY: SECOND MOSCOW MEDICAL INSTITUTE IMENI N. I. PIROGOV.

                              UNCLASSIFIED

USSR
Adsorption

USSR

UDC 541.183

BERING, B. P., SERPENSHIY, V. V., and SURENOVA, S. I., Institute of Physical Chemistry, Academy of Sciences USSR

"Calculation of the Isotherm of Adsorption from a Solution onto a Non-porous Substrate Using the Individual Isotherm of Adsorption of the Components From a Gas Phase"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 73, pp 3-6

Abstract: A solution is proposed for the title problem for the particular case of a binary solution and a nonporous or very large pore substrate. The solution is based on the Gibbs free energy equation together with the individual adsorption isotherms of the components from the gas phase and a diagram for the solution volume. Calculations were checked against experimental results of the adsorption of vapors in the system $\{benzene - Isooctane\}$ at a temperature of 45° onto graphitized carbon black having a surface area of 85 m^2/g. Measurements were made not only of the monomolecular adsorption but also of the polymolecular adsorption and capillary condensation. Analogous results were obtained using the $\{CCl_4 - 2,2,4\text{-trimethylpnetane}\}$ and the $\{C_2H_5OH - C_6H_6\}$ systems.

1/1

Plant Pathology

USSR

UDC 632.4

SEROVA, Z. Ya., and UTYRO, L. B., Department of the Physiology and Systematics of Lower Plants, Belorussian SSR Academy of Sciences

"Changes in Oxidative Phosphorylation in Rye Plants Infected With Rust"

Minsk, Izvestiya Akademii Nauk BSSR, No 4, 1971, pp 102-106

Abstract: Oxygen consumption and phosphorylation were studied in homogenates of mitochondria extracted from the leaves of the Partizan strain of winter rye infected with uredo spores of Puccinia dispersa Erkiss. et Henn. ATP-ase activity and formation of high-energy bonds per unit oxygen consumption increased in the stage of etiolation, but decreased in the stage of spore formation. On the basis of these and other findings, it is concluded that in the initial stage of the disease, the fungus needs high-energy bonds to develop micelles and spore-producing organs. After the growth cycle of the fungus is completed, it no longer needs ATP compounds, and its toxic effects on the host plant become manifest in damaged mitochondrial membranes, stimulated hydrolysis, inhibited synthesis, and a reduced P/O ratio.

1/1

USSR

UDC 621.317.725

TUZ, YU. M., TSIDELKO, V. D., NIKIFOROVA, G. A., SERPILIN, K. L., GAPCHENKO, L.M., and SINITSKIY, O. P.

"A Digital Phase-Sensitive Voltmeter"

Translation: The article contains a description of a digital phase-sensitive voltmeter in which signals are converted in a single-channel circuit. A block diagram of the instrument and a description of its operation are given. The advantages of a phase rotator based on a single-channel circuit are noted. A logometric voltage-frequency converter is used in the instrument to reduce errors due to the effect of the base voltage. The technical characteristics of a model of the digital phase-sensitive voltmeter made at the Department of Measurement Technology of Kiev Polytechnical Institute are given. One illustration, seven bibliographic citations.

Abstract by O.M.

1/1

- 16 -

USSR   UDC 621.314.61(088.8)

GAPCHENKO, L. M., TUZ, Yu. M., SERPILIN, K. L., and GUBAR', V. I. [Kiyev. politekhn. in-t -- Kiev Polytechnical Institute]

"Device for Conversion of A-C Voltage into D-C"

Translation: A device is patented for conversion of a-c voltage into d-c. The device contains a wide-band a-c amplifier, a precision attenuator, a commutator, a detector, an error signal amplifier, a synchronous commutator, and a control voltage generator. With the object of increasing the speed of response and decreasing the frequency of error, the device is provided with a supplementary detector, a supplementary wide-band amplifier, and two memory devices, during which the output of the additional detector is connected opposite to the output of the principal detector, the output of the memory devices is connected to the input of the control circuit of the principal and supplementary amplifiers, and the input of the memory 15 devices is connected to the output terminals of the synchronous commutator. 1 ill.
1/1

USSR   UDC 541.183

BERING, B. P., and SERPINSKIY, V. V., Institute of Physical Chemistry,
Academy of Sciences USSR

"Thermodynamic Method for Determination of the Specific Surface of
Adsorbents"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 12, Dec 73,
pp 2672-2678

Abstract: A thermodynamic method for determining the capacity of a mono-
molecular layer of nonporous adsorbents, i.e. their surface, was developed,
based on the analysis of vapor adsorption isotherms at two different temper-
atures and calculation of basic thermodynamic functions. Replacement of
adsorption values by Gibbs free energy leads to linearization of all dif-
ferential thermodynamic functions -- enthalpy, entropy, and free energy --
showing two areas: one of the monomolecular and the other of polymolecular
adsorption. The integral thermodynamic functions -- surface tension, entropy
and enthalpy of the surface layer -- behave analogously, becoming linear when
the adsorption values are replaced by surface pressure. The point of the
cross section of two linear segments of Gibbs free energy, corresponding
to the mono- and polymolecular areas, makes it possible to determine a_M and
the specific surface of a solid body, agreeing well with monolayer capacity
determined by the BET equation.
1/1

USSR   UDC 541.183

BERING, B. P., and SERPINSKIY, V. V., Institute of Physical Chemistry,
Academy of Sciences, USSR

"Adsorption Equilibrium and Thermodynamics of Vacancy Solutions"

Abstract: A concept has been introduced of "adsorption vacancies" --
elements of adsorption volume filled with molecules being adsorbed.
Adsorption on a solid body from a monocomponent gas phase is viewed as
a process of the formation of a binary solution of adsorbate molecules
and vacancies. Analysis of "vacancy solutions" by methods of the thermo-
dynamics of solutions showed that for a series of systems the vacancy
solution is regular, since its "excessive entropy of mixing" is zero
throughout the entire interval of filling the adsorption volume. The
regularity of the vacancy solution is equivalent to the temperature in-
variance of the curve of excess free energy of the adsorbate. The
regularity of vacancy solutions characteristic for a large group of the
adsorption system makes it possible to calculate differential heats and
entropies by one adsorption isotherm and by the temperature function of
specific adsorption.
1/1
- 4 -

BERING, B. P., RAKHMUKOV, B. Kh., and SERPINSLIY, V. V., Institute of
Physical Chemistry, Academy of Sciences USSR

"Experimental Determination of Specific Adsorption and Its Temperature
Dependence"

Abstract: A method was developed for the determination of specific adsorption
and its temperature dependence based on dilatometric measurements of the ad-
sorption system zeolite-liquid adsorptive. Specific adsorption and the
temperature coefficient have been determined for the system n-pentane-NaX
zeolite in the temperature range 30-150°. The temperature coefficient
calculated by the method of Nikolayev-Dubinina agreed well with the ex-
perimentally determined value.

1/1

USSR

BERING, B. P., and SERPINSKIY, V. V., Institute of Physical Chemistry Academy of Sciences USSR

"On Linear Correlations Between Thermodynamic Functions in Absorbtion Equilibrium"

Abstract: Experimental data have verified the theoretical assertion that if the isotherms of adsorbtion of a gas by a solid at temperatures T_1 and T_2 $(T_2 > T_1)$ can be expressed by the equations $\ln p_1 = f_1(a)$ and $\ln p_2 = f_2(a)$ where p is the equilibrium pressure and a, the value of adsorption. From the ratio $k = f_2(a)/f_1(a)$, the constant "a" may be excluded from the above equations, leading to a linear function in $p_2 = k(T_1/T_2)\ln p_1 + C$ from which the following correlations can be obtained:

$$\Delta G_2 = k\Delta G_1 - \Delta G^{\cdot}(k-1); \qquad (13)$$

$$\Delta S = [(1-k)/(T_2-T_1)]\Delta G_1 - [(1-k)/(T_2-T_1)]\Delta G^{\cdot}; \qquad (14)$$

$$-\Delta H = q = [(kT_1-T_2)/(T_2-T_1)]\Delta G_1 - [(k-1)T_1/(T_2-T_1))\Delta G^{\cdot}, \qquad (15)$$

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USSR

BERING, B. P., and SERPINSKIY, V. V., Doklady Akademii Nauk SSSR, Vol 205, No 3, 1972, pp 611-614

where $\Delta G_1 = RT_1 \ln p_i/p_{si}$ and ΔG is the value of ΔG when $\Delta S = 0$, i.e., at the point of intersection of isotherms $\Delta G_1 = f_1(a)$ and $\Delta G_2 = f_2(a)$. Substituting b from the equation $k = b_2/b_1 = (T_2-b)/(T_1-b)$ for k gives

$$\Delta G_2 = [(T_2 - b) / (T_1 - b)]\Delta G_1 - [(T_2 - b) / (T_1 - b)]\Delta G^\cdot; \quad (16)$$
$$\Delta S = -\Delta G_1 / (T_1 - b) + \Delta G^\cdot / (T_1 - b); \quad (17)$$
$$-\Delta H = q = b\Delta G_1 / (T_1 - b) - \Delta G^\cdot T_1 / (T_1 - b); \quad (18)$$
$$q = -b\Delta S - \Delta G^\cdot. \quad (19)$$

Examination of published adsorption data indicated a good correlation between calculations and experimental results.

2/2

- 2 -

USSR   UDC 541.183

BERING, B. P., and SERPINSKIY, V. V., Institute of Physical Chemistry, USSR
Academy of Sciences

"Justification of the 'Ideal Adsorption Solution' Method in the Case of Cal-
culating the adsorption on Binary Mixtures of Vapors by Individual Isotherms"

Abstract: The "ideal adsorption solution" method proposed by A. L. MYERS and
J. M. PRAUSNITZ in 1965 offers the advantage of extreme simplicity in assessing
the adsorption of the components of gaseous binary mixtures, it has not, however,
been finally substantiated by any physical or thermodynamic data.
      The authors offers a means of justification of the "ideal adsorption
solution" method for the partial case of adsorbed systems for which the condi-
tion of the affinity of isotherms of the adsorbed mixtures of vapors (given
a constant composition of the adsorption solution), and also the condition of
additiveness of the efficient of affinity of such a solution, are met.

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USSR

UDC 541.183

BERING, B. P. and SERPINSKIY, V. V., Institute of Physical Chemistry, USSR
Academy of Sciences

"Determination of the Activity Coefficients of Binary Adsorption Solutions"

Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72, pp 166-
168

Abstract: The method of "the ideal adsorption solution" proposed by A. L.
MYERS and J. M. PRAUSNITZ yields an adsorption coefficient which is close to
unity in every case; but such a magnitude for the adsorption coefficients is
not found in many systems, such as CH_3COCH_3-$CNCl_3$-sil9ca gel, H_2S-C_3H_8-NaX
zeolite, etc. so that a more universal method must be devised.
      The author proposes a method of calculating the activity coefficients
of adsorbent solutions on the basis of given curves corresponding to constant
values of the integral of the Gibbs equation; the method applies in parti-
cular to the adsorption of binary gaseous mixtures on microporous adsorbents.

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USSR   UDC 541.183

BERING, B. P. and SERPINSKIY, V. V., Institute of Physical Chemistry, USSR
Academy of Sciences

"Calculation of the Adsorption Equilibrium of Binary Mixtures of Vapors for the
Case of Affine Isotherms"

Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72, pp 169-
171

Abstract: A method is proposed to calculate values of the integral of the
Gibbs adsorption equation over the entire interval of variation in adsorption
of the components.
        Only the partial case in which the condition of affinity of adsorption
isotherm of vapor mixtures with constant composition of the adsorption phase,
and also the condition of additivity of the affinity coefficients of the
adsorption solution, are met, is considered here.
        Given fulfillment of those conditions, the method makes possible cal-
culation of adsorption equilibrium of a binary mixture of vapors on a solid
adsorbent on the basis of two individual adsorption isotherms; also, there is
no necessity of applying the hypothesis of ideality of adsorption solutions.
1/1

- 1 -

USSR

ZHUKOV, V. V., SERPINSKIY, V. V.

"Thermal Coefficient of Limiting Adsorption of Carbon Dioxide on NaX Zeolite"

Termicheskiy Koeffitsient Predel'noy Adsorbtsii Dvuyokisi Ugleroda na
Tseolite NaX [English Version Above], Moscow, 1971, 4 pages (Translated from
Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1391 Dep. by the
author's).

Translation: A study of the adsorption of CO_2 on NaZ zeolites at high
pressures is used to determine the value of α, which is very significant in
the theory of volumetric filling of micropores. $\alpha = -d \ln a_0/dT$, where a_0
is the limiting adsorption of vapor in the micropores (at $P = P_s$), T is the
temperature. Coefficient α is constant up to the critical temperature, equal
to $1.7 \cdot 10^{-3}$ $\deg^{-1}$.

1/1

USSR

ZHUKOV, V. V., SERPINSKIY V. V.

"Study of Adsorption of Carbon Dioxide on Zeolite at Pressures from 0.1 to 72 atm"

Issledovaniye Adsorbtsii Dvuyokisi Uglereda na Tseolite pri Davleniyakh ot 0.1 do 72 atm [English Version Above], Moscow, 1971, 12 pages (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1393 Dep. by the author's).

Translation: Adsorption of CO_2 on zeolite is studied in the pressure interval from 0.1 to 72 atm in the temperature range from 0 to 150° on a specially constructed installation. The value of adsorption a and equilibrium pressure P are interpolated for various temperatures. The full content isosters are linear throughout the range of temperatures and pressures studied. The adsorption isotherm is successfully described by the Freundlich equation.

1/1

— 4 —

USSR   UDC 541.183

BERING, B. P., SERPINSKIY, V. V., Institute of Physical Chemistry,
Moscow, Academy of Sciences USSR

"Calculation of the True Adsorption Isotherms for the Components
of Solutions From the Composite Adsorption Isotherm"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6,
Jun 70, pp 1232-1235

Abstract: This paper concerns the method of determination of
maximum real adsorption from solution based on the slope of the
isotherm of excessive adsorption. A theoretical analysis is given
for the relationship of excessive adsorption on the surface of a
solid body (or on the surface of solution) and the molar fraction
of the component 2 in this solution, which according to literature
should represent the adsorption isotherm from solution. It is
claimed that this function cannot be used for determination of the
true adsorption isotherms for solution components. The only way to
solve this problem is to determine independently the maximum
adsorptions of pure components from individual adsorption isotherms
from gaseous phase.

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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.

1/1

1/2   029   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--APPLICATION OF THE EFFUSION TECHNIQUE FOR THE DETERMINATION OF
   PLASTICIZER VAPOR PRESSURE OVER POLYMER SOLUTIONS -U-
AUTHOR-(02)-SUVOROVA, A.I., SERPINSKIY, V.V.

COUNTRY OF INFO--USSR

SOURCE--VYSOLOVOL. SOEDIN., SER. A 1970, 12(3), 498-93

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--VAPOR PRESSURE, PLASTICIZER, AMORPHOUS POLYMER, POLYSTYRENE
   RESIN, PHTAHALATE, CARBOXYLIC ACID ESTER, THERMODYNAMIC CHARACTERISTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1190   STEP NO--UR/0459/70/012/003/0489/0493

CIRC ACCESSION NO--AP0116655
                        UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0116655   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VAPOR PRESSURE OF SEVERAL
PLASTICIZERS OVER AMORPHOUS POLYSTYRENE (I) (OF MOL. WT. 140,000) WAS
MEASURED BY A DIFFERENTIAL EFFUSION METHOD (V. V. SERPINSKII ET AL.,
1969). THE EXPTL. PROCEDURE IS DESCRIBED AT LENGTH. THE VAPOR
PRESSURES OF DI-BU PHTHALATE (II), O-BUO SUB2 C C SUB6 H SUB4 CH SUB2 CH
SUB2 CO SUB2 BU (III), AND DI-BU 2,2 PRIME BENZOPHENONEDICARBOXYLATE
(IV) OVER I SOLNS. WERE DETD. AT 80-120DEGREES. THE CHANGES IN THE
CHEM. POTENTIAL (DELTA MU) OF II, III, AND IV DURING DISSOLUTION WERE
CALCD. DELTA MU SUGGESTED THAT THE THERMODYNAMIC AFFINITY OF THE ESTERS
TO I DECREASED IN THE ORDER: II IS GREATER THAN III IS GREATER THAN IV.
    FACILITY: URAL. GOS. UNIVER. IM. GOR'KOGO, SVERDLOVSK, USSR.

UNCLASSIFIED

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"

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.
The authors thank B. K. ZHDANOV for providing the NaA zeolite specimens.

1/1

MEDICINE

Aerospace Medicine

USSR

SERTALOV, I. P., Candidate of Medical Sciences

"Four Hundred and Twenty-Four Hours in Space"

Moscow, Zdorov'ye, No 8, Aug 70, pp 6-7

Abstract: On 18 June 1970, the 18-day orbital flight of the Soyuz-9 spacecraft manned by A. G. Nikolayev and V. I. Sevast'yanov was successfully completed. The biomedical studies carried out in connection with this flight yielded valuable results. While all conditions encountered in space travel can be reproduced on earth, it is difficult to combine them in the manner in which they affect human beings in a space vehicle. Weightlessness can be maintained for only 35-40 sec in special aircraft. The two astronauts were trained to conduct special tests and carry out exercises to evaluate vestibular, visual, and motor functions during the flight. Monitoring of the physical state of the astronauts was conducted from the earth. The stresses to which the astronauts were exposed on Soyuz-9 were considerably lower than those on space vehicles of the Vostok and Voskhod types. The astronauts shaved, brushed their teeth, and cleaned their faces, necks, and hands with wet napkins every day. After sleeping, they put on special clothes and carried out physical exercises for 1 hr.

USSR

SERTALOV, I. P., Zdorov'ye, No 8, Aug 70, pp 6-7

They changed their linen several times during the flight and scrubbed their entire bodies. The food consumed per day amounted to 2,600 calories per person. For the first time during a space flight, dehydrated food products were not used. The astronauts heated tubes with coffee and cocoa for breakfast and tubes with soup for dinner. They also drank water and black currant juice. Drugs were provided for use if necessary but were not needed. The reactions of the astronauts at launch and during the first day of the flight were the same as those observed in previous space flights. Nikolayev's pulse rate in orbiting was 94 beats/min, as compared to 130-135 beats/min during the launching of Vostok-3 (i.e., emotional strain was less pronounced during the second spaceflight). Adaptation to weightlessness took place rapidly. All physiological constants became stabilized; the number of heart contractions was 68-72/min for Nikolayev and 62-66/min for Sevast'yanov. While all physiological indices were within permissible limits during the flight and corresponded to those recorded during preflight training, there were some changes in cardiovascular and respiratory activity toward the end of the flight. After 8-10 days in space, the astronauts began to get tired as the end of the workday approached. Their pulse and respiration rate increased somewhat. On landing, the astronauts were

USSR

SERTALOV, I. P., Zdorov'ye, No 8, Aug 70, pp 6-7

found to be in good health but experienced some difficulty in motor coordina-
tion and in maintaining an upright position. Their muscle tonus was lowered,
and they showed a weight loss amounting to several kilograms. All objects
seemed heavier to them than normal. As expected, adaptation to conditions on
earth took a longer time than adaptation to weightlessness in space.

3/3

1/2   039   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--THE EXPEDIENCY OF USING SYSTEMS WITH MULTIPOSITIONAL FREQUENCY
   MANIPULATION DURING THE ACTION OF PULSED NOISE -U-
AUTHOR-(02)-SERVINSKIY, YE.G., PAUK, S.M.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROSVIAZ', VOL. 24, FEB. 1970, P. 44-51

DATE PUBLISHED----FEB70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION

TOPIC TAGS--SIGNAL NOISE SEPARATION, DATA TRANSMISSION, TELEPHONE NETWORK,
   PULSE SIGNAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1175   STEP NO---UR/0106/70/024/000/0044/0051

CIRC ACCESSION NO--AP0120022
                      UNCLASSIFIED

CIRC ACCESSION NO--AP0120022   UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF AN EXPRESSION FOR THE IMPROVEMENT IN THE NOISE STABILITY OF A DISCRETE DATA TRANSMISSION SYSTEM HAVING MULTIPOSITIONAL FREQUENCY MANIPULATION AS COMPARED TO A BINARY SYSTEM. THE STUDY IS CONDUCTED FOR THE CASE OF A DOMINATING PRESENCE OF PULSE NOISE IN THE CHANNEL SUCH AS IN MODERN TELEPHONE LINKS. EXPRESSIONS ARE DERIVED AND ILLUSTRATED BY GRAPHS FOR THE DEPENDENCE OF THE IMPROVEMENT ON THE NUMBER OF POSITIONS. THESE RESULTS SHOW THAT THE IMPROVEMENT INCREASES WITH THE NUMBER OF POSITIONS AND ATTAINS SIGNIFICANT VALUES EVEN BELOW TEN POSITIONS.

UNCLASSIFIED

AA0046993 Servo, Yu. V.   UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 2-70

230689 NON-COMPRESSING NOZZLE for the
mechanised application of solns. to a
surface, and especially for the spraying of
viscous solns. e.g., plaster. Known nozzles for
this purpose comprise a case, a sprayer, a pipe for
delivering the solution and a guiding device. The
disadvantage of these constructions is the uneven
distribution of the tangential centripetal speeds
and centrifugal forces for the particles of the
soln. which pass along the diameter in the outlet
section. To remove this disadvantage and to
increase the degree of spraying of the soln. in
the proposed mechanism the free end of the guiding
device has a sharpened shape and is arranged in the
sprayer (2) along its whole length. The guiding
device may comprise a spiral (4) with a pointed
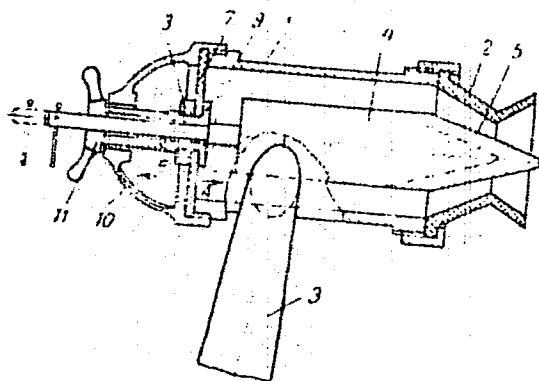shaft (5) and also may be in the form of a shank

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with a conical shaft. The guiding device is fixed inside the nozzle so as to move along the axis of the case. The guiding device may be fixed so as to move along the axis of the nozzle by means of a flexible diaphragm (7) situated in the rear part of the case and rigidly connected to the guiding device.

6.4.66. as 1071022/29-14, SERVO, Yu. V. (16.9.69) Bul. 34/30.10.68. Class 75c, Int. Cl. B 44d.

7/3

19790406

AA0046993

19790407

USSR

SERYAKOV, N.I., LUNIN, L.S.

UDC 621.311.6:621.394/395

"Experimental Study Of Transient Phenomena In A System Of Remote Supply Of Semiconductor Communication Apparatus"

Translation: The conditions and results are considered of an experimental study of transient phenomena in a system of remote supply of the K-60p semiconductor apparatus, as well as a determination of the efficiency of operation of the means of maximum-zero protection. The study was directly conducted on one of the cable main lines with the use of industrial-type equipment. Summary.

1/1

- 12 -

USSR

UDC   621.316.842

SERYAKOV, N. N., YEROFEYEVA, L. A., VOL'FNEUK, M. G., YURITSYN, L. V.

"A Method of Making MLT Resistors"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
1970, No 36, Soviet Patent No 288089, class 21, filed 5 Aug 68, published
3 Dec 70, p 68

Translation: This Author's Certificate introduces a method of making
MLT resistors. As a distinguishing feature of the patent, the reliability
of the resistors is improved by selecting resistors in which the level of
the noise emf is no more than 0.25 µV/V and giving them secondary pulse
treatment.

1/1

- 15 -

USSR

GULIDOV, A. I., DUDOLADOV, A. S., NIKIFOROVSKIY, V. S., SERYAKOV, V. M.

"Effect of a One-Dimensional Slit in the Walls of Multilayered Cylindrical Structures on the Thermal State and on the Stressed and Deformed State"

Translation: The paper discusses possibilities of a slit developing in an infinite two-layer tube, and the influence of the slit on the thermal and stressed state. The materials of the layers are isotropic, homogeneous and elastic. At time zero the tube has a given temperature and is free from stresses. Then the temperature of the medium inside the tube rises abruptly while the outside temperature remains at the initial value, and convective exchange takes place with constant heat-transfer coefficients. If the temperature expansion of the outside layer is greater than that of the inner layer, then radial tensile stresses arise and the layers may separate in the area of the joining. In the reverse

1/2

USSR

GULIDOV, A. I. et al., Chisl. metody mekh. splosh. sredy. T. 2. No 5, Novosibirsk, 1971, pp 78-84

situation a slit develops due to loss of stability of the inner shell from compressive stresses. The problem is numerically solved in the approximation of unconnected quasistatic thermoelasticity. Ideal thermal and tight mechanical contact is assumed on the boundary of the layers without a crack. The thermal resistance of the air gap is introduced at the crack, and its borders are freed from stresses. Examples of three pairs are considered: 1) W — steel, 2) W — copper, 3) W — graphite, where W is the inner layer. In examples 1 and 2 the compressive stresses rapidly change to tensile stresses and a slit (0.01-0.1 mm) appears due to separation of layers in the sixth second (in example 1). In example 3, a slit (up to 2 mm) is formed by the abrupt change from loss of stability in the fifth second, and the inner layer quickly heats up. In example 1, inside, middle and outside radii of 100, 103 and 106 mm are assumed with the temperature inside the tube 10^3 °C, and the coefficient of heat transfer from the tube 10^3 kcal·m^{-2}·hr^{-1}·deg^{-1} ($1.16 \cdot 10^3$ W·m^{-2}·K^{-1}). M. S. Povarnitsyn.

2/2

USSR

SERYAKOV, V. N., and DEYEV, L. I., Chair of Biophysics, Moscow State University

"Oxidation-Reduction Potential in Tissues Exposed to Radioprotective Agents and Hypoxia"

Abstract: Changes in redox potential were studied in rat spleen, liver, and subcutaneous tissue after exposure to S-beta-aminoethylisothiuronium bromide (AET), beta-mercaptoethylamine bitartrate (MEA), and serotonin creatinine sulfate combined with hypoxic hypoxia (HH). Exposure to HH (6% oxygen, 94% nitrogen) 15 to 17 minutes after injection of AET or MEA decreased the redox potential in all of the tissues studied more than after injection of the radioprotector alone. The decrease was greatest 5 to 7 minutes after the start of HH. The shifts were reversible. In animals that were irradiated with X-rays after receiving AET or MEA combined with HH, the radioprotective additive effect was significantly less when serotonin was combined with HH.
1/1

- 23 -

USSR

UDC: 621.396.677

SERYAKOV, Yu. N.

"An Active Transmitting Array Which Utilizes the Mutual Influence of the Radiators for Synchronizing and Phasing Self-Excited Oscillators"

Tr. Mosk. aviats. in-ta (Works of the Moscow Aviation Institute), 1970, vyp. 203, pp 94-108 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B43)

Translation: The advantage of active antenna arrays over passive arrays is noted. It is pointed out that synchronized self-excited oscillators may be substituted for amplifiers, synchronization and phasing being accomplished by induced electromotive forces, with simplification of the feeder system and a reduction in the number of phase shifters. A linear array is described in which phased half-wave radiators with self-excited oscillators coupled to the phase shifters and feeder system are alternated with radiators having self-excited oscillators which are synchronized and phased by induced electromotive forces. The author considers the errors which arise in oscillation of the radiation pattern and the effect of these errors on the pattern. The results are experimentally confirmed. Eight illustrations, bibliography of five titles. N. S.
1/1

- 9 -

SERYAKOVA, G. F.

JPRS 55570
29 May 72

UDC: 614.1:[616.1-036.88:312.2

DEMOGRAPHIC PROCESSES AND HOSPITAL MORTALITY RELATED TO CIRCULATORY PATHOLOGY
IN VLADIMIR

Our goal was to investigate demographic processes, distribution of diseases of circulatory organs and hospital mortality related to such illness. As a rule the incidence of circulatory pathology and hospital lethality increase with age. Obviously, the change in age and sex structure of the population also affected demographic processes. It was to define this influence that the present investigation was undertaken. The work was a cooperative effort since the efficiency of therapeutic and organizational measures was also evaluated at the same time.

In accordance with the objectives, forms of documentation, a program for studying the material, and system of coding by the new International classification of diseases, injuries, and causes of death [1]were developed.

We used the primary records of four multispecialty hospitals in Vladimir. The study was pursued for five years (1966-1970).

The population of Vladimir which was 153,865 in 1959 reached 234,087 according to the 1970 census [2].

Men constituted 45.6 percent and women 54.4 percent, or, there were 100 men per 119 women. According to age composition and the 1959 census, 17.5 percent of the town's population consisted of children up to 10 years of age, and 15.1 percent consisted of 10-19 year olds, 52.1 percent -- 20-50 years of age, and 15.3 percent were over 50 years old [3]. The 1970 census data revealed there was a decline in percentage of children from 0 to 10 years old (15.2%) and of individuals 20-50 years of age (50.3%), and a rise in percentage of young people 10-19 years of age (to 18.2%) and of individuals over 50 years old (to 16.3%).

The relatively high percentage of individuals over 50 years of age in the town's population affected the incidence of circulatory disease and the hospital lethality. The process of "aging" of the population posed

- 43 -

USSR

SERYKH, A. P.

"The Use of Nonparametric Estimates of Density in Problems of Pattern Recognition"

Tr. Sib. fiz.-tekhn. in-ta pri. Tomsk. un-te [Works of Siberian Institute of Physics and Technology of Tomsk University], 1973, No 63, pp 184-195 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V154 by Ye. Troitskiy)

Translation: Given is the learning sample $X_i=\{x_{i1}, x_{i2},...,x_{ik}\}$, $i=1,...,n$, produced from the general set, characterized by the density $\tilde{f}(X)$ $=f(x_1,x_2,...,x_k)$. The nonparametric Parsen-type estimate $\tilde{f}(X)$ is studied:

$$\tilde{f}(X) = \frac{1}{n}\sum_{i=1}^{n}\prod_{j=1}^{k}\frac{1}{h_j(n)}K_j\left(\frac{x_j-x_{ij}}{h_j(n)}\right). \tag{1}$$

where $K_j(z)$ are arbitrary kernels, satisfying certain natural conditions,

$h_j(n)$ are the "erosion" factors ($h_j(n)\to 0$, $n\prod h_j(n)\to\infty$ where $n\to\infty$). The

1/3

USSR

SERYKH, A. P., Tr. Sib. fiz.-tekhn. in-ta pri. Tomsk. un-te, 1973, No 63, pp 184-195

results of a work by V. A. Yepanechnikov (RZHMat, 1969, 11V164) on asymptotic optimal (in the sense of the minimum full mean square error) $K_j(z)$ and $h_j(n)$ are extended. Namely, the limitations $K_j(z)=K(z)$, $h_j(n)-h(n)$ $(j-1,2,\ldots,k)$, contained in the work mentioned above, are removed. It is demonstrated that the asymptotically optimal factors $h_j(n)$ have the form

$$h_j(n) = c_j n^{-1/(k+4)},$$

where c_j are unknown coefficients. It is suggested that an estimate similar to (1) be used in the problem of pattern recognition, i.e., the problem of relating observations X to a set with density $f_1(X)=f(X;C^{(1)})$ or $f_2(X)=f(X;C^{(2)})$. The unknown vector $C^{(1,2)}=(c_1^{(1)},\ldots,c_k^{(1)}, c_1^{(2)},\ldots,c_k^{(2)})$ is sought from the minimum of the empirical estimate $R(C^{(1,2)})$ of the Bayes risk produced on the basis of the test samples

2/3

- 24 -

USSR

$$Y_i^{(m)} = \{Y_{i1}^{(m)}, Y_{i2}^{(m)}, \ldots, Y_{ik}^{(m)}\} , \quad i = 1,\ldots,n_m; \quad m = 1,2.$$

Known search procedures are used to determine the optimum value of $C^{(1,2)}$. The problem of selection of information characteristics using estimates of the form of (1) is discussed.

3/3

USSR

SERYKH, A. P., TARASENKO, F. P.

"The Problem of Estimation of Nonlinear Functionals of the Unknown Probability Density of Quasi-U-Statistics"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te [Works of Siberian Institute of Physics and Technology of Tomsk University], 1973, No 63, pp 180-183 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V153 by T. Malevich)

Translation: Certain statistics (suggested by the authors and called by them quasi-U-statistics) are studied, which can be used for estimation of many important functionals of a distribution density. These statistics utilize known nonparametric estimates of density and U-statistics as studied by Hoffding. The asymptotic behavior of displacements, dispersions and distributions of quasi-U-statistics is studied.

1/1

- 23 -

USSR

UDC: 519.2

SERYKH, A. P.

"Analysis of a Mode of Self-Instruction in a Nonparametric Recognition Algorithm"

V sb. Teoriya i primeneniye adaptivn. sistem (Theory and use of Adaptive Systems--collection of works), Alma-Ata, 1971, pp 278-293 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V165)

Translation: A nonparametric method of pattern recognition is proposed. Empirical distribution functions are used instead of unknown distribution functions which correspond to different patterns. The author criticizes the method of constructing these distribution functions in accordance with classified instructional samples, and proposes a method of preteaching them in the recognition process. The algorithm for computing estimates $\hat{\alpha}_m$ and $\hat{\beta}_m$ of the probabilities of erroneous solutions α and β respectively takes the following form: if the next x' falls into the critical region A_x, then

1/2

USSR

SERYKH, A. P., Teoriya i primeneniye adaptivn. sistem, Alma-Ata, 1971, pp 278-293

$\bar{\alpha}_m = S_{m-1}/n_{m-1}$ or $(S_{m-1}+1)/(n_{m-1}+1)$ with probabilities $q\beta_{m-1}/p\alpha_{m-1}+q\beta_{m-1}$ and $p\bar{\alpha}_{m-1}/(p\bar{\alpha}_{m-1}+q\beta_{m-1})$ respectively, where m is the volume of the recognition sample, p and q are the a priori probabilities of the patterns to be recognized, and S_m is the number of occurrences of event A_x in a sample of volume n_m. The author justifies selection of the above mentioned random mechanism of change of estimates by stating that if α and β are substituted in place of the estimates $\bar{\alpha}_{m-1}$ and $\bar{\beta}_{m-1}$ respectively which were obtained on the preceding step, then this algorithm will give estimates having the same moments as in the case of the "ideal teacher", i. e. where it is precisely known to which pattern the instructional sample corresponds. It is proposed that estimates obtained by using a classified instructional sample be utilized as the initial values $\hat{\alpha}_0$ and β_0. A. Pinskiy.

2/2

- 15 -