

2/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0124887  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MATHEMATICAL TREATMENT OF  
PHENOMENON. THEORY OF PHASES OF VARIABLE COMPN. AND VARIABLE DEFECT  
CONTENT WAS CARRIED OUT IN ORDER TO INTERPRET THE PROPERTIES OF THE  
PHASES. THE TREATMENT IS BASED ON THE REPRESENTATION OF A REAL SYSTEM  
CONSISTING OF NONINTERACTING SUBSYSTEMS (CLUSTER COMPONENTS), EACH OF  
WHICH FORMS A DEFINITE PART OF THE PROPERTY OF THE SYSTEM IN QUESTION.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--26NOV70  
 TITLE--GROUP THEORETICAL METHOD FOR DETERMINING PERMITTED TERMS OF THE  
 ELECTRONIC STATES OF POLYATOMIC MOLECULES TAKING ACCOUNT OF SPIN ORBIT  
 AUTHOR--(05)--~~MEN, A.N.~~ CHEREPANOV, V.I., FARBEROV, D.S., MITKOFANOV,  
 V.YA., CHUFAROV, G.I.  
 COUNTRY OF INFO--USSR

SOURCE--INT. J. QUANTUM CHEM. 1970, 4(1), 109-19

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, SPIN ORBIT COUPLING, EXCITED ELECTRON  
STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--1984/0649

STEP NO--US/0000/70/004/001/0109/0119

CIRC ACCESSION NO--A0055352

UNCLASSIFIED

2/2 013  
CIRC ACCESSION NO--AP0055352

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT---(U) GP-0- ABSTRACT. A GROUP THEORETICAL METHOD FOR  
DETG. THE PERMITTED STATES OF POLYAT. MOLS., PROCEEDING FROM GIVEN AT.  
STATES IN WHICH THE SPIN ORBIT INTERACTION HAS BEEN TAKEN INTO ACCOUNT,  
IS PROPOSED.

UNCLASSIFIED

Acc. No. **AF0049439** Abstracting Service:  
**CHEMICAL ABST. 5/70**

Ref. Code:  
**TLR0370**

104620e Thermodynamic analysis of the reduction of solid solutions of iron orthotitanate with magnetite. Sibchevskii, A. A.; Antonov, V. K.; Dvinn, V. I.; Men, A. N.; Chudakov, G. I. (USSR). Izv. Akad. Nauk SSSR, Metall., 1970, (1), 51-5 (Russ). The coeffs. of the equation for the equil. O<sub>2</sub> pressure (P<sub>0</sub>, given in atm.) vs. c were calcd. for spinel solid solns. (Fe<sub>3</sub>O<sub>4</sub>)<sub>1-x</sub>(Fe<sub>2</sub>TiO<sub>4</sub>)<sub>x</sub> in equil. with FeO + s at 1000°: ln P<sub>0</sub> = 5.11c - 34.11 (for 0.10 ≤ c ≤ 0.55), ln P<sub>0</sub> = 9i - 30.25 (for 0.55 ≤ c ≤ 0.70), and ln P<sub>0</sub> = 0.43c - 30.25 (for 0.70 ≤ c ≤ 1.0). The expressions for activities (a) of the components of the system were derived for 2 cases: (1) for the equil. of FeO<sub>1-x</sub> with spinel solid soln. of compn. close to that of magnetite: d(ln a<sub>1</sub>) - 2.21 d(ln a<sub>2</sub>) - 1.17 d(ln a<sub>3</sub>) = 0.305 d(ln P<sub>0</sub>); (2) for the equil. of FeO<sub>1-x</sub> with a spinel solid soln. of compn. close to that of Fe<sub>2</sub>TiO<sub>4</sub>: d(ln a<sub>1</sub>) - 2.678 d(ln a<sub>2</sub>) - 0.484 d(ln a<sub>3</sub>) = 0.419 d(ln P<sub>0</sub>), where a<sub>1</sub> = a<sub>FeO</sub>, a<sub>2</sub> = a<sub>Fe<sub>1/2</sub>O</sub>, a<sub>3</sub> = a<sub>Fe<sub>2/3</sub>O</sub>, and a<sub>4</sub> = a<sub>Fe<sub>3</sub>O<sub>4</sub></sub>. The defect state of FeO<sub>1-x</sub> was expressed in terms of its extreme states FeO and Fe<sub>1/2</sub>O. The activities of the components were then calcd. with the use of the expressions (1) or (2) and the Gibbs-Duhem equations for the spinel solid solns. and FeO<sub>1-x</sub>. Activities exhibit pos. deviations with respect to ideal soln. The activities were calcd. also by a statistical thermodynamic method. The compn. of the solid soln. was expressed as Fe<sup>2+</sup><sub>1-x</sub>Fe<sup>3+</sup><sub>1-x</sub>[Fe<sup>2+</sup><sub>1-x</sub>Fe<sup>3+</sup><sub>1-x</sub>Ti<sup>4+</sup><sub>1-x</sub>]O<sub>3</sub>, the ions given in brackets being assumed in octahedral positions. L. Kuca

REEL/FRA  
19801277

Chufarov, G. I. (Inst. Met., Sverdlovsk, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(2), 430-40 (Chem) (Russ). The relation, arising from the theory of cluster components, between the compn. and properties of cluster components (CC), and the mechanism of the redn. and of the crystallochem. transformations taking place in the spinel solid solus. was investigated. The isomorphous mixt,  $FeCr_xFe_{1-x}O_4$ , was chosen as an example possessing a nonmonotonic dependence of the conversion degree  $\lambda = \lambda(c)$ . In the interval  $0 \leq c \leq 0.2$ ,  $\lambda = 0$ , at  $0.2 \leq c \leq 0.62$ , is  $0 \leq \lambda \leq 1$ , at  $0.62 \leq c \leq 1$ ,  $\lambda = 1$ . Then the theoretical anal. showed that until  $c = 0.2$  there must exist two solid phases of variable compn. in equil.: the spinel and the oxide one. At  $c = 0.2$ ,  $FeCr_xFe_{1-x}O_4 = 0.5Fe_3O_4 + 0.4FeCr_2FeO_4$ . At  $0.2 < c < 0.5$ , three (CC) can be sep'd. however, at  $c = 0.5$ ,  $\lambda = 0.5$  there remain only two (CC), namely:  $FeCr_xFe_{1-x}O_4 = 0.5 Fe_3O_4 + 0.5FeCr_2O_4$ . At  $0.5 < c < 0.62$  in the spinel phase there can be sep'd. three (CC), while at  $c = 0.62$  ( $\lambda = 1$ ) two (CC) are separable, here the converted magnetite constituting the (CC) of the spinel soln. disappeared and further, until  $c = 1$ , the process proceeded on account of the redn. of the hypothetical normal magnetite that, in contrast to the converted magnetite, was obviously reduced above 572°C with formation of metallic iron.

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REEL/FRA  
19891571

UDC 621.396.67

USSR

MEL'YANOVSKIY, P.A., MEN', A. V.

"Methods Of Control Of The Parameters Of Phased Antenna Arrays"

Moscow, Elektrosvyaz', No 10, Oct 71, pp 66-71

Abstract: Methods are considered for high-frequency control of the parameters of multi-elements of phased antenna arrays. The principles of construction are given for a built-in automated system of operational remote control of the parameters of the phasing system for the T-shaped UTR-2 radiotelescope of the decimeter wave range. Received by editors 6 Dec 70. 7 ref. 7 ill.

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APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R0022020005-8"

Acc. Nr

ATO107991

Abstracting Service:

CHEMICAL ABST.

Ref. Code

41 0020

128273v Nature of crystal chemical transformations during the reduction of complex oxides studied on the basis of the theory

1/2 018 UNCLASSIFIED PROCESSING DATE--090CT70  
 TITLE--TIME VARIATIONS IN THE DENSITIES OF FLUXES FROM DISCRETE SOURCES  
 IN THE DECAMETER WAVELENGTH RANGE -U-  
 AUTHOR--(05)-BRAUDE, S.YA., ZHUK, I.M., LEBEDEVA, O.M., MEN, A.V., RYABOV,  
 B.P.  
 COUNTRY OF INFO--USSR  
 SOURCE--UKRAINS'KII FIZICHNII ZHURNAL, VOL. 15, FEB. 1970, P. 177-190  
 DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--ELECTRON FLUX, RADIO EMISSION, CRITICAL WAVELENGTH, SIGNAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PRUXY REEL/FRAME--1991/0323

STEP NO--UR/0165/70/015/000/0177/0190

CIRC ACCESSION NO--AP0119211

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--090CT70

2/2 018

CIRC ACCESSION NO--AP0110211

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

ABSTRACT. THEORETICAL AND EXPERIMENTAL STUDY OF THE TIME VARIABLE INTENSITIES OF RADIATION FLUXES FROM RADIO EMISSION SOURCES IN THE DECAMETER WAVELENGTH RANGE. THE STUDY IS BASED ON OBSERVATIONS OF THE FLUCTUATIONS IN RADIO SIGNAL SEQUENCES AND ON LONG PERIOD OBSERVATIONS OF THE MEAN VALUES OF THE DENSITIES OF RADIO EMISSION FLUXES FROM A LARGE GROUP OF DISCRETE RADIO SOURCES. THE RADIO EMISSION SPECTRA OF MOST OF THESE SOURCES SHOWED ONLY SLIGHT VARIATIONS WITH TIME, WITH THE EXCEPTION OF 3C84, 3C144 AND 3C461. THE TIME VARIABLE FLUCTUATIONS IN THE RADIO EMISSION SPECTRA OF THESE SOURCES ARE FOUND TO BE GREATER AT LOWER FREQUENCIES. POSSIBLE PHYSICAL CAUSES OF THESE TIME DEPENDENT FLUCTUATIONS ARE DISCUSSED. FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, INSTITUT RADIOFIZIKI I ELEKTRONIKI, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED



USSR

UDC 523.164.42

BRAUDE, S. YA., ZHUK, I. N., LEBEDEVA, O. M., MEN<sup>1</sup>, A. V. and RYABOV, H. P.,  
Institute of Radiophysics and Electronics, Academy of Sciences UkrSSR, Khar'kov

"Time Changes in the Flux Densities of Discrete Sources in the Decameter Range"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol. 15, No. 2, Feb 70, pp 177-190

Abstract: Two series of experiments were conducted to clarify the problem of the flux variability of sources in the decameter range. The purpose of the first series of experiments was to determine the type of fluctuations in signals occurring in 5-10 consecutive measurements of sources with first and third types of spectra. The second group of experiments was to determine the change in the average flux density with time for 30 sources, each of which was measured for several months. The first group of experiments indicated that fluctuations in signals received from the sources are associated with the ionosphere and not with processes occurring in the sources. The following sources were selected for the second series of experiments to determine whether the average flux densities of different sources vary over time: 3C10, 3C111, 3C196, 3C218, 3C274, 3C353, 3C123, 3C405, 3C461, 3C84, 3C98, 3C114, and 3C246 in Cassiopeia-A. Experiments show that spectra of the majority of these sources were stable and independent of time. Some typical results of measurements made during 1966-1968

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BRAUDE, S. YA., et al., Ukrainskiy Fizicheskiy Zhurnal, Vol 15, No 2, Feb 70,  
pp 177-190

are given for several of these sources. The data showed, however, that-as distinct from the majority of discrete sources where the average spectra remained unchanged over a considerable time period within the accuracy of measurement- time changes in intensity exceeding the natural spread of data and error of measurement were observed in the spectra of three discrete sources: 3C84, 3C144, and 3C461. The data were insufficient to establish the period of variability of these sources. A discussion of the question indicates that this variability cannot be explained within the framework of existing models, and the physical processes responsible for this flux variability at low frequencies remain an open question. It was concluded that since a systematic increase in the flux of Cassiopeia-A at low frequencies was not observed, one would expect that in an injection of particles with a total energy of  $W_a = 10^{47}$  ergs, which is about 10% of the relativistic particles of the entire Cassiopeia-A, the variability observed during 1966-1967 must be a relatively rare phenomenon. Further systematic studies of these and other sources in the decimeter range are recommended.

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Acc. No. **046564**

Abstracting Service: **15170**  
INTERNAT. AEROSPACE ABST.

Ref. Code: **UR0185**

**A70-23189 #** Spectra of discrete radio sources in decametric wavelength range (Spektry diskretnikh dzhherol v dekametrovomu diapazoni dovzhin khvil'). S. Ia. Brijids, I. Ju. Zhvis, O. M. Likhutova, A. V. Men', and B. P. Riabov (Akademiia Nauk Ukrainshoi RSR, Institut Radiofiziki i Elektroniki, Kharkov, Ukrainian SSR). *Ukrains'kii Fizichnii Zhurnal*, vol. 15, Jan. 1970, p. 132, 118 refs. In Ukrainian.

The analysis was carried out of the spectra measurements of discrete sources of cosmic radio waves in a decametric wavelength range. The spectral indices are presented of 113 discrete sources measured at the Radio Observatory of the Institute of Radiophysics and Electronics of the Academy of Sciences of the Ukrainian SSR in Grakovo. A new classification of decametric spectra of discrete sources was introduced. According to this classification 59 sources were related to type I (linear spectra), 8-to type II (negative curvature), 29-to type III (positive curvature) and 3 sources-the type IV (variable curvature). Different problems connected with generation and absorption of radio waves in the discrete sources were discussed and used to interpretation of various types of spectra. The analysis of preliminary data on the radio wave absorption of remote metagalactic hydrogen was discussed together with the question on possible values of temperature and density of the latter. (Author)

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REEL/FRAME  
**19781828**

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USSR

UDC: 8.74

TARKASHVILI, Ts. T., MENABDE, M. A.

"An Algorithm for Studying the Dynamics of a Crystal With Defects by the Vignard Method"

V sb. Elektron. i ionnyye protsessy v tverd. telakh (Electron and Ion Processes in Solids--collection of works), No 4, Tbilisi, "Metsniyereba", 1971, pp 248-255 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V567)

[no abstract]

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USSR

UDC: 519.2

MENCHER, E. M.

"A Two-Factor, Second-Order Plan Close to D-Optimal"

Sb. tr. VNIИ nerudn. stroit. materialov i gidromekhaniz. (Transactions of the All-Union Scientific Research Institute of Non-Metallic Construction Materials and Hydromechanization--collection of works) No 31, 1971, pp 102-105 (from RZh--Matematika, No 6, 1972, Abstract No 6V221)

Translation: The characteristics of two second-order, experimental, two-factor plans are given: the rotatable Box plan and the  $M_{12}$  plan, constructed from a cube with D-optimality requirements taken into account. Author's abstract.

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Probability & Statistics

UDC: 519.2

USSR

MENCHER, E. M.

"Some Comments on Computing the Gradient from Results of a Linear Experiment"

Sb. tr. VNIi nerudn. stroit. materialov i gidromekhaniz. (Transactions of the All-Union Scientific Research Institute of Non-Metallic Construction Materials and Hydromechanization--collection of works) No 31, 1971, pp 106-108 (from RZh--Matematika, No 6, 1972, Abstract No 6V220)

Translation: A method is considered for computing the gradient of a response function from the results of a linear experiment, for the case in which a qualitatively variable factor is included in the plan along with the quantitatively variable factors. Author's abstract

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USSR

UDC: 621.315.3

KOPYLOV, K. I., MENCHIKOV, L. P., OKUN', Ye. L., SMIRNOV, V. M., SHERSTO-  
BITOV, A. Ye.

"An Installation for Making Microwires in Glass Insulation"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Technology.  
Scientific and Technical Collection. Radio Components), 1970, vyp. 1, pp  
134-143 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 57419)

Translation: The authors present the results of development of specialized  
installations for casting type ULP-5, ULP-6 and ULP-6M microwires in glass  
insulation. The schematic diagrams of the installations are described and  
their technical characteristics are given. Resumé.

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UJSR

UDC: 621.375.029.64

MENDE, F. F., PRENTSLAU, N. N., and DMITRIYEV, V. M.

"UHF Amplifier With Internal Negative Feedback"

Moscow, Radiotekhnika, No 2, 1972, pp 69-75

Abstract: In this paper, the authors propose an improvement to a system they offered in an earlier paper (F. F. Mende, et al, Pri-bory i tekhnika eksperimenta, No 3, 1967). The earlier system was a frequency-stabilizing device using a uhf amplifier with intermediate frequency amplification and amplitude modulation. While the amplifier had good phase characteristics and high gain, the amplitude modulator limited the output signal since it was not designed for high power at the high modulation frequencies. The uhf amplifier offered in the present paper uses frequency modulation of the reference oscillator and has no amplitude modulator, thus avoiding the defect of the former model. A block diagram of the device is given and its operation is explained. Basic design expressions are developed. The new device was experimentally

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USSR

MENDE, F. F. et al, Radiotekhnika, No 2, 1972, pp 69-75

tested; it was equipped with a reflex klystron operating at 17-20 MHz and an intermediate frequency of 10 MHz. Curves for experimental and theoretically derived data are shown. The authors express thanks to M. B. Golant, M. S. Khaykin, and R. T. Mina.

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Devices

UDC: 621.376.332

USSR

MENDE, E. F., PRENTSLAU, N. N., and DMITRIYEV, V. M.

"UHF Discriminators with IF Error Signal"

Moscow, Radiotekhnika, Vol. 26, No 1, 1971, pp 51-56

Abstract: Two types of discriminator in which the error signal is at the intermediate frequency are proposed, the authors claiming for them freedom from difficulties encountered with such discriminators suggested by earlier work. The first circuit uses a parallel connection of the amplitude modulator and the standard resonator, such that the signal from the tunable oscillator is divided into two channels, one of them containing the attenuator and modulator, to which the i-f signal from the i-f oscillator is also applied, the other with the standard resonator and phase shifter. Both the i-f and variable oscillator signals are combined in a mixer to produce the i-f error signal. The second circuit, using a series connection of amplitude modulator and standard resonator, eliminates some defects inherent in the first. Both circuits are analyzed, and the results of experiments performed on both of them presented. The experiments were conducted in the 3-cm wavelength range. Oscillograms showing the characteristic curves of the discriminators are reproduced.

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USSR

UDC 621.395:621.397

MENDELEVICH, A.A., SHITIKOV, YE.N.

"Energy Spectrum Of Videotelephone Signal"

Sb. nauchn. tr. TsNII Svyazi (Collection Of Scientific Works Of The Central Scientific-Research Institute Of Communication), 1970, Issue 2, pp 108-116 (from RZh--Elektrosvyaz', No 2, February 1971, Abstract No 2.64.138)

Translation: The paper evaluates the energy spectrum of the total picture signal of a videotelephone. It is shown that modulation of the picture signal of a videotelephone by quenching pulses of the horizontal sweep leads to a negligible change of the signal spectrum and the energy spectrum of the videotelephone signal is distributed more uniformly than the spectrum of a television signal. Summary.

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USSR

UDC: 613.645-07:612.822.3.014.421.7

AMIROV, N. Kh., ZUBAIROVA, G. O., MENDELEVICH, D. M., and KALPINA, G. A., Kazan Medical Institute

"EEG Changes in Persons Working Under Low-Intensity Red Light and in Complete Darkness"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 1, 1971, pp 13-16

Abstract: Bioelectric activity of the brain was studied in several groups of females working in a photographic and motion picture film factory under low-intensity red light or in complete darkness. The EEG's of those working under red light were in most cases characterized by an irregular alpha rhythm localized chiefly in the occipital and parietal regions. The amplitude ranged from 20 to 30  $\mu$ v and the frequency was between 8.5 to 12 osc/sec. All the subjects exhibited a distinct beta rhythm of different oscillation frequencies and amplitudes. The EEG's of the women who worked in darkness were characterized in half the cases by a pronounced and regular alpha rhythm (with an average amplitude of 15 to 20  $\mu$ v) in the central and temporal regions. In cases where the alpha rhythm was indistinct or absent, the beta rhythm was dominant. The results of functional tests with opening and closing of the eyes confirmed the decrease in level of cortical

Phytology

USSR

MENDELEVICH, G., Scientific Worker of the Academy of Sciences USSR

"Weather-Making at Will in Scientific Laboratories"

Moscow, Moskovskaya Pravda, 25 Feb 73, p 3

Translation: It is winter in Moscow, whereas here it is a warm day, as in July. A light breeze makes leaves rustle. One would want to undress and to expose one's body to life-giving sun rays. And next door, only a few meters apart, the weather is quite different: a dry, gusty wind is blowing, air temperature is 40°C, and droplets of perspiration begin to cover one's body.

Don't be surprised at such sharp change in the weather. We are at a station of the artificial climate, a phytotron of the Institute of Plant Physiology imeni K. A. Timiryazev of the Academy of Sciences USSR. First we have visited a locality near Moscow in summer, and then we dropped in at a climatic chamber where a dry wind is being imitated.

Our country has a great number of climatic zones. And, naturally, plants must be studied taking into account the climate in which they grow. The Moscow Phytotron can recreate the weather of almost any geographical region of the country.

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MENDELEVICH, G., Moskovskaya Pravda, 25 Feb 73, p 3

The Artificial Climate Station consists of a great number of the air-tight chambers and cabinets with the combined area of over 500 square meters. Some chambers, in turn, are subdivided into compartments.

The control of this complicated weather complex is performed from the central control desk.

A great number of air-conditioners, with the special program for each chamber, are placed in the machine room, which is located in a basement. The conditioners purify air from mechanical suspensions, heat it or cool it, and humidify or dry it. Lamps of most diverse designs serve as light sources: xenon, reflector, mercury-arc, neon, or luminescent lamps. In order not to affect the temperature regime of the chambers, powerful lamps are placed inside the chambers under glass roofs resembling cupolas. Lamps are selected according to the spectrum and intensity of radiation to approximate natural conditions of the growth of plants. For example, the radiation spectrum of the sunny day near Moscow corresponds to that of xenon lamps.

"A green leaf, or, more properly, a microscopic green grain of chlorophyll," wrote Timiryazev, "is the focus, or point, in world space, into which, on one side, flows energy of the sun, and from which, on the other side, all manifestations of life on earth begin. The plant is an intermediary between

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MEHDELEVICH, G., Moskovskaya Pravda, 25 Feb 73, p 3

heaven and earth. It is a real Prometheus, who stole fire from heaven. The ray of sun stolen by him burns in a flickering chip as well as in a dazzling spark of electricity. A ray of sun sets into motion both the monstrous flywheel of a giant steam engine, the brush of the painter, and the pen of a poet."

Artificial recreation of the reaction of photosynthesis has given man an abundance of nutrition products.

Researchers have set themselves the task of ensuring the most intensive course of the process of photosynthesis under laboratory conditions.

In cooperation with engineers they have constructed apparatuses by means of which plants create the most favorable conditions for themselves in a chamber.

What then is the principle that actuates these apparatuses? As is well known, in the process of photosynthesis the decomposition of carbon dioxide into oxygen and carbon takes place, whereupon carbon is assimilated by plants, whereas oxygen, being liberated, saturates the air. This means that the more intensive the process of photosynthesis the smaller the quantity of carbon dioxide that remains in the chamber of a phytotron. A special automatic device, a gas analyzer, by catching these changes in the gaseous exchange, lowers or increases the luminous flux power in the chamber. The meaning of the experiment consists in finding the optimum dose of luminous irradiation at which the process of

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MENDELEVICH, G., Moskovskaya Pravda, 25 Feb 73, p 3

photosynthesis would be most intensive and thereby to create conditions at which plants would develop most favorably and would yield maximum crops. Thus, from the cooperation of biologists and engineers a new branch of science was born, viz., the engineering physiology of plants.

What then can these, on the face of it, highly "theoretical" experiments give to the agricultural economy?

In hotbeds and greenhouses which are coming into ever wider use, electrical energy is expended, as a rule, without pinpointing the exact requirements of plants. The experiments conducted with use of a phytotron and then applied to hotbeds and greenhouses will contribute to an economic expenditure of the electrical energy and to a considerable increase of the yielding capacity of vegetables. With the aid of the new apparatus it will be possible to determine the power of the luminous flux necessary for maximum intensity of the process of photosynthesis.

The results of experiments will also find application in the greenhouses of space ships. Designs of such greenhouses had been worked out long ago by Tsiolokovskiy, the father of astronautics.

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1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70  
 TITLE--FEATURES OF CHEMICAL ETCHING OF THE SURFACE OF AN INTENSIVELY  
 HARDENED GLASS -U-  
 AUTHOR-(04)-SILVESTROVICH, S.I., KAZAKOV, V.D., KATS, R.YA., MENDELEYEV,  
 D.I.  
 COUNTRY OF INFO--USSR  
 SOURCE--IZV. SSSR. MOSCOW, NEORGANICHESKIYE MATERIALY, VOL 6, NO 5, MAY  
 70, PP 952-956  
 DATE PUBLISHED----MAY70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GLASS PROCESSING, HYDROFLUORIC ACID, GLASS STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAME--3006/1042

STEP NO--UR/0363/70/006/005/0952/0956

CIRC ACCESSION NO--AP0134745

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 009

CIRC ACCESSION NO--AP0134745  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE AUTHORS WERE INTERESTED IN FINE POINTS OF THE CHEMICAL SURFACE ETCHING OF GLASS WITH HIGHLY DEVELOPED DEFECTS, SUCH AS OCCUR ON HARDENING WHEN MICROCRACKS ARE FORMED. THE SELECTIVITY OF CHEMICAL SURFACE ETCHING OF MICROLAMINATED GLASSES IS DETERMINED BY TWO PHASES OF DIFFERENT RESISTANCE TOWARD HYDROFLUORIC ACID ACTION AND BY SPECIFIC PRODUCTION CONDITIONS WHEN THEY ARE SUBJECTED TO VARIOUS THERMOCHEMICAL ACTIONS. THE GLASS STRENGTH, WHICH IS INCREASED AFTER CHEMICAL ETCHING, IS CONNECTED MAINLY WITH THE PRESENCE OF HAZARDOUS MICROCRACKS ON ITS SURFACE. WHEN THEY ARE ABSENT THE STRENGTH IS DETERMINED BY THE DEGREE OF MICROLAMINATION AND THE QUALITY OF SURFACE CONTOUR. FACILITY: MOSCOW INSTITUTE OF CHEMICAL TECHNOLOGY IMENI.

UNCLASSIFIED

USSR

UDC 681.325.6

CHKHEIDZE, M. V., and LADARIYA, Tbilisi Branch, All-Union Scientific Research Institute of Metrology imeni D. I. Mendeleev (Tbilisskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta metrologii im. D. I. Mendeleeva)

"Flip-Flop Register with Correction of Shift Errors"

USSR Author's Certificate No 258736, filed 30 Jul 68, Moscow, Otkrytiya Izobreteniya Promyshlennyye Obraztsy i Tovarnyye Znaki, No 1, Jan 70, p 130

Translation: A flip-flop register with correction of shift errors which consists of flip-flop and 'AND' and 'OR' logic elements is presented. Its distinctive feature is the fact that for the purpose of improving reliability of register performance, the zero and unit output of the flip-flop of every position of the register is connected with the input of the respective coincidence circuit, the second input of which through the delay element is coupled to the output of the collector circuit, connected in turn to the input circuit of the opposite flip-flop arm. The output of the coincidence circuit through the

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USSR

CHKHEIDZE, M. V., et al., USSR Author's Certificate No 258736, filed 39 Jul 68, Moscow, Otkrytiya Izobreteniya Promyshlennyye Obrastsey i Tovarnyye Znaki, No 1, Jan 70, p 130

Translation: multi-input collector circuit is connected with the inputs of the two coincidence circuits and the input of the delay element, the output of which is coupled with the other outputs of these same coincidence circuits.

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Instrumentation and Equipment

USSR

UDC 621.74.073:621.922.02:389.6

IVANOV, A. A., KOVALEV, S. N., MENDEL'SON, V. G., SELEKH, V. F.

"Specifications of Dies for a Diamond Abrasive Tool"

Moscow, Standarty i kachestvo, No 3, Mar 70, pp 7-9

Abstract: This article presents a draft of standard specifications of dies for diamond abrasive tools (wheels) with organic and metallic bonds. The specifications are divided into four groups: 1) the selection of materials; 2) the selection of basic dimensions; 3) assembly and accuracy; and 4) the finishing quality of dies. Two types of dies are considered: those designed for pressing operations at temperatures not exceeding 200°C and those designed for sintering with a metallic bond at 700-800°C. Recommendations are given on steels and their heat treatment. The finishing of surfaces must meet the requirements of GOST 2739-59. EI481 steel and EI437B refractory metal are finding wide acceptance for use in dies for diamond abrasive tools.

UNCLASSIFIED

PROCESSING DATE--18SEP70

1/2 012

TITLE--SPECIFICATION ON DIES FOR DIAMOND ABRASIVE TOOLS -U-

AUTHOR--(04)-IVANOV, A.A., KOVALEV, S.N., MENDELSON, V.S., SELEKH, V.F.

COUNTRY OF INFO--USSR

SOURCE--STANDARTY I KACHESTVO, 1970, NR 3, PP 7-9

DATE PUBLISHED-----70

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

TOPIC TAGS--DIAMOND, ABRASIVE, BIBLIOGRAPHY, TECHNICAL STANDARD, ECONOMIC  
CONDITION, CUTTING TOOL, MACHINE TOOL COMPONENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1986/0868

STEP NO--UR/0422/TQ/000/003/000T/0009

CIRC ACCESSION NO--AP0102829

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 012

CIRC ACCESSION NO--AP0102829

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

ABSTRACT. THE ARTICLE GIVES AN ACCOUNT OF  
THE SPECIFICATION ON THE DIES, THAT IS NOW PREPARED FOR THE FIRST TIME.  
THEIR ECONOMIC EFFICIENCY IS GROUNDED.

89

UNCLASSIFIED

1/2 006 UNCLASSIFIED PROCESSING DATE--02JCT70  
TITLE--CALCULATION OF CROSS SECTIONS OF HYDROTECHNICAL AND ROAD FACILITIES  
-U-  
AUTHOR--MENDRYUKOV, V.D. *M*  
COUNTRY OF INFO--USSR  
SOURCE--CALCULATION OF CROSS SECTIONS OF HYDROTECHNICAL AND ROAD  
FACILITIES (RASCHET POPERECHNYKH SECHENIY GIDROTEKHNICHESKIKH I  
DATE PUBLISHED-----70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--MONOGRAPH, HIGHWAY ENGINEERING, CIVIL ENGINEERING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/1286 STEP NO--UR/0000/70/0007/000/0001/0062  
CIRC ACCESSION NO--AM0112333  
UNCLASSIFIED



2/2 006

UNCLASSIFIED

PROCESSING DATE--020CT70

CIRC ACCESSION NO--AM0112333

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 3.  
LETTER DESIGNATIONS 3. EXPLANATION TO THE TABLES 4. EXAMPLES OF  
CALCULATION 6. TABLE 1 FOR CALCULATING OF CROSS SECTIONAL AREA OF  
CANALS, USEFUL CROSS SECTIONS OF THE FLOW, DITCHES, AND EMBANKMENTS 16.  
2-1 FOR CALCULATING THE LENGTH AND WIDTH OF THE SLOPES AT M=1.20-1.50  
56. 2-2 FOR CALCULATING THE LENGTH AND WIDTH OF SLOPES AT M=1.75-3.25  
58. 2-3 FOR CALCULATING THE LENGTH AND WIDTH OF SLOPES AT AT M EQUALS  
5.50 DIVIDED BY 6.00 62. 3 THE VALUE OF THE LENGTH OF THE SLOPE  
SQUARE ROOT OF 1 PLUS M PRIME<sup>2</sup> AT THE COEFFICIENT OF SLOPE LAYING M 63.  
LITERATURE 64. THE BOOK IS DESIGNED FOR TECHNICAL ENGINEERS IN  
DESIGNING AND BUILDING ORGANIZATIONS IN DETERMINING SUFFICIENTLY STABLE  
AND ECONOMICALLY PROFITABLE PROFILES OF THE FACILITIES APPLIED IN  
HYDROMELIORATION, ROAD AND HYDROTECHNICAL CONSTRUCTIONS AND ALSO FOR THE  
REGULATION OF RIVERS AND IN OTHERS BRANCHES OF THE NATIONAL ECONOMY.

UNCLASSIFIED

USSR

UDC 577.1:615.7/9

MENDZHERITSKAYA, L. G., and GERZHENOVICH, Z. S.

"Nitrogen Metabolism of Rat Brain with Oxygen Poisoning, and the Protective Action of Serotonin"

Nauch. dokl. vyssh. shkoly. Biol. n. (Scientific Reports of the University Biological Sciences), 1971, No 8, pp 45-49 (from *RZh-Khimiya*, No 1(II), Abstract No 1F2026)

Translation: It was shown on rats that when the action of serotonin is combined with that of O<sub>2</sub> under pressure, the concentration of ammonia and glutamine is increased (by 168 and 33% respectively), the concentration of glutamic, aspartic and  $\gamma$ -aminobutyric acid is reduced, and also the degree of protein amidation is lowered. The mechanism of the protective action of serotonin in the case of oxygen poisoning is discussed, as well as its effect on nitrogen metabolism in the brain conclusions.

1/1

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USSR

UDC 612.015.3:599.323.4

MENDZHERITSKAYA, L. G., and GERSHENOVICH, Z. S., Department of Physiology and Biochemistry of Man and Animals, Rostov-na-Donu State University

"Nitrogen Metabolism in the Rat Brain After Oxygen Poisoning and the Protective Action of Serotonin"

Moscow, Biologicheskiye Nauki, No 8, 1971, pp 45-49

Abstract: Injection of rats with serotonin (1 mg/100 g) 15 min before exposure to oxygen (6 atm) markedly delayed the onset of convulsions. The latter set in 15 to 25 min after oxygen poisoning in the control compared with 60 to 100 min in the experimental animals. Fifteen minutes after the injection of serotonin, the amount of ammonia in the brain increased while that of glutamine decreased proportionately. There was also a sharp decrease in the amidation of proteins and in the concentration of gamma aminobutyric and aspartic acids. The indexes of nitrogen metabolism tended to return to normal 90 min after the injection of serotonin. The protective action of serotonin in oxygen poisoning is related to the predominance of reduced products (ammonia,  $NAD+H_2$ ) over oxidized ones.

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USSR

UDC 576.858.8:582.264.45.7.094

KOSKOVETS, S. N., MENDZHUL, M. I., ZHIGIR, V. V., NESTEROVA, N. V., and KHIL', O. S., Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR, Kiev

"Morphology of the Lytic Agent of *Chlorella pyrenoidosa* Pringh"

Moscow, *Voprosy Virusologii*, No 1, Jan/Feb 71, pp 98-100

**Abstract:** The morphology of the virus producing breakdown of a laboratory culture of *Chlorella pyrenoidosa* strain 82 was studied. Purified lysate products of *C. pyrenoidosa* were found to contain phage-like particles which were uniform in shape and size. They consisted of an isometric capsid 480 Å and a short, tail-like appendage of 110 Å length and 94 Å width. The appendage had a transverse striation, and the shape appeared to be a clearly defined octahedral structure. On a solid medium, the algophage produced negative colonies typical for phage-type viruses. Within 5-7 days, these colonies had a diameter of 2-3 mm.

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USSR

UDC 582.232:547.963.32

MOSKOVETS', S. M., NESTEROVA, N. V., and MENDZHMIR, M. I., Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR

"Isolation and Characteristics of DNA of the Blue-Green Algae *Anacystis nidulans*"

Kiev, Mikrobiologichnyi Zhurnal, Vol 33, No 1, Jan/Feb 71, pp 53-56

Abstract: The isolation of pure and high-molecular DNA from the single-cell alga *A. nidulans* was studied. This alga was selected because it lacks a capsule, is easy to cultivate, and for the principal reason that it is susceptible to virus infection, so that the latter can be studied on the basis of changes in the nucleic acid metabolism. Similarity of the structure of membranes of blue-green algae with those of Gram-negative bacteria made it possible to apply methods of degradation developed for the latter. Three methods of degradation were applied: 1) treatment with  $HClO_4$  followed by that lysozyme; 2) heat treatment at  $60^\circ$  in a buffer solution in the presence of EDTA followed by treatment with lysozyme; 3) freezing with liquid  $N_2$  followed by rapid thawing at  $37^\circ$  and treatment with lysozyme. Method (3) of destroy-

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USSR

MOSKOVETS', S. M., et al., *Microbiologichnyi Zhurnal*, Vol 33, No 1, Jan/Feb 71, pp 53-56

ing the membranes resulted in a greater yield of DNA with a higher molecular weight than methods (1) and (2). Deproteinization of the DNA was carried out by the procedure described by J. Marmur (*J. Mol. Biol.* 3, 203, 1961). Application of method (3) and of this procedure made it possible to obtain DNA with the high yield of 1.5 mg/g dry weight of the algae. The DNA had a protein content < 1%; RNA and polysaccharides were absent. The characteristic viscosity of the DNA was 115 dl/g, corresponding to a molecular weight of 13 million.

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172 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--INFLUENCE EXERTED BY ETHYLENEDIAMINETETRAACETIC ACID (EDTA) ON THE ANTICOGULANT PROPERTIES AND DYNAMICS OF SCANDIUM EXCRETION FROM THE AUTHOR--(05)--LAKIN, K.M., ZIMAKOV, YU.A., MENKOV, A.A., BOCHAROVA, R.I., TSZYU, N.P.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(11), 87-90

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SCANDIUM, RABBIT, BLOOD COAGULATION, KIDNEY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1994/1157

STEP NO--UR/0390/70/033/001/0087/0090

CIRC ACCESSION NO--AP0115176

UNCLASSIFIED



2/2 013

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115176

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SC ACETATE ADMINISTERED I.V. TO RABBITS AT 20 MG-KG DECREASED BLOOD COAGULATION, WITH THE MAX. EFFECT ACHIEVED AFTER 2 HR AND LASTING FOR GREATER THAN 6 HR. THE ANTICOAGULANT PROPERTIES WERE LESS THAN THOSE OF THE LANTHANIDES AND Y. SC BLOOD CONC. GRADUALLY DECREASED FOR THE 1ST FEW DAYS AFTER ADMINISTRATION, AND AFTER 1 DAY SIMILAR TO 20PERCENT OF THE ELEMENT HAD BEEN EXCRETED THROUGH THE KIDNEYS. EDTA COMBINED WITH SC ACETATE HAD ALMOST NO EFFECT ON THE BLOOD SC CONC. BUT SHARPLY INCREASED ITS RENAL EXCRETION AND SHARPLY REDUCED ACUTE TOXICITY AND ANTICOAGULANT ACTION.

FACILITY: TSENT. NAUCH.-ISSLED. LAB., MOSK. MED. INST. IM. PIROGOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 681.385.65

CHEVERIKOV, V. N., SOLOMONOV, L. A., ~~MEN'KOV, A. Y.~~ and BAKANOVICH, E. A.,  
Moscow Higher Technical School

"Random Pulse Flow Generator"

USSR Authors' Certificate No 308431, Cl. G 05 f 15/34, filed 19 Dec 69,  
published 30 Sep 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya  
Tekhnika, No 5, May 72, Abstract No 5203F)

Translation: The proposed invention is related to computer technology and can be used in the construction of stochastic computers and models and the creation of random-number generators for digital computers; to simulate, if necessary, random effects with required probability characteristics of investigated objects; and in all those cases where it is necessary to obtain a flow of random pulse signals, the time intervals between which represent random variables distributed according to the required probability law.

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USSR

UDC 681.332.65

CHEVERIKOV, V. N., BAKANOVICH, E. A., MEN'KOV, A. V. and SOLOMONOV, I. A.,  
Moscow Higher Technical School

"Device for Forming Random Time Intervals"

USSR Authors' Certificate No 312253, Cl. G 06 f 1/02, filed 18 Mar 70,  
published 13 Oct 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya  
Tekhnika, No 5, May 72, Abstract No 5R205P)

Translation: The invention is related to the field of computer technology and can be used in random process simulation. A well-known device containing a cyclic shift register, coincidence circuits, OR circuits, a noise voltage generator, a level quantizer, and commutator requires complex adjustment for the required distribution function. The proposed device differs from this one in that in it the control circuit for the advance of the cyclic shift register has connected to it a generator of random pulses following a known time interval distribution law, while the pulse inputs of the coincidence circuits have connected to them generators of periodic pulses, the frequency of which changes during adjustment for the required distribution law. This simplifies the process of adjusting for a given distribution law.

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USSR

UIC: 6821.373.444.681.333

CHEKVERIKOV, V. N., BAKANOVICH, E. A., MEN'KOV, A. V., SOLOMONOV, L. A.,  
Moscow Higher Technical School imeni N. E. Bauman

"A Device for Shaping Streams of Random Events"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzay, Tovarnyye Znaki,  
No 13, May 72, Author's Certificate No 335684, Division G, filed 1 Jun 70,  
published 11 Apr 72, pp 204-205

Translation: This Author's Certificate introduces a device for shaping a stream of random events. The device contains a controllable frequency pulse generator whose outputs are connected to a block of coincidence gates. The device also contains a coincidence gate number register whose outputs are connected to a pulse counter. The unit also includes a blocking circuit and a pulse generator. As a distinguishing feature of the patent, the installation is designed for producing streams of random events which are distributed in space and in time. The device contains a unit for setting the duration of a random test, a coincidence gate number encoder whose inputs are connected to the outputs of the block of coincidence gates, while the outputs of the encoder are connected to the coincidence gate number register.

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USSR

CHEVERIKOV, V. N., et al., USSR Author's Certificate No 335684

The outputs of this number register are connected in addition to the corresponding inputs of the blocking circuit whose output is connected to the first potential input of the block of coincidence gates. The second potential input of this block is connected to the output of the unit for setting the random test duration. The output of the pulse generator is connected to the pulse counter, and the output of the pulse counter is connected in turn to the output of the device, and to the corresponding input of the coincidence gate number register.

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USSR

UDC 681.332.65

CHETVERIKOV, V. N., BAKANOVICH, E. A., ~~MEN'KOV, A. V.~~, and SOLOMONOV, L. A.

"A Device for Shaping Random Time Intervals"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrantsy, Tovarnyye Znaki, No 25, Sep 71, p 188. (G 06f 1/02, No 312253 (1416921/18-24 from 18 March 1970; Claimant: Moscow Higher Technical School ineni N. E. Bauman)

Abstract: This patent claims a device for the shaping of random time intervals, containing a cyclical shift register, to the outputs of each digit of which are connected potential inputs from the coincidence circuits; the outputs of these coincidence circuits are connected with the output of the device through the first "OR" circuit; the output of the device is connected to the inputs of the device's "0" and "1" through the second "OR" circuit of the cyclical register, distinguished by the fact that for the purpose of simplifying adjustment of the circuit a random impulse generator with a known law of distribution for the time intervals is connected to the circuit for controlling the advance of the cyclical shift register, and periodic impulse generators with a regular frequency are connected to the inputs of the coincidence circuits.

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Acc. Nr:  
**AP0049943**

Abstracting Service:  
CHEMICAL ABST. 5-70

Ref. Code:  
**UR 0065**

103490a Device for the automatic determination of phenol in waste waters. FSV-65V type. Bukler, V. O.; Ivanov, V. S.; Men'kov, P. A.; Chernousov, N. N. (USSR). *Khim. Tekhnol. Topl. Masel* 1970, 15(1), 38-40 (Russ). The detn. was based on the reaction of water contg. phenol with reagents producing coloration. The color change, depending on the concn. of phenol, was recorded by an automatic photoelectric colorimeter and compared with control glasses corresponding to detd. concns. of phenol. The device included a sampler and sample-prep. system, automatic dosing and mixing water and reagents, colorimeter AKN-65V, and electronic potentiometer EPP-09M3 with scales: 0-10 mV; absorbance units, and 0-50 mg l/l. Thus, 25 ml water at  $\leq 40^\circ$  was mixed with pyramidon I, buffer 7, and  $\text{NH}_4^+$  peroxy sulfate soln. 7 ml and transferred into a colorimeter cuvette. The detn. ranges were 0-3 and 0-50 mg phenol/l., being required 40-80 min/detn., with errors of  $\pm 1\%$ ; sensitivity and reproducibility of 5%.  
GGJK

REEL/FRA  
**19801879**

UNCLASSIFIED

PROCESSING DATE--20NDV70

TITLE--INFRARED SPECTROSCOPIC STUDY OF THE CHEMISORPTION OF ORGANOSILICON COMPOUNDS ON AN AEROSIL SURFACE -U-

AUTHOR--(05)-BRCUN, E.V., KURGLEV, A.YA., VINOGRADOVA, L.M., ARTAMONOVA, R.V., NEKULYA, I.V.

M

COUNTRY OF INFO--USSR

SOURCE--Zh. Fiz. Khim. 1970, 44(3), 797-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, CHEMISORPTION, ORGANOSILICON COMPOUND, SILICA, ORGANIC SILANE, CARBONYL COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1197

STEP NO--UR/0076/70/044/003/0797/0799

IRC ACCESSION NO--AP0128615

UNCLASSIFIED



2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

IRC ACCESSION NO--AP0128615

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTERACTION OF  
TRIMETHYLETHOXY-SILANE (I), TRIMETHYLACETOXY-SILANE (II), AND  
TRIMETHYLCHLORO-SILANE (III) WITH AEROSIL OF SP. SURFACE 150 M<sup>2</sup> PER  
G WAS STUDIED. THE SURFACE COMPO. OF TRIMETHYLSILANE GROUPS WAS FOUND,  
AND ITS CONC. DEPENDENCE ON TEMP. AND TIME WAS STUDIED. I AND III GAVE  
A HIGH DEGREE OF SURFACE OCCUPATION AT ROOM TEMP., WHILE II PROVIDED A  
SUFFICIENTLY OCCUPIED MONOLAYER ONLY AT SIMILAR TO 300DEGREES. TREATING  
OF II ON AN AEROSIL SURFACE CAUSED THE FORMATION OF A SMALL AMT. OF  
CARBONYL COMPODS.

UNCLASSIFIED

UDC: 621.375.826+621.039.64 (6)

USSR

SIGEL, R., WITKOWSKI, S., BAUMHACKER, H., BÜCHL, K., ELDMANN, K.,  
HORA, H., MENNICKE, H., MULSER, P., PFIRSCH, D., SALZMANN, H.

"Survey of Studies of Laser-Produced Plasmas at the Max Planck  
Institute of Plasma Physics in Garching, West Germany"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972,  
pp 37-44

Abstract: The paper is a survey of experimental and theoretical  
research on laser-produced plasmas done at the Max Planck Insti-  
tute of Plasma Physics in Garching. Experiments are described  
on heating of a plasma by emission from a neodymium laser with  
energy of 30 J and pulse duration of approximately 50 ns. The  
plasma temperature was measured by a filter method; the time of  
flight and average kinetic energy of the ions were measured by  
probes. A laser with a single pulse lasting a few picoseconds  
is described. The results of theoretical studies done on com-  
puters are presented. [The article is a brief version of a paper  
presented to the editors by the organizational committee of the

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USSR

SIGEL, R. et al., Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 37-44

International Conference on Laser-Produced Plasmas, Moscow, 1970. Translation by A. S. Shikanov.] Nine illustrations, bibliography of seven titles.

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USSR

MEN'SHCHIKOV, V. YA., and DEMIDOV, N. N., State Central Order of Lenin  
Institute of Physical Culture

"Accuracy of Reproduction of Spatial and Temporal Parameters of Movements"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 7, 1972, pp 29-32

Abstract: In a study of motor memory, 13- to 14-year-old gymnasts were instructed to lie on their backs with hands behind their head and raise their right thigh by  $45^\circ$ , hold it there for two counts, return it to the original position, and after various intervals of time following practice attempts duplicate the amplitude of the movement. The mean error of the accuracy in reproducing the movement was  $2.46^\circ$  after a 1 minute interval,  $2.45^\circ$  after 3 minutes, and  $4.21^\circ$  after 5 minutes. To determine the accuracy of reproducing temporal characteristics, the subjects were asked to switch an electric stopwatch on and off at 0.5 sec intervals. The mean error of the accuracy of the movement following practice was 0.062 sec after a minute's rest, 0.09 sec after 3 minutes, and 0.10 sec after 5 minutes. Thus, the accuracy of reproduction of spatial and temporal characteristics of movements is directly related to the time intervals between them.

1/1

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USSR

UDC: 519.2

KORCHEMKIN, Yu. I., MEINIKHIN, P. I.

"Concerning the Problem of Defining the Concept of Probability"

Sb. nauch. tr. Mosk. inzh.-fiz. in-t. vech. otd. (Collected Scientific Works. Moscow Engineering Physics Institute. Night School Division), Chelyabinsk, 1971, pp 42-49 (from REK-Kibernetika, No 1, Jan 72, Abstract No 1V3)

[No abstract]

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USSR

UDC: 536.21+621.375.826

BELOSTOTSKIY, B. R., KUDRYASHEV, L. I., MEN'SHIKH, I. I.

"Nonlinear Problems in Cooling Strongly Anisotropic Optical Elements of Lasers"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 23-29

Abstract: An approximate method is developed for linearizing the system of differential equations which describes temperature distribution in strongly anisotropic elements of a laser optical system. The procedure can be used to evaluate the temperature state of an optical element of any configuration. Optical elements in the shape of a cylinder of finite length are considered by way of example. Bibliography of 9 titles.

1/1

USSR

UDC 576.858.25.0.8.396.332

AGABALYAN, A. S., MEN'SHIKH, L. K., and YERSHOV, F. I., Institute of Virology  
imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"Factors That Influence the Level of Infectiousness of Venezuelan Equine  
Encephalomyelitis Virus RNA"

Moscow, Voprosy Virusologii, No 5, 1971, pp 527-532

Abstract: The titers of infectious VEE virus RNA are highest after the cells are treated with 1 M NaCl solution for 15 min at room temperature. DEAE dextran (2 to 3 mg/ml) and protamine sulfate (0.3 to 0.6 mg/ml) added to the agar overlay increase the number and size of the plaques formed by RNA and intensify its infectiousness. The RNA titers are highest when the nuclei acid is adsorbed on the cells for 2 to 5 min at room temperature and at 37°C. Prolonging the adsorption time markedly lowers the titers of infectiousness. Treatment with RNAase completely neutralizes the infectiousness of RNA, whereas treatment of the original virus with the same enzyme has little or no effect in this respect. Immune serum against VEE virus has no effect on plaque formation caused by RNA preparations, but it greatly reduces the infectious titers of the original virus. Infectious RNA is  
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USSR

AGABALYAN, A. S., et al., Voprosy Virusologii, No 5, 1971, pp 527-532

resistant to heating, even to 56°C. Infectious RNA isolated either from a virus-containing suspension or from infected cells retains its activity for several weeks when stored at -20°C.

2/2



UDC 576.858.098.396.332.083.1

USSR

YERSHOV, F. I., GAYSKHOCKI, V. S., KISELEV, O. I., ZAYTSEVA, D. V., KENSHIKH,  
L. K., URYVAYEV, L. V., KEMFAN, S. A., and ZEDAKOV, V. M., Institute of  
Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow,  
Institute of Experimental Medicine, USSR Academy of Medical Sciences, Leningrad

"Replication of Infectious Viral RNA in Isolated Mitochondria. Report II:  
Replication of Viral RNA in Mitochondria and Characteristics of the Final  
Product"

Moscow, Voprosy Virusologii, No 3, May/June 71, pp 274-280

Abstract: It was of interest to establish whether isolated mitochondria could replicate virus RNA, that is whether "bacterial" ribosomes could synthesize the functionally active RNA polymerase, and whether the final product of virus-specific synthesis has infectious properties. H<sub>3</sub>-RNA isolated from purified Venezuelan equine encephalitis virus was used to study the function of virus RNA encasing in mitochondria. Contact between mitochondria and RNA was 30 minutes at 0°C. After this, the mitochondria were incubated under aerobic conditions for 2 hours at 37°C. After termination of the incubation period, RNA was separated by the phenol deproteinizing method and analyzed in a sucrose density gradient (5-30%). Peaks were found in the 40S and 26-20S region. The 40S area corresponds to RNA-ase and the 26-20S area to ribonu-  
1/2

- USSR"

YERSHOV, F. I., et al., Voprosy Virusologii, No 3, May/June 71, pp 274-280  
cleave-resistant material, the replicative form of viral RNA. The data obtained  
indicate that the predominant portion of viral RNA appearing in mitochondria  
does not participate in the replication process and its dehydration products  
show up in the top zone of the gradient. No radioactive products of mito-  
chondrial RNA translation were detected, which can be explained by the effective  
concentration of actinomycin D. As the newly synthesized RNA forms complexes  
with proteins, infectious activity increases. The complexes formed have  
subcellular structures and are separated from infected cells.

2/2

- 20 -

USSR

UDC 576.858.098.396.332.083.1

GAYTSKHOKI, V. S., YERSHOV, F. I., KISELEV, O. I., MENISHIKH, L. K., ZAYTSEVA O. V., YRYVAYEV, L. V., ZHDANOV, V. K., and NEYFAKH, S. A., Institute of Experimental Medicine, USSR Academy of Medical Sciences, Leningrad, Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

"Replication of Infectious Viral RNA in Isolated Mitochondria. Report I: Penetration of Viral RNA Into Mitochondria and Its Effect on Mitochondrial Synthesis"

Moscow, Voprosy Virusologii, No 3, May/Jun 71, pp 269-273

Abstract: Isolated rat liver mitochondria were incubated in a medium promoting oxidative phosphorylation and protein and RNA biosynthesis.  $H^3$ -RNA of Venezuelan equine encephalitis virus was added. It was found that after incubation, approximately 72% of the introduced radio-activity was in the mitochondria. It was concluded that the emergence of  $H^3$ -RNA of the virus in the mitochondria is not due to adsorption of RNA on the surface of these structures; instead, the cell fluid and actinomycin D stimulated RNA penetration. The distribution of viral RNA in mitochondrial subfractions was studied. Approximately 64% of the labeled RNA was found in the internal membrane and matrix fraction. Inhibition of RNA synthesis of mitochondrial protein was observed. The fraction of actinomycin-resistant protein synthesis

1/2

USSR

GAYTSKHOKI, V. S., et al., Voprosy Virusologii, No 3, May/Jun 71, pp 269-273

increases sharply. It was concluded that there maybe a link between the restructuring of mitochondrial ribosomes and the synthesis of mitochondrial proteins and virus-specific syntheses.

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- 19 -

2/

USSR

UDC 576.858

GAYTSKHOKI, V. S., YERSHOV, F. I., KISELEV, O. I., ~~MEY'SHIN, J. K.~~, ZAYTSEVA, O. V., URYVAYEV, L. V., ZHDANOV, V. M., Member of the Academy of Medical Sciences USSR, and NEYFAKH, S. A., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow, and Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Reconstruction of the Autonomous Genetic and Protein-Synthesizing System from Virus RNA and Isolated Mitochondria"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 1, 1971, pp 220-223

Abstract: In experiments performed on isolated mitochondria of rat liver incubated with H<sup>3</sup>-RNA obtained from purified Venezuelan equine encephalomyelitis virus, it was demonstrated that the virus RNA enters the mitochondria and is incorporated into their autonomous system of protein synthesis, for which the mitochondria supply the necessary energy. Transcription of the mitochondrial DNA is inhibited, the virus RNA is replicated, and thus virus proteins are synthesized.

1/1

USSR

UDC: 536.24:532.526

KUDRYASHEV, D. I., SMIRNOV, A. A., MEN'SHIKH, N. L.

"Approximate Solution of Problems on Heat Exchange and Drag in the Case of Flow Around a Sphere at Reynolds Numbers of  $1 < Re < 100$ "

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1971, vyp. 35, pp 28-41 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9B906)

Translation: Approximate formulation of the problem is based on introducing regions of hydrodynamic and thermal influence. By this is meant regions of finite size in which the normal component of velocity is taken as equal to zero, potential flow takes place on the outer boundary of the first region, and the temperature on the boundary of the second region is equal to that of the oncoming flow. With additional assumptions, the problem breaks down into two independent problems: dynamic and thermal, which are solved approximately on the basis of integral relations of momenta and energy. As a result, analytical formulas are derived for calculating the overall coefficient of friction drag, the overall Nusselt number, and the average surface temperature of the sphere. Bibliography of 15 titles.

V. A. Bashkin.

1/1

USSR

UDC 533.6.011

MEN'SHIKH, O. F.

"Toward a Theory of Tangential Convergence With Applications to Gasdynamics"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1971,  
No. 35, pp 143-154 (from RZh-Mekhanika, No 8, Aug 72, Abstract No BB401)

Translation: A unified method is given for deriving the equations of traveling waves of three-dimensional nonstationary isentropic movements of a gas. It is based on the application of a particular case of the tangential convergence to a system of gasdynamic equations. Systems of ternary and binary waves are obtained by transition to the limit in the case of the acoustical approximation and for flows of an incompressible fluid. 19 ref. Yu. B. Lifshits.

1/1

1/2 038 UNCLASSIFIED PROCESSING DATE--300CT70  
TITLE--PLANE UNSTEADY TRANSONIC GAS FLOWS -U-  
AUTHOR--MENSHIKH, D.F. M  
COUNTRY OF INFO--USSR  
SOURCE--MATEMATIKA, FEB. 1970, P. 53-58. 7 REFS. IZV V.U.Z.  
DATE PUBLISHED----FEB 70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--TRANSONIC FLOW, GAS FLOW, HODOGRAPH, FLOW ANALYSIS, CAUCHY  
PROBLEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/1535

STEP NO--UR/0140/70/000/000/0053/0058

CIRC ACCESSION NO--AP0118520

UNCLASSIFIED



UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 038

CIRC ACCESSION NO--AP0118520

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

ABSTRACT. HOLOGRAPHIC ANALYSIS OF A CLASS OF

PLANE UNSTEADY TRANSONIC GAS FLOWS. A CLASS OF SELF SIMILAR SOLUTIONS

TO AN EQUATION DESCRIBING SUCH FLOWS IS DERIVED. THE SOLUTIONS ARE USED

IN STUDYING UNSTEADY TRANSONIC GAS FLOWS IN SYMMETRIC CHANNELS. THE

CAUCHY PROBLEM OF A MONGE-AMPERE NONLINEAR EQUATION IS FORMULATED AND

SOLVED. AN EQUATION OF SONIC SURFACE IS OBTAINED. IT IS SHOWN THAT THE

MOTION OF THESE GAS FLOWS IN A PHYSICAL PLANE IS SELF SIMILAR.

UNCLASSIFIED

MEN'SHIKH O. F.

Kuznetsov, N. L.,  
 Zaslav, G. A.  
 Popov, L. M.  
 Gusev, V. G.  
 Korshakov, I. P.  
 Gerasimov, F. E.  
 Haylapar, O. I.  
 Khromov, A. B., Zab-  
 ritov, V. A.,  
 Kipchak, L. M.  
 Klyachin, L. M.,  
 Fofrikov, V. A.,  
 Khromov, A. B.  
 Men'shikh, O. F.  
 Men'shikh, O. F.  
 Kuznetsov, N. L.,  
 Zaslav, G. A.,  
 Popov, V. V.,  
 Obotnenko, Yu. L.  
 Deryugin, I. A.,  
 Petrov, V. V.,  
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(A7)

TECHNICAL TRANSLATION

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION  
PROCEEDINGS OF THE FIRST ALL-UKRAINIAN CONFERENCE, KIEV,  
SEPTEMBER 1968

FOREIGN TITLE: ПРОБЛЕМИ ПЕРЕДАЧІ ІНФОРМАЦІЇ ЛАЗЕРНИМ ІЗЛУЧЕННЯМ

AUTHOR: I. A. DERJUGIN, ET AL.

SOURCE: KIEV ORDER OF LEBIN STATE UNIVERSITY  
INHERIT T.O. SCHEREMENKO

Translated for FSTC by ACS1

NOTICE

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- File Page -

USSR

UDC 539.388.1

TSVILYUK, I. S., PYL'NIKOV, V. I., and MEH'SHIKH, V. A., Institute of Strength Problems, Ukrainian SSR Academy of Sciences (Kiev, Kaliningrad)

"Investigation of Some Characteristics of the Heat Resistance of Niobium Alloys 5VMTs, 5VMTsU, and 5VTTs at a Temperature of 1100°C"

Kiev, Problemy Prochnosti, No 11, Nov 73, pp 39-42

Abstract: The aim of the investigation is to establish the singularities of the resistivity of alloys 5VMTs, 5VMTsU, and 5VTTs to prolonged deformation and destruction, and on the basis of the mechanical characteristics to show, which of the indicated materials has higher heat-resistance characteristics.

Comparative results are presented of research on the long-term strength and creep characteristics of the above-named niobium alloys, obtained in a vacuum of  $10^{-5}$  torr at temperatures of 1100°C on the time basis of 3000 hours. Results of gas analysis of the tested specimens for oxygen content showed that essential saturation of the specimens with oxygen took place during the tests.

Comparative research on the heat resistance of the niobium alloys showed that alloys 5VMTs and 5VMTsU have greater heat-resistance characteristics

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USSR

TSVILYUK, I. S., et al., Problemy Prochnosti, No 11, Nov 73, pp 39-42


than does alloy 5VTs, in spite of the fact that alloy 5VMTsU has a higher content of carbon and zirconium than does alloy 5VMTs.

5 figures. 3 tables. 8 references.

2/2

USSR

UDC 621.396.6.019.3

  
MENSHIKOV, A. M.

"Determination of Tolerances on the Elements of a Band Phase Converter"

Tr. Mosk. in-ta inzh. zh.-d. transp. (Works of Moscow Institute of Railroad Transportation Engineers), 1970, vyp. 330, pp 110-118 (From ЭИИ-Радиотехника, No 8, Aug 70, Abstract No 8A185)

Translation: It is most expedient to calculate the tolerances beginning with the output tolerance and ending with establishment of tolerances for individual parts. Such a calculation becomes difficult as a result of absence of the "weight" functions of the errors of each of the elements. In this paper such functions are also obtained for a specific circuit, and the tolerances are calculated for its elements with respect to a given tolerance on the transfer function of the converter which is selected beginning with the given suppression of the nonoperating sideband in the single-band signal phase shapers. There are six illustrations and a three-entry bibliography.

1/1

USSR

UDC 621.372.5

MENSHIKOV, A. M.

"Band RC-Phase Converter"

Tr. Mosk. in-ta inzh. zh.-d. transp. (Works of Moscow Institute of Railroad Transportation Engineering), 1970, vyp. 330, pp 119-125 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No SA198)

Translation: A scheme is proposed for a band RC-phase converter with an increased transfer coefficient the transfer function of which is represented by a fourth-power polynomial. The schematic and values of the elements of the phase converter are presented. The weight functions obtained are presented in the form of formulas and graphs. There are four illustrations and a seven-entry bibliography.

1/1

1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--INCOHERENT MULTIPLE SCATTERING OF NEUTRONS -U-  
AUTHOR--(02)-MENSHIKOV, A.Z., BOGDANOV, S.G.  
COUNTRY OF INFO--USSR  
SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 252-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--INCOHERENT SCATTERING, MULTIPLE SCATTERING, NEUTR ON  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/0997 STEP NO--UR/0070/70/015/002/0252/0255  
CIRC ACCESSION NO--AP0124656  
UNCLASSIFIED



2/2 009  
CIRC ACCESSION NO--AP0124656

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANGULAR DEPENDENCE WAS INVESTIGATED OF INCOHERENT MULTIPLE SCATTERING OF NEUTRONS BY USING NEUTRON DIFFRACTOMETER DATA ON POLYCRYST. PLATELIKE V SAMPLES WITH THICKNESSES RANGING FROM 1.55 TO 29.75 MM. THE INTENSITY OF INCOHERENTLY SCATTERED NEUTRONS EXHIBITS A WEAK ANGLE DEPENDENCE FOR ALL THE SAMPLES STUDIED, A DECREASE OF THE INTENSITY BEING OBSD. IN THE LOW ANGLE REGION. BY COMPARING THE EXPTL. RESULTS WITH THOSE DEDUCED FROM THE THEORY OF VINEYRD (CA 49: 2200A), THE CONTRIBUTION OF INCOHERENT SCATTERING OF 4TH AND HIGHER ORDERS MAY BE NEGLECTED IN ALL THE CASES WHEN  $T\SIGMA_{SUBT}$  IS SMALLER THAN OR EQUAL TO 1, WHERE T IS THE SAMPLE THICKNESS AND  $\Sigma_{SUBT}$  IS THE TOTAL MACROSCOPIC CROSS SECTION INCLUDING BOTH SCATTERING AND ABSORPTION OF NEUTRONS. IT IS RECOMMENDED THAT INCOHERENT MULTIPLE SCATTERING BE ASSUMED IN EXPTL. DETG. THE EFFECTIVE INTENSITY OF AN INCIDENT NEUTRON BEAM. FACILITY: INST. FIZ. MET., SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC 669.15'24-194:539.125.517.2

~~MENSHIKOV~~, A. Z., ARKHIPOV, V. Ye., ZAKHAROV, A. I., and SIDOROV, S. K.,  
Institute of Metal Physics of the Ukrainian National Center of the Academy  
of Sciences USSR

"Atomic Correlation in Invar Ferro-Nickel Alloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp 309-  
315

Abstract: An experimental investigation was made of the nuclear diffusion scattering of neutrons on hardened specimens of ferro-nickel alloys (50, 65, and 70 at% Fe). The specimens contained the isotope of nickel 62 having a negative amplitude of scattering. The parameters of the short-range order ( $\alpha < 0$ ) in the first and the second coordination spheres were calculated by the method of least squares from experimental curves of the dependence of the differential scattering section on the wave vector. The calculation of the number of atoms in the first coordination sphere indicates that in hardened nickel alloys containing 65 and 70 at% Fe, a short-range order of the NiFe or NiFe<sub>3</sub> types is being established. A parallel investigation was made of the change of the linear expansion coefficient and parameters of the short-range order depending on the annealing temperature of the Invar alloy. The experiments revealed that temperature annealing, reducing to a development

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USSR

MEN'SHIKOV, A. Z., et al., Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp 309-315

of a short-range order, decreases the anomaly of the linear expansion coefficient. Therefore, the atomic correlation of the short-range-order type can only attenuate the Invar phenomenon, but it cannot be its source. Two figures, one table, fifteen bibliographic references.

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USSR

UDC 576.852.211.094

MEN'SHIKOV, D. D., DYKHNO, M. M., KOCHEMASOVA, Z. N., BYKOV, A. S., and TYURIN, V. S., Chair of Microbiology, First Moscow Medical Institute imeni I. M. Sechenov

"Ultrastructure of Drug-Sensitive and Drug-Resistant Mycobacterium Tuberculosis"

Moscow, Problemy Tuberkuleza, No 5, 1971, pp 64-68

Abstract: Electron-microscope study was conducted of five M. tuberculosis strains differing in resistance to such drugs as streptomycin, PAS, cycloserine, etc., to determine whether ultrastructural characteristics are related to drug sensitivity. The strains used were the stock strain 1646 and Nos 686, 946, 827, and 551 isolated from tuberculosis patients treated with tuberculostatic agents. While the strains differed from one another in electron density, thickness of the cell wall, presence of extracellular granules, and number of vacuoles, no correlation could be detected between any of these morphological features and sensitivity or resistance to drugs. For example, heavily vacuolated cells were found in both the sensitive strain 686 and in strain 551, which is particularly resistant to PAS and isoniazid.

1/1

USSR

UDC 621.391:519.2

MENSHIKOV, G. G.

M

"Method of Obtaining Periodic Signals"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 2  
(Materials of the Scientific and Technical Conference. Leningrad Electrotechnical  
Communications Institute, 1970, vyp. 1), Leningrad, 1970, pp 113-116 (from RZh-  
Radiotekhnika, No 8, Aug 70, Abstract No 8A88)

Translation: This article contains a discussion of a procedure for obtaining a sinusoidal signal based on filtering a square demand signal subject to auxiliary digital conversion. Expressions are presented for obtaining periodic signals in general.

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USSR

UDC 51.801

MEN'SHIKOV, I. I.

"Experiment in Syntax Calculus on the Basis of the Models of Contaminated Patterns"

V sb. Mat. i inform. probl. prognozir. i upr. naukoy (Mathematical and Information Problems of Forecasting and Control of Science -- collection of works), Kiev, 1971, pp 318-330 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V705)

Translation: The set of words of a natural language is subdivided into paradigmatic classes which are combined into four morphological categories. Then in accordance with the laws of syntax, the paradigmatic classes are combined into the syntagmatic classes functioning in the sentence by three categories in accordance with the hierarchy of subordination.

The sentence is written in the form of a chain of symbols (syntagmatic classes). By contamination of the chains the syntax description is presented in the form of a system of analytical expressions and it is qualified as a calculus.

10845

CSO: 1843-W

- END -

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USSR

UDC: 51

MEN'SHIKOV, S. M. (science editor)

"Problems of Constructing and Utilizing National Economic Models. Modeling of the United States Economy"

Problemy postroyeniya i ispol'zovaniya narodnokhozyaystvennykh modeley. Modeleirovaniye ekonomiki SShA. AN SSSR. Sib. otd. In-t ekon. i organiz. prom. proiz-va (cf. English above. Siberian Department of the Academy of Sciences of the USSR. Institute of Economics and Organization of Industrial Production), Novosibirsk, 1971, 332 pp, ill. 1 r. 32 k. (from RZh-Kiber-netika, No 5, May 72, Abstract No 5V433 K)

Translation: Articles are abstracted separately.

1/1

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USSR

UDC: 51

BAGRINOVSKIY, K. A., LEVITSKIY, Ye. M., MEN'SHIKOV, S. M.

"Intersectoral Dynamic Models of the United States Economy"

V sb. Probl. postroyeniya i ispol'z. narodnokhoz. modeley (Problems of Constructing and Utilizing National Economic Models--collection of works), Novosibirsk, 1971, pp 3-141 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V435)

[No abstract]

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USSR

UDC 543.42

MALYKH, V. D., MEN'SHIKOV, V. I., MOROZOV, V. N., SHIPITSYN, S. A.

"The Possibility of Using an Alternating-Current Arc in Atom-Absorption Analysis"

Minsk, Zhurnal Prikladnoy Spektroskopii, No. 1, Jan 72, pp 12-16

Abstract: A method for atom-absorption analysis of elements with the application of an alternating current arc is proposed; previous studies had proposed the use of a direct-current electric current as an atomizer in conducting atom-absorption analyses, but the initial studies showed that the sensitivity of atom-absorption measurements considerably exceeds the sensitivity of emission measurements. Absorption is measured with a stroboscope in the current pauses to avoid the disturbing effect of arc radiation, and this makes it possible to design a circuit for recording the absorption signal. The distribution of vapors of the material was established on the basis of the change in the optical density of the interelectrode gap, and the average rest period of the atoms was measured. Sensitivity data obtained for atom-absorption measurements of gold and silver in coal deposits show that the sensitivity was  $5 \cdot 10^{-5}\%$  for gold and  $3 \cdot 10^{-7}$  for silver. The studies established that the variable-current

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USSR

MALYKH, V. D., et al, Zhurnal Prikladnoy Spektroskopii, No. 1, Jan 72, pp 12-16

arc is a promising atomizer in atom-absorption analysis. It makes it possible to obtain high concentrations of atomic vapors in a brief time, and the absorption zone exceeds the excitation zone of the arc by more than a factor of 2-3. These factors ensure a high sensitivity of atom-absorption analysis for many elements. Studies of the optical density as a function of current phase and measurements of the delay time of the atoms in the interelectrode gap suggest that atom-absorption analysis in the arc current pause will have the high sensitivity only for elements with the low dissociation energies of oxygen molecules.

2/2

Publications

USSR

UDC 612

MEN'SHIKOV, V. V.

Gumoral'nye mekhanizmy regulyatsii funktsiy organizma v norme i patologii  
(Humoral Mechanisms of Regulation of the Functions of the Organism Under Normal  
and Pathological Conditions), Moscow, "Meditsina", 1970, 256 pp

**Excerpts:**

This book contains data from the area of bio-chemistry, molecular biology, physiology and information theory, upon which contemporary concepts concerning the regulation of functions of the organism are based. An outline is presented of the evolution of the mechanisms of biological regulation.

The author sets forth an idea of the functional organization of the humoral regulatory mechanism, presents a system of laboratory methods for its study, allowing the status of the various branches of this mechanism to be estimated, and discusses various humoral regulatory disorders arising with various types of human pathology. On the basis of these concepts, a single approach is suggested for interpretation of the results of studies of hormones and mediators in the biological fluids of patients.

1/5

USSR

MEN'SHIKOV, V. V., *Gumoral'nye mekhanizmy regulyatsii funktsiy organizma v norme i patologii*, "Meditsina", 1970, 256 pp

Practical means are suggested for correcting regulatory disorders.

The book is of interest for specialists in the area of clinical bio-chemistry and physiology, as well as for practicing doctors: therapists, surgeons, endocrinologists and pediatricians.

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USSR

MEN'SHIKOV, V. V., *Gumoral'nye mekhanizmy regulyatsii funktsiy organizma v norme i patologii*, Moscow, "Meditsina", 1970, 256 pp

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USSR

MEN'SHIKOV, V. V., *Humoral'nye mekhanizmy regulyatsii funktsiy organizma v norme i patologii*, Moscow, "Meditsina", 1970, 256 pp

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USSR

MEH'SHIKOV, V. V., *Gumoral'nye mekhanizmy regulyatsii funktsiy organizma v norme i patologii*, Moscow, "Meditsina", 1970, 256 pp

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USSR

UDC: 577.1:615.7/9

TREGUBENKO, I. P., SEMENOV, D. I., SLEKHACHEVA, Ye. I., MEN'SHINOVA, G. A.,  
BELOVA, M. N.

"Accessibility of Yttrium-91 Deposited in the Tissues of an Organism for  
Diethylenetriaminepentaacetic Acid Sodium Salt"

Tr. In-ta ekol. rast. i zhivotnykh. Ural'sk. fil. AN SSSR (Works of the  
Institute of Animal and Plant Ecology. Ural Affiliate, Academy of Sciences  
of the USSR), 1970, vyp. 68, pp 87-94 (from RZh-Biologicheskaya Khimiya,  
No 23, 10 Dec 70, Abstract No 23F8206)

Translation: The paper demonstrates the parallelism between the effective-  
ness of diethylenetriaminepentaacetic acid sodium salt and the concentration  
of yttrium-91 in the kidneys and liver. M. Sh.

1/1



USSR

UDC: 577.1:615.7/9

TREGUBENKO, I. P., SEMENOV, D. I., SUKHACHEVA, Ye. L., METUCHENKOVA, G. A.,  
BELOVA, M. N., TARAKHTY, E. A.

"Accessibility of Radioactive Cerium for Extraction From an Organism by  
Diethylenetriaminepentaacetic Acid. Relationship Between the Quantity  
Extracted and That Contained in the Organism"

Tr. In-ta ekol. rast. i zhivotnykh. Ural'sk. fil. AN SSSR (Works of the  
Institute of Animal and Plant Ecology. Ural Affiliate, Academy of Sciences  
of the USSR), 1970, vyp. 68, pp 81-86 (from RZh-Biolo. i Meditsina,  
No 23, 10 Dec 70, Abstract No 23F22004)

Translation: The amount of cerium-144 extracted by the complexing agent in  
the daily urine of rats amounts to  $\frac{1}{10}$  of the quantity of the isotope ob-  
tained in all soft tissues (the cerium in the skeleton does not participate  
in this process). This is the actual ratio for various periods after taking  
the complexing agent (from the 8-th to the 126-th day of the experiment) in  
a dose of 100  $\mu$ moles in a rat. Repeated injection of the complexing agent  
does not change this ratio when the cerium extracted with the first injec-  
tion is taken into account. From the authors' resumé.

1/1

USSR

UDC: 661.143:534-8

KRAVKOVA, I. A., MANDRUGIN, V. A., MEN'SHIKOVA, N. I., SAVU-KHINA, T. A.

"Treating Suspensions of Electrophosphors and Titanium Dioxide in an Acoustic Field"

Sb. nauch. tr. VNI lyuminoforov i osobo chist. veshchestv (Collected Scientific Works of the All-Union Scientific Research Institute of Phosphors and Extra Pure Materials), 1971, vyp. 5, pp 114-118 (from RZh-Khimiya, No 7, Apr 72, Abstract No 7L183)

Translation: A method is proposed for preparing suspensions of electro-luminescent composition of all fluorescence colors as well as TiO<sub>2</sub> in suspension in an ultrasonic installation. In this connection, there is an appreciable reduction in the time of preparation of the suspensions (by a factor of 6-8), and an improvement in the quality of the electro-luminescent and reflecting layers. Resumé.

3/1

USSR

UDC: 621.315.592

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"Feasibility of Making Photodiodes Based on Single Crystal Germanium  
Strips Grown by the Stepanov Method"

Moscow, Izv. AN SSSR, Ser. Fizicheskaya, Vol 36, No 3, Mar 72, pp 525-528

Abstract: A study is made of the possibility of growing gallium arsenide epitaxially on germanium single crystal strips, and producing photodiodes from the resultant structures. The single crystal germanium strip was grown by the Stepanov method, using a floating shaper and a seed holder on a flexible suspension. A gas-transport reaction in an open tube was used for growing the epitaxial layer of gallium arsenide. The pn junction was formed by arsenic diffusion. Mesa photodiodes were made by photolithography. It was found that the integral sensitivity of photodiodes based on single crystal strips is greater than that of diodes based on ordinary germanium. This is attributed to the thinner epitaxial layer of GaAs since losses of light are proportional to the thickness of this layer. This is confirmed by spectral characteristics.

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UDC 617:355(049.3)

MEN'SHOV, A. A., Candidate of Medical Sciences (Reviewer)

~~Khirurgicheskaya Pomoshch' na Etapakh Evakuatsii Meditsinskoy Sluzhby~~  
Grazhdanskoy Oborony (Surgical Aid at the Evacuation Stations of the Civil  
Defense Medical Service), by V. A. Polyakov and B. M. Khromov, 1969, 360 pp

Moscow, Sovetskaya Meditsina, No 12, 1970, pp 131-133

Abstract: A semicritical review is presented of the contents of a book which effectively fills a gap in one of the most important branches of the civil defense medical service, providing surgical treatment in the event of warfare involving the use of weapons of mass destruction. The work, a joint effort by over a dozen surgeons, contains chapters describing the types of injuries caused by nuclear weapons, organizational principles and scope of surgical care of evacuation stations of the civil defense medical service, traumatic shock, thermal and radiation burns, scope of first aid, transfusion of blood and blood substitutes, and treatment of injuries to the skull and brain, face and jaws, neck, chest, abdomen, pelvis, and spinal column.

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USSR

UDC 613.644:621.431.75

MEN'SHOV, A. A. and ZAGURSKAYA, L. A., Institute of Industrial Hygiene and Occupational Diseases and Institute of Civil Aviation Engineers

"Hygienic Evaluation of Intermittent Noise Produced by Testing Hydraulic Aviation Units"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 10, 1971, pp 9-12

Abstract: Workers in aircraft repair plants are exposed to noise levels ranging from 88 to 107 db (14 to 18 db above state standards) lasting about 4 min and alternating with 2 min pauses during which the background noise (from adjacent work areas) ranges from 68 to 90 db. The results of hearing and other physiologic tests given to 6 men aged 28 to 35 with 1 to 3 years experience on the job showed little significant change 3 hours after the end of work in auditory sensitivity, the threshold rising no more than 10 db, i.e., within the limits of auditory adaptation. However, pronounced changes were observed in the critical frequency of "acoustic flickers" (decrease from about 134 to 120 flickers a second), muscular endurance (decrease from 117 to 92 sec), and slowing of the pulse (from 73 to 68 beats per min). These indexes did not return to normal even after 30 min of rest following the end .  
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MEN'SHOV, A. A. and ZAGURSKAYA, L. A., Gigiyena Truda i Professional'nyye Zabolevaniya, No 10, 1971, pp 9-12

of the work shift. Arterial pressure, short-term memory, and rate of performance of psychophysiological tests remained normal.

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MDC 613.644:69

M  
MEN'SHOV, A. A., VINOGRADOV, D. V., and BARON, A. M., Kiev Institute of Industrial Hygiene and Occupational Diseases and Moscow Engineering and Construction Institute

"Hygienic Evaluation of Low-Frequency Vibrations in the Cabins of Crane Turrets"

Moscow, Gigiyena i Sanitariya, No 5, 1970, pp 32-36

Abstract: The nature of the vibrations in the cabins of four different types of building cranes (KB-160.2, KB-100.0, MBTK-80, and BK-180) and the state of several physiological functions in crane operators were studied. Vibrations produced by the different operations (raising and turning the crane arm, simultaneous functioning of all the mechanisms, etc.) were tabulated. All four types of cranes produced low-frequency vibrations, but the intensity varied with the height of the cabin and the specific construction of each crane. Investigation of the vestibular apparatus, visual analyser, and nervous system showed that while handling the cranes, most operators exhibited increased excitability of the vestibular apparatus nystagmus, narrowing of the visual field, and neurologic disturbances (increased fatigue, inhibition, impairment of short-term memory, and decreased attention span. The disturbances were most pronounced in those operating cranes at a height of 40 m.

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UDC 331.82.015.11:629.78+613.693+154.4

MEN'SHOV, A. I.

Kosmicheskaya ergonomika (Space Ergonomics), Leningrad, "Nauka," 1971, 295 pp

Translation: Annotation: This book discusses the problems that arise in connection with a quantitative analysis of the characteristics of the man-machine system functioning in spacecraft. Based on a review and generalization of the extensive experimental data, the author describes in detail the characteristics and behavior of man as a receiver of information, his capacity, and his ability to endure discomfort during spaceflight. The quality of the cosmonaut's performance of certain specific operations and functions (control, visual observation, etc.) is also analyzed. The main parameters of life support systems are examined and also the cosmonauts' physical fitness, as well as the principles for designing suitable on-board systems. A method for quantitative analysis of human activity and its effectiveness is suggested using the mathematical apparatus of mass maintenance theory and general criteria of operations research theory. An optimum distribution of functions between the crew and automatic equipment can be achieved. Features of the planning, development, and operation of manned spacecraft are examined briefly. 162 illustrations, 61 tables, and bibliography of 280 references.

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MEN'SHOV, A. I., Kosmicheskaya ergonomika (Space Ergonomics), Leningrad, "Nauka," 1971, 295 pp

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