USSR

DOLGOVA, Z. Ya., and KARATYSH, B. V., Voprosy Meditsinskoy Khimii, Vol 18, Vyp 1, Jan/Feb 72, pp 73-75

of ascorbic acid 1, 2, 5 hr, and 1 day after removal from the low-temperature chamber. It remained below control level in heart, adrenal glands, and skeletal muscles 5 days after hypothermia. It did not normalize in skeletal muscles 7 days after hypothermia. The concentration of ascorbic acid in blood plasma increased to 126.6-131.6% in rats of the first group and to 133.3-200% in rats of the second group 2 hours after hypothermia. Thereafter it decreased to a normal level.

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USSR UDC 615.832.9.015.45:612.014:612.015.642-06:612.444

DOLGOVA, Z. Ya. and KARATYSH, B. V., Semipalatinsk Medical Institute

"Effect of Thyroid Hormones on the Distribution of Ascorbic Acid in Rats Exposed to Hypothermia"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 5, 1971, pp 72-74

Abstract: Both hyperthyroidism and hypothyroidism experimentally induced in rats significantly reduced the ascorbic acid content of the adrenals, brain, heart, liver, skeletal muscles, and blood plasma. Mild hypothermia (chilling to a rectal temperature of 29 to 32°) in the hyperthyroid rats further lowered the ascorbic acid levels of the above organs but raised them substantially (by a factor of 2) in the plasma. The effect in the hypothyroid animals was the same but less pronounced. Deep hypothermia (chilling to a rectal temperature of 19 to 22°) in the hyperthyroid rats lowered the ascorbic acid levels of the tissues but raised them (by a factor of 3) in the plasma. Deep hypothermia in the hypothyroid animals produced similar changes in the vitamin C balance. However, the changes were more pronounced in the heart and liver than in the same organ of the hyperthyroid animals.

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USSR

UDC 533.082.5,621.039.663

DOLGOV-SAVEL'YEV, G. G., KARNYUSHIN, V. N., Novosibirsk

"Determination of the Temperature of a Laser Plasma on the Basis of Study of Radiation in the X-Ray and Physical Areas of the Spectrum"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 1, 1972, pp 114-117.

Abstract: Measurements in the soft x-ray radiation range by the foil method were used to determine the temperature of a laser plasma as about 20 eV. Measurements of radiation intensity in the continuous spectrum in the visible area indicate that use of temperature of about 15 eV for the sectors of the plasma not transparent in the visible area of the spectrum. The experimental apparatus and method are described. The set of experimental data produced indicate plasma temperatures at the moment of the maximum of the laser pulse of 15 ± 2 eV. The drop in temperature with time following the end of the laser pulse, based on the spectral intensity of the integral radiation of the plasma is significantly slower than that indicated by the t^{-2} rule, which should obtain with adiabatic expansion of the gas mass with adiabatic index $\gamma = 5/3$ with radial distribution of velocities $v = \dot{R}r/R$, where $\dot{R}$ and r are the asymptotic velocity and radius of the boundary of the area of gas covered by self-similar motion. This effect may be partially related with intensive processes of three-particle recombination in the dense plasma.

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Acc. Nr: AP0043679 DOLGOV-SAVELYEV G.G.
Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 2, pp 535-540

INVESTIGATION OF A LASER MICROPLASMA IN THE FOCUS OF TWO LASER BEAMS

Dolgov-Savel'yev, G. G.; Karnyushin, V. N.; Sekerin, V. I.

Results are presented of an experimental investigation of the properties of a plasma produced by focussing two opposite laser beams onto small crystalline lithium hydride targets. It is found that development of plasma formation proceeds in a more symmetric manner than in the case of a single laser beam. The velocity of separation of the external plasma layer is measured ($v \approx 4 \cdot 10^7$ cm/sec) as well as the velocity of the glowing boundary of the central zone ($v' \approx 2 \cdot 10^5$ cm/sec).

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REEL/FRAME
19770083

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1/2 043 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--POSSIBLE CREATION OF A CARBON DIOXIDE LASER WITH ELECTRON BEAM PUMPING -U-
AUTHOR-(04)-DOLGOVSAVELYEV, G.G., KUZNETSOV, V.V., KOZMINYKH, YU.L., ORISHICH, A.M.
COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(4), 737-9

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CARBON DIOXIDE LASER, ELECTRON BEAM, LASER PUMPING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0094 STEP NO--UR/0368/70/012/004/0737/0739

CIRC ACCESSION NO--AP0127721
UNCLASSIFIED

2/2 043 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127721

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF A TRANSVERSE ELECTRON BEAM ON THE OUTPUT POWER W OF A CO SUB2 PULSED LASER WAS STUDIED BY MEASURING W OF THE LASER AS A FUNCTION OF CO SUB2 PRESSURE AT A CONST. DISCHARGE VOLTAGE (2 KV) AND THE PULSE DURATION ((1-2) TIMES 10 PRIME6 NEGATIVE SEC) WITH AND WITHOUT THE ELECTRON BEAM (0.5 MEV, SIMILAR TO 5 A, AND 2 TIMES 10 PRIME6 NEGATIVE SEC PULSE DURATION) APPLICATION AND WITH AND WITHOUT THE ADDN. OF XE, AG, NE, HE, AND N. IN PURE CO SUB2 AND DISCHARGE WITH AND WITHOUT THE APPLICATION OF THE ELECTRON BEAM, A STABLE GENERATION WAS OBSD. AT LESS THAN OR EQUAL TO 30 TORR. AT GREATER THAN 30 TORR, THE GENERATION WAS UNSTABLE. A MAX. W WAS OBSD. AT 8-10 TORR. IN BOTH CASES (WITH AND WITHOUT ELECTRON BEAM APPLICATION) W INCREASES LINEARLY WITH CO SUB2 PRESSURE, BUT THE INCREASE WAS MARKEDLY HIGHER IN THE PRESENCE OF THE ELECTRON BEAM. THE RATION OF W WITHOUT THE ELECTRON BEAM TO W WITH THE ELECTRON BEAM INCREASES WITH PRESSURE FROM 1 TO 2.5-3. THIS RATIO WAS MARKEDLY HIGHER IN THE PRESENCE OF XE OR AG. THE ADDN. OF NE, HE, OR N HAVE PRACTICALLY NO EFFECT ON THE LASER GENERATION. THE MARKED INCREASE IN THE OUTPUT POWER OF THE CO SUB2 LASER WITH THE APPLICATION OF AN ELECTRON BEAM IS ATTRIBUTED TO THE EFFECT OF THE ELECTRON BEAM ON THE ELECTRON ENERGY DISTRIBUTION FUNCTION.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--FAST MEASUREMENT OF SPECTRAL LINE WIDTHS AND SHIFTS WITH THE AID OF A FABRYPEROT INTERFERROMETER -U-

AUTHOR-(02)-SEKERIN, V.I., DOLGOVSAVELYEV, G.G.

COUNTRY OF INFO--USSR

SOURCE--PRIBORY I TEKHNIKA EKSPERIMENTA, JAN.-FEB. 1970, P. 182-184

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LINE WIDTH, LINE SHIFT, FABRY PEROT INTERFEROMETER, SPECTROGRAPH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1591 STEP NO--UR/0120/70/000/001/0182/0184

CIRC ACCESSION NO--AP0106297

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106297

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF AN APPARATUS FOR MEASURING SPECTRAL LINE WIDTHS AND SHIFTS IN SPECTRAL LINE CONTOURS WITH THE AID OF A SPECTROGRAPH CROSSED WITH A FABRY-PEROT INTERFEROMETER PLACED IN A PRESSURE CHAMBER FOR ALIGNMENT RELATIVE TO THE INTERFERENCE MAXIMUM. USING PHOTOMULTIPLIERS AS THE RECORDING DEVICES, THE MAGNETIC FIELD IN A SOLENOID IS MEASURED WITH THIS APPARATUS BY RECORDING THE BROADENING OF THE 5s6D-1 MERCURY LINE. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT LADERNOI FIZIKI, NOVOSIBIRSK, USSR.

UNCLASSIFIED

1/2 038 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--GENERATION IN THE 2.8 MU M RANGE INVOLVING VIBRATIONAL ROTATIONAL TRANSITIONS IN THE HF MOLECULE -U-

AUTHOR-(03)-DOLGOVSAVELYEV, G.G., POLYAKOV, V.A., CHUMAK, G.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 4, PP 1197-1203

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MOLECULAR KINETICS, PULSE SIGNAL, ILLUMINATION, ELECTROMAGNETIC WAVE GENERATION, GAS PRESSURE, URANIUM HALIDE, FLUORIDE, HYDROGEN, FLUORINE, ROTATIONAL SPECTRUM, HYDROGEN FLUORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1938/1524 STEP NO--UR/0056/70/059/004/1197/1203

CIRC ACCESSION NO--AP0106280

UNCLASSIFIED

2/2 038 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0106280

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GENERATION OF WAVES IN MOF SUB6 PLUS H SUB2, OF SUB6 PLUS H SUB2 AND F SUB2 PLUS H SUB2 MIXTURES AT PRESSURES UP TO 120 MM HG IS INVESTIGATED. IT IS SHOWN THAT FOR A 10 MU SEC ILLUMINATION PULSE THE GENERATION DURATION IN F SUB2 PLUS H SUB2 MIXTURE IS MUCH LARGER. THIS SIGNIFIES THAT FORMATION OF INVERSE POPULATION OCCURS AS A RESULT OF A CHEMICAL REACTION.

FACILITY: INST. YADERNOY FIZIKI SIBIRSKOGO OTD. AN SSSR.

UNCLASSIFIED

USSR UDC 616.441-091/-092-02:615.832.9

GLUMOVA, V. A., and DOLGOVA, Z. YA., Department of Histology and Department of Biochemistry, Semipalatinsk Medical Institute

"Thyroid Function During Hypothermy and Thereafter"

Moscow, Arkhiv Patologii, No 5, 1971, pp 20-25

Abstract: Thyroid function was studied in white rats during and after hypothermy and against a background of hypo- and hyperthyroidism. Thyroid function was assessed from morphological and radiometric changes, enzymic activity, and ascorbic acid level. Chilling the animals to a rectal temperature of 18 to 19° (deep hypothermy) markedly inhibited thyroid activity. The morphological (e.g., hyperemia of the blood vessels, dilatation of the lumens of the capillaries, and focal hemorrhages) and other changes characteristic of thyroid hypofunction were accompanied by a drop in ascorbic acid level and depression of enzyme (dehydrogenase, ph, phosphatase, cytochrome oxidase) activity. Thyroid function did not return to normal until about one month after chilling. Hypothyrodism (induced with 6-methylthuouracil) after chilling inhibited thyroid function more deeply than did hyperthyroidism (induced with thyroidin). The results of the study show that thyroid hormones are involved in the alteration of thyroid tissue after deep hypothermy.
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USSR UDC 612.441.014.43

DOLGOVA, Z. Ya., and GLUMOVA, V. A., Chair of Biochemistry and Histology, Semipalatinsk Medical Institute

"Characteristics of the Functional State of the Thyroid Gland Upon Lowering the Temperature of the Internal Environment of the Organism"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 8, Aug 70, pp 39-43

Abstract: Artificial hypothermia was produced in rats by cooling the animals to a rectal temperature of 18-19°C. The activity of dehydrogenases, phosphatases, and cytochrome oxidase, as well as the level of ascorbic acid in the thyroid gland tissue, decreased. In addition, the capacity of the thyroid gland to accumulate I^{131} was reduced. When hypothyrosis was produced in animals by administration of 6-methyluracil, changes in the thyroid gland due to hypothermia were more pronounced. These changes were less pronounced when hyperthyrosis was produced by the administration of thyreiodin.

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Devices

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UDC 681.327

DOLGOVESOV, B. S., KOVALEV, A. M., KOTOV, V. N., LUBKOV, A. A., NESTERIKHIN, YU. YE., OBERTYSHEV, K. F., TOKAREV, A. S., YAKIMOVICH, A. P., Novosibirsk

"Problems of Constructing Devices for Operative Interaction of Man with a Computer"

Novosibirsk, Avtometriya, No 2, 1972, pp 35-39

Abstract: Two types of devices corresponding to the basic requirements for systems for operative interaction of man with a computer -- a computer operating in the time sharing mode and peripheral devices numbering from 1 to 1,000 -- have been developed at the Institute of Automation and Electrometry of the Siberian Department of the USSR Academy of Sciences. One of these devices -- the Ekran -- was discussed previously [B. S. Dolgovesov, et al, Avtometriya, No 4, 1971; B. S. Dolgovesov, et al., Avtometriya, No 4, 1971; A. M. Kovalev, et al., Avtometriya, No 4, 1971]. The other -- the Simbol -- is investigated in the present article. A block diagram of the Simbol alphanumeric system is presented, and the algorithms for the various operating modes of the system are discussed. The algorithms of all modes of the system are executed by means of a microprogram control circuit. An effort was made to achieve the fastest possible system for which the principal cycle of the microprogrammed control unit was reduced to a minimum. Where possible the single pulse instructions

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DOLGOVESOV, B. S., et al., Avtometriya, No 2, 1972, pp 35-39

are processed simultaneously; a very high cycle frequency is selected — 2.5 millihertz. The operating logic of the device can be changed. One of the basic parameters of the operative interaction device along with broad functional possibilities is the information capacity. Thus, much attention was given to the high speed of individual units, in particular, the speed of the symbol genorator. The programmed segment method was used as the basis for constructing the symbol generator which provides 1,024 symbols with an image regeneration frequency of 50 hertz. An example image photograph from the Simbol screen is shown.

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USSR

UDC 536.24:536.42

KIRICHENKO, YU. A., CHARKIN, A. I., DOLGOY, N. I.

"Study of the Dynamics of Vapor Bubbles under the Conditions of Simulating Weak Gravitational Fields"

Tr. Fiz.-tekh. in-t nizk. temperatur AN USSR (Works of the Physico-Technical Low-Temperature Institute of the Ukrainian SSR Academy of Sciences), 1970, vyp. 1, pp 184-196 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B686)

Translation: A kinematographic study was made of the dynamics of vapor bubbles when boiling liquid oxygen and diethyl ether under the conditions of simulating weak mass force fields. The simulation was carried out under laboratory conditions by two procedures developed at the Physico-technical Low-Temperature Institute of the Ukrainian SSR Academy of Sciences: the method of "suspending" the liquid paramagnetic substance -- oxygen -- in a nonuniform magnetic field and the method of expanding the gravitational force in components in thin inclined containers. The relations were obtained for the separating diameter, the separating frequency, the growth rate and the rate of ascent of the vapor bubbles as a function of the simulated gravitational acceleration. The bibliography has 20 entries.

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1/2 039 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--BOILING IN FLAT INCLINED CONTAINERS SIMULATING WEAK GRAVITATIONAL FIELDS -U-

AUTHOR-(02)-KIRICHENKO, YU.A., DOLGOY, M.L.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(1), 130-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--BOILING, ARTIFICIAL GRAVITY, WEIGHTLESSNESS, CONVECTIVE HEAT TRANSFER, HEAT TRANSFER COEFFICIENT, WATER, ETHANOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0933 STEP NO--UR/0294/70/008/001/0130/0135

CIRC ACCESSION NO--AP0107462

UNCLASSIFIED

2/2 039 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0107462
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDIES WERE CARRIED OUT UNDER REDUCED GRAVITY DOWN TO WEIGHTLESSNESS ON BUBBLE AND BOILING FILM HEAT TRANSFER OF H SUB2 O, ETOH, AND ET SUB2 O. LONG DURATION EXPTS. YIELDED CRIT. HEAT FLOWS AND HEAT TRANSFER COEFFS. AS FUNCTIONS OF GRAVITY FORCE. FACILITY: FIZ.-TEKH. INST. NIZKIKH TEMP., KHARKOV, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--INTRADISCAL BLOCKADE AND DERECEPTION IN THE TREATMENT OF DISCALGETIC SYNDROMES OF OSTEOCHONDROSIS OF THE SPINE -U-

AUTHOR-(02)-DOLGUN, A.P., ALIMPIYEV, I.N.

COUNTRY OF INFO--USSR

SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 6, PP 36-40

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BONE DISEASE, ANALGESIC DRUG, SYNDROME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0909 STEP NO--UR/9115/70/000/006/0036/0040

CIRC ACCESSION NO--AP0129974

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0129974
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR TREATMENT OF REFLECTED AND REFLEX SYNDROMES OF THE CERVICAL AND LUMBAR OSTEOCHONDROSIS, IN 92 PATIENTS AFTER CLINICO ROENTGENOGRAPHIC EXAMINATION WITH USE OF DISCOGRAPHY THE AUTHORS APPLIED THE NOVOCAIN AND ALCOHOL NOVOCAIN BLOCKADES OF THE DISCS. THE NOVOCAIN INTRADISCAL BLOCKADE AND DERECEPTION PROVED TO BE A SIMPLE AND EFFECTIVE METHOD OF TREATMENT OF REFLEX AND REFLECTED SYNDROMES OF SPINE OSTEOCHONDROSIS.
FACILITY: KAFEDRY NEYROKHIRURGII NOVOKUZNETSKOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY.

UNCLASSIFIED

DOLGUN, Z. S.

Physiology

SO: JPRS 53801

18 Aug 71

UDC 612.015.3:547.737-06:612.766.2

EFFECT OF PROLONGED HYPOKINESIA ON SEROTONIN METABOLISM IN RATS

[Article by Z. S. Dolgun, S. I. Novikova and V. S. Shashkov, Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 1, 1971, pp 12-15, submitted 19 May 1970]

Abstract: A study was made of the effect of prolonged hypokinesia on serotonin (5-HT) metabolism in rats. It was found that motor activity restriction causes substantial 5-HT metabolism shifts. The most marked deviations from normalcy in the 5-HT content in the duodenal blood and tissue, and also in the excretion of the metabolite of 5-HT 5-hydroxyindolylacetic acid (5-HIAA) in the urine, were observed on the first-third and thirteenth-fifteenth days of hypokinesia. Prolonged (more than 60 days) hypokinesia leads to a considerable increase in the blood 5-HT content; on the 30th and 45th days after "emergence" from hypokinesia the blood 5-HT content remains high.

Serotonin (5-hydroxytryptamine, 5-HT) is present in the tissues of virtually all species of animals. The literature contains information on the participation of 5-HT in regulating motor, cardiovascular, digestive and other functions and body systems. It is regarded as a substance closely associated with the body endocrinal function, as an antidiuretic hormone, as a blood pressure regulator, hemostatic, anaphylactic and antiradiation agent, a growth factor, nervous system mediator, etc.

According to data in the literature from recent years, 5-HT, depending on body functional state, can intensify the effect of both the sympathetic and parasympathetic nervous systems. This made it possible to determine 5-HT as a mediator of the nervous system trophotropic function unrelated to any one part of it (Brodie).

An examination of animals returning from brief spaceflight revealed definite shifts in the 5-HT blood content (V. S. Shashkov, et al.). It is

DOLGUN, Z. S.

Space Physiology

SO: JPRS 54396
03 NOV 71

UDC 612.129:547.757/.014.45.014.47:613.693

METHOD FOR DETERMINING SEROTONIN (5-HYDROXYTRYPTAMINE) IN THE INTACT BLOOD OF RATS

(Space Physiology) 6309752

[Article by Z. S. Dolgun, S. P. Novikova and V. S. Shashkov; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 5, No 4, pp 69-71, 1971, submitted for publication 23 April 1970]

In a study of the effect exerted on the body by extremal factors it is of considerable interest to determine serotonin (5-HT) in the blood of experimental animals.

The experiments made by some authors revealed that weightlessness, vibration, noise and spaceflight itself exert an effect on the 5-HT content in blood and tissues. Due to the need for further investigations in this direction we formulated the problem of developing methods for determining 5-HT in a small quantity of blood suitable for standard analyses of a large number of samples.

Existing methods for determinint 5-HT in small volumes of blood have a number of shortcomings. The most sensitive method is the biological method, but the accuracy in determining 5-HT is dependent on the sensitivity of the biological test and condition of the animal from which the organ is taken as a test object. In addition, this method is extremely time consuming and unproductive.

The several biochemical methods for determining blood 5-HT require quite large quantities of blood (6-9 ml).

Waalkes, et al. proposed a specific method for determining blood 5-HT by modifying the Yudenfriend method. The use of this method requires 3 ml of blood; this was unacceptable under our conditions. Snyder, et al. described a method for determining 5-HT in the tissues of animals using ninhydrin; this made possible an eightfold increase in method sensitivity.

We used the method developed by Snyder, et al. for determining blood 5-HT, precipitating proteins by the method devised by Waalkes, et al.; during the first stage of 5-HT extraction butanol was used instead of the usual acidic method. The latter was first proposed for extraction by Ansell, et al. (1968).

USSR D 620.1.05:539.893:531.787:62.5

DOLGUSHIN, G. G., ISAYEV, YU. I.

"Universal Test Stand for 20,000 kg/cm^2 Pressure"

Tr. Metrol. In-Tov SSSR, Vyp. 104(164), [Works of Metrological Institutes of USSR, No. 104(164)], pp 144-147 (translated from Referativnyy Zhurnal Metrologiya I Izmeritel'naya Tekhnika, No. 4, 1970, Abstract No. 4.32.715 by M. I. M.)

Translation: A universal device for the performance of various research operations in the range of high pressures up to 20,000 kg/cm^2 is described. The installation includes units for the creation and measurement of pressure, control devices and protective devices. The technical characteristics of the test stand are presented. The highest operating pressure of the generator is 20,000 kg/cm^2; the volume of liquid delivered by one stroke of the multiplier piston is 10 cm^3; the error in pressure measurement is not over 1.0 percent of the measured quantity; the dimensions of the protective casing of the generator are 1700 by 920 by 1950 mm; the highest operating pressure of the pumps and hand presses of the control panel are 2500 and 400 kg/cm^2 respectively; the delivery per stroke is 0.5 and 20 cm^3. Two illustrations, two biblio. refs.

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USSR

532.1:531.787

YEREMEYEV, A. YE., DOLGUSHIN, G. G.

"Pressure Transmitting Liquid Separator"

Tr. Metrol. In-Tov SSSR, Vyp. 104(164), [Works of Metrological Institutes of USSR, No. 104(164)], pp 164-165 (translated from Referativnyy Zhurnal Metrologiya I Izmeritel'naya Tekhnika, No. 4, 1970, Abstract No. 4.32.723, unsigned)

Translation: The design is described of a separator designed to operate with large volumes of liquids (up to 300 cm^3) in the pressure range up to 3500 kg/cm^2. One illustration.

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DOLGUSHIN, L. D. Glaciology

CATASTROPHIC ADVANCES OF GLACIERS

[Article by Doctor of Geographic Sciences L. [illegible] and Candidate of Geographic Sciences A. N. [illegible] Akademii Nauk SSSR, Russian, Vol [illegible], No [illegible], June [illegible]

The rapid advance of glaciers, connected with an increase in the rate of movement of ice by one to three orders of magnitude as compared with the usual rates, have long attracted the attention of investigators. Such advances, which have often led to natural calamities, have been linked with earthquakes, avalanches, abundant snowfalls, the appearance of juvenile waters, the interception of neighboring glaciers, and other external factors. They are classed as random phenomena impossible to predict.

Investigations in recent decades, performed both in the USSR and abroad, have established that periodic advances of glaciers are a natural phenomenon stipulated by instability of the glacial systems themselves. Thus the possibility in principle of forecasting that phenomenon is based on its very nature. In the given case it is necessary to distinguish the concepts of "pulsation" and "advance", understanding by pulsation a complete cycle of fluctuations of the dimensions and rates of movement of glaciers, including not only the active but also calm preparatory phases). However, still unclear are a number of questions about the causes and mechanism of the transition of glaciers to ultra-rapid movement, factors which determine whether only some glaciers are classified as pulsating, and also clear differences between pulsating and "normal" glaciers. A solution of these questions is hindered especially by an insufficiency of corresponding information.

A group of glaciologists of the Institute of Geography of the AS USSR has been studying pulsating glaciers since [illegible], when a catastrophic advance of the Medvezhiy [illegible] in the Pamirs occurred. A systematization is being conducted of material on glacial pulsations, field investigations of pulsating glaciers, [illegible] observations of the evolution of the Medvezhiy glacier as a key

USSR

UDC 617-001.36-085.217.32-032:611.814.1

DENISENKO, P. P. and DOLGUSHINA, A. T., Chair of Pharmacology and General Toxicology, Leningrad Institute of Sanitation, Hygiene, and Medicine

"Effect of Cholinotropic Agents Injected Into the Hypothalamus on the Course of Traumatic Shock"

Moscow, Farmakologiya i Toksikologiya, No 6, 1972, pp 657-660

Abstract: In experiments on rabbits, benactyzine, hemicholine, and pediphen were injected into the hypothalamus at the time a trauma was inflicted (blows on the soft tissues). Blood pressure rose to 120 to 120 mm Hg, whereas in controls and in animals receiving galanthamine or arecoline, blood pressure rose to 140 to 150 mm. Nicotine raised blood pressure only 10 mm. Benactyzine and hemicholine also increased the animals' tolerance for trauma. To lower blood pressure to 60-65 required inflicting a trauma twice to three times as severe as in controls. Arecoline injected into the anterior hypothalamus increased the animals' sensitivity to trauma. When the same trauma was inflicted, arterial pressure never fell below 80 mm in the animals that received benactyzine or hemicholine, and their life-span was somewhat longer. However, when the trauma lowered blood pressure to the critical level, only nicotine and especially pediphen injected into the posterior hypothalamus increased the

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USSR

DENISENKO, P. P. and DOLGUSHINA, A. T., Farmakologiya i Toksikologiya, No 6, 1972, pp 657-660

animals' survival time. The results of these experiments show that the cholinergic structures of the hypothalamus take part in the transmission of pain through the regulation of blood pressure and that the course of traumatic shock is related to the functioning of the cholinoreactive systems.

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USSR

UDC: 632.951:634.8

DOLIDZE, G.V., Scientific Research Institute of Horticulture, Viniculture, and Viticulture, Tbilisi, Georgian Academy of Agricultural Sciences

"Effectiveness Against Grape Cluster Leaf Roller of Insecticides Based on Organophosphorus Compounds and Carbamates"

Moscow, Khimiya v Sel'skom Khozyaystve, No 2, 1970, pp 29-32

Abstract: Although DDT is effective against grape cluster leaf roller, its limited use made imperative efforts to find preparations less toxic to man. The following were tested in 1965-1967: carbophos, 30% k.e. /starch equivalent/; fozalon, 35% k.e.; phosphamide, 40% k.e.; tsidial, 50% k.e.; trichlorometaphos-3 trolen imidan, sevin, 50 and 80% sm. p. /expansion unknown/; mezurol, 50% sm. p.; mekarbam, 80% sm. p.; and chlorophos, technical grade, 85%. DDT preparations served as the standard. The possibility of replacing DDT with organophosphoric preparations was demonstrated. Their use must follow very strict schedules for their toxic action is limited in time. In the Georgian SSR spraying must be restricted to the onset of massive hatching of larvae (by the third or fourth day), when they are most vulnerable to insecticides. A repeated spraying is recommended for late-ripening grape varieties -- against the first and second generations of grape cluster leaf roller. For early table varieties, the second spraying must be done 6-8 days after the first. During the vine flowering period,

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710003-6"

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DOLIDZE, G.V., Moscow, Khimiya v Sel'skom Khozyaystve, No 2, 1970, pp 29-32

chlorophos and trichlorometaphos-3 are not recommended, since they cause burns. Optimal concentrations of the following organophosphorus preparations are listed: phozalon, tsidial, phosphamid, and phthalophos -0.2%; trichlorometaphos-3, chlorophos, and carbophos -- 0.3%.

2/2

1/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--EFFECTIVENESS OF INSECTICIDES BASED ON ORGANOPHOSPHORUS COMPOUNDS AND CARBAMATES AGAINST GRAPE BERRY MOTHS -U-
AUTHOR--DOLIDZE, G.V.

D

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(2), 109-12

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ORGANIC PHOSPHOROUS INSECTICIDE, CARBAMATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0332 STEP NO--UR/0394/70/008/002/0109/0112

CIRC ACCESSION NO--AP0113258
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0113258
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHOSALONE, CIDIAL, PHOSPHAMIDE, AND PHTHALOPHOS USED IN 0.2PERCENT AQ. SOLNS., OR TRICHLOROMETAPHOS 3, CHLOROPHOS, AND CARBOPHOS IN 0.3PERCENT AQ. SOLNS. WERE EFFECTIVE FOR CONTROLLING GRAPE MOTHS ONLY WHEN SPRAYED IN THE PROPER PERIOD OF THE EVOLUTION OF LARVAE BECAUSE OF THEIR VERY SHORT PERIOD OF TOXICITY. CARBAMATES WERE LESS EFFECTIVE. FACILITY: NAUCH.-ISSLED. INST. SADOVOD., VINOGRAD. VINODEL., TBILISI, USSR.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--SPECTRUM OF THE STAR AG DRACONIS IN THE VISIBLE RANGE -U-

AUTHOR-(02)-DOLIDZE, M.V., DZHIMSHELEISHVILI, G.N.

D

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK GRUZINSKOI SSR, SOOBSHCHENIIA, VOL. 58, APR. 1970, P. 57-60

DATE PUBLISHED----APR70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS, METHODS AND EQUIPMENT

TOPIC TAGS--SPECTRUM, ASTRONOMIC CAMERA, ASTRONOMIC OBSERVATORY, SPECTRAL ENERGY DISTRIBUTION, STAR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/60501 1/F04 STEP NO--UR/0251/70/058/000/0057/0060

CIRC ACCESSION NO--AP0140226

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0140226
ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. INVESTIGATION OF THE VISIBLE REGION OF THE SPECTRUM OF AG DRA ON THE BASIS OF 9 SPECTRA OBTAINED WITH A MENISCUS PRISMATIC CAMERA AT THE ABASTUMAN OBSERVATORY IN 1966 AND 1969. THE PROCESSED DATA PERMIT SOME CONCLUSIONS CONCERNING THE CHARACTERISTIC FEATURES OF THE ENERGY DISTRIBUTION IN THE CONTINUOUS SPECTRUM OF AG DRA. IN THE VISIBLE REGION, THE ENERGY DISTRIBUTION IS SIMILAR TO, BUT NOT COMPLETELY IDENTIFIABLE WITH, THE SPECTRUM OF THE STAR K3III; NOR IS THERE ANY OTHER ANALOG STAR, WHICH MAKES AG DRA UNIQUE IN THIS SENSE. THE DEVIATION IN THE ENERGY DISTRIBUTION INCREASES IN THE BLUE AND VIOLET. FACILITY: ABASTUMANSKAIA ASTROFIZICHESKAIA OBSERVATORIIA, MOUNT KANOBILI, GEORGIAN SSR.

UNCLASSIFIED

USSR UDC 621.382

BASAN, A.R., GERASIMOV, A.B., DOLIDZE, N.D., KAKHIDZE, N.G., KONOVALENKO, B.M., SHILLO, A.G.

"Isothermic Annealing Of Radiation Defects In Ge Irradiated By Fast Electrons At 77° K"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics Of Nonmetallic Crystals--Collection Of Works), Vol 5, Part 1, Kiev, "Nauk.dumka," 1971, pp 207-210 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B404)

Translation: The results are presented of an investigation of the processes of isothermic annealing of Ge at certain stages of reinsertion of the initial concentration of current carriers. It is shown, for example, that at the stage of abrupt reinsertion of the concentration of electrons during annealing of specimens with a resistivity of 1--10 ohm. cm., doped with antimony, after irradiation by fast electrons, a complex process of change of the complexes of defects takes place. For the process of reinsertion of the concentration at T = 77° C an activation energy of 1.1 plus or minus 0.1 ev is obtained and for the process of forming a level, 1.7 plus or minus 0.2. During annealing after irradiation at a 240° C temperature on p-type specimens with a resistivity of 5 ohm.cm, the activation energy equals 0.95 plus or minus 0.1 ev at the stage of reinsertion of holes. Here a simple bimolecular process takes place. 4 ref. I.M.

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USSR

UDC 5.35.215.1

BASMAN, A. R., GERASIMOV, A. B., DOLIDZE, N. D., KAKHIDZE, N. G., KONOVALENKO, B. M., SHELLO, A. G.

"Concerning 'Photosensitive' Defects in Ge Irradiated at T = 77° K"

V sb. Radiats. fiz. nemet. kristallov (Radiation Physics of Nonmetallic Crystals -- Collection of Works), Vol 3, Part 1, Kiev, "Nauk. dumka," 1971, pp 210-216 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B236)

Translation: Photo-sensitive defects in Ge were studied, which form during irradiation of crystals by electrons at 77°K. If after annealing, the irradiated crystals are illuminated by white light, then the concentration of holes increases and remains constant after cessation of the illumination. N-type specimens doped with Sb and As, which changes the type of conductivity as a result of irradiation, and also p-type specimens doped with Ga were investigated. It is assumed that the effect of the action of light on the concentration of holes is the result of a change of the structure of the defects during heating and illumination. 3 ill. 6 ref. I. V.

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USSR

UDC 537.311.33:546.289

GERASIMOV, A.B., DOLIDZE, N.D., KAKHIDKHE, N.G., KONOVALENKO, B.M.

"Kinetics Of Forming Radiative Defects Which Are Produced In Germanium By Gamma-Rays At A Temperature of 77°K"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 112-115 (from RZh--Elektronika i yeye primeneniye , No 1, January 1971, Abstract No 1B23)

Translation: Specimens were used for measurement with the initial concentration of the chemical impurity (Sb)N_d = (2.0 - 2.5) x 10^{12} cm^{-3} irradiated by integrated fluxes of gamma quanta. The spectra of the impurity photoconductivity were taken after a number of isochronous annealings. It was discovered that the low-temperature irradiation of n-type Ge leads to the appearance of a complex spectrum of energy levels located in the middle of the forbidden zone, and which as the result of irradiation at 77° K forms a great number of different types of defects, the majority of which are connected in complexes. 2 ill. 1 ref. Summary.

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DOLIN, A. O., and DOLINA, S. A.

Patologiya Vysshey Nervnoy Deyatel'nosti (Pathology of Higher Nervous Activity), 2nd ed, Moscow, 1972, 384 pp

Translation: Annotation

The book takes up the most timely problems in the pathology of higher nervous activity. In familiarizing the reader with the main ideas of Pavlovian pathology, it examined some of the scientific facts obtained by Pavlov's school in the light of recent findings in neurophysiology. It also shows the influence that the ideas of I. P. Pavlov and his school have had on the subject and on present-day research. The book discusses disturbances of higher nervous activity resulting from injury to and stimulation of the cerebral cortex and subcortical structures. It describes experimental neuroses and neurosis-like disturbances of higher nervous activity caused by a variety of factors (including endocrine and autonomic changes, poisonings, extreme influences). The book considers conditioned reproduction of pathological states and presents experimental data relating to neuropharmacological and physiological methods of treating pathological conditions.

The book also reviews and discusses the extensive Soviet and foreign literature on the above matters and it uses the factual material obtained by

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DOLIN, A. O. and DOLINA, S. A., Patologiya Vysshey Nervnoy Deyatel'nosti, 2nd ed, 1972, 384 pp

the author and his co-workers.

The book is based on the series of lectures given by Professor A. O. Dolin in the Department of Physiology of Higher Nervous Activity at Moscow State University prior to the end of 1968.

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DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Deyatel'nosti, 2nd ed, 1972, 384 pp

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DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Deyatel'nosti, 2nd ed, 1972, 384 pp

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DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Deyatel'nosti, 2nd ed, 1972, 384 pp

CHANGES IN HIGHER NERVOUS ACTIVITY AFTER EXPOSURE TO SPACEFLIGHT FACTORS (pp 207-210)

During spaceflight the body is exposed to a number of adverse factors even though atmospheric pressure, gaseous composition of the air, and temperature are kept normal. These factors can be divided into 3 groups: (i) those which characterize space - ionizing radiation, meteorites, vacuum; (ii) those related to the dynamics of flight - weightlessness, acceleration, vibration; (iii) those caused by remaining a long time in a small airtight capsule - 10/17

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DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Deyatel'nosti, 2nd ed, 1972, 384 pp

isolation, adynamia, emotional tension, microclimate characteristics [cf. V. V. Parin, R. M. Bayevskiy, M. D. Yemel'yanov, and I. M. Dhazen, Ocherki po kosmicheskoy fiziologii (Outline of Space Physiology), Moscow, 1967].

These factors act in different combinations during the various stages of flight. In the active stage the body is simultaneously exposed to noise, vibration, and acceleration. Preflight training plays an extremely important role in the nervous system's adapting to these difficult conditions.

Transverse accelerations result in mechanical stimulation of the brain and impairment of its circulation and in a massive flow of altered afferent impulses from the viscera. Hemodynamic changes (pooling of blood in the lungs), decreased blood oxygenation, altered dynamics of several reflex acts, and intensified secretion into the blood of sympathins with their hypertensive and positive inotropic action - these are just a few of the disturbances that arise in this period.

Weightlessness is the leading factor in the orbital portion of flight. The absence of gravity reduces the work of the heart because the hydrostatic factor in blood circulation is excluded. It also disrupts water-salt metabolism and decreases the tonus of the skeletal musculature altered by afferent impulses from the periphery. The disturbance of vascular afferent impulses may

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result in decreased venous tonus and orthostatic collapse owing to venous insufficiency.

In weightlessness, the accuracy of kinesthesia and perception of time decreases and the speed and precision of motor responses are impaired (Kitayev-Smyk, 1963).

The descent phase of flight with increasing acceleration and sharp vascular changes of the hypertensive type are marked by severe emotional stress.

In experiments on animals, the return to earth resulted in impaired coordination of movements that lasted 8 to 10 days after landing. Dogs that were able to move about a little while in the rocket showed a tendency to automatically repeating hundreds of times movements aimed at fixing the body in space (Zhuravlev, 1968). Electromyograms of the hind legs of a guinea pig that returned from an extended spaceflight showed an increased flow of impulses (Livshits et al., 1962).

An important spaceflight factor is hypokinesia, which disrupts evolutionarily fixed coordinating mechanisms that keep the body vertical and enable it to maintain circulatory homeostasis while changing position.
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The predominance of inhibitory processes in the central nervous system and decreased tonus of the skeletal musculature and vessels of the venous bed are regarded as a protective physiological response to hypokinesia [cf. A. V. Lebedinskiy et al., "Proceedings of the Congress on Astronautics in Warsaw, 1964," in: Fiziologicheskiye problemy detrenirovannosti (Physiological Aspects of Lack of Exercise), ed. by A. V. Korobkov, 1968]. This functional rearrangement brings the body into balance with the environment at a time of decreased muscular activity, but initially it elicits responses based on loss of fitness for terrestrial conditions, especially in the first few hours after the end of an experiment.

Experiments on rats showed that restriction of movements is in itself an extreme irritant that leads to the formation of stomach ulcers (Seelye described stomach ulceration in the course of an adaptation syndrome developing in response to stress).

Interference with the interaction of the afferent systems (according to Orbeli) that occurs in flight (especially the sensations caused by the interaction of gravity and visual stimuli) sometimes induces the so-called "sputnik disease" with autonomic reactions similar to those associated with motion

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sickness and illusions of the body being upside down. In weightlessness, as the astronauts B. B. Yegorov and K. P. Feoktistov noted (cf. Parin et al., 1967), these symptoms intensified when one focused on them and became inhibited when doing important work during an experiment or while exercising, an excellent example of the therapeutic value of induction inhibition.

The symptom complex of motion sickness has also been induced experimentally. A subject seated in a chair resting on an unsteady support examined panorama films showing an airplane banking and turning or watching a cylinder with black and white stripes on the inside revolving around him. The combination of unsteady equilibrium with sudden tilts of the visual axis created different degrees of the so-called "phenomenon of participation" with motor reactions directed toward the side opposite the turn, illusions of being upside down to the point of complete lack of spatial orientation, and changes in cardiac and respiratory activity, nausea, and vomiting (Baranovskiy, Yemel'yanov, Kuznetsov, 1962; Barer et al., 1962; Khazen, 1967).

Isolation from external stimuli is in itself an extreme stimulus. The latent periods of motor reactions were shown to increase significantly (in response to rhythmic light) in humans after remaining 10 to 15 days alone in a

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closed space without exchanging words and kept isolated from external sources of light, sounds, and other stimuli. And the subjects made more errors than usual in doing experimental psychological problems. The background EEG was marked by a decrease in amplitude of the potentials and appearance of many slow waves (Gorbov, Myasnikov, and Yazdovskiy, 1963).

The effect of acceleration on higher nervous activity was investigated under experimental conditions (the subject is discussed in detail in B. M. Savin's monograph Gipervesomost' i funktsiya tsentral'noy nervnoy sistemy [Hyperweightlessness and Central Nervous System Function], Leningrad, 1970, Nauka). Acceleration of the order of 0.6 G was found to lengthen the latent period and increase the number of mistakes during the alteration of conditioned reflexes (Nudman's experiments performed by V. K. Fedorov's electrodefensive labyrinth method), whereas accelerations of the order of 6 to 10 G inhibited conditioned reflexes. Slight angular acceleration caused excitation to become dominant, as shown by a shortening of the latent period of the reflexes, whereas intensive acceleration induced hypnotic phases with a further loss of conditioned reflexes (the experiments of Vinogradov and Zvorykin with electrocutaneous motor defensive reflexes, 1953). Later studies showed that intensive accelerations decreased both conditioned and unconditioned reflexes (Bronshteyn and

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DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Dayatel'nosti, 2nd ed, 1972, 384 pp

Zagryadskiy, 1958; Savin and Sulimo-Samuylo, 1958).

The changes produced by single accelerations are transient; higher nervous activity is completely restored on the following days. Repeated (more than 30 times) experiments with acceleration results in an ultraparadoxical phase or protective inhibition with a complete loss of conditioned reflexes (Savin and Sulimo-Samuylo, Barer, 1962).

Intensive accelerations are believed to cause hemodynamic disturbances and, as a result, hypoxia with a marked decrease in arterial blood PO_2 directly in brain tissue. For example, acceleration of 6 G produced 78% oxygen saturation of arterial blood.

Accelerations of 3 to 9 G depress secretion of the digestive glands, which is followed by a phase of enormous increase. Injury to the digestive glands along with morphological changes in the adrenals are reminiscent of Selye's syndrome arising in response to stress.

Thus, each of the described extreme factors by acting nonspecifically on higher nervous activity may result in neurologic disorders of greater or lesser severity depending on the intensity of the action. To ensure the normal functioning of the cerebral cortex and its mobilization under extreme conditions

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DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Dayatel'nosti, 2nd ed, 1972, 384 pp

requires, according to V. V. Parin et al. (1967), reorganization of the autonomic levels of regulation by preliminary training. There is no question that astronauts can carry out difficult assignments requiring a high degree of fitness and motor coordination only when the higher divisions of the nervous system are functioning in an optimum fashion. This fact, more than any other, shows that willpower, a specifically human property, plays a role in maintaining the tonus of the higher divisions of the brain under extreme conditions of autonomic imbalance in spaceflight.

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USSR UDC 539.16:628,315

DOLIN, P. I., Doctor of Chemical Sciences; SHUBIN, V. I., and BRUSENTSEVA, S. A., Candidate of Chemical Sciences; and PRIBUSH, A. G., Institute of Electrochemistry AN SSSR (Academy of Sciences, USSR)

"Radiation Purification of Poluted Water From Organic Contaminants"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, 8, 1973, pp 10-14

Abstract: A number of factors must be considered during an evaluation of the radiation process for water purification: the concentration and nature of the contaminants, the desired resultant purity, the nature and concentration of the products of radiation-induced oxidation, and the volume of water to be purified. The effects of dosages and temperatures, various pathways, and possible reactive species such as OH, H, H_2O^+, and HO_2 are considered. Yields are given for various products under varying conditions. Radiation purification may be an economic way to purify dilute (less than 10^{-3} M) solutions of highly toxic compounds. The optimum conditions for the removal of organic material from aqueous solutions by the chain mechanism were determined. Recommendations were made for future studies such as the relationship of oxidation to polymerization and polycondensation; radiation treatment followed by biological purification and others.
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1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--RADIOLYSIS OF AQUEOUS SOLUTIONS OF SOME ORGANIC SUBSTANCES -U-

AUTHOR-(04)-BRUSENTSEVA, S.A., DOLIN, P.I., SHUBIN, V.N., PRIBUSH, A.G.

COUNTRY OF INFO--USSR

SOURCE--VYS. ENERG. 1970, 4(1), 88-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--RADIOLYSIS, AQUEOUS SOLUTION, PHENOL, PICRIC ACID, SULFONE, GAMMA RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1114 STEP NO--UR/0456/70/004/001/0088/0089

CIRC ACCESSION NO--AP0104512
UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104512

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHENOL (I), PICRIC ACID (II), DECANESULFONATE (III), AND P-O SUB2 NC SUB6 H SUB4 OP(S)(OET)SUB2 (IV) IN AQ. SOLNS. SATD. WITH AIR WERE IRRADIATED BY PRIME60 CO (3 TIMES 10 PRIME15 EV CM PRIME NEGATIVE3 SEC PRIME NEGATIVE1) AT ROOM TEMP. AND THE DECOMPN. YIELDS WERE MEASURED (COMPD., ITS CONCN. TIMES 10 PRIME5 M, AND MINUS G VALUES, GIVEN): I, 16, 3.5 PLUS OR MINUS 0.3; II, 4.3, 0.65 PLUS OR MINUS 0.1; III, 40, 2.3 PLUS OR MINUS 0.3; IV, 20, 1.0 PLUS OR MINUS 0.1. RADIOLYSES OF AQ. 4 TIMES 10 PRIME NEGATIVE4 M III IN THE PRESENCE OF AIR, N SUB2, N SUB2 O, OR H SUB2 O SUB2 WERE ALSO STUDIED AND PLOTS OF YIELD VS. DOSE ARE PRESENTED.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CALCULATIONS OF MOLECULAR ORBITAL OF COMPLEX MOLECULES. III. GROUP COEFFICIENTS FOR MOLECULAR INTEGRALS FOR CALCULATING SELF CONSISTENT
AUTHOR-(03)-ROZENBERG, E.L., DOLIN, S.P., DYATKINA, M.YE.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 80-94

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CALCULATION, MOLECULAR ORBITAL, COMPLEX MOLECULE, MOLECULAR STRUCTURE, MATRIX ELEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1254 STEP NO--UR/0192/70/011/001/0080/0094

CIRC ACCESSION NO--AP0128670
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0128670
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLES ARE GIVEN OF GROUP COEFFS. AND TYPES OF APPROPRAITE MOL. INTEGRALS FOR CALCG. ALL SELF CONSISTENT MATRIX ELEMENTS IN MX SUB6 MOLS. OF OCTAHEDRAL STRUCTURE WITHIN THE FRAMES OF APPROX. METHODS OF COMPLETE OR PARTIAL DIFFERENTIAL OVERLAP.
FACILITY: INST. OBSHCH. NEORG. KHIM. IM. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

DOLIN, A. O. and DOLINA, S. A.

Patologiya Vysshey Nervnoy Deyatel'nosti (Pathology of Higher Nervous Activity), 2nd ed, Moscow, 1972, 384 pp

Translation: Annotation

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DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Deyatel'nosti, 2nd ed, 1972, 384 pp

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DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Deyatel'nosti, 2nd ed, 1972, 384 pp

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These factors act in different combinations during the various stages of flight. In the active stage the body is simultaneously exposed to noise, vibration, and acceleration. Preflight training plays an extremely important role in the nervous system's adapting to these difficult conditions.

Transverse accelerations result in mechanical stimulation of the brain and impairment of its circulation and in a massive flow of altered afferent impulses from the viscera. Hemodynamic changes (pooling of blood in the lungs), decreased blood oxygenation, altered dynamics of several reflex acts, and intensified secretion into the blood of sympathins with their hypertensive and positive inotropic action - these are just a few of the disturbances that arise in this period.

Weightlessness is the leading factor in the orbital portion of flight. The absence of gravity reduces the work of the heart because the hydrostatic factor in blood circulation is excluded. It also disrupts water-salt metabolism and decreases the tonus of the skeletal musculature altered by afferent impulses from the periphery. The disturbance of vascular afferent impulses may

USSR

DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Deyatel'nosti, 2nd ed, 1972, 384 pp

result in decreased venous tonus and orthostatic collapse owing to venous insufficiency.

In weightlessness, the accuracy of kinesthesia and perception of time decreases and the speed and precision of motor responses are impaired (Kitayev-Smyk, 1963).

The descent phase of flight with increasing acceleration and sharp vascular changes of the hypertensive type are marked by severe emotional stress.

In experiments on animals, the return to earth resulted in impaired coordination of movements that lasted 8 to 10 days after landing. Dogs that were able to move about a little while in the rocket showed a tendency to automatically repeating hundreds of times movements aimed at fixing the body in space (Zhuravlev, 1963). Electromyograms of the hind legs of a guinea pig that returned from an extended spaceflight showed an increased flow of impulses (Livshits et al., 1962).

An important spaceflight factor is hypokinesia, which disrupts evolutionarily fixed coordinating mechanisms that keep the body vertical and enable it to maintain circulatory homeostasis while changing position.

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DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Dayatel'nosti, 2nd ed, 1972, 384 pp

The predominance of inhibitory processes in the central nervous system and decreased tonus of the skeletal musculature and vessels of the venous bed are regarded as a protective physiological response to hypokinesia [cf. A. V. Lebedinskiy et al., "Proceedings of the Congress on Astronautics in Warsaw, 1964," in: Fiziologicheskiye problemy detrenirovannosti (Physiological Aspects of Lack of Exercise), ed. by A. V. Korobkov, 1968]. This functional rearrangement brings the body into balance with the environment at a time of decreased muscular activity, but initially it elicits responses based on loss of fitness for terrestrial conditions, especially in the first few hours after the end of an experiment.

Experiments on rats showed that restriction of movements is in itself an extreme irritant that leads to the formation of stomach ulcers (Seelye described stomach ulceration in the course of an adaptation syndrome developing in response to stress).

Interference with the interaction of the afferent systems (according to Orbeli) that occurs in flight (especially the sensations caused by the interaction of gravity and visual stimuli) sometimes induces the so-called "sputnik disease" with autonomic reactions similar to those associated with motion

DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Dayatel'nosti, 2nd ed, 1972, 384 pp

sickness and illusions of the body being upside down. In weightlessness, as the astronauts B. B. Yegorov and K. P. Feoktistov noted (cf. Parin et al., 1967), these symptoms intensified when one focused on them and became inhibited when doing important work during an experiment or while exercising, an excellent example of the therapeutic value of induction inhibition.

The symptom complex of motion sickness has also been induced experimentally. A subject seated in a chair resting on an unsteady support examined panorama films showing an airplane banking and turning or watching a cylinder with black and white stripes on the inside revolving around him. The combination of unsteady equilibrium with sudden tilts of the visual axis created different degrees of the so-called "phenomenon of participation" with motor reactions directed toward the side opposite the turn, illusions of being upside down to the point of complete lack of spatial orientation, and changes in cardiac and respiratory activity, nausea, and vomiting (Baranovskiy, Yemel'yanov, Kuznetsov, 1962; Barer et al., 1962; Khazen, 1967).

Isolation from external stimuli is in itself an extreme stimulus. The latent periods of motor reactions were shown to increase significantly (in response to rhythmic light) in humans after remaining 10 to 15 days alone in a

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DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Dayatel'nosti, 2nd ed, 1972, 384 pp

closed space without exchanging words and kept isolated from external sources of light, sounds, and other stimuli. And the subjects made more errors than usual in doing experimental psychological problems. The background EEG was marked by a decrease in amplitude of the potentials and appearance of many slow waves (Gorbov, Myasnikov, and Yazdovskiy, 1963).

The effect of acceleration on higher nervous activity was investigated under experimental conditions (the subject is discussed in detail in B. M. Savin's monograph Gipervesomost' i funktsiya tsentral'noy nervnoy sistemy [Hyperweightlessness and Central Nervous System Function], Leningrad, 1970, Nauka). Acceleration of the order of 0.6 G was found to lengthen the latent period and increase the number of mistakes during the alteration of conditioned reflexes (Nudman's experiments performed by V. K. Fedorov's electrodefensive labyrinth method), whereas accelerations of the order of 6 to 10 G inhibited conditioned reflexes. Slight angular acceleration caused excitation to become dominant, as shown by a shortening of the latent period of the reflexes, whereas intensive acceleration induced hypnotic phases with a further loss of conditioned reflexes (the experiments of Vinogradov and Zvorykin with electrocutaneous motor defensive reflexes, 1953). Later studies showed that intensive accelerations decreased both conditioned and unconditioned reflexes (Bronshteyn and

Zagryadskiy, 1958; Savin and Sulimo-Samuylo, 1958).

The changes produced by single accelerations are transient; higher nervous activity is completely restored on the following days. Repeated (more than 30 times) experiments with acceleration results in an ultraparadoxical phase or protective inhibition with a complete loss of conditioned reflexes (Savin and Sulimo-Samuylo, Barer, 1962).

Intensive accelerations are believed to cause hemodynamic disturbances and, as a result, hypoxia with a marked decrease in arterial blood PO_2 directly in brain tissue. For example, acceleration of 6 G produced 78% oxygen saturation of arterial blood.

Accelerations of 3 to 9 G depress secretion of the digestive glands, which is followed by a phase of enormous increase. Injury to the digestive glands along with morphological changes in the adrenals are reminiscent of Selye's syndrome arising in response to stress.

Thus, each of the described extreme factors by acting nonspecifically on higher nervous activity may result in neurologic disorders of greater or lesser severity depending on the intensity of the action. To ensure the normal functioning of the cerebral cortex and its mobilization under extreme conditions

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DOLIN, A. O. and DOLINA, S. A., Pathologiya Vysshey Nervnoy Dayatel'nosti, 2nd ed, 1972, 384 pp

requires, according to V. V. Parin et al. (1967), reorganization of the autonomic levels of regulation by preliminary training. There is no question that astronauts can carry out difficult assignments requiring a high degree of fitness and motor coordination only when the higher divisions of the nervous system are functioning in an optimum fashion. This fact, more than any other, shows that willpower, a specifically human property, plays a role in maintaining the tonus of the higher divisions of the brain under extreme conditions of autonomic imbalance in spaceflight.

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DOLININ, N. A.

(34)

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TECHNICAL TRANSLATION

(1969) FSTC HT-23-2015-72

27 Nov 72

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

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: I. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY IMENI T.G. SCHEVCHENKO

Translated for FSTC by ACSI

NOTICE

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USSR

UDC: 621.396.963.8

DOLININ, N. A.

"Optimal and Suboptimal Systems for Detecting Optical Radar Fluctuating Pulses"

Moscow, Radiotekhnika, No 2, 1972, pp 56-63

Abstract: The signal detected by the systems considered in this paper consists of packets of independently fluctuating optical pulses. The detection is made by an inertialess photodetector in broad-band external noise. The method used for the theoretical investigation is to subdivide the observed interval (0,T) into M sections, each Δt in length; the number of photoelectrons recorded in the i-th part of the j-th pulse in the packet is designated n_{ij}. As $\Delta t \to 0$, the n_{ij} carry the same information as the moments in which the photoelectrons appear, with the further assumption that the shape of the pulses is known with an accuracy up to their amplitudes. The external noise is considered sufficiently broad in frequency range so that the total photoelectron flux may be thought of as a constant intensity Poisson flow. In one of two appendices, the algorithm for optimal detection is derived; in the other, the suboptimal detection algorithm is obtained. Block diagrams of receivers for realizing both are shown.
1/1

USSR UDC: 621.391.81

DOLININ, N. A., TERPUGOV, A. F.

"On Some Suboptimum Circuits for Detecting Poisson Signals"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 190-199 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A71)

Translation: The authors discuss algorithms for detecting Poisson signals against a background of Poisson interferences. These algorithms are based on maximum probability or on the method of least squares. It is shown that there is little difference in the effectiveness of either method. Four illustrations, bibliography of two titles. N. S.

1/1

USSR UDC: 621.391.81

DOLININ, N. A., TERPUGOV, A. F.

"Theta-Square Circuit for Reception of Poisson Signals"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physico-technical Institute Associated With Tomsk University), 1970, vyp. 51, pp 211-221 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A70)

Translation: The authors consider a circuit for reception of fluctuating Poisson signals based on computing the logarithm of the probability ratio and comparing it with some predetermined threshold. The circuit is designed for radio devices which contain photovoltaic cells. A comparison of this circuit with a detection circuit for signals conforming to Bose--Einstein statistics shows that the proposed circuit is close to the optimum with respect to the probability of target skipping. Two illustrations, bibliography of eight titles. N. S.

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USSR UDC: 519.2:621.391

DOLININ, N. A., TERPUGOV, A. F.

"On Certain Suboptimum Schemes for Detecting Poisson Signals"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Works of the Siberian Physicotechnical Institute Affiliated With Tomsk University), 1970, vyp. 51, pp 190-199 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V281)

Translation: The authors consider an operator of optimum and quasi-optimum detection of a Poisson stream with intensity $\rho\mu(t)$ ($\mu(t)$ is an unknown function, ρ is an unknown constant) against a background of a stationary Poisson stream of intensity λ. As usual, it is proposed that the ρ-maximum value of the plausibility relation be compared with the threshold. In view of the transcendental nature of the resultant equation, it is proposed that an estimate of ρ be sought by linearization, which is premissible at large λT (T is the observation interval). An approximate study is made of the quality of the proposed processing operator. I. Bol'shakov.

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DOLININ, V. A.

med

Aggressive surgical tactics for the resuscitation and treatment of persons in [illegible] or close to death will succeed if the principles of [illegible] restoration of adequate gas exchange, hemodynamics, and specific [illegible] of vital organs and detoxification are followed (A. [illegible] et al., V. A. Dolinin et al.).

We operated on and used resuscitation for [illegible] persons in shock and close to death after suffering closed and open injuries to thoracic or abdominal organs, [illegible] system, or [illegible] of the [illegible]. [illegible] had injuries to the viscera that were incompatible with life.

Various kinds of anesthesia are used in the medical installations of the district in the course of resuscitation. The method of choice for serious surgical interventions is combined multicomponent endotracheal anesthesia with artificial respiration (used in [illegible].7 percent of all the operations). Thiopental sodium, hexobarbital, epontol, ether, nitrous oxide, fluothane, neuroleptanalgesics, and muscle relaxants (succinylcholine and diplacin [a curariform agent]) were among the agents used. In addition to general anesthesia, spinal anesthesia (dicaine) was used in 1.2 percent of the cases, intraosseously in 1.5 percent, and intravenously in [illegible] percent.

Local anesthesia (A. V. Vishnevskiy's method) was very commonly used (67.1 percent of the cases). It was greatly improved by using more potent and longer-acting preparations or by combining it with neuroleptanalgesics. Prolonged peridural anesthesia and neuroleptanalgesia were recently introduced into practice.

Resuscitation is closely associated with the development of the blood service and transfusion-infusion therapy. The district blood transfusion station and non-T/O procurement and blood transfusion posts are able to supply the medical installations with all the blood and blood preparations that they need. The transfusion of blood, its components and other infusion fluids is exceptionally important in the effort to save the life of a victim suffering from shock, bleeding, and other threatening states. Immediate transfusion is no less significant than transfusion of banked blood. Exchange transfusion is one of the steps taken to revive victims of poisoning by carbon monoxide or other toxicants. The volume of circulating blood is quickly corrected by transfusing blood and antishock solutions through catheters inserted into the venae cavae under the control of central venous pressure.

Infusion-transfusion therapy stabilizes the hemodynamics and corrects the water-electrolyte balance and acid-alkaline equilibrium. Correction of the coagulating and anticoagulating systems plays an important role in the early postoperative period. Changes in these systems are determined by analyzing blood for pathological fibrinogen B and examining the coagulogram and thromboelastogram. The timely administration of heparin and other anticoagulants and, when indicated, fibrinolysin decreased the frequency of thromboembolic complications to 0.1 percent of the number of cases operated.

Mil Med Journal #6, 1972

RMN // R-760/ 5-MAR-73
Dec 72.

(3)

XIII. PROPERTIES OF COMPOSITE MATERIALS

Shermergor, T. D., and V. N. Delinin.
Rheological characteristics of orthotropically-reinforced polymers. MP, no. 2, 1972, 276-283.

A model is developed for the rheological characteristics of orthotropically-reinforced polymers based on calculations of experimental values for elastic and rheological properties of individual components. This approach allows a drastic reduction in the number of parameters necessary for a complete specification of the anisotropy of elastic and rheological properties of composite materials. The orthotropic material is assumed to consist of anisotropic grains randomly oriented along the x-y-z axes. Each grain has a laminar structure with alternating elastic and viscoelastic layers. The degree of anisotropy and the viscoelastic properties of the composite material can be varied to a large extent by a suitable choice of ten parameters (four elastic moduli, four concentration coefficients, and two rheological characteristics). Parameters of individual components are used to compute the rheological characteristics of the composite material either in the Foygt (sic) or Royce approximation. The authors point out that Foygt's method (based on the homogeneity of the microdeformation hypothesis) is useful for the determination of operators of elasticity and shear moduli, while the Royce approximation (the homogeneity of the microtension hypothesis) gives a simplified form of Young's modulus and Poisson's coefficients. Using the Royce approximation method, pliability matrices are derived for a viscoelastic composite in operator form and operator representations of 12 technical elastic moduli. Due to the orthotropic symmetry of the material, only 9 of these are independent. It is shown that each of the elastic moduli is represented by two real or complex resolvent Q* operators. The contributions of Young's moduli components are calculated for various concentrations and anisotropies, and conditions determined for discarding one of the Q* operators. For a complex exponential Q* operator with a

DOLININ, V. N.

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PMR SPECTRUM AND STRUCTURE OF BUTENYLLITHIUM -U-

AUTHOR-(03)-DOLINSKAYA, E.R., PODDUBNYY, I.YA., TSERETELI, I.YU.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 862-5 (PHYS CHEM)

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MAGNETIC RESONANCE, SPECTRUM, MOLECULAR STRUCTURE, ORGANOLITHIUM COMPOUND, ROTATIONAL SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0696 STEP NO--UR/0020/70/191/004/0862/0865

CIRC ACCESSION NO--AT0124368

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AT0124368
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PMR SPECTRA WERE SHOWN FOR BUTENYLLITHIUM IN THE 183-293DEGREESK INTERVAL ILLUSTRATING THAT IN ME SUB2 O SOLN. THIS COMPD. EXISTS AS CONTACT ION PAIRS, THE ANIONS OF WHICH ARE CROTYL GROUPS WITH CIS AND TRANS DISPOSITIONS OF THE ME GROUPS. AT LESS THAN 180DEGREESK THE RATATION OF ME ABOUT THE C SUB1-2 BOND CEASES AND THE ANION BECOMES FLAT. FACILITY: VSES. NAUCH. ISSLED. INST. SIN. KAUCH. IM. LEBEDEVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 532.526

DOLINSKAYA, M. M., and SKRIPACHEV, V. V.

"Laminar Incompressible Boundary Layer Over a Heated Plate"

Kiev, Prikladnaya Mekhanika, Vol 7, No 12, 1971, pp 120-123

Abstract: The case is considered of an incompressible fluid flowing along a heated plate. The effect of heating on the characteristics of the boundary layer is analyzed.

The viscosity is a function of the temperature, the effects of the temperature on the density, conductivity and specific heat are neglected.

Equation (1.4) give the characteristics of the subject boundary layer using nondimensional variables. Numerical solutions of these equations were obtained by means of computers.

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DOLINSKAYA, M. M., et al, Prikladnaya Mekhanika, Vol 7, No 12, 1971, pp 120-123

Fig. 1 gives the velocity profiles and the temperature profiles in the boundary layer with the differential temperatures of 0, 20°C and 40°C.

The coefficient of friction decreases with the increase of temperature due to the decrease of viscosity as shown on Fig. 3.

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USSR UDC: 669.765'75:548.5

VIGDOROVICH, V. N., UKHLINOV, G. A., DOLINSKAYA, N. Yu., MARYCHEV, V. V., Moscow

"Study of Conditions of Production of Single Crystals of bismuth and bismuth-antimony alloys"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, 1973, pp 57-63.

Abstract: The process of growth of single crystals of bismuth and bismuth-antimony alloys has a number of peculiarities which make it difficult to produce them reliably and to achieve structural perfection. It is particularly difficult to prevent curvature of the crystal relative to the growth direction, the appearance of parasitic blocks on one side of the single crystal and the formation of structural defects such as twins, dislocations, etc. Changing of external conditions does not eliminate these difficulties, indicating that they result from the crystallochemical nature of bismuth and antimony. The authors recommend use of the most favorable orientations of seeds to assure reproducible growth of single crystals. Optimal growth directions are recommended to provide the best structure during growth of single crystals. The optimal directions are those for which the shear planes (111) and (111)

USSR

Vigdorovich, V. N., Ukhlinov, G. A., Dolinskaya, N. Yu., Marychev, V. V., Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 6, 1973, pp 57-65.

are perpendicular to the crystallization front, while the directions [101] and [10$\bar{1}$] coincide with the direction of growth.

USSR

UDC 539.292

SALLI, I. V., DOLINSKAYA, V. Z., BORSHCHEVSKAYA, D. G., and SAVICH, A. I., Dnepropetrovsk Division of the Institute of Mechanics, Academy of Sciences Ukr SSR

"Disturbances of Regular Growth in Lamellar Eutectics"

Kiev, Metallofizika, No 39, 1972, pp 106-111

Abstract: The directed crystallization of Pb-Sn, Cd-Pb, Cd-Zn, Zn-Sn, and Cd-Sn alloys of eutectic composition was investigated with the crystallization accomplished by the method of zone melting using a unit with a moving annular crucible. Directed crystallization of the investigated alloys leads to the formation of lamellar colonies oriented in the direction of heat escape. Disturbances were observed in the regular lamellar growth of eutectic phases in the form of repeated transverse bands. 5 figures, 1 table, 13 bibliographic references.

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USSR

UDC: 621.43.001.3

ANTONOV, O. G., DOLINSKIY, D. V., MARCHEVSKIY, V. P., MEL'NICHENKO, R. M., OTSECHKIN, Yu. G., PAVLENKO, G. V., TOVKANETS, V. Ye., SARANTSEV, K. B., Institute of Automation, Khar'kov Polytechnical Institute

"An Antistall Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 13, May 72, Author's Certificate No 335444, Division F, filed 21 Sep 70, published 11 Apr 72, p 140

Translation: This Author's Certificate introduces an antistall device which may be used for controlling centrifugal compressore. The device contains pickups for the rate of flow and pressure drop across the compressor, an amplifying adder and a regulating valve installed on a bypass line between the pressure and suction channels. As a distinguishing feature of the patent, in order to improve the reliability and accuracy of maintaining the limiting flow rate, a pickup is connected to the amplifying adder which measures the difference in pressures between the wake and kernel of the flow behind the vanes of the exit guide cone to correct control in accordance with variation of the static characteristic of the compressor.

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1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--PERIPHERAL MODEL OF DIRECT NUCLEAR REACTIONS. A COMPARISON OF THE MODEL WITH AN EXPERIMENT AND WITH OTHER THEORIES -U-

AUTHOR--DOLINSKIY, E.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 165-74

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEAR MODEL, NUCLEAR REACTION, LIGHT NUCLEUS, DIFFERENTIAL CROSS SECTION, ORBIT MOMENTUM, SCATTERING AMPLITUDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0221 STEP NO--UR/0048/70/034/001/0165/0174

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UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105297

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE UNDERLYING IDEAS OF THE PERIPHERAL MODEL ARE SURVEYED AND THE CALCD. RESULTS ARE COMPARED WITH THOSE OBTAINED BY OTHER MODELS (ESP. WITH THOSE OF THE DISTORTED WAVES METHOD) AND BY EXPT. DIFFERENTIAL CROSS SECTIONS OF THE REACTIONS: PRIME4 HE(P, D) PRIME3 HE, AT 93 AND 156 MEV; PRIME14 N(P,D) PRIME13 N AT 156, 30.3, AND 18.7 MEV; PRIME9 BE(D,T) PRIME8 BE AT 20 AND 11.8 MEV; PRIME12 C(PRIME3 HE, D) PRIME13 N AT 24.7, 21.6, AND 13.9 MEV; PRIME13 C(PRIME3 HE, D) PRIME14 N AT 4.9, 5.7, AND 15 MEV; PRIME10 B(D, P) PRIME11 B AT 13 AND 27.7 MEV; PRIME12 C(P,D) PRIME11 C AT 39.8 AND 57 MEV; AND PRIME10 B(D, N) PRIME11 C AT 9 MEV WERE TAKEN AS EXAMPLES. THE METHOD ASSUMES THAT THE ESSENTIAL CONTRIBUTION TO THE DIRECT REACTION IS BROUGHT BY THE PERIPHERAL PARTIAL AMPLITUDES WITH THE ORBITAL MOMENTUM L IS GREATER THAN OR EQUAL TO L SIMILAR TO KR (WHERE L IS THE CUT OFF PARAMETER) AND THAT A SMALL NO. OF THE NEAREST SINGULARITIES OF THE REACTION AMPLITUDE IN THE Z PLANE ONLY MAY BE CONSIDERED FOR THE CALCN. OF THE PERIPHERAL PARTIAL AMPLITUDES. THE BINDING CONST. G SUBALPHA PRIME2 IS ALSO DISCUSSED.

UNCLASSIFIED

USSR

UDC: 550.834

BRISKIN, S. N., VANDER, S. S., DOLINSKIY, Yu. D., KUZNETSOV, L. Sh., POLYAKOV, K. K., Special Design Office of the Ministry of Geology of the USSR

"Nuclear-Precession Magnetometer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 13, May 72, Author's Certificate No 335649, Division G, filed 23 Mar 70, published 11 Apr 72, p 195

Translation: This Author's Certificate introduces: 1. A nuclear-precession magnetometer with digital registration. The instrument contains a magnetically sensitive pickup, coincidence gates, a master frequency oscillator, a count time shaper and a counter. As a distinguishing feature of the patent, the operational reliability of the device is improved by connecting the coincidence gate to the set terminals of the least significant digit counter, and by connecting the input of the least significant digit counter through a second coincidence gate to the count time shaper and to a counter with variable scaling factor, which is connected to the master frequency oscillator and to the most significant digits of a standard frequency period counter which is connected through a third coincidence gate to the standard

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BRISKIN, S. N. et al., USSR Author's Certificate No 335649

frequency oscillator. A second input of the third coincidence gate is connected through a nuclear precession period counter to the magnetically sensitive pickup. 2. A modification of this magnetometer distinguished by the fact that the counter with variable scaling factor is connected in addition to the least significant digits of the standard frequency period counter.

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USSR UDC: 681.142.621

DOLINSKIY, Yu. D.

"Analysis of the Static Operation Mode of an Analog-Digital Converter With Low Internal Noise"

Novosibirsk, Avtometriya, No 5, 1971, pp 86-96

Abstract: Errors in analog-digital converters can be effectively reduced by digital averaging, but the methods described in the literature for doing so are quite complex and are often guilty of introducing errors themselves. To investigate this problem, the author considers such basic characteristics of the converter as the mathematical expectation and dispersion of the arithmetical results of the conversion, and the absolute conversion error as a function of variations in the parameters of the converter's internal noise for an arbitrary distribution of the arithmetical results. Especial attention is given to finding the values of those parameters for which the converter's characteristics are optimal and for which the digital averaging can be done without increasing the error. An idealized model of an inertialess converter is used in this analysis, and it is assumed that its internal noise is low.

1/1

USSR

UDC: 621.374.33

VANDER, S. S., DOLINSKIY, Yu. D., Special Design Office of the Ministry of Geology of the USSR

"A comparator for Geophysical Converters"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, Feb 72, Author's Certificate No 328420, Division G, filed 19 Jan 70, published 2 Feb 72, p 145

Translation: This Author's Certificate introduces a comparator for geophysical converters. The device contains an excitation oscillator, a magnetic modulator, switches, a flip-flop and a delay element. As a distinguishing feature of the patent, in order to increase the sensitivity of the converter the magnetic modulator contains two excitation windings connected in parallel opposition and through commutating switches to the output of the excitation oscillator. The controlling inputs of the commutating switches are connected to the outputs of the flip-flop. The counting input of the delay element is connected to the output of the excitation oscillator.

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USSR UDC: 621.374.33

DOLKAR, V. M., NOVIK, G. Kh., REDINA, S. F., STEPANOV, V. N.

"A Pulse Shaper"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 12, Apr 71, Author's Certificate No 299959, Division H, filed 30 Jan 69, published 26 Mar 71, p 210

Translation: This Author's Certificate introduces a pulse shaper based on transistor-transistor logic elements and on a transistor with a timing capacitor connected to its base. Connected in the collector circuit are a resistor and a diode. The shaper also contains two feedback circuits. As a distinguishing feature of the patent, pulse rise and fall times are reduced for long pulses at the output by connecting the first feedback circuit between the collector of the transistor and the element connected to the timing capacitor, while the second feedback circuit is connected between the anode of the above-mentioned diode and the element connected to the shaper input.

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USSR

UDC: 681.325.65

DOLKAR, V. M., NOVIK, G. Kh., STEPANOV, V. I., REDINA, S. F.

"A Pulse Shaper"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 12, Apr 71, Author's Certificate No 299957, Division H, filed 2 Apr 70, published 26 Mar 71, p 210

Translation: This Author's Certificate introduces a pulse shaper which contains two flip-flops and an AND-OR-NOT gate. As a distinguishing feature of the patent, pulses of constant length with a short delay are produced by connecting the set terminals of the flip-flops to the input of the device and to the first input of the first AND circuit in the gate. The second input of this AND circuit is connected to the one-output terminal of the first flip-flop, the reset terminal of this flip-flop being connected to the output of the gate and the output of the device, while its zero-output terminal is connected to the reset terminal of the second flip-flop. The one-output terminal of the second flip-flop is connected to the input of the second AND circuit in the gate.

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USSR UDC: None

DOLKART, V. M., KANEVSKIY, M. M., NOVIK, G. Kh., and STEPANOV, V. N.

"Microprogram Processer"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obrastsy, tovarnyye znaki, No 4, 1973, p 112, No 363980

Translation: The item contains a memory and microcommand unit, a microcommand register, an address register, an arithmetic unit, a control and synchronization unit, distinguished in that, for the purpose of simplifying the processer, it contains a register of transition symbols as well as AND and OR circuits, with the input of each flip-flop of the register of transition symbols connected with the outputs of the AND circuits; the first inputs of the latter are connected with the corresponding digits of the microcommand register, the second inputs are connected with the single output of the flip-flop for the minor digit of the microcommand register, and the third inputs connected with the control and synchronization unit; the outputs of the transition symbol register flip-flops are connected with the first inputs of the AND circuits, the second inputs of which are connected with the control and synchronization unit, while the outputs are connected through the OR circuits with the inputs of the flip-flops for the corresponding address register digits.

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TITLE-- PROGRESS IN ATOMIC ENERGETICS

NEWSPAPER-- SOTSIALISTICHESKAYA INDUSTRIYA, JANUARY 30, 1970, P 1, COLS 1-4

ABSTRACT-- THE FIRST SECTION OF THE BELYY YAR ATOMIC POWER PLANT WAS ACCEPTED BY A GOVERNMENT COMMISSION IN DECEMBER OF 1959 AND ITS RATED POWER OUTPUT HAS REACHED 300,000 KW. THE SECOND REACTOR OF THE PLANT IS OF THE SAME SIZE AS THE FIRST BUT PRODUCES TWICE THE AMOUNT OF POWER /200,000 KW/. THE EXPERIENCE OF THE BELYY YAR PLANT HAS SHOWN THAT THE DEPTH OF THE BURNOUT HAS EXCEEDED THE EXPECTATIONS. THIS WILL MAKE IT POSSIBLE TO REDUCE THE COST OF THE GENERATED POWER.

THE TYPE OF THE BELYY YAR REACTOR IS REFERRED TO AS "CHANNEL" REACTOR, I.E., A REACTOR THAT DOES NOT REQUIRE A VESSEL. TWO PHOTOGRAPHS SHOW THE POWER ROOM AND THE REACTOR ROOM OF THE PLANT.

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