

USSR

UDC 612.26

TIUNOV, L. A., KLIORIN, A. I., KOLOSOVA, T. S., IVANNIKOV, Yu. G., and
AKHMATOVA, M. A., Leningrad

"The Causes of Differences in Carbon Monoxide Concentration in Exhaled Air
in Man"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 11,
1972, pp 1756-1759

Abstract: In man, carbon monoxide concentration in exhaled air normally varies from 2.8 to 25 mg/m³. It increases with increasing erythrocyte concentration. For example, when erythrocyte concentration is 4.71 million/mm³, the average CO concentration is 9.6 mg/m³ of exhaled air, and when the RBC count is 5.34 million/mm³, CO concentration is 22.9 mg/m³. On the other hand, the concentration of catalase in the erythrocytes decreases with increasing hemoglobin concentration in blood; and with decreasing catalase, hemoglobin catabolism increases. The CO molecule is formed through incomplete oxidation of the carbon atom in the alphanethylene bridge in the tetrapyrrole ring. Thus, CO production is proportional to hemoglobin catabolism, and it increases in hemolysis. Since 1.27 units of CO are produced for one equivalent unit of hemoglobin catabolized, other hem-containing compounds, such as myoglobin and
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TIUNOV, L. A., et al., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov,
Vol 58, No 11, 1972, pp 1756-1759

cytochromes, also contribute certain amounts of CO. However, the ratio of CO produced over hemoglobin catabolized is so constant that measurements of CO concentration in exhaled air can be used as an indirect method of determining erythrokinetics.

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EFFECT OF FREON-114B2 ON THE ACTIVITY OF ISOMERES OF LACTATE DEHYDROGENASE
[Article by L. A. Ilunov, V. A. Veroniy, A. A. Perlovskiy, L. A. Lyubchikova
and ~~L. A. Kozlovskiy, Kholmchikov, Kholmchikov, Kholmchikov, Kholmchikov, Kholmchikov,~~
Vol. 9, No. 3, September-October 1977, pp. 87-89, submitted for publication
16 December 1971]

UDC 577.158.347.01.04

The literature contains information on the possibility of atmospheric contamination of closed spaces by chemical substances emanating from machines, technical apparatus and different systems (Kleason; V. V. Kurov and L. A. Ilunov; Slazet). In particular, the attention of researchers has been drawn to the study of freons. For example, the presence of freon-114B2 in the air of American spacecrafts has been noted by Wessel, Stameyer, Anderson and Sanders. It is emphasized that upon contact with heated surfaces the freons decompose, forming hydrogen chloride and fluoride and traces of phosgene (S. A. Fel'don and H. A. Zakari; Wenzel). Accordingly, a study of the biological effect of freon-114B2 and the products of its decomposition is a timely problem.

The toxic effect of freon-114B2 has been studied by B. D. Karlov, A. I. Korshakova, et al. A relatively low toxicity, presence of a narcotic effect, and danger of products of pyrolytic decomposition have been noted (Hovetti). Taking into account that the narcotic effect is accompanied by hypoxia and accumulation of lactic acid in cerebral tissues (A. V. Palladin and B. I. Khaykina), in the case of intoxication by freon-114B2 one can expect changes in lactate dehydrogenase activity, since an excess of the substrate exerts a considerable inhibiting effect on this enzyme (Kubovskiy and Giti; Otolenkhi and Denetst).

A change in lactate dehydrogenase activity was registered in intoxications by carbon monoxide (L. A. Ilunov and V. V. Kurov; Reom, et al.) and lead (Quattrini and Catala). A change in the isoenzymes of lactate dehydrogenase has been described during hypoxia caused by an oxygen shortage (Yu. A. Yurov) and in poisoning by styrene (Klein, et al.).

JPRS 57577
IS 86-72

KALOSOVA, T. S.

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UDC 577.1:615.7/9

~~KOLOSOVA, T. S.~~, TIUNOV, L. A., KUSTOV, V. V., IVANOVA, L. V., VASIL'EV, G. A.
LEMESH, G. A., and AKHMATOVA, M. A.

"Toxic Effect of Gaseous Products of the Organism's Vital Activity"

V sb. Probl. kosmich. biol. (Problems in Space Biology -- Collection of Works),
Vol 16, Moscow, "Nauka," (Science), 1971, pp 182-190 (Russian) (from RZh-
Biologicheskaya Khimiya, No 20, 25 Oct 71, Abstract No 20F1687 from summary)

Translation: Rats were kept for 26 days in metal airtight chambers with
automatic O₂ supply and CO₂ excess removal. It was established that the
complex of gaseous substances given off by the organism causes lung tissue
damage and anemia, increases oxygen consumption and the weight of the
thyroid gland, and alters blood catalase activity.

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KOLOSOVA, Yu. I.

"Debugging Programs for the Minsk-222 Computer System"

Vychisl. Sistemy [Computer System -- Collection of Works], No 51, Novosibirsk, 1972, pp 76-81 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V681, by the author).

Translation: Three methods are described for debugging parallel programs for the Minsk-222 computer system. The first allows a parallel program to be debugged on a single machine using a special modeling program, the second allows debugging on several machines using systems debugging programs, while the third is a combined method. A flow chart of the modeling program and a matrix of the systems interactions are presented.

Pharmacology and Toxicology

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UDC 616.154-008-06:615.0997-092.9

KOLOSOVSKAYA, Y. M., Department of Toxicology, Belorussian Scientific Research Sanitary Hygiene Institute

"Modification of Some of the Indexes of Serotonin Metabolism and Cholinesterase Enzymatic Activity Under Conditions of the Prolonged Action of Different Doses of Chlorophos"

Minsk, Zdravookhraneniye Belorussii, Vol 17, No 1, Jan 71, pp 54-56

Translation: Results of investigations previously carried out by the authors (V. M. Kolosovskaya and K. A. Vyatchannikov, 1969) indicated that shifts in serotonin concentration in the blood after a single introduction of chlorophos into the gastrointestinal tract of white rats occur earlier and are manifested to a greater degree than the depression of cholinesterase activity.

The sensitivity of some of the indexes of serotonin metabolism and cholinesterase activity to the effect of different doses of chlorophos was studied under conditions of prolonged and multiple introduction of the compound into the organism of white rats.

Chlorophos was introduced into the stomachs of experimental animals daily for a period of six months in doses of 1, 2.5, 5, 10, and 15 mg/kg which corresponds to 1/750, 1/300, 1/150, 1/75, and 1/50 LD₅₀. The animals 1/7

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KOLOSOVSKAYA, V. M., Zdravookhraneniye Belorussii, Vol 17, No 1, Jan 71, pp 54-56

were sacrificed on the 30th, 60th, 90th, 120th, 150th, and 180th days after beginning of intoxication.

Serotonin concentration in the blood was determined by the Wayne method, cholinesterase activity by the Hestrin method, enterochromaffin cells (EC) were detected in longitudinal sections of the duodenum by the Masson-Hamperl method with the use of the Fontan solution, and were calculated in one centimeter of the section, and depending on the saturation of the secretion with the granules, were classified on the basis of a four-point scale system (V. I. Talapin, 1964). The obtained data were statistically processed. Modifications of the serotonin content in the blood of white rats under the influence of prolonged administration of chlorophos in the above-indicated doses (in percentages with respect to controls) are presented in the table.

It is apparent from the table that the prolonged administration of chlorophos in doses of 1 and 2.5 mg/kg fails to induce statistically reliable modifications in the serotonin concentration in the blood of albino rats. In the experimental animals given chlorophos daily in a quantity of 5 mg/kg, the blood content of serotonin, beginning with the end of the 3rd month after
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KOLOSOVSKAYA, V. M., Zdravookhraneniye Belorussii, Vol. 17, No 1, Jan 71,
pp 54-56

| 3. Доза в мг/кг | 1. Показатели животных, получивших хлорофос в течение | | | | | |
|-----------------------|---|---------------|---------------|----------------|----------------|----------------|
| | 2. 30 дней | 2. 60 дней | 2. 90 дней | 2. 120 дней | 2. 150 дней | 2. 180 дней |
| 1 мг/кг | 99,1±11,3 | 102,3±13,2 | 103,3±15,1 | 94,8±11,3 | 97,2±9,9 | 102,8±7,1 |
| 2,5 мг/кг | 103,3±10,3 | 93,9±12,3 | 93,4±14,1 | 108 ±15,1 | 116,9±17,9 | 111,3±9,4 |
| 5 мг/кг | 100,9±13,2 | 109,9±16,5 | 137,3±17,4* | 164 ±20,3* | 133,5±19,9* | 111,3±10,4 |
| 10 мг/кг | 119,3±29,2 | 169,3±30,2* | 212,7±12,7* | 193,4±14,6* | 120,7±15,1 | 105,7±12,3 |
| 15 мг/кг | 263,7±27,3* | 252,8±28,3* | 184,4±17,9* | 148,6±20,7* | 94,3±10,4 | 102,3±8 |

* — статистически достоверные изменения.

Key: 1. Indexes of Animals receiving chlorophos in the course of
2. Days
3. Dose in mg/kg

*—statistically reliable modifications

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KOLOSOVSKAYA, V. M., *Zdravookhraneniye Belorussii*, Vol 17, No 1, Jan 71, pp 54-56

the beginning of administration, increased by 37% and by the end of the 4th month by 64% as compared with controls. Changes noted in the animals given relatively large doses 10 and 15 mg/kg, were more pronounced in this respect.

A comparison of the data presented makes it possible to detect a definite law which governs the character of elevation of serotonin concentrations: the larger the chlorophos dose, the more rapid the increase in the blood content of serotonin, and the more sharply pronounced the subsequent decrease in blood serotonin, reaching a value of 93.4% of controls at the end of the 5th month after administration of chlorophos in doses of 15 mg/kg.

The results obtained in the study of the enterochromaffin cells (EC) state tend to bear out the disturbance of processes of serotonin metabolism induced by the prolonged administration of chlorophos to white rats.

A histological investigation of the EC state in the dynamics of a six-month experiment revealed a gradually increasing impoverishment of the cells in serotonin granules. So extensive was the reduction in some of the EC that the cells could not be detected.

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Chlorophos in a dose of 1 mg/kg has no essential effect on EC. However, with the increase in dosage, the modifications acquire a more pronounced character. For instance, if a dose of 2.5 mg/kg induces statistically reliable reductions of the granular suspension index and the saturation index, then a dose of 5 mg/kg considerably decreases all of the three indexes. Upon administration of chlorophos in a dose of 15 mg/kg, the number of EC at the end of the 4th month after the beginning of the experiment equals 40%, the granular suspension index -- 27.8%, and the saturation index -- 71.8% as compared with controls. The indicated modifications gradually begin to normalize; however, at the end of six months they had not yet attained their initial value.

It was established in addition that the prolonged multiple administration of chlorophos in doses of 1 to 15 mg/kg to white rats had no effect on blood levels of thrombocytes and erythrocytes. Consequently, elevation of the serotonin level under the influence of chlorophos pesticide has no connection with the hemodynamic shifts which take place, and the redistribution of the formed elements which accompanies such shifts. It is possible that at the basis of elevation of the blood serotonin level is the change

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KOLOSOVSKAYA, V. M., Zdravookhraneniye Belorussii, Vol 17, No 1, Jan 71, pp 54-56

which takes place in the biochemical mechanisms of its synthesis, deposition, and decomposition, a change which is confirmed by EC modifications.

A study of the effect of the protracted multiple introduction of chlorophos into the organism of white rats on cholinesterase activity in erythrocytes and blood plasma established that the pesticide in doses of 1, 2.5, 5, 10, and 15 mg/kg does not depress cholinesterase activity for a period of six months.

The administration of chlorophos in a dose of 15 mg/kg reduced cholinesterase activity in the erythrocytes by 25.4% beginning with the 90th day after administration of the pesticide, according to statistically reliable data. Cholinesterase activity was reduced 20% beginning with the 120th day and reduced at the same time cholinesterase activity in the blood plasma by 30% and 35% on the 90th and 120th days. The indicated shifts then began to normalize by the 180th day after administration of the pesticide.

A comparative evaluation of some of the indexes of serotonin metabolism (its concentration in the blood, state of EC) and cholinesterase activity under conditions of a prolonged multiple introduction of small
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doses of chlorophos into the organism of white rats indicated that statistically reliable modifications of indexes of serotonin metabolism develop upon the administration of considerably smaller doses (changes in serotonin concentration in the blood from a dose of 5 mg/kg and change in the state of EC from a dose of 2.5 mg/kg), while reliable changes in cholinesterase enzymatic activity in the erythrocytes and blood plasma develop only when chlorophos is administered in a dose of 15 mg/kg.

The investigations have thus established an adequately high sensitivity of some of the serotonin indexes (its concentration in the blood and the EC state) to the action of small doses of chlorophos. This sensitivity is of considerable importance in the hygienic practice of establishing norms for this pesticide in various environmental conditions, and in the toxicological evaluation of the pesticide, which cannot be accomplished only on the basis of its cholinesterase activity, especially under conditions of a chronic experiment.

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UDC: None

VAL'KOV, A., KOLOSOVSKIY, A., and TOPCHILOV, N.

"Field-Effect Transistors KP103"

Moscow, Radio, No. 4, April 71, pp 58-59

Abstract: Published in the "Data Sheets" department of the journal, this article gives detailed information concerning the field effect transistor, type KP103. This information includes a sketch of its structure, plan and cutaway profile views, a diagram of electrode connections, classification of transistors by types, a list of electrical parameters, drain-gate and drain characteristic curves. An earlier issue of this journal (No. 6, 1970) published the electrical parameters and practical circuits using field effect transistors of the KP102 type. It is stated that assembly-line manufacture of the KP103 has just begun. The KP103 has much in common with the KP102; it is a silicon device, is controlled through a p-n junction, and has a p-type channel.

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USSR

UDC 621.378:533.9

BURAKOV, V. S., MAUMENKOV, P. A., IVANOV, V. P., and KOLOSOVSKIY, G. A.

"Study of the Passage of High-Power Laser Radiation Through an Optically Dense Plasma"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 16, No 2, Feb 72, pp 239-242

Abstract: The article describes results of an experimental study of the passage of ruby-laser radiation (density $10^6 - 5 \cdot 10^8$ w/sq cm, duration $3 \cdot 10^{-8}$ sec) through a quasistationary plasma with a temperature of 3-4 ev and a comparatively high absorption coefficient ($4 - 7 \text{ cm}^{-1}$). Nonlinear phenomena were found during the passage of the laser radiation through the plasma: viz., bleaching and an increase in the absorptivity of the plasma. The mechanism of the observed plasma bleaching is discussed.

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USSR

UDC 519.217

KOLOSOVSKIY, I. G.

"Determination of Queue Length for Combined Processing of Demand"

Teor. kibernetika - Sbornik (Theory of Cybernetics - Collection of Works),
Kiev, No 4, 1970, pp 60-67 (from Referativnyy Zhurnal " Matematika, No 8,
Aug 71, Abstract No 8V105 by Ye. Kashafutdinova)

Translation: A one-channel queueing system with two queues of demands at the input is considered. Service commences when in each of the queues there is at least one demand. Each of the demands after servicing returns to its queue with a certain probability. It is assumed that the input flows of demands to each of the queues is of the Poisson type and that servicing is exponential. The mean number of servicing phases in each queue and the mean queue length are determined for the steady case by the method of generating functions.

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UDC 621.762.8

USSR

ZHUNKOVSKIY, G. L., NAVROTSKIY, B. S., and KOLOSVETOV, Yu. P., Kiev Polytechnic Institute, Institute of Problems of Material Science, Academy of Sciences UkrSSR

"Borating of Cobalt and Some Alloys Based on It"

Kiev, Poroshkovaya Metallurgiya, No 11 (119), Nov 72, pp 33-35

Abstract: A study was made of the possibility of increasing the hardness of a cobalt component of a hard-alloy instrument by means of chemico-thermal treatment. Specially prepared alloys with 0, 2, 4, 8, and 20% WC were used to investigate the dependence of the rate of interaction of the alloys with the boron-containing medium on the temperature and duration of the process and also on the concentration of the dissolved WC in the cobalt. Borating is shown to take place most rapidly in pure cobalt, during which the thickness of the boron coating considerably increases when potassium fluoborate is used as an activator. Borating of pure cobalt and its alloys with 2-20% WC results in a hardness increase to 1100 kg/mm². X-ray analysis revealed that the coatings on cobalt-based alloys consist of borides with a Co₂B lattice; their microhardness is analogous to that for a coating on pure cobalt. Three figures, one table, five bibliographic references.

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USSR

UDC: 621.373:530.145.6

KOLOSOVSKIY, O. A.

"Emission on Vibrational-Rotational Transitions in a CO₂ Laser"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. 9, pp. 93-98 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12D204)

Translation: The author investigates emission on vibrational-rotational transitions in CO₂ lasers as a function of resonator length when the resonator length is adjusted to $\lambda/2$. It is shown that selection of resonator length close to $L = 20 \text{ cm} \cdot K$, where K is a whole number, can produce emission on a single transition ($P_{20} \lambda = 10.5915 \mu$) or emission on several transitions in the order of succession of the frequencies of vibrational-rotational transitions of the CO₂ molecule. Author's abstract.

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KOLOT, V. YA., TATUS, V. I., RYBALKO, V. F., FOGEL, YA. N., VODOLAZHCENKO, V. V., and YEVSEYEV, V. M., Engineering Physics Institute, Academy of Sciences Ukrainian SSR, Khar'kov

"Effect of Oxygen Pressure on the Initial Stage of Molybdenum Oxidation"

Leningrad, Fizika, Tverdogo Tela, Vol 13, No 6, 1971, pp 1521-1524

Abstract: The effect of oxygen pressure on the initial stage of oxidation of molybdenum was investigated using the technique of secondary ion-ion emission. Molybdenum strips were heated in vacuum up to a temperature of 1900°K , which completely cleaned their surfaces for the adsorbed particles and particles of surface compounds. Each experiment began with the molybdenum surface brought to atomic purity. Then the molybdenum temperature was reduced from 1900°K to a temperature at which the experiment was conducted; namely, the range $300\text{-}1900^{\circ}\text{K}$. The kinetics of oxide accumulation on the surfaces of molybdenum strips was studied; the current I of a beam of secondary ions driven off from the oxide molecule under study was plotted as a function of time t . The oxygen pressure was varied within the limits $5 \cdot 10^{-8}$ - $1 \cdot 10^{-6}$ torr. The following ion species were investigated: MoO_2^+ ,

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KOLOD, V. YA., et al., Fizika Tverdogo Tela, Vol 13, No 6, 1971, pp 1521-1524

MoO_3^- , Mo_2O_3^+ , Mo_2O_6^+ , and Mo_2O^+ . An increase in oxygen pressure leads to the following: 1) a shortening of the latency. (time interval between the onset of oxygen adsorption and the instant of oxide formation on molybdenum surfaces); 2) a shortening of the time interval required for an equilibrium oxide film to form on surfaces; and 3) increased oxide concentration. The condition of the surface film (composition and concentration of oxides) is reproducible and reversible with variation in temperature and oxygen pressure. This indicates that the oxide film consists of a layer of surface oxides.

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1/2 020

UNCLASSIFIED

PROCESSING DATE--16OCT70

TITLE--STUDY OF THE PROCESS OF PURIFICATION OF MOLYBDENUM FROM CARBON
IMPURITIES BY THE METHOD OF SECONDARY ION ION EMISSION -U-

AUTHOR--(04)-KULOT, V.YA., TATUS, V.I., RIBALKO, V.F., FOGEL, YA.M.

COUNTRY OF INFO--USSR

R

SOURCE--UKRAINS'KII FIZICHNII ZHURNAL VOL. 15, FEB 1970, P. 266-268

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MOLYBDENUM, OXIDATION, CARBON, CHEMICAL PURIFICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1394

STEP NO--UR/0185/70/015/000/0266/0268

CIRC ACCESSION NO--AP0107867

UNCLASSIFIED

PROCESSING DATE--16OCT70

UNCLASSIFIED

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CIRC ACCESSION NO--AP0107867
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. DESCRIPTION OF EXPERIMENTS IN WHICH A METHOD OF SECONDARY ION EMISSION DESCRIBED BY FOGEL (1967) WAS APPLIED IN STUDYING THE PROCESS OF REMOVAL OF CARBON IMPURITIES FROM MOLYBDENUM FOIL SAMPLES AT 1900 DEG K IN OXYGEN. DECARBONIZATION OF SAMPLES WAS CONTROLLED IN THESE EXPERIMENTS BY MEASURING THE SECONDARY CARBON ION BEAMS WITH THE AID OF A MASS SPECTROMETER. THE AMOUNTS OF CARBON RETAINED BY MOLYBDENUM SAMPLES AFTER A 6 HR HEATING WERE FOUND TO BE LOW ENOUGH TO HAVE NO EFFECT ON MOLYBDENUM OXIDATION.
FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, PIZIKO TEKHNIHNII INSTITUT, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 621.372.8

KRAMSKOY, G. D., ZYKOV, A. I., GRISHAYEV, I. A., and KOLOT, Z. M.

"Dispersion Properties of a Circular Diaphragm Waveguide With Radial Cuts of the Diaphragms ($\pi/2$ Type Oscillations)"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 51, No 3, Mar 71, pp 567-571

Abstract: The effect of the length of radial cross-shaped and right-angle (two cuts at an angle of 90°) cuts in a diaphragm with a slit width of 0.4 mm on the dispersion characteristics of E_{01} , EH_{11} , EH_{12} , HH_{21} , and E_{02} waves was investigated. The purpose of the study was to select versions and types of radial cuts which would shorten as much as possible the number of repetitions of segments with the same geometry in different sections of a multi-section accelerator; i.e., to spread the frequencies of hybrid waves which can be excited by the beam in these sections. Measurements show that the reason for the effective rise in the critical current of the accelerating sections when radial cuts of the diaphragms are applied is the considerable lowering of the Q of the system for high defocusing EH waves as compared with a waveguide without cuts. The data on Q and the frequencies of the synchronous interaction of the beam with higher types of oscillations are

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KRAMSKOY, G. D., et al, Zhurnal Tekhnicheskoy Fiziki, Vol 51, No 3, Mar
71, pp 567-571

used to determine approximately the critical current of a waveguide with a
given geometry.

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USSR

UDC 621.316.351(088.8)

MINITS, N. T., KOLOTAYEV, A. V.

"Three-Phase Conductor"

USSR Author's Certificate No 269232, filed 3 Feb 67, published 3 Aug 70
(from RZh-Elektrotehnika i Energetika, No 2, Feb 71, Abstract No 2 Yel04 P)

Translation: An invention pertaining to three-phase conductors with symmetrical arrangement of the buses is described. Its purpose is to decrease the overall dimensions of the device as a result of which the inductive reactance and losses are reduced. The patented design is distinguished from the known ones by the fact that the phase buses are attached to one insulator executed in the form of a three-point star. The two lower buses are also attached to base insulators installed on a dolly. There is 1 illustration.

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1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--REACTION OF BASOPHIL DEGRANULATION WITH BRAIN ANTIGEN IN THE CLINIC
OF NEUROINFECTIOUS DISEASES -U-
AUTHOR--KOLOTLIC, D.V.

COUNTRY OF INFO--USSR *K*

SOURCE--VRACHEBNOYE DELO, 1970, NR 6, PP 139-142

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIGEN, BRAIN, LEUKOCYTE, INFECTIVE DISEASE, VIRUS DISEASE,
NERVOUS SYSTEM DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0703

STEP NO--UR/0475/70/000/006/0139/0142

CIRC ACCESSION NO--AP0126415

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--300CY70

CIRC ACCESSION NO--AP0126415

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY IS PRESENTED OF 92 PATIENTS WITH NEUROINFECTIONOUS DISEASES OF VARIOUS ETIOLOGY USING THE REACTION OF INDIRECT DEGRANULATION OF BASOPHIL LEUCOCYTES WITH BRAIN ANTIGEN FROM PRACTICALLY HEALTHY BEFORE DEATH PERSONS. POSITIVE REACTIONS WERE REGISTERED MORE FREQUENTLY (68PERCENT) IN NEUROVIRAL DISEASES AS COMPARED WITH BACTERIAL NEUROINFECTIONS. SIMILAR RESULTS WERE RECEIVED DURING THE RECONVALESCENCE PERIOD. THE SIGNIFICANCE IS EMPHASIZED OF AUTOALLERGIC REACTIONS IN THE PATHOGENESIS OF VIRAL NEUROINFECTIONS. FACILITY: KLINIKA NEYROINFEKTSIY KIYEVSKOGO NAUCHNO-ISSLEDOVATEL'SKGO INSTITUTA INFEKSIONNYKH BOLEZNEY MZ USSR.

UNCLASSIFIED

USSR

UDC 547.241

MATYUSHA, A. G., KOLOTILO, M. V. and DERKACH, G. I. (deceased), Institute of Organic Chemistry, Academy of Science, Ukrainian SSR

"Derivatives of Isocyanates of Phosphorus Thioacids"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 996-1003

Abstract: Dialkyl(diaryl)isocyanatophosphites when allowed to react with thiophosphoryl chloride or elemental sulfur to form the corresponding dialkyl(diaryl) isocyanatothiophosphites and dialkyl(diaryl)isocyanatophosphine sulfides.

Dialkyl(diaryl)isocyanatophosphates and thiophosphates, oxides and sulfides of dialkyl(diaryl)isocyanatophosphines, react with amines, alcohols and mercaptans to give the corresponding addition products at the isocyanato group.

The yields, melting points, and other physical data are presented in tabular form.

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UDC: 547.239 - 661.718.1

K
KOLOTOLO, M.V., MATYUSHA, A.G., and DERKACH, G.I., (Deceased), Institute of Organic Chemistry, Kiev, Academy of Sciences Ukrainian SSR

"Derivatives of Isocyanates of Trivalent Phosphorus Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 758-766

Abstract: Dialkyl-, diaryl-, diamidophosphorous, dialkyldithiophosphorous and dialkyl(diaryl)phosphinous acid chlorides react with sodium cyanate to give the corresponding isocyanates of trivalent phosphorus acids, which are monomers or dimers depending on the nature of the substituents at the phosphorus. Isocyanates of phosphorous and phosphinous acids react with nitrogen dioxide to give isocyanates of phosphoric and phosphinic acids. Isocyanates of dialkyl(diaryl)phosphorous and dialkyl(diaryl)phosphinous acids add amines to form N-phosphorylated ureas. Chlorine atoms react in the action placement of the second chlorine atom by a dialkylamido group results

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KOLOTILO, M. V., et al., Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 758-766

in instant dimerization of the isocyanate. Isocyanatophosphorous acid dichloride also reacts on the chlorine under the action of alcohols in the presence of bases to give isocyanates of dialkylphosphorous acids.

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KOLOTILOVA, I. A.

SO: JPRS 54019
9 SEP 71

UDC: 617-001-08:658.562

QUALITY CONTROL OF INJURY TREATMENT

(Article by I.A. Kolotilova, Leningrad Scientific Research Institute of Traumatology and Orthopedics, Leningrad, U.S.S.R. Vreden (Professor V.S. Balakina, LC Director); Moscow, Sovetskoye Zdravookhraneniye, Russian, No 7, 1971, submitted 5 February 1971, pp 46-68)

National organization of ambulatory traumatological care, in which first competent care is combined with subsequent treatment of the patient until he has fully recovered has made it necessary to develop a criterion to evaluate the quality of such treatment. Such indices as mean duration of disability, extent of disability, and time of visit to the traumatological center characterize largely the organizational aspects of operation of such centers rather than the quality of treatment rendered to patients with injuries.

In 1936, the Leningrad Scientific Research Institute of Traumatology and Orthopedics (Leningrad, U.S.S.R. Vreden (S.Va. Freydl)) in its search for the most objective and reliable means of quality of patient treatment in injury cases proposed a rating system by means of expert evaluation of long term results. S.S. Gireblov developed a five-point system for the quantitative expression of such evaluation. This system became popular in traumatological centers. Expert evaluation of long term results of treatment makes it possible to analyze not only the organization of outpatient traumatological care, but also the treatment methods used and the results of therapeutic activities.

We submit the results of expert evaluation of treatment of injuries in Leningrad traumatology centers concerning 604 patients (64.9 percent women and 35.1 percent men). Among these cases there was prevalence of individuals ranging in age from 50 to 69 years (50.7%). Patients up to 19 years of age constituted 11.2 percent, from 20 to 29 years 7.1 percent, from 30 to 39 years 11.4 percent, from 40 to 49 years 14.1 percent, and over 70 years 31.4 percent.

The structure of injuries was rather diverse (Table 1).

In males, 28.2 percent were cases of wrist and finger fractures, and 15.6 percent tendon injuries. In women there was prevalence of radial

USSR

UDC 615.849.1.015.25

KUZNETSOVA, L. A., RYBAKOV, N. I., FROLOVA, A. V., and KOLOTILOVA, Y. G.,
Moscow Scientific Research Institute of Roentgenology and Radiology

"Radioprotective Properties of Bis(2-Aminoethyl) Disulfide Dihydrobromide
in the Longwave Band of X-Ray Irradiation"

Moscow, Kreditsinskaya Radiologiya, Vol 15, No 12, 1970, pp 7-11

Abstract: The dose decrease factor (DDF) of the radioprotector bis(2-aminoethyl) disulfide dihydrobromide was determined using as a test the induction of prophage development in lysogenic bacteria. Suspensions of a 4-hour bacterial culture of E. coli K-12 (λ) in physiological saline were exposed to x-rays (100 to 300 r) with an effective energy of 35.7 kev. All the doses of the radioprotector used (0.01, 0.005, 0.001 M) markedly reduced the yield of phage particles in the irradiated lysogenic culture. The mean value of the DDF for the 0.005 M concentration (derived from 4 experiments) was 2.1 ± 0.94 . This value remained constant within the limits of experimental error in the entire range of irradiation doses. Another series of experiments showed that the DDF for longwave x-ray irradiation in the energy region of 10.3 to 35.7 kev is independent of the effective energy.

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USSR

UDC: 8.74

GRECHINA, L. A., KOLOTOSHIN, S. P.

"Some K-list Relationships in Systems Algebra"

Prom. Kibernetika [Industrial Cybernetics--Collection of Works], Kiev, 1971, pp 96-100 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V529, by V. Mikheyev)

Translation: Certain K-list relationships from systems algebra are studied. System α refers to a certain relationship in a pair of sets X and Y, i.e., the subset of the Cartesian product $X \times Y$. A K-list is defined by the relationship $\psi_{\alpha}(\omega) = \{X, Y: t\}$, where

$$\psi_{\alpha}(\omega) = \begin{cases} 1, & \epsilon \omega - \alpha \\ 0, & \epsilon \omega - \alpha \end{cases}$$

is the indicator of set α . It is shown that: 1) the K-list characterizing the indicator of system $\alpha \beta$ is the union of the K-lists representing the systems α and β ; 2) the K-list describing a system α^2 is the sequential union of the

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USSR

Grechina, L. A., Kolotoshin, S. P., Prom. Kibernetika, Kiev, 1971, pp 96-100

K-list ψ_α with its self; 3) the intersection of two equivalent systems is an equivalent system.

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USSR

UDC 51:155.001.57:612.82

VLASOV, Yu. A., KOLOTOV, A. T.

"Control of the Rhythm of Cardiac Contraction"

Probl. Kibernetiki [Problems of Cybernetics -- Collection of Works], No 23, Moscow, Nauka Press, 1970, pp 275-279, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V680 by the authors).

Translation: An attempt is made at model analysis of the effectiveness of the control actions in the problem of the spontaneous contractile rhythm of the heart. One method of changing the rhythm of cardiac contraction is studied (by electrical stimulation). The following problem is solved: how can the frequency of output signals of network T be reduced with unchanged frequency of input signals?

1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ONE PRINCIPLE OF FORMATION OF CHEMICAL COMPOSITION OF NATURAL
WATERS IN THE UPPER PART OF THE SUPERGENE ZONE IN MOUNTAIN FOLDED
AUTHOR--(02)-KOLOTOV, B.A., RUBEYKIN, V.Z.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(5), 1149-50

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOCHEMISTRY, METAL ORE, GROUND WATER, NORMAL WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0163

STEP NO--UR/0020/70/191/005/1149/1150

CIRC ACCESSION NO--AT0132443

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132443

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PERUSAL OF 10,000 ANALYSES OF WATER SAMPLES, TAKEN DURING EXPLORATION FROM SPRINGS, BROOKS, DRILL HOLES, AND MINE WORKS IN THE MARITIME TERRITORY, DETECTED THE FOLLOWING CHARACTER OF CHEM. COMPN. OF THESE WATERS: THE CONCNS. OF A LARGE GROUP OF ELEMENTS, PRESENT IN WATERS FROM UPPER PARTS OF THE SUPERGENE ZONE, HAVE A CONST., DIRECTLY PROPORTIONAL, MUTUAL DEPENDENCE. THIS IS ESP. CLEAR FOR THE AL AND TI AND THE AL, TI, V, ZR, CR, AND GA GROUPS AND SOMEWHAT RARER FOR THE BE, MN, RARE EARTHS, AND B GROUP. A DEFINITE CONCEN. OF ONE OF THESE ELEMENTS IN THE AREAS SITUATED UNDER RELATIVELY SIMILAR NATURAL CONDITIONS CORRESPONDS, AS A RULE, TO DEFINITE CONCNS. OF OTHER ELEMENTS OF THE SAME GROUP. A SIMILAR DEPENDENCE WAS OBSD. FOR THE SAME ELEMENTS IN SOME AREAS OF PAMIR AND TIEN-SHAN. THEREFORE, THIS REGULARITY HAS A GENERAL CHARACTER APPLICABLE TO ALL MOUNTAIN TERRITORIES WITH HUMID CLIMATE. THIS SUGGESTS USING THE HYDROCHEM. DATA TO SOLVE SOME MAPPING PROBLEMS (MAPPING OF AREAS WITH INTRUSIVE BODIES OF DIFFERENT COMPN. AND GENESIS AND ZONES OF LARGE REGIONAL FRACTURES (TECTONIC FUNCTIONS)) AND TO DET. THE SPECIALIZATION OF INTRUSIVE COMPLEXES. IT SHOULD BE USED WIDELY FOR INTERPRETATING THE RESULTS OF HYDROCHEM. SURVEYS SUCH AS SEPN. OF ORE ANOMALIES FROM ORE FREE DEPOSITS AND COMPILING PROGNOSTICATION HYDROGEOCHEM. MAPS.

UNCLASSIFIED

USSR

UDC: 538.61

KOLOTOV, O. S., LOBACHEV, M. I., and POGOZHEV, V. A.

"Stroboscopic Magneto-optical Device for Studying Polarity Reversal of Magnetic Tape"

Moscow, Pribory i tekhnika eksperimenta, No 1, 1973, pp 218-220

Abstract: The purpose of the equipment described in this paper is to observe the dynamic domains and to measure the integral pulse characteristics of magnetic tape. A block diagram of the device is shown; the magnetic-optical Kerr effect is used for observation of the domains, and the film being investigated moves through a magnetic field reversing device consisting of an M-shaped form and an erase winding. Photographs of the domains, obtained for films 1200 Å thick in a magnetic field intensity of four oersteds, are reproduced to show the formation of the edge domains and their spread to the central regions of the tape. The authors express their thanks to R. V. Telesnin for his valuable advice.

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USSR

UDC: 621.373.431(088.8)

KOLOTOV, O. S., Moscow University

"A Relaxation Oscillator"

USSR Author's Certificate No 280534, filed 13 Jan 69, published 9 Dec 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6G274 P)

Translation: A relaxation oscillator is proposed which contains an electronic tube with secondary emission. The oscillator has input and output circuits and an additional coupling timer capacitor. To reduce the rise time of the pulses generated, the capacitor is connected between the screen grille and dynode.

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Thin Films

USSR

UDC: 539.216.22:538.24

K
KOLOTOV, O. S., POGOZHEV, V. A., and TELESNIN, R. V., Moscow State University
imeni M. V. Lomonosov

"The Threshold Field of Irregular Rotation on Thin Permalloy Films"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1,
Jan 70, pp 216-217

Abstract: The results are given of an investigation of the threshold field of irregular rotation in thin permalloy films (83 Ni;17 Fe). It may be expected that as the result of magnetization dispersion and magnetostatic interactions of local sections, the threshold field of irregular rotation at film magnetic reversal along the light axis must exceed the value of the effective anisotropy field H_k . The conditions of deposition were selected in such a way as to obtain finely divided films, i.e., films which divide themselves into a network of strip domains, more or less uniformly distributed on the film surface. The methods of Kobelev and Stein were used for measuring the anisotropy field. The threshold field H_0 was determined as a point of intersection of a straight line approximating the corresponding section of the magnetic reversal curve with the I -axis.

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USSR

KOLOTOV, O. S., et al, Akademiya Nauk SSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 216-217

The magnetic reversal curve was accomplished precisely along the easy direction. The obtained dependence of the difference $\Delta H = H_0 - H_{KK}$ on ℓ shows that for small ℓ (≈ 10 micron) the magnitude of the threshold field may exceed H_{KK} four or five times. Thus, with decreasing ℓ the role of the magnetostatic effect increases, and this appears not only on the film's static properties, but also on the dynamic properties. Orig. art. has: 1 figure, 1 table, and 14 references.

2/2

Physical Properties

USSR

UDC 669.017:538

K
KOLOTOV, O. S., and POGOZHEV, V. A. Moscow State University imeni M. V. Lomono-
sov.

"Break in the Magnetic Switching Characteristic of Magnetic Films"

Sverdlovsk, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29,
No 1, Jan 70, pp 216-217

Abstract: The results are presented of an experimental investigation of the as-
sumption that the variation of the switching coefficient is due to a slowdown
in the growth of dispersion fields which arise from the appearance of film
sections with an opposite direction of the rotation of local magnetization
vectors. The internal effective H_{eff} field, which slows down the process of in-
homogeneous rotation, was investigated in order to learn the variation of dis-
persion fields corresponding to a transition from one section to switching
characteristic to another. Particular attention was paid to the accuracy of
matching the easy axis with the switching field direction, and also to a com-
pensation of the magnetic field component normal to easy axis. The observed
dependence of H_{eff} on switching field H_p is explained basically by the varia-
tion of the dispersion field, while the break in the switching curve is attri-
buted to the saturation of those fields. Orig. art. has: 1 figure and 5 refer-
ences.

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1/2 028 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--THRESHOLD FIELD OF HETEROGENEOUS ROTATION IN THIN PERMALLOY FILMS
-U-
AUTHOR--(03)-KOLOTOV, O.S., POGOZHEV, V.A., TELESNIN, R.V.
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1), 217-19
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--PERMALLOY, METAL FILM, ANISTROPY, DYNAMIC STRESS, MECHANICAL
PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1984/0185 STEP NO--UR/0126/70/029/001/0217/0219
CIRC ACCESSION NO--AP0054981
UNCLASSIFIED

2/2 028


UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054981

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR SMALL DOMAIN STRUCTURE WIDTHS (L SMALLER THAN OR EQUAL TO MU), THE THRESHOLD FIELD MAY EXCEED THE EFFECTIVE ANISOTROPY FIELD BY A FACTOR OF 4-5 OR MORE. WITH INCREASING L, THE EXCESS OF THE THRESHOLD FIELD OVER THE ANISOTROPY FIELD DIMINISHES. WITH INCREASING DOMAIN STRUCTURE WIDTH, THE CONTRIBUTION OF MAGNETOSTATIC INTERACTION INCREASES, AND THIS AFFECTS NOT ONLY THE STATIC PROPERTIES OF THE FILM (E. G. INCREASING THE SQUARENESS OF THE HYSTERESIS LOOP IN THE DIFFICULT DIRECTION), BUT ALSO THE DYNAMIC PROPERTIES.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--BREAK IN THE MAGNETIC REVERSAL CURVE OF THIN MAGNETIC FILMS -U-
AUTHOR--(02)--KOLOTOV, O.S., POGOZHEV, V.A. 
COUNTRY OF INFO--USSR
SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1), 216-17
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--METAL FILM, MAGNETIC THIN FILM, MAGNETIC DOMAIN STRUCTURE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1984/0186 STEP NO--UR/0126/70/029/001/0216/0217
CIRC ACCESSION NO--AP0054982
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--A00054982

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE H SUBEFF PRIMEMAX.-H SUBR RELATION IS EXPLAINED BASICALLY BY VARIATION IN THE LEAKAGE FIELDS AND THE BREAK IN THE MAGNETIC REVERSAL CURVE BY SATN. OF THESE FIELDS. SATN. MAY BE DUE TO INCREASE IN MAGNETIC CHARGE ACCUMULATED ON THE DOMAIN WALLS, SPLITTING OFF WITH OPPOSITE DIRECTIONS OF ROTATION, RESULTING IN A VALUE AT WHICH THE MAGNETIC REVERSAL FIELDS START TO BE INHIBITED.

UNCLASSIFIED

USSR

UDC 576.851.71.095.6

PSHENICHNOV, R. A. and KOLOTOV, V. M., Perm' Institute of Vaccines and Sera

"Possible Existence of a 'Latent' Period in the Development of Rickettsia prowazeki. I. Infectiousness of the Vector During the Early Stage of Infection in the Absence of Cellular Forms of the Agent"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1971, pp 117-121

Abstract: In lice infected with low doses of R. prowazeki, the typical cellular forms of the agent could not be detected by light or fluorescence microscopy as long as 8 to 10 days later. When large doses were used, typical Rickettsia were first detected 4 to 6 hours after infection, after which they disappeared completely. This "latent" period was marked by several changes in affected gastrointestinal tissues of the vector: enlargement of individual cells and nuclei, basophilia of the protoplasm, and appearance of dark violet grains which were transformed after 2 or 3 days into comparatively large formations that could not be distinguished from the typical cellular forms of the causative agent. It is conjectured that during the first or "latent" period of infection, Rickettsia penetrate

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USSR

PSHENICHNOV, R. A. and KOLOTOV, V. M., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1971, pp 117-121

into susceptible tissue and then disintegrate into tiny subunits. These alter the metabolism of the affected cells and induce the synthesis of the first cellular forms of the agent, which then multiply by binary fission.

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USSR

UDC 536.77:534

BUZHDAN, YA. M., KOLOTOV, YA. L., SHELUDYAKOV, YE. P., Institute of Thermal Physics, Siberian Department, Academy of Sciences of the USSR, Novosibirsk

"Method of Thermodynamic Matching of Acoustic Data With P-v-T Data"

Novosibirsk, Izvestiya SO AN SSSR, Ser. Tekhn. nauk, No 13 (178), Vol 3, Oct 70, pp 77-80

Abstract: A thermodynamic method is proposed for relating the speed of sound in matter on low frequencies to temperature, specific volume and pressure. The described procedure can be readily extended to combined processing of P-v-T and caloric data, as well as to some other instances of combined processing of different types of thermodynamic information.

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1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--GEOCHEMISTRY OF DISPERSED ORGANIC SUBSTANCES IN PRECAMBRIAN
FORMATIONS OF SPITSBERGEN -U-
AUTHOR--(04)-DANYUSHEVSKAYA, A.I., VOYTSEKHOVSKAYA, A.G., KOLOTOVA, L.F.,
KRASILSHCHIKOV, A.A.
COUNTRY OF INFO--USSR

SOURCE--GEOL. NEFTI GAZA 1970, 14(3), 47-53

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOCHEMISTRY, ARTIC GEOLOGY, GREEN ALGAE, MOLECULAR STRUCTURE,
CARBONYL COMPOUND, GEOLOGIC FORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAHE--3007/0146

STEP NO--UR/0009/70/014/003/0047/0053

CIRC ACCESSION NO--AP0135643

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0135643

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOL. STRUCTURE OF DISPERSED ORG. SUBSTANCES (DOS) IN CARBONATE AND TERRIGENOUS CARBONATE REEFS OF THE UPPER PRECAMBRAIN LOWER PALEOZOIC SECTION OF SPITSBERGEN WAS CHARACTERIZED BY IR SPECTROSCOPY, CHROMATOG., X RAY ANAL., PETROGRAPHY, AND BITUMEN EXAMN. THE ORG. SUBSTANCE IS A PRODUCT OF BLUE GREEN ALGAE TRANSFORMATION. THE INSOL. ORG. SUBSTANCE PROBABLY IS COMPOSED OF POLYCYCLIC AROMATIC MOLS., WHICH CONTAIN CARBONYL CO GROUPS (POSSIBLE QUINONE TYPE) AND SMALL QUANTITIES OF CH SUB2 AND ME SIDE GROUPS. THE STRUCTURE IS SIMILAR TO THOSE OF THE DOS INPRECAMBRIAN FORMATIONS OF NORTH AMERICA AND GREENLAND.

UNCLASSIFIED

USSR

UDC 577.37

KOL'TOVER, V. K., and BLYUMENFEL'D, L. A., Institute of Chemical Physics,
USSR Academy of Sciences, Moscow

"Thermal Conformational Transitions in Electron-Carrying Biological
Membranes"

Moscow, Biofizika, Vol 18, No 5, Sep/Oct 73, pp 827-833

Abstract: ESR and fluorescence studies of spin labeled and 1-aniline-8-naphthaline sulfonate (ANS) labeled biological membranes obtained from rat liver microsomes, submitochondrial particles from bovine heart, and pea chloroplasts showed that conformational transitions occurred at 20° and 40°C. These transitions have been tentatively ascribed to second order transitions in lipoprotein subunits of membranes, although structural changes in lipoprotein water may also account for this. Definitive conclusions would require calorimetric studies.

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USSR

ALFIMOVA, YE. YA., KOL'TOVER, V. K., and RAYKHMAN, L. M., Branch of the Institute of Chemical Physics, Academy of Sciences USSR, Chernogolovka (Moscow Oblast)

"Luminescent Probe Study of Conformation Changes in Endoplasmic Reticulum Membranes"

Moscow, Biofizika, No 6, 1972, pp 1043-1047

Abstract: The dye 1-aniline-8-naphthalene sulfate (ANS) whose fluorescence varies with the degree of hydrophoby of the surrounding medium was used to detect and study conformation changes in microsomal membranes of liver cells induced by alterations in the ionic composition and temperature. Calcium in low concentrations (1 to 3 mM) markedly increased the intensity of fluorescence of the microsomes produced by the dye and the corresponding curve was more distinctly S-shaped than the curves reflecting the addition of other cations. The latter in large concentrations (100 mM or more) intensified the fluorescence of the dye bound with the microsomes due to interaction with the lipid components of the membranes. Analysis of the temperature factor revealed the thermal structural changes characteristic of cooperative systems.

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USSR

Aerospace Medicine

USSR

UDC 616.1:359.6

VASIL'YEV, A. B., First Lieutenant, Medical Corps, KOL'TSOV, A. I., Major, Medical Corps, and TARANOV, N. I., Candidate of Medical Sciences, Lieutenant Colonel, Medical Corps

"The Functional State of the Cardiovascular System in Naval Aviation Crews During Summer"

Moscow, Voenno-Meditsinskiy Zhurnal, No 4, 1973, pp 68-69

Abstract: The state of the cardiovascular system was evaluated in the case of 26 Naval pilots and navigators during and after a prolonged cruise. The studies showed that changes in the cardiovascular system were to a large extent dependent on the duration of the cruise. At the end of the cruise the average decrease in pulse rate was 4/min ($P < 0.05$); in comparison with the resting pulse rate, at the beginning of the cruise static muscular effort elicited a 30-40% increase in the pulse rate, in the middle of the cruise the average increase was 58%, and at the end of the cruise the mean increase was 68%. Arterial blood pressure decreased by 11% in the middle of the cruise for the entire crew, but in 8 individuals the decrease ranged from 15-20%. EKG studies conducted at the beginning of the cruise showed no changes. In the middle of the cruise the

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USSR

VASIL'YEV, A. B., et al., *Voyenno-Meditsinskiy Zhurnal*, No 4, 1973, pp 68-69

electric systole was found to be prolonged, the amplitude of the P wave decreased by 34%, and changes in the R and T waves indicated decreased tonus of the sympathetic innervation and increased tonus of the parasympathetic innervation. In 7 subjects the T wave was flattened on physical exertion (1.5 to 2-fold), and in 3 individuals physical exertion caused the QRS complex to be prolonged. The EKG changes were more pronounced at the end of the cruise. It was also observed that after a 2 hr flight blood pressure and pulse rate were within the norm for most pilots and navigators. After two 1.5-2 hr flights at intervals of 15-20 min the systolic and diastolic pressure was increased by more than 10 mm Hg in the majority of the subjects, and the pulse rate increased by 10-15 beats/min. The reactions in the navigators were less pronounced than in the pilots, as a rule. After a 3 hr flight at the beginning of the cruise there was an increase in the systolic and the diastolic pressures, without a change in the pulse pressure. A similar flight in the middle of the cruise caused an increase in the diastolic pressure, while the systolic pressure remained unchanged or decreased; the pulse pressure fell by 15-20 mm Hg, on the average. The data show that long-term summer cruises elicit definite changes in the cardiovascular system, which become apparent at the end of the first month. Consequently, during long cruises there should be periodic evaluation of the cardiovascular system.

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USSR

UDC 612.825+612.822.3

ALADZHALOVA, N. A., KOL'TSOVA, A. V., and KOSHTOYANTS, O. Kh., Institute of Higher Nervous Activity and Neurophysiology, USSR Academy of Sciences, and Institute of Neurology, USSR Academy of Medical Sciences, Moscow

"Frequency Spectrum of Ultraslow Brain Waves in the Human Brain"

Moscow, Doklady Akad. Nauk SSSR, No 3, 1973, pp 749-752

Abstract: Ultraslow brain waves recorded in 72 subjects age 20 to 50 were found to differ in frequency at the same time in different regions of the brain. The parameters of the ultraslow rhythms did not coincide in symmetrical zones of the hemispheres. They were pronounced in some leads but completely absent in others, and several rhythms might be superposed in the same lead. Statistical analysis of 1700 sections of the recordings showed that during wakefulness second rhythms with a period of 8 to 10 sec and amplitude of 0.05 to 0.1 mv were dominant (in 77% of the cases). The next most frequent was a rhythm with T = 1 min and amplitude of 0.15 to 0.2 mv (in 20% of the cases). Rhythms at other frequencies were observed in less than 10% of the cases each. The latter appear to have been caused by uncontrollable mental activity or change in level of wakefulness.

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PHYSICS
Acoustics

USSR

UDC 534-8

KOL'TSOVA, I. S., MIKHAYLOV, I. G., and SABUROV, B., Physical-Technical Institute imeni S. U. Umarov, Tadzhik SSR Academy of Sciences, and Leningrad State University imeni A. A. Zhdanov, presented by academician A. A. Adkhamov of the Tadzhik SSR Academy of Sciences

"The Propagation of Ultrasonic Waves in Natural Oil Emulsions"

Dushanbe, Doklady Akademii Nauk Tadzhikskoy SSR, Vol 16, No 8, 1973, pp 28-32

Abstract: Various authors have developed mathematical expressions for the coefficients of absorption of acoustic energy in a dispersion taking into account losses due to difference in viscosity between the two liquids, differing thermal properties, etc. This article reports experimental studies of the relationship between the coefficient of additional absorption and frequency for emulsions of olive oil, linseed oil, and castor oil stabilized by a 0.5% solution of gelatin for the purpose of clarifying the role of the different absorption mechanisms.

The drops of linseed oil had an average diameter of 4 microns; of the other two oils, 8 microns. Emulsions of 1 - 10% by volume at temperatures of 5 - 30°C were tested at frequencies of 3 - 27 Mc. Absorption was found to be a linear function of concentration in all cases. Within the 8% error of 1/2

USSR

KOL'TSOVA, I. S., et al., Doklady Akademii Nauk Tadzhikskoy SSR, Vol 16, No 8, 1973, pp 28-32

measurement, changes in temperatures did not affect the relationship between absorption and frequency.

At frequencies below 25 Mc, the experimental results agree with the theory, but above this frequency there is a divergence, probably due to the use of average values for droplet diameter in the calculations. It is not possible to draw a completely unambiguous conclusion as to dominant mechanisms without additional calculation of energy balances. Making these calculations, one finds that sound absorption in these emulsions apparently is due primarily to heat transfer between the particles in the dispersion medium at frequencies up to 15 Mc, and that at higher frequencies a significant role begins to be played by scattered waves, depending on the shear and volume viscosities of the dispersant and the medium.

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1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THERMODYNAMIC ANALYSIS OF THE REASONS FOR ALUMINA LOSSES DURING THE
LEACHING OF A SINTERED MASS -U-
AUTHOR--(04)-ARLYUK, B.I., SMIRNOV, M.N., KOLOTUSHKINA, S.P., KIRILLOVA,
T.A.
COUNTRY OF INFO--USSR
SOURCE--TSVET. METAL. 1970, 43(3), 37-42
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ALUMINA, THERMAL ANALYSIS, CALCIUM OXIDE, SILICON DIOXIDE,
SODIUM OXIDE, GARNET, SULFATE, SINTERING FURNACE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO-----FD70/605109/805 STEP NO--UR/0136/70/043/003/0037/0042
CIRC ACCESSION NO--AP0140898
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140898

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INCREASE OF SiO_2 SUB2 CONC. IN THE ALUMINATE LEACHING SOLN., CAUSED BY DISSOLVING BETA $2\text{CaO}\cdot\text{SiO}_2$ SUB2, PROMOTES THE FORMATION OF THE SOLID PHASE, CONTG. Al_2O_3 SUB3. TO INVESTIGATE THE SOLY. OF $2\text{CaO}\cdot\text{SiO}_2$ SUB2 THE FINE GROUND SINTERED MASS WAS TREATED WITH AN ALUMINATE SOLN. AT 40, 55, 65, 75, AND 90 DEGREES UP TO 6 HR. THE SOLN. CONTAINED 25, 85, 140, 250, AND 300 G Al_2O_3 SUB3-L.; THE OTHER COMPONENTS WERE PRESENT IN THE RATIO Al_2O_3 SUB3:NA SUB2 O:SO SUB4 PRIME2 NEGATIVE EQUALS 80:10:5:0.2. THE SOLN. WAS ANALYZED AFTER THAT TREATMENT BY DETN. OF Al_2O_3 SUB3, NA SUB2 O, AND SiO_2 SUB2. THE DECOMP. OF $2\text{CaO}\cdot\text{SiO}_2$ SUB2 IS RETARDED AND THE SiO_2 SUB2 AMT. IN THE SOLN. LIMITED BY THE FORMATION OF A FILM OF TOBERMORITE AND HYDROGARNET, WHICH COATED THE SOLID $2\text{CaO}\cdot\text{SiO}_2$ SUB2. AFTER A COMPLETE DISSOLN. OF $2\text{CaO}\cdot\text{SiO}_2$ SUB2, THE SiO_2 SUB2 CONC. DEPENDS ON THE SOLY. OF NA ALUMINOSILICATE HYDRATE. IF THE SOLN. IS SATD. WITH SiO_2 SUB2, $2\text{CaO}\cdot\text{SiO}_2$ SUB2 IS DECOMP. VERY SLOWLY AND THE SECONDARY LOSSES OF Al_2O_3 SUB3 ARE REDUCED.

UNCLASSIFIED

USSR

UDC 577.391:576.809.7

SHUBIK, V. M., KOLOTVIN, V. A., LIVSHITS, R. Ye., and BRONSHTEYN, I. E.,
Leningrad Scientific Research Institute of Radiation Hygiene, Ministry of
Health RSFSR, Leningrad

"Comparative Study of the Dynamics of Changes in the Indexes of Non-Specific
Immunity Under the Effect of Long-Wave and Short-Wave X-Rays"

Moscow, Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 540-544

Abstract: Nonspecific immunological reactivity was studied upon irradiation
of rats with long-wave and short-wave x-rays with an effective energy of 14
and 75 keV, respectively. The immunological reactivity was determined on
the basis of the area of postinjection infiltration 24 hrs after intracu-
taneous injection to the animals of 0.1 ml of anti-rat serum, the bacteri-
cidal activity of the blood serum towards E. coli, the lysozyme titer of
the blood serum with respect to Micrococcus lysodeicticus, and the comple-
ment titer of the blood serum as indicated by the hemolysis of ram ery-
throcytes. On exposure of the animals to equal doses of long-wave and
short-wave radiation, the nonspecific immunity was suppressed to a greater
extent by the action of short-wave than long-wave radiation. This was due
to the fact that, as shown by calculations for the total body, the skin,
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USSR

SHUBIK, V. M., et al., Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 540-544

and the spleen, the average absorbed doses were higher at equal exposure doses for the high-energy short-wave radiation than the low-energy long-wave radiation.

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Radiobiology

USSR

UDC 612.017.1.014.46:615.849.2

SHUBIK, V. M., NEVSTROYEVA, M. A., LIVSHITS, R. YE., and KOLOFVIN, V. A.,
Leningrad Scientific Research Institute of Radiation Hygiene

"Effect of Nuclear Fission Products on Immunological Reactions"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1972,
pp 12-17

Abstract: Rats were injected once with an individed mixture of rare earth (La-140, Ce-141, Ce-144, Pr-143, Y-91, Nd-147) and alkali earth (Sr-89, Ba-140) radionuclides to determine the effect of these nuclear fission products on nonspecific (Ioffe's test, bactericidal action, lysozyme, complement serving as criteria) and specific (antibody response to inoculation of *Proteus vulgaris* and sheep erythrocytes) immunity. Nonspecific reactions and antibody formation were depressed and a large quantity of autoantibodies to liver and kidney tissues were produced. These changes were phaselike: periods of decrease alternated with phases of normalization and even stimulation. There was a distinct relationship between most of the immunological parameters and the dose of radioisotopes used. The various factors differed in sensitivity to internal irradiation.

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USSR

UDC 542.48

KOLOTYGIN, Yu. A., D'YAKOV, A. A., FILIPPOV, S. N., and POLYAK, T. I.,
Sverdlovsk

"Acid Treatment of Distilled Sea Water"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 10, 1972, pp 5-6

Abstract: Experimental results are reported on the study of thermal decomposition of bicarbonates in partially acidified Caspian Sea water. It was shown that the decomposition of bicarbonates can be almost completely prevented by acidifying the water to pH 5-6. On this basis a method was developed for evaporation of sea water following a partial acidification of the starting material.

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Communications

USSR

UDC: 621.396.2:621.371.1

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

"Call Signal Automation for a Personal Radio Call System"

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

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

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USSR

UDC Z612.833.81

DAUROVA, F. K., and KOLOTYGINA, R. E., Institute of Higher Nerve Activity and Neurophysiology, Academy of Sciences USSR, Moscow

"Study of the Specificity of Feedback Connections"

Moscow, Zhurnal Vysshey Deyatel'nosti imeni I. P. Pavlova, Vol 20, No 5, Sep/Oct 70, pp 1,083-1,085

Abstract: Two series of tests were conducted, one using "current-sound" stimuli and a second using both "current-sound" and "food-tactile" stimuli. In the study, three dogs were used upon which conditioned-reflex experiments had been previously conducted. The experiment did not yield clearly defined results. One dog responded three times out of four to a sound stimulus by a defensive movement of his paw; another dog responded four times out of eight with a "food" response to tactile stimulation. It is claimed that these results indicate the specificity of the feedback connection and thus suggest that it is of the conditioned reflex type.

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UNCLASSIFIED

PROCESSING DATE--23OCT70

1/2 019

TITLE--SYNTHESIS OF NUCLEIC ACIDS, PHOSPHOPROTEINS, AND PHOSPHOLIPIDS OF THE LIVER AND SOME OF ITS FUNCTIONAL INDEXES AFTER ACUTE BILATERAL

AUTHOR--KOLTYGINA, T.I.

COUNTRY OF INFO--USSR

SOURCE--ZDRAVOOKHR. BELORUSS. 1970, 16(2), 51-2

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--KIDNEY, BLOOD CIRCULATION, NUCLEIC ACID, PHOSPHOLIPID, LIVER, BIOSYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0101

STEP NO--UR/0477/70/016/002/0051/0052

CIRC ACCESSION NO--AP0120801

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120801

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACUTE KIDNEY ISCHEMIA WAS PRODUCED IN RABBITS BY THE BILATERAL COMPRESSION OF RENAL ARTERIES FOR 2 OR 3 HR UNDER ETHER ANESTHESIA. PRIME32 P INCORPORATION WAS STUDIED AFTER I.V. INJECTION OF NA SUB2 HPO SUR4 (0.2 MU CI-G). AFTER 2 HR ISCHEMIA, SYNTHESIS OF RNA DROPPED TO 40PERCENT, THAT OF PHOSPHORPROTEINS TO 29PERCENT, THAT OF PHOSPHOLIPIDS TO 53PERCENT OF THE CONTROLS. SERUM ALBUMIN, ALBUMIN-GLOBULIN RATIO, AND PROTHROMBIN DROPPED; POSTHYPERGLYCEMIA COEFF. FOLLOWING GALACTOSE LOAD, CHOLESTEROLEMIA, AND ALANINE TRANSAMINASE INCREASED; DE RITIS COEFF. DROPPED. ALL OF THE CHANGES WERE MORE MARKED AFTER 3 HR OF KIDNEY ISCHEMIA. LIVER FUNCTION IMPAIRMENT WAS MANIFEST IN THE SEQUENCE OF ENZYMES, CHOLESTEROL, CARBOHYDRATES, AND PROTEOGENESIS. THE LATTER 2 FUNCTIONS REMAINED AFFECTED FOR THE LONGEST INTERVAL. ALL OF THESE CHANGES WERE APPARENT WITHIN THE 1ST HR, INTENSIFIED UP TO 4-7 DAYS, AND REVERTED TO NORMAL BY DAY 21 AFTER 2 HR ISCHEMIA. ALL ANIMALS WITH 3 HR ISCHEMIA DIED WITHIN 4-10 DAYS. FACILITY: VITEBSK. MED. INST., VITEBSK, USSR.

UNCLASSIFIED

USSR

UDC 541.13

KONONENKO, L. YE., SHCHUROV, A. N., KOLOTYRKIN, V. M., TUNITSKIY, N. N.

"Electrical Conductivity of Ion-Exchange Membranes in Dry Form"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLVI, No 1, 1972, pp 242-243

Abstract: In order to determine the possible contribution of the electron conductivity to the total conductivity of polyelectrolyte membranes, a study was made of the F-23 membrane to which 11% sodium styrenesulfonate was grafted. The membrane had an exchange capacity of 0.5 milligram-equivalents/gram. The film was converted to various forms (H^+ , Ag^+ , Cu^{2+} , Fe^{3+}), and aluminum electrodes were deposited on it in a vacuum. After prolonged drying in a vacuum and simultaneous heating at $100^\circ C$, the electrical conductivities were measured for different temperatures (from 22 to $100^\circ C$) and field intensities (from 10^2 to 10^5 volts/cm). The volt-ampere characteristics were measured by a previously described procedure [L. S. Tuzov, et al., Vysokomolekul. soyedineniya, A, No 9, 2414, 1967]. Examples of the volt-ampere characteristics are presented for membranes in the H^+ -form and Ag^+ -form at various temperatures with a membrane thickness of 60μ . The data show that the ion-exchange materials in the dry state can be of interest as dielectrics in which without varying the matrix by a controlled procedure, the composition of the included ions varies. Introduction of ~ 0.5 mg-equivalents/g of metal atoms or ions into the polymer dielectric
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USSR

KONONENKO, L. YE., et al., Zhurnal Fizicheskoy Khimii, Vol XLVI, No 1, 1972,
pp 242-243

has no strong effect on the conductivity of the dielectric. In dry form, the tested membranes have electron conductivity. The higher the ionization potential of the atom, the larger the activation energy of electrical conductance of the film in the corresponding form.

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Organometallic Compounds

UDC 678.84;539.531:621.3.011.5

USSR

TKACHUK, B. V., PEROVA, L. V., and KOLOTYRKIN, V. M., Scientific Research
Physicochemical Institute imeni A. Ia. Karpov

"Dielectric Properties of Organosilicon Films and the Effect of γ -Radiation
on Their Structures"

Moscow, Vysokomolekularnyye Soyedineniya, Vol 13, No 4, Apr 71, pp 828-832

Abstract: The dependence of dielectric properties of thin polysiloxane films on the conditions of their polymerization was studied. It was shown that the dielectric constant ϵ and the tangens of dielectric loss angle $\log \sigma$ are independent of the polymerization period; an increase in the density of the discharge current leads to an increased dielectric permeability. It was noted that at low temperatures the methylsiloxane polymer films exhibit a maximum relaxation value of $\tan \sigma$. If the zone discharge is carried out in an argon atmosphere, the relaxation maximum shifts to higher temperatures. The effect of γ -radiation on the structure of thin organosilicon polymer films was studied by IR-spectroscopy; the films were prepared from hexamethyl-disiloxane and ethyl(vinyl, ethynyl)silanes with a general formula $(C_2H_5)_3SiR$, where $R = CH_2CH_3, CH:CH_2, C:CH$. It was shown that polymer films γ -irradiated

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USSR

TKACHUK, B. V., et al., Vysokomolekularnyye Soyedineniya, Vol 13, No 4, Apr 71, pp 828-832

with doses up to 250 Mrad underwent no structural changes. Doses in the range 250-400 Mrad caused a relative decrease in the number of methyl groups and an appearance of oxygenated groups such as CO and OH; the macromolecules became more crosslinked.

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1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--STABILITY OF THE DIELECTRIC PROPERTIES OF POLYMER FILMS FORMED IN A
GLOW DISCHARGE -U-
AUTHOR--(03)-TUZOV, L.S., KOLOTYRKIN, V.M., TUNITSKIY, N.N.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 849-54
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS
TOPIC TAGS--DIELECTRIC PROPERTY, PLASTIC FILM, ORGANISILICON COMPOUND,
GLOW DISCHARGE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1497 STEP NO--UR/0459/70/012/004/0849/0854
CIRC ACCESSION NO--AP0135158
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135158

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENCE OF AR, O, N, OR H DURING THE FORMATION OF FILMS FROM (ME SUB3 SI) SUB2 O (I) VAPORS IN A GLOW DISCHARGE (L. S. TUZOV, ET AL., 1967) RETARDS FILM FORMATION DUE TO THE INCREASE OF I DECOMP. AND THE DECREASE OF I PARTIAL VAPOR PRESSURE. THE DIELEC. CONST. (EPSILON) AND TAN(DIELEC. LOSS ANGLE) TAN DELTA) OF I FILMS DECREASED DURING THE STORAGE AT ROOM TEMP. THE DECREASE WAS HIGHER AT HIGH AIR HUMIDITY AND FOR I FILMS CONTG. POLAR GROUPS. THE MOST STABLE EPSILON AND TAN DELTA WERE OBTAINED WITH THE FILMS FORMED IN THE PRESENCE OF H. THE ANNEALING ALSO INCREASED THE STABILITY OF EPSILON AND DELTA. PREPN. I FILMS AT HIGH GLOW DISCHARGE CURRENT O. DECREASED WT. LOSSES DURING HEATING LESS THAN OR EQUAL 600DEGREES IN THE AIR. FACILITY: FIZ.-KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

KOLOTYRKIN, Ya. M.

Physicochemical

SPECIMENS OF PARTICIPANTS IN THE SECTION

(in G-45)

SPRS 5287
15 APR 71

As is generally known, the most common method for the synthesis of organic compounds is the reaction of starting materials with reagents. In this process, the reagents are usually in excess, and the reaction is carried out in a closed system. This leads to a decrease in the yield of the product and to the formation of a large amount of waste. It is therefore of interest to find a new technology or new process for the synthesis of organic compounds, which would allow the reaction to be carried out in an open system, with a minimum amount of reagents, and with a maximum yield of the product. It is also of interest to find a new technology or new process for the synthesis of organic compounds, which would allow the reaction to be carried out in an open system, with a minimum amount of reagents, and with a maximum yield of the product.

In our opinion, that is connected with the development of a new technology or new process for the synthesis of organic compounds, which would allow the reaction to be carried out in an open system, with a minimum amount of reagents, and with a maximum yield of the product. It is also of interest to find a new technology or new process for the synthesis of organic compounds, which would allow the reaction to be carried out in an open system, with a minimum amount of reagents, and with a maximum yield of the product.

USSR

UDC 620.193.27

FREYMAN, L. I., KHARITONOVA, L. YA., and KOLOTYRKHIN, YA. N., Scientific Research Physicochemical Institute imeni L. Ya. Karpov

"Simulation of Pitting Corrosion by Ultraviolet Light"

Moscow, Zashchita Metallov, Vol 7, No 5, 1971, pp 594-599

Abstract: In evaluating current concept of the spatial distribution of the interphase potential difference ($\Delta\phi_{1,3}$) in the system metal (1) -- passivating layer (2) -- solution (3), and also the location in the system of the barrier layer largely responsible for impeding the dissolution, the effect of ultraviolet light on pitting corrosion is of direct interest. Experiments were conducted in a quartz cell at 20° with 1Kh18N10T steel in 0.05 N NaCl solution ("extremely high purity"), and the atmosphere was purified nitrogen. Electrodes cut from foil ($\delta = 0.1$ mm) with a 1.4 cm² working surface were ground, degreased with ethyl alcohol, and washed with twice-distilled water. Using mercury lamps, the light flux intensity on each of the two working electrode planes was 1.4 cal/cm². sec. Ultraviolet illumination does not affect the pitting-formation potential ($\phi_{\text{pit-form}}$) for polished electrodes if stabilization is carried out at a potential of 0.2 v during a period of 5 or 40 minutes. Stabilization at a level of 0.5 v for 6 hours increased 1/2

USSR

FREYMAN, L. I., et al., Zashchita Metallov, Vol 7, No 5, 1971, pp 594-599

$\varphi_{\text{pit-form}}$ by a quantity ≈ 350 mv. A comparison was made between dark
($\varphi_{\text{pit-form-dark}}$) and illuminated ($\varphi_{\text{pit-form-il}}$) potentials of pitting-
formation for 1Kh18N10T steel in the 0.05 N NaCl solution.

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USSR

UDC 620.197.5

LETSKIKH, YE. S., KOMORNIKOVA, A. G., KNYAZHEVA, V. M., KOLOTYRKIN, YA. M.

"Anodic Protection of Titanium in Solutions of Chromic Chloride Containing Chromous Chloride"

Moscow, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 635-639

Abstract: The possibility of anodic protection of titanium as applied to the technological process conditions of obtaining chromic chloride based on the solution of its hydroxide in hydrochloric acid is discussed. It is shown that anodic protection permits a significant increase in the corrosion resistance of titanium in solutions of chromic chloride containing a reducing agent -- chromous chloride. The losses of chromous chloride resulting from anodic oxidation do not exceed the process requirements.

The experimental procedure and results are described in detail. It was found that introduction of chromous chloride into a solution of chromic chloride greatly reduces the corrosion resistance of titanium as a result of shifting the stationary potential from the passive region to the transient region.

The titanium solution rate is defined as a function of the potential in the chromic chloride solution containing chromous chloride. When using anodic protection of the titanium the corrosion resistance of the titanium can be

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USSR

LETSKIKH, YE. S., et al., Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 635-639

increased by 30 times. It is established that the basic anodic process in titanium in the passive region is oxidation of Cr^{2+} , the rate of which is approximately two orders higher than the titanium solution rate. However, the expenditures on electric power are low in the case of anodic protection. They do not go beyond the technological process requirements on the losses of Cr^{2+} as a result of anodic oxidation. A significant increase in the titanium solution rate was also detected in the passive region in the presence of the reducing agent (Cr^{2+}).

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USSR

UDC: 620.193.7

KOLOTYRNIK, Ya. M., and STRUNKIN, V. A., Physicochemical Scientific Research Institute imeni L. Ya. Karpov; Scientific Research Institute of Organic Semi-Products and Dyes

"Localized Titanium Corrosion On Application of Alternating Current"

Moscow, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70, pp 511-516

Abstract: This study concerns the effect of alternating current on the corrosion-electrochemical behavior of titanium in 6 n. solution of HCl and H_2SO_4 (with or without chlorine saturation) at 60°C and room temperature. In the solution HCl+Cl₂ the application of alternating current causes localized corrosion of titanium; in H_2SO_4 +Cl₂ it intensifies uniform corrosion. The difference in the behavior of titanium in chlorine-saturated HCl is related to the different states of the metal's surface (active and passive) which feature different polarizability. Molecular chlorine does not directly promote pitting, yet being an oxidizer, it passivates titanium, depolarizes it, and makes it less susceptible to the adverse effect of alternating current. A drop in temperature decreases the dissolution rate and increases the proportion of current. In sulfuric

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USSR

KOLOTYRKIN, YA. M., and STRUNKIN, V. A., et al., *Zashchita Metallov*, Vol 6, No 5, Sep-Oct 70, pp 511-516

acid solution the corrosion rate of active titanium is almost 2.6 times lower than that in HCl without polarization and is 1.4 times lower with a-c polarization. In the latter case the dissolution rate remains lower than the anodic component of alternating current. In chlorine-saturated H_2SO_4 , with application of alternating current, the polarizing current (during an anodic half-period) is consumed to form an oxide film; the lack of chlorine-ions obviates the possibility of localized activation.

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1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
 TITLE--RADIOCHEMICAL STUDY OF PLATINUM DISSOLUTION IN ACID ELECTROLYTES AT
 VARYING POLARIZATIONS. I. EXPERIMENTAL PROCEDURES AND SOME RESULTS -U-
 AUTHOR--(03)-CHEMODANOV, A.N., KOLOTYRKIN, YA.M., DEMBROVSKIY, M.A.

COUNTRY OF INFO--USSR

SOURCE--ELECTROKHIMIYA 1970, 6(4), 460-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RADIO CHEMISTRY, PLATINUM, ELECTROLYTE, SOLUBILITY, NITRIC
 ACID, HYDROCHLORIC ACID, PERCHLORIC ACID, SULFURIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1998/1149

STEP NO--UR/0364/70/006/004/0460/0468

CIRC ACCESSION NU--AP0121708

UNCLASSIFIED

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2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121708

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISSOLN. OF PT IN H SUB2 SO SUB4, HCL, HCLO SUB4, HNO SUB3, AND THEIR MIXTS. WAS INVESTIGATED OVER A BROAD RANGE OF POTENTIALS INCLUDING THE REGION OF H EVOLUTION. ELECTRODES WERE MADE OF PT PRETREATED IN A STREAM OF NEUTRONS AND THE QUANTITY OF PT IN THE ELECTROLYTE WAS FOLLOWED BY RADIMETRY. THE RATE OF DISSOLN. OF PT WAS GOVERNED BY THE COMPN. AND CHARACTER OF THE SURFACE OXIDE FILMS IN BOTH THE ANODIC AND CATHODIC REGIONS. THE KIND AND CONC. OF THE ELECTROLYTE WERE OF MINOR IMPORTANCE ONLY. FACILITY: FIZ. KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

K UDC 620.193.01

KOSSYY, G. G., NOVAKOVSKIY, V. M., and KOLOTYRKIN, YA. M.

"Excess Oxygen in an Oxide Film on Passive Titanium"

Moscow, Zashchita Metallov, Vol 6, No 3, May-Jun 70, pp 317-320

Abstract: The stationary rate of potentiostatic solution of passive titanium is appreciably higher than the mean solution rate of its passivating oxide observed after cessation of polarization. This article contains a discussion of additional information about the properties of the passivating film on titanium obtained as a result of more detailed observations of the process of spontaneous activation of a d-energized electrode in the presence of HF. The experiments were performed in solutions of three normal HCl + xHF on a rotating ($n = 1,500$ rpm) disk electrode made of VT-1 titanium at 40° . The potentials everywhere were given with respect to a saturated calomel comparison electrode at room temperature. The oxygen was not removed from the solution. The experimental data provide a basis for proposing that the oxidizing properties of passive titanium are connected with the presence of an oxide film on its surface. As the oxide film becomes thicker, the process of which begins after cessation of polarization, layers of it closer and closer to the metal come into contact with the electrolyte. The gradual reduction in potential accompanying this process is explained by a drop in the concentration

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KOSSYY, G. G., et al., Zashchita Metallov, Vol 6, No 3, May-Jun 70, pp 317-320

of excess oxygen in the direction from the outer surface of the oxide to its interface with the metal.

It is shown that within the framework of the concepts of the adsorption nature of inertness, the smooth potential drop could be explained by the gradual restoration of oxygen adsorbed in a single layer whose bond energy and reduction potential vary with the degree of filling. However, this proposition is refuted by the experimental data. The forced short-term potential bias of the electrode in the negative direction which should cause partial reduction of the oxygen, contrary to expectations, does not accelerate but inhibits activation. The sooner the cathode pulse is applied after cessation of polarization, the greater the amount of electricity it carries through the electrode and the greater the inhibition of activation.

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USSR

UDC 620.193.01

KUZNETSOVA, YE. G., SOKOLOV, A. A., NOVAKOVSKIY, V. M., KOLOTYRKIN, YE. N.,
Scientific-Research Physico-Chemical Institute imeni L. Ya. Karpov

"The Influence of Oxidation-Reduction Systems on the Rate of Dissolution of
Passive Titanium"

Moscow, Zashchita Metallov, No 4, 1972, pp 409-414.

Abstract: Data are presented and discussed on changes in the dissolution rate of passive titanium, potentiostatically polarized in dilute sulfuric acid upon introduction of the Fe^{2+}/Fe^{3+} redox system to the acid, and also upon introduction of Ti^{3+} ions. The radiometric method is used to show that when titanium is maintained in the anode-passive state, the introduction of Fe^{2+} ions causes only an increase in the external anode current, while the introduction of Ti^{3+} ions causes a simultaneous inhibition of dissolution of the titanium, explained by the anode deposition of TiO_2 from the solution.

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1/2 056 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--TURBULENT ANISOTROPIC FLOW OF INCOMPRESSIBLE GAS IN A CIRCULAR
ROTATING TUBE -U-
AUTHOR-(03)-KLOVANCIN, B.A., MARTYENKO, O.G., AEROV, V.YE.
COUNTRY OF INFO--USSR
SOURCE--INZHENERNO-FIZICHESKIY ZHURNAL, 1970, VOL 18, NR 1, PP 96-104
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--TURBULENT FLOW, INCOMPRESSIBLE FLUID, GAS FLOW, GAS DYNAMICS,
CIRCULAR ACCELERATOR, KINETIC EQUATION, HEAT TRANSFER, VELOCITY,
MATHEMATIC ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--198/0532 STEP NO--UR/0170/70/018/001/0096/0104
CIRC ACCESSION NO--AP0121204

UNCLASSIFIED

2/2 056

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0121204

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. FIG. 1. DISTRIBUTION OF BAR ON IN TUBE SECTION. FIG. 2. DISTRIBUTION OF LONGITUDINAL FLUCTUATION INTENSITY. FIG. 3. INTENSITY DISTRIBUTION OF TRANSVERSE VELOCITY AND SHEAR STRESSES FLUCTUATION. FIG. 4. PROFILE OF AVERAGED VELOCITY. FIG. 5. DISTRIBUTION OF TRANSVERSE HEAT FLUXES. FIG. 6. DISTRIBUTION OF AZIMUTHAL HEAT FLUXES. FIG. 7. DISTRIBUTION OF LONGITUDINAL HEAT FLUXES. FIG. 8. AVERAGED TEMPERATURE PROFILE. SUMMARY. NON ISOTHERMAL FULLY DEVELOPED FLOW OF GAS IN A CIRCULAR ROTATING TUBE IS CONSIDERED. AVERAGE EQUATIONS OF MOMENTUM AND HEAT TRANSFER AND EQUATIONS FOR ONE POINT SECOND MOMENTS OF VELOCITY AND TEMPERATURE FLUCTUATIONS ARE USED. DETERMINED ARE THE BASIC HEAT TRANSFER CHARACTERISTICS SUCH AS THE PROFILE OF AVERAGED TEMPERATURE AND FLUCTUATION HEAT FLUXES. THE RESULTS OF NUMERICAL CALCULATION OF THE CHARACTERISTICS ARE GIVEN.

UNCLASSIFIED

USSR

UDC 531.36

KOLOVSKIY, M. Z. and TROITSKAYA, Z. B.

"The Stability of Linear Systems With Random Parameters"

Moscow, Prikladnaya Matematika i Mekhanika, No 2, 1972, pp 218-224

Abstract: An approximate method is proposed for investigating the stability of systems of linear equations with steady random coefficients; this method is based upon use of the perturbation method. The problem is reduced to an investigation of the stability of a system of finite-difference equations, the coefficients of which are determined on the basis of the spectral densities of random parameters. Three examples are worked out. 1 figure, 6 references.

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USSR

GURETSKIY, V. V., ~~KOLOVSKIY, M. Z.~~, MAZIN, L. S., Leningrad

"On the Limiting Possibilities of Antishock Damping"

Moscow, Mekhanika Tverdogo Tela, No 6, Nov/Dec 70, pp 17-22

Abstract: The paper deals with the limiting possibilities of anti-impact protection of equipment by using a damper, an impact shock absorber and combinations of the two. Theorems are proved which define the reaction of an optimum shock absorber as a function of time. Examples are given. The results may be easily generalized to the case of steady-state (periodic) effects.

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USSR

UDC 621.646.4

BIRMAN, A. I., ZAKATOV, V. P., KOLOYDENKO, A. L., MASHBITS, A. V., and POTEPALOV, Yu. N., Central Scientific Research Institute of Large-Scale Automation and Special Design Office for Automation in Petroleum Refining and the Petrochemical Industry

"Pneumatic Long-Term Memory Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 28, 1971, p 199

Abstract: USSR Authors' Certificate No 315183 (Cl. G 06g 5/00), filed 4 January 1970, issued 21 September 1971, covers a pneumatic long-term memory device containing an oscillator and a cathode follower and two pulsating capacitances with a control and a working cavity in each, connected to the oscillator through contacts. In order to reduce temperature error, the control cavities of the capacitances, filled with a liquid with a low coefficient of temperature expansion, are interconnected through a contact; the working cavity of one capacitance is connected with the cathode follower input and with input and reference pressure sources through contacts; and the working cavity of the second capacitance is connected via contacts to the reference pressure source and the atmosphere.

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AA0043337

KOLOYDENKO A.L.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243965 PNEUMATIC SIGNALS CONVERTER, improving the conversion accuracy and widening the adjustment range. It comprises a repeater (1) with a shift and its throttle (2), and a comparator element (3) with its throttle (4).

In addition, following notations are used on the drawing: constant signal supply channel (Po); input signal (Px); output signal (Py), and an intermediate signal (y).

The converter operation is based on the forces compensation principle. It is described in full.

The converter is designed for a pneumatic integrator where it shifts the input signal by $P_0 = 0.2 \text{ kg/cm}^2$, and amplifies the obtained values by a factor of 0.09.

4.1.68 as 1208222/18-24. KOLOYDENKO, A.L. (9.10.69)
Bul 17/14.5.69. Class 42m¹. Int.Cl.G 06g.

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USSR

UDC 629.76/.78.015:533.6

KOLOZEZNYI, E. A.

"Control System Minimizing the Effect of Wind Action on the Loading of a Rocket-Carrier by Bending Moments"

V sb. Upravleniye v kosmose. T. 1 (Control in Space. Vol 1 -- Collection of Works), Moscow, "Nauka", 1972, pp 282-286 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B354)

Translation: The law controlling the motion of a rocket-carrier in the lateral plane by a change in the transverse velocity of the center of mass in the initial segment of the motion is discussed. Author's abstract.

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1/2 037 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--A CONTROL SYSTEM WHICH MINIMIZES THE EFFECT OF WIND ON THE LOAD OF
THE BOOSTER WITH BENDING TORQUES -U-
AUTHOR--KOLOZEZNYI, E.A.
COUNTRY OF INFO--USSR, FRANCE
SOURCE--INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, SYMPOSIUM ON
AUTOMATIC CONTROL, 3RD, TOULOUSE, FRANCE, MAR. 2-6, 1970, PAPER. 8 P.
DATE PUBLISHED-----70
SUBJECT AREAS--SPACE TECHNOLOGY, ORDNANCE
TOPIC TAGS--WIND, CONTROL SYSTEM DESIGN, SPACECRAFT BOOSTER, TORQUE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/0018 STEP NO--FR/0000/70/000/000/0003/0008
CIRC ACCESSION NO--AT0117315
UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0117315

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF A PRINCIPLE FOR BOOSTER CONTROL WHICH HAS REDUCED THE MAXIMAL WIND INDUCED BENDING TORQUES BY 30 TO 40PERCENT. THE RESPONSE OF A BOOSTER TO AERODYNAMIC FORCES IS EXAMINED. TWO TECHNIQUES TO REDUCE THESE FORCES AND WIND INDUCED BENDING TORQUES ARE CONSIDERED. AN ALGORITHM IS PRESENTED FOR CONTROL DURING THE INITIAL PHASE OF THE FLIGHT AND THE COMPUTATION OF THE LATERAL ACCELERATION CONSTITUENTS IS DISCUSSED.

UNCLASSIFIED

USSR

UDC 627.81:551.48

KOLPACHEVA, M. P.

"Calculating the Runoff of Different Guarantee of the Rivers in the Central Chernozem Region in the Summer-Fall and Winter Seasons (1967)"

Izuch. i. ispol'z. vodn. resursov SSSR. 1966-1967 -- V sb. (Study and Use of USSR Water Resources. 1966-1967 -- Collection of Works), Moscow, Nauka Press, 1970, pp 47-48 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D14)

Translation: The seasonal runoff with a p% guarantee is defined by the formula

$$h_{\text{season } p\%} = (1 + \phi C_{v \text{ season}}) \bar{h}_{\text{season}}$$

or

$$h_{\text{season } p\%} = K_{\text{season } p\%} \cdot \bar{h}_{\text{season}}$$

where $K_{\text{season } p\%} = 1 + \phi C_{v \text{ season}}$, ϕ is the normalized deviation of the ordinates from the mean value reduced to the value of the variation coefficient $C_{v \text{ season}} = 1$ as a function of the coefficient of asymmetry $C_{s \text{ season}}$ and guarantee p%.

The seasonal runoff layer norm \bar{h}_{season} and variation coefficient $C_{v \text{ season}}$ can be 1/2

USSR

KOLPACHEVA, M. P., Izuch. i. ispol'z. vodn. resursov SSSR. 1966-1967, Moscow, Nauka Press, 1970, pp 47-48

determined by modern methods with the accuracy required in practice by the existing observation data for the rivers of the Central Chernozem Region.

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1/2 039 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--ULTRASONIC ATTENUATION IN CURRENT CARRYING SUPERCONDUCTORS
CONTAINING PARAMAGNETIC IMPURITIES -U-
AUTHOR--(02)-KOLPAGIU, M.K., KON, L.Z.

COUNTRY OF INFO--USSR

K

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 39, NR1, PP 61-65

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ULTRASONIC ABSORPTION, SUPERCONDUCTOR, PARAMAGNETIC MATERIAL,
IMPURITY CENTER, ABSORPTION COEFFICIENT, SOUND WAVE, LOW FREQUENCY, LOW
TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1441

STEP NO--GE/0030/TO/039/001/0061/0065

CIRC ACCESSION NO--AP0112435

RESTRICTED

2/2 039 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0112435
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. AN INVESTIGATION IS MADE OF THE
ULTRASONIC ATTENUATION IN SUPERCONDUCTORS CARRYING PERSISTENT CURRENTS
IN THE PRESENCE OF PARAMAGNETIC IMPURITY SCATTERING. THE LIMITING CASE
OF HIGH IMPURITY CONCENTRATIONS IS CONSIDERED. GENERAL EXPRESSIONS FOR
THE ATTENUATION COEFFICIENTS ARE OBTAINED IN THE CASE OF SPACE
INDEPENDENT SOUND WAVES. THE ATTENUATION COEFFICIENTS AT RELATIVELY LOW
FREQUENCIES AND LOW TEMPERATURES ARE EVALUATED EXPLICITLY. GAPLESS
SUPERCONDUCTORS ARE ALSO CONSIDERED. FACILITY: INSTITUTE OF
APPLIED PHYSICS, ACADEMY OF SCIENCES OF THE MOLDAVIAN SSR, KISHINEV.

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