

1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--STAPHYLOCOCCINI, THEIR PROPERTIES AND USE OF TYPE CLASSIFICATION  
FOR STAPHYLOCOCCI -U-  
AUTHOR--IVANOV, N.A.  
COUNTRY OF INFO--USSR I  
SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,  
NR 5, PP 2-34  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--STAPHYLOCOCCUS, MICROORGANISM IDENTIFICATION  
  
CONTROL MARKING--NO RESTRICTIONS  
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PROXY REEL/FRAME--1999/0295 STEP NO--UR/0219/70/069/005/0062/0034  
CIRC ACCESSION NO--AP0122497  
UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70  
CIRC ACCESSION NO--AP0122497  
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. DURING THE INVESTIGATION OF 721 STRAINS OF STAPHYLOCOCCI, ISOLATED FROM THE HEALTHY HUMAN SKIN, IT WAS FOUND THAT 49.6 PLUS OR MINUS 1.9PERCENT OF THEM PRODUCED BACTERIOCINS. 14 BACTERIOCINS WERE DIVIDED INTO TWO GROUPS AND 9 TYPES. A SENSITIVITY TO ALL STRAINS WAS DETERMINED TO 7 TYPES OF BACTERIOCINS AND 93.3 PLUS 0.9PERCENT OF CULTURES WERE TYPED BY THIS METHOD. BACTERIOCINTYPED APATHOGENIC AND CONDITIONALLY PATHOGENIC STAPHYLOCOCCI PRESENT A PRACTICAL INTEREST, SINCE THIS METHOD MAY BE USED FOR THE IDENTIFICATION OF THIS GROUP OF MICROORGANISMS. FACILITY: Khabarovsk Medical Institute.

UNCLASSIFIED

Pharmacology and Toxicology

USSR

RODIONOVA, R. P., IVANOV, N. G., KAZBEKOV, I. M.

"Toxicity of beta-Ethoxypropionitrile"

Sb. "Toksikol. novykh prom. khim. veshchestv" (Toxicology of New Industrial Chemicals--Collection of Works), 1973, vyp. 13, Moscow, "Meditsina," pp 131-138 (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya, No 18, 25 September 1973, Abstract No 18F1734)

Translation: The maximum permissible concentration (MPC) of beta-ethoxypropionitrile in the air of a working area was confirmed to be 0.05 mg/liter, which agrees with values calculated from physical-chemical (molecular weight, boiling point, volatility) and biological constants. It is noted that, for other nitriles that release a CN group, the MPC is much lower (0.0005 mg/liter for acrylonitrile).

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USSR

POZDNYAKOV, V. S., IVANOV, N. G., KAZBEKOV, I. M.

"Toxicology of Acetylpropyl Alcohol"

Sb. "Toksikol. novykh prom. khim. veshchestv" (Toxicology of New Industrial Chemicals--Collection of Works), 1973, vyp. 13, Moscow, "Meditsina," pp 124-131 (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya, No 18, 25 September 1973, Abstract No 18F1757)

Translation: The proposed maximum permissible concentration of acetylpropyl alcohol in air of a work area is 10 mg/liter. The LD-50 is 6400 mg/kg and the cumulative capacity is insignificant.

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USSR

UDC 577.1:615.7/9

KHROMENKO, Z. F., COSTINSKIY, V. D., and IVANOV, N. G.

"Materials on the Primary Toxicologic Evaluation of Hydroterphenyl"

Nauch. tr. Irkutsk, med in-ta (Scientific Works of Irkutsk medical Institute), 1972, vyp. 115, pp 122-123 (from RZh-Biologicheskaya Khimiya, No 8, 1973, Abstract No 8F2170)

Translation: For internal (in the stomach) administration of hydroterphenyl, its LD<sub>50</sub> for rats and mice was 6.6 and 4.2 grams/kg respectively. At doses of 7.5-10 grams/kg the animals died in 3 to 10 days. In the case of inhalation by the rats (10-200 mg/m<sup>3</sup>; 4 hours) no deaths were observed. The threshold concentration of hydroterphenyl with respect to choline esterase activity was 20 mg/m<sup>3</sup>; with respect to chloride and phenol content in the urine it was 35 mg/m<sup>3</sup>. On repeated internal administration of the hydroterphenyl (over a 3-length period) to rats in doses of 0.107-0.5 LD<sub>50</sub>, a significant reduction in weight gain, intensification of the antitoxic function of the liver, a reduction in choline esterase activity, an increase in the elimination of free and general phenols with the urine, and an increase in the weight factors of the liver, kidneys and spleen were observed. The conclusion was drawn regarding 1/2

USSR

KHROMENKO, Z. F., et al., Scientific Works of Irkutsk Medical Institute,  
1972, Vyp 115, pp 122-123

the moderate toxic properties of hydroterphenyl. With respect to general toxic effect the hydroterphenyl belongs to the substances capable to disturbing the functional state of the liver, kidneys and central nervous system. The cumulative properties of hydroterphenyl are weakly expressed.

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USSR

UDC 632.951:636.089.3

IVANOV, N. I., and LAVRENT'YEV, P. A., (DECEASED), Kazan' Veterinary Institute  
imeni N. E. Bauman

"Acaricidal Activity of Cyclophos"

Moscow, Khimiya, v Sel'skom Khozyaystve, Vol 10, No 9, (119), 1973, pp 68-69

Abstract: On the basis of laboratory and field trials it was established that the effectiveness of cyclophos is about the same as that of the chlorophos in application against pasture mites and ticks. The residual activity of a 1% emulsion of cyclophos and 1% solution of chlorophos against *Ixodes ricinus* and *Hyalomma anatolicum* on the haired skin cover of large cattle was less than 48 hrs.

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USSR

UDC 621.357:621.79.027

SELYKIN, F. V., ~~IVANOV, N. I.~~

"Intensification of the Process of Electrochemical Machining by Introducing Ultrasonic Vibrations"

V sb. Novoye v elektrofiz. i elektrokhim. obrabotke materialov (What's New in Electrophysical and Electrochemical Treatment of Materials -- collection of works), Leningrad, Mashinostroyeniye Press, 1972, pp 23-25 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L301)

Translation: It was demonstrated that the communication of ultrasonic vibrations to the anode significantly increases the efficiency of the process of electrochemical dimensional machining and lowers the power consumption.

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USSR

UDC: 51:330.115

IVANOV, N. I., GEYFMAN, R. S., GAFT, L. Sh.

"Mathematical Economics Models of Optimum Production Planning"

Ekonomiko-matematicheskiye modeli optimal'nogo planirovaniya proizvodstva  
(cf. English above), Kiev, "Nauk. dumka", 1971, 206 pp, ill. 1 r. 55 k.  
(from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V873 K)

[No abstract]

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USSR

UDC: 529.786

IVANOV, N. I., KRAVCHENKO, V. F.

"Fluctuations in a Quantum Frequency Standard"

Kiev, Radioelektronika, Vol 15, No 7, Jul 72, pp 890-894

Abstract: The authors investigate short-term frequency fluctuations in a rubidium quantum frequency standard. Expressions are found for the mean-square variations from the average of the relative phase deviation of the frequency of a quartz-crystal oscillator tuned with respect to a rubidium quantum oscillator. It is found that short-term frequency instability of the output signal of a rubidium quantum frequency standard as determined by the flicker noise level of the quartz-crystal oscillator decreases with an increase in the passband of the phase AFC circuit. The contribution of additive noises of the autotuning circuit to frequency fluctuations decreases as the passband of the phase AFC circuit narrows. The cutoff frequency of the AFC circuit has an optimum value for a specific rubidium maser. The results of this research can be extended to other types of frequency standards.

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USSR

UDC 613.644:625.144.5

IVANOV, N. I., and SKORODUMOV, G. Ye., Leningrad

"Hygienic Evaluation of the Noise of Heavy Section Maintenance Machines"

Moscow, Gigiyena i Sanitariya, No 11, 1970, pp 98-100

Abstract: Control of noise made by heavy rail section maintenance machines was investigated by the Department of Labor Protection of the Leningrad Institute of Railway Transport Engineers, together with the maintenance force of the Oktyabrskaya Railway. Noise measurements were taken with the precision Bryul' i K'yer noise level meter, with octave filters. The noise level was measured in the control cabs, at outlying remote control stations, in diesel power stations, and also in all other areas where maintenance personnel are situated. The noise field surrounding the machines during their operation was measured at distances of 1, 3, 5, and 7 meters at the sides of the machine and at distances of 1, 2 and 5 meters ahead of and behind the machines. The microphones in the cabs were 1.5 meters from the floor and at the level of the operator's head at the outlying remote control stations. The main noise sources in the machines studied are the working parts in contact with the ballast (engines and exhaust units). The noise  
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USSR

IVANOV, N. I., and SKORODUMOV, G. Ye., Gigiyena i Sanitariya, No 11, 1970,  
pp 98-100

level of diesels in maintenance machines is 113-120 db for nominal loads, 114-118 db for working parts, and the exhaust noise level is 124-130 db. Analysis of measurement results at the maintenance machine work stations showed the noise level to be 90-120 db. The noise spectrum is comprised predominantly of medium- and high-frequency sounds, and the noise exceeds current standards for almost all maintenance machines.

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USSR

UDC 613.644.616.28-088.1

IVANOV, N. I.

"Effect of Strong Pulsed Noise on the Hearing Organs of Animals"

Moscow, Voenno-Meditsinskiy Zhurnal, No 7, 1970, pp 24-27

Abstract: The effect of strong pulsed noise on the biopotential level of the cat cochlea was investigated. In one series of experiments, white noise with an instantaneous front was applied in single 1 sec pulses or in 1 sec pulses repeated for 3 min with a 2 sec interval between pulses. In another series, noise from a rocket engine was applied in 1 sec pulses. With single white noise pulses at the 124-125 db level, the biopotentials of the cochlea were first increased and then dropped sharply. Analogous phenomena were observed for the 3 min series of repeated pulses. Single 132 db pulses caused an immediate drop in the biopotentials which was followed by a second decrease 1 hour later. This trend continued with higher decibel levels or prolonged irritation. Basically analogous phenomena were noted for noise generated by a rocket engine. It is concluded that, depending on the intensity and duration of the stimulation, adaptation first occurs, followed by fatigue and, finally, trauma to the hearing organ. Adaptation begins immediately upon stimulation of the hearing organ, lowering its sensitivity. When the irritation stops, sensitivity returns. Fatigue occurs either  
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USSR

IVANOV, N. I., Voenno-Meditsinskiy Zhurnal, No 7, 1970, pp 24-27

after prolonged exposure to a weak irritant or following a single exposure to a strong irritant. The return to original sensitivity is much slower. As a result of trauma, changes occur in the hearing organ which lead to partial or permanent loss of hearing.

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USSR

UDC 621.396.75

ARRO, I. O., IVANOV, N. I.

"Noise Immunity of a Two-Channel Automatic Radio Direction Finder with Simultaneous Comparison of Amplitudes"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 2 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 2), Leningrad, 1970, pp 42-49 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8GB9)

Translation: Expressions are found for the provisional distribution function of the tangent (bearing) for various situations. An example of calculating the error in the degree of variance of the bearing is presented. There is one illustration and a 16-entry bibliography.

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USSR

UDC 629.78.076.8

BAZHINOV, I. K., IVANOV, N. M., MARTYNOV, A. I.

"Discrete Algorithm for Controlling the Final Launch Velocity of Spacecraft in the Atmosphere of Mars"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamic Institute), 1972, Vol. 3, No. 4, pp 59-64 (from RZh-41. Raketostroyeniye, No 11, Nov 72, Abstract No 11.41.97)

Translation: A discrete algorithm for controlling the final escape velocity of a space ship in the atmosphere of Mars is discussed, the achievement of which is possible by simple autonomic means. The lift vector is controlled by the change in the angle of roll (i.e., the effective component of the lift force). The algorithm for the control uses the lines of intersection remembered by the on-board computer. Numerical results are given for a calculation of the efficiency of the control algorithm. It is shown that the control algorithm can be used in constructing control systems for the final escape velocity for a wide class of launched craft and for various injection velocities. 4 ill., 4 ref. Resume.

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USSR

UDC 629.78.015.076.8

BAZHINOV, I. K., ~~IVANOV, N. M.~~, NOGOV, O. A., and YAKOVLEV, O. S.

"Some Adaptive Algorithms of Control of the Descent of Planetary Space Vehicles in the Earth's Atmosphere"

Inform. Materialy. Nauch. Sovet po Kompleks. Probl. (Information Materials of the Scientific Council on Complex Problems), "Kibernetika." AN SSSR, No 6 (53), 1972, pp 38-47 (from Referativnyy Zhurnal, Raketostroyeniye, No 5, 1972, Abstract No 5.41.173, Resume)

Translation: The problem of controlling the descent of a space vehicle entering the Earth's atmosphere at hyperbolic velocities is presently becoming a constantly more urgent one. With an increase of the entry velocity, the solution of the problem of landing of the craft in a given region of the Earth acquires substantial complexity, and there is a corresponding increase in the demands made upon the descent control system. Such a descent control system must be versatile, capable of functioning in various kinds of emergency situations, at any practicable range of descent, at various entry velocities, with random changes of the aerodynamic characteristics of the descending craft within the limits of tolerance, etc. An algorithm for operating such a descent control system is a complex one; it can be brought to realization only with  
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USSR

BAZHINOV, I. K., Inform. Materialy. Nauch. Sovet po Kompleks. Probl.  
"Kibernetika." AN SSSR, No 6 (53), 1972, pp 38-47 (from Referativnyy Zhurnal,  
Raketostroyeniye, No 5, 1972, Abstract No 5.41.137, Resume)

the employment of a digital computer aboard the space vehicle. Some types  
of algorithms for operating descent control systems of this kind are  
examined. 7 references.

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USSR

UDC 629.78.015.076.8

IVANOV, N. M., MARTYNOV, A. I.

"One Algorithm for Control of the Final Descent Velocity of Automatic Apparatus in the Atmosphere of Mars"

Uch. zap. Tsentr. Aero-gidrodinam. In-ta [Scientific Writings of Central Aero-Hydrodynamics Institute], Vol 2, No 5, 1972, pp 64-72, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 4, 1972, Abstract No 4.41.151 from the Resume).

Translation: A simple algorithm is suggested for control of the final descent velocity of an automatic apparatus in the atmosphere of Mars, producing the minimum velocity at a predetermined final altitude. Control of the lifting force vector is achieved by changing the effective quality. Numerical results are presented from the estimation of the effectiveness of the algorithm suggested for two hypothetical descent apparatus having identical available quality  $K_{av} = 0.3$ , but difference values of adjusted load on the face:  $P_x = 80 \text{ kg/m}^2$  and  $P_x = 250 \text{ kg/m}^2$ . 4 Figures; 1 Table; 5 Biblio. Refs.

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USSR

IVANOV, N. M., MARTYNOV, A. I.

"One Algorithm for Control of the Final Descent Velocity of a Spacecraft Into the Atmosphere of Mars"

Uch. zap. Tsentr. Aero-gidrodinam. In-ta [Scientific Writings of Central Aero-Hydrodynamic Institute], Vol 2, No 5, 1971, pp 64-72. (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 A64 by V. I. Toloknov).

Translation: An algorithm is suggested for control of the descent of a spacecraft into the atmosphere of Mars, assuring the minimum descent velocity at a fixed altitude. The essence of the algorithm consists in calculation of the longitudinal acceleration while maintaining effective aerodynamic quality with zero bank angle in comparison to the actual acceleration with the calculated value and output of an instruction for motion with zero bank angle when they are equal. The numerical results are presented from an estimate of the effectiveness of the algorithm when random perturbations on the hypothetical landing craft are present with two versions of corrected load on the face. The effectiveness was estimated using the method of B. G. Dostupov.

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USSR

UDC 629.78.015.076.8

IVANOV, N. M., MARTINOV, A. I.

"Concerning the Maximum Permissible Load Upon the Frontal Surface of Spacecraft Making an Aeronautic Descent in the Atmosphere of Mars"

Uch. Zap. Tsentr. Aero-Gidrodinamich. In-ta (Scientific Notes of the Central Aerohydrodynamic Institute), Vol 2, No 3, 1971, pp 105-109 (from Referativnyy Zhurnal, Raketostroyeniye, No 12, Dec 71, Abstract No 12,41.136)

Translation: The article deals with some questions of the aerodynamic descent of a spacecraft in the rarified atmosphere of Mars. It is shown that such a landing method for spacecraft, at least with an average value of the reduced load upon the phase  $P_x^{max}$  term  $\approx 250$  to  $350$  kg force/m<sup>2</sup>, is possible in practice only when two basic conditions are satisfied: on board the spacecraft there are autonomous navigation facilities; the landing spacecraft possesses at least a small lift force (a fineness of  $K \approx 0.3$  to  $0.4$ ). 5 figures. 6 references.

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USSR

UDC 619:616.981.42-079

BEL'CHENKO, V. B., and IVANOV, N. P., Karaganda Scientific Research Veterinary Station and Kazakh Scientific Research Veterinary Institute

"The Indirect Hemagglutination Reaction as a Method for Diagnosing Brucellosis of Calves"

Moscow, Veterinariya, No 1, Jan 73, pp 109-112

Abstract: In connection with the prophylactic immunization of calves against brucellosis with strain 19, it is essential to detect sick animals, because the latter may remain a source of infection in the herd. Good results in diagnosing brucellosis of calves were obtained by the method of indirect hemagglutination, which yielded a higher percentage of positive results than the agglutination reaction or the reaction of complement fixation. To prepare a stable and active erythrocyte antigen, erythrocytes treated with tannin were sensitized with brucellae of strain 19V that had been destroyed by the action of ultrasound. Use of nonsensitized ovine erythrocytes in the reaction of indirect hemagglutination resulted in side reactions due to the presence of normal hemagglutinins in the blood serum of the calves. Preliminary adsorption of the serum samples with a 50% suspension of erythrocytes that had been treated with formalin eliminated the side reactions.

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USSR

UDC: 621.375.62

IVANOV, N. P., KRASIL'NIKOV, A. I., LITVINOV, V. F., MOLOCHEV, V. I.,  
NGO-VAN BI, NIKITIN, V. V., SEMENOV, A. S.

"Investigation of the Radiative Characteristics of GaAs Single-Channel Injection Lasers"

Moscow, Issledovaniye izluchatel'nykh kharakteristik odnokanal'nykh inzhektionsionnykh lazerov na GaAs. Fiz. in-t AN SSSR (cf. English above. Physics Institute of the Soviet Academy of Sciences), Preprint No 31, 1973, 11 pp, ill., mimeo. (from RZh-Fizika, No 8, Aug 73, abstract No SB1101)

Translation: A technique for making single-channel semiconductor lasers is proposed and elaborated. High-resistance gallium arsenide doped with iron or chromium was used as the substrate. A layer of tellurium-doped gallium arsenide with dopant concentration of about  $10^{18}/\text{cc}$  is grown by the epitaxial fluid method on the substrate oriented along axis  $[100]$ . A semi-insulating, high-resistance film  $100 \mu\text{m}$  thick is then grown on the doped layer. The resultant multilayer plate is then split into "needles" a millimeter in width into which zinc is diffused. Laser diodes are made from the needles by the cleavage method. The characteristics of the finished

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USSR

IVANOV, N. P. et al., Issledovaniye izluchatel'nykh kharakteristik odno-  
kanal'nykh inzhektionsnykh lazerov na GaAs. Fiz. in-t AN SSSR, Preprint  
No 31, 1973

diodes are studied, and their considerable advantages over conventional  
diffusion and epitaxial lasers are noted.

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USSR

UDC: 535.243.08

DOROFYEV, V. S., IVANOV, N. P.

"Atomic Absorption Non-Dispersion Photometer Based on a Photoresistor"

Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971, pp 87-92 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1098 by V. S. Krasnova)

Translation: It is demonstrated that the use of a non-dispersion system for recording based on type VSB spectral tubes and the F-7 photosensor, insensitive to daylight, the FEU-57 ultraviolet photomultiplier and the SF2-19 photoresistor in atomic absorption installations allows the content of zinc, cadmium, bismuth, lead and many other elements to be determined in solutions. The results of experimental studies performed by VNIIREA (Moscow) have demonstrated the possibility of using the SF2-19 photoresistor in atomic absorption analyzers using a two-discharge spectral tube for determination of copper and silver both simultaneously and separately with a sensitivity of about 1-2  $\mu\text{g}/\text{ml}$  for 1% absorption with a reproducibility of about 2-3%. 2 figures; 5 biblio refs.

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1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--THE BLOOD SERUM NEIRAMINIC ACID IN PATIENTS SUFFERING FROM  
DIFFERENT FORMS IN BRONCHIAL ASTHMA -U-  
AUTHOR--(02)-TCMILETS, V.A., IVANOV, N.P.  
COUNTRY OF INFO--USSR  
SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 3, PP 104-107  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RESPIRATORY SYSTEM DISEASE, BLOOD SERUM, ORGANIC ACID, SKIN  
TEST, ALLERGIC DISEASE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/C906 STEP NO--UR/0497/70/048/003/0104/0107  
CIRC ACCESSION NO--AP0126565  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--3000170

CIRC ACCESSION NO--AP0126565

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEPENDING UPON THE FORM OF BRONCHIAL ASTHMA THE AUTHORS ESTABLISHED BY THE RESULTS OF SKIN ALLERGIC TESTS IN THE BLOOD SERUM OF PATIENTS WITH AN INFECTIOUS ALLERGIC FORM DURING THE INTERPAROXYSMAL PERIOD A GREATER LEVEL OF NEIRAMINIC ACID THAN IN PATIENTS AFFECTED WITH AN ATOPICAL AND MIXED FORMS. DURING BRONCHIAL ASTHMA PARUXYSMS THE BLOOD SERUM CONCENTRATION OF NEIRAMINIC ACID RISES EVEN MORE. FACILITY: NAUCHNO-ISSLED. ALLERGICLOGICHESKAYA LABORATORIYA AMN SSSR.

UNCLASSIFIED

Waveguides

USSR

UDC: 621.372.852.6

BAKLANOV, O. D., BAL'ZAMOV, B. N., USTIMENKO, V. V., IVANOV, N. S., KRAV-  
CHENKO, V. F., ZHILKOV, V. S., KHIZHNIK, N. A., PIROGII, YE. L.

"An Impedance Transformer Based on a Cylindrical Waveguide"

Pribory i sistemy avtomatiki. Resp. mezhved. nauch.-tekhn. sb. (Devices and  
Systems for Automation. Republic Interdepartmental Scientific and Technical  
Collection), 1970, vyp. 14, pp 11-15 (from RZh-Radiotekhnika, No 5, May 71,  
Abstract No 5B152)

Translation: The paper describes the design of an impedance transformer based  
on a cylindrical waveguide. An analysis of the results of experimental  
studies shows that practical realization of the device is feasible in micro-  
wave technology. The proposed design may find application in synthesis of  
automatic lines based on cylindrical waveguides. Resumé.

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USSR

UDC:621.791.052:539.4:669.15-194.55

SMIRNOV, S. A., Engineer, NIKITENKO, V. A., Engineer, and IVANOV, N. S.,  
Engineer

"Increasing the Properties of Martensite-Class Steel Welded Joints by  
Dynamic Deformation"

Moscow, Svarochnoye Proizvodstvo, No. 10, Oct 70, pp. 31-32

Abstract: Investigations were made of welded joints of high-strength  
martensite steel produced by electric slag welding with a plate electrode  
and subjected to 25-50% plastic deformation after welding. The use of  
dynamic deformation of welded joints of martensitic steel produced by  
electric slag welding using a plate electrode allows a significant  
improvement in seam structure and in the zone around the seam and an  
increase in plastic properties of the welded joint.

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USSR

TSELYARITSKIY, E. N., BOROZOVICH, N. V., YANOV, S. S.

"A Push-Pull Power Amplifier"

USSR Author's Certificate No. 240990, filed 1 Dec 66, published in Radio Engng. Electron. Phys., No 6, Jun 70, Abstract No. 6B107 (1)

Translation: This Author's Certificate introduces a transistorized push-pull power amplifier which contains master, controlled and output transformers. The amplifier is a PDM with linear I/O characteristics, two series-connected transistors are connected in series with each primary half-winding of the output transformer. The emitter-base junctions of the lower transistors are connected to the secondary winding of the controlled transformer, while those of the upper transistors are connected to the secondary of the master transformer. P. U.

UDC 629.78.015.076.8

USSR

IVANOV, N. M., MARTINOV, A. I.

"Concerning the Maximum Permissible Load Upon the Frontal Surface of Spacecraft Making an Aeronautic Descent in the Atmosphere of Mars"

Uch. Zap. Tsentr. Aero-Gidrodinamich. In-ta (Scientific Notes of the Central Aerohydrodynamic Institute), Vol 2, No 3, 1971, pp 105-109 (from Referativnyy Zhurnal, Raketostroyeniye, No 12, Dec 71, Abstract No 12,41.138)

Translation: The article deals with some questions of the aerodynamic descent of a spacecraft in the rarified atmosphere of Mars. It is shown that such a landing method for spacecraft, at least with an average value of the reduced load upon the phase  $P_x$  max term  $\approx 250$  to  $350$  kg force/m<sup>2</sup>, is possible in practice only when two basic conditions are satisfied: on board the spacecraft there are autonomous navigation facilities; the landing spacecraft possesses at least a small lift force (a fineness of  $K \approx 0.3$  to  $0.4$ ). 5 figures. 6 references.

USSR

UDC 619:616.981.42-079

BEL'CHENKO, V. B., and IVANOV, N. P., Karaganda Scientific Research Veterinary Station and Kazakh Scientific Research Veterinary Institute

"The Indirect Hemagglutination Reaction as a Method for Diagnosing Brucellosis of Calves"

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Abstract: In connection with the prophylactic immunization of calves against brucellosis with strain 19, it is essential to detect sick animals, because the latter may remain a source of infection in the herd. Good results in diagnosing brucellosis of calves were obtained by the method of indirect hemagglutination, which yielded a higher percentage of positive results than the agglutination reaction or the reaction of complement fixation. To prepare a stable and active erythrocyte antigen, erythrocytes treated with tannin were sensitized with brucellae of strain 19V that had been destroyed by the action of ultrasound. Use of nonsensitized ovine erythrocytes in the reaction of indirect hemagglutination resulted in side reactions due to the presence of normal hemagglutinins in the blood serum of the calves. Preliminary adsorption of the serum samples with a 50% suspension of erythrocytes that had been treated with formalin eliminated the side reactions.

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UDC: 621.375.82

USSR

IVANOV, N. P., KRASIL'NIKOV, A. I., LITVINOV, V. F., MOLOCHEV, V. I.,  
NGO-VAN BI, NIKITIN, V. V., SEMENOV, A. S.

"Investigation of the Radiative Characteristics of GaAs Single-Channel Injection Lasers"

Moscow, Issledovaniye izluchatel'nykh kharakteristik odnokanal'nykh inzhetsionnykh lazerov na GaAs. Fiz. in-t AN SSSR (cf. English above. Physics Institute of the Soviet Academy of Sciences), Preprint No 31, 1973, 11 pp, ill., mimeo. (from RZh-Fiz. a, No 8, Aug 73, abstract No 8D1101)

Translation: A technique for making single-channel semiconductor lasers is proposed and elaborated. High-resistance gallium arsenide doped with iron or chromium was used as the substrate. A layer of tellurium-doped gallium arsenide with dopant concentration of about  $10^{18}/\text{cc}$  is grown by the epitaxial fluid method on the substrate oriented along axis  $|100|$ . A semi-insulating, high-resistance film  $100 \mu\text{m}$  thick is then grown on the doped layer. The resultant multilayer plate is then split into "needles" a millimeter in width into which zinc is diffused. Laser diodes are made from the needles by the cleavage method. The characteristics of the finished

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USSR

IVANOV, N. P. et al., Issledovaniye izluchatel'nykh kharakteristik odno-kanal'nykh inzhetsionnykh lazerov na GaAs. Fiz. inzh. AN SSSR, Preprint No 31, 1973

diodes are studied, and their considerable advantages over conventional diffusion and epitaxial lasers are noted.

USSR

UDC: 535.243.08

DOROFEYEV, V. S., IVANOV, N. P.

"Atomic Absorption Non-Dispersion Photometer Based on a Photoresistor"

Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971, pp 87-92 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1098 by V. S. Krasnova)

Translation: It is demonstrated that the use of a non-dispersion system for recording based on type VSB spectral tubes and the F-7 photosensor, insensitive to daylight, the FEU-57 ultraviolet photomultiplier and the SF2-19 photoresistor in atomic absorption installations allows the content of zinc, cadmium, bismuth, lead and many other elements to be determined in solutions. The results of experimental studies performed by VNIIREA (Moscow) have demonstrated the possibility of using the SF2-19 photoresistor in atomic absorption analyzers using a two-discharge spectral tube for determination of copper and silver both simultaneously and separately with a sensitivity of about 1-2  $\mu\text{g}/\text{nl}$  for 1% absorption with a reproducibility of about 2-3%. 2 figures; 5 biblio refs.

1/1

- 150 -

UNCLASSIFIED

PROCESSING DATE--300170

1/2 019

TITLE--THE BLOOD SERUM NEIRAMINIC ACID IN PATIENTS SUFFERING FROM  
DIFFERENT FORMS IN BRONCHIAL ASTHMA -U-

AUTHOR--(02)-TGMILETS, V.A., IVANOV, N.P.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 3, PP 104-107

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RESPIRATORY SYSTEM DISEASE, BLOOD SERUM, ORGANIC ACID, SKIN  
TEST, ALLERGIC DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/0906

STEP NO--UR/0497/70/048/003/0104/0107

ACCESSION NO--AP0126565

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126565

ABSTRACT/EXTRACT--(U) Gp-0- ABSTRACT. DEPENDING UPON THE FORM OF  
BRONCHIAL ASTHMA THE AUTHORS ESTABLISHED BY THE RESULTS OF SKIN ALLERGIC  
TESTS IN THE BLOOD SERUM OF PATIENTS WITH AN INFECTIOUS ALLERGIC FORM  
DURING THE INTERPAROXYSMAL PERIOD A GREATER LEVEL OF NEIRAMINIC ACID  
THAN IN PATIENTS AFFECTED WITH AN ATOPICAL AND MIXED FORMS. DURING  
BRONCHIAL ASTHMA PAROXYSMS THE BLOOD SERUM CONCENTRATION OF NEIRAMINIC  
ACID RISES EVEN MORE. FACILITY: NAUCHNO-ISSLED.  
ALLERGOLOGICHESKAYA LABORATORIYA AMN SSSR.

Waveguides

USSR

UDC: 621.372.852.6

BAKLANOV, O. D., BAL'ZAMOV, B. N., USTIMENKO, V. V., IVANOV, N. S., KRAV-  
CHENKO, V. F., ZHILKOV, V. S., KHIZHNIK, N. A., PIRGPP, Ye. L.

"An Impedance Transformer Based on a Cylindrical Waveguide"

Pribory i sistemy avtomatiki. Resp. mezhved. nauch.-tekhn. sb. (Devices and  
Systems for Automation. Republic Interdepartmental Scientific and Technical  
Collection), 1970, vyp. 14, pp 11-15 (from RZh-Radiotekhnika, No 5, May 71,  
Abstract No 5B152)

Translation: The paper describes the design of an impedance transformer based  
on a cylindrical waveguide. An analysis of the results of experimental  
studies shows that practical realization of the device is feasible in micro-  
wave technology. The proposed design may find application in synthesis of  
automatic lines based on cylindrical waveguides. Resumé.

1/1

USSR

UDC:621.791.052:539.4:669.15-194.55

SMIRNOV, S. A., Engineer, NIKITENKO, V. A., Engineer, and IVANOV, N. S.,  
Engineer

"Increasing the Properties of Martensite-Class Steel Welded Joints by  
Dynamic Deformation"

Moscow, Svarochnoye Proizvodstvo, No. 10, Oct 70, pp. 31-32

Abstract: Investigations were made of welded joints of high-strength  
martensite steel produced by electric slag welding with a plate electrode  
and subjected to 25-50% plastic deformation after welding. The use of  
dynamic deformation of welded joints of martensitic steel produced by  
electric slag welding using a plate electrode allows a significant  
improvement in seam structure and in the zone around the seam and an  
increase in plastic properties of the welded joint.

1/1

- 77 -

I  
USSR

UDC: 621.375.4(088.8)

TSELYARITSKIY, E. N., BORODOVITSIN, N. V., IVANOV, N. S.

"A Push-Pull Power Amplifier"

USSR Author's Certificate No 246590, filed 1 Dec 66, published 14 Nov 69 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6D107 P)

Translation: This Author's Certificate introduces a transistorized push-pull power amplifier which contains master, controlled and output transformers. To implement PDM with linear I/O characteristics, two series-connected transistors are connected in series with each primary half-winding of the output transformer. The emitter-base junctions of the lower transistors are connected to the secondary winding of the controlled transformer, while those of the upper transistors are connected to the secondary of the master transformer. P. U.

1/1



UDC: 533.921:621.039.01

USSR

IVANOV, N. V., KOVAN, I. A., and LOS', Ye. V.

"Pre-Ionization of a Gas by the E-Wave Field in the TOKAMAK Chamber"

Leningrad, Zhurnal tekhnicheskoy fiziki, -No 3, 1973, pp 513-516

Abstract: This paper describes the experimental results of an investigation into the characteristic oscillation of a hollow toroidal resonator and the characteristics of high-frequency breakdown of the gas by the field of the E wave in the chamber of the Tokamak. The resonator was made of stainless steel with a small radius of 18 cm and a large radius of 60 cm. Low-inductance loops set close to the chamber wall were used to excite the resonator, and the oscillation source was a generator operating in the 600-700 MHz range developing power up to two kilowatts in the pulse mode. A feedback circuit was included to stabilize the frequency. The experiments in gas breakdown were conducted with hydrogen at a longitudinal magnetic field intensity of 200 oersteds. The experiments showed that high-frequency pre-ionization of a gas in the Tokamak chamber is possible, and that in the high-frequency breakdown of hydrogen a plasma cord appeared at the chamber axis.

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- 82 -

makes physical properties of a fiber of a certain diameter. The device is based on a temperature range of -70 to 800° C and makes it possible to study the internal friction and shear modulus in the same temperature range with automatic recording of vibrations. A study of the internal friction and shear modulus of sodium silicate, sodium aluminosilicate (Al/Na = 1), and alkali-free aluminoborosilicate fibers showed that

GLASS AND CERAMICS

UDC 677.52:539.67

USSR

POSTNIKOV, V. S., IVANOV, N. V., and BALASHOV, YU. S., Voronezh Poly-  
technic Institute

"Internal Friction and Shear Modulus of Thin Glass Fibers"

Moscow, Izvestiya Akademii Nauk SSSR,  
Vol 6, No 7, Jul 70, pp 1327-1330

Neorganicheskiye Materialy,

describes a device created by the authors which  
method to study the  
in

USSR

POSTNIKOV, V. S., et al., Izvestiya Akademii Nauk SSSR, Neorgani-  
cheskiye Materialy, Vol 6, No 7, Jul 70, pp 1327-1330

there is a qualitative similarity in the relaxation spectra of macro-  
and microspecimens. Quantitative differences which are found are  
evidently due to the more open structure of thin glass fibers.

2/2

USSR

UDC 669.76:538.221

YERMAKOV, A. Ye., IVANOV, O. A., and SHUR, Ya. S., Institute of Physics of Metals, Ural National Center of the Academy of Sciences USSR, and Ural State University imeni A. M. Gor'kiy

"Rotational Hysteresis in Single Crystal Nickel Powders"  
Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 6, Jun 72, pp 1182-1187

Abstract: A study was made of the temperature dependence of rotational hysteresis in single-crystal nickel powders with 220-3200 Å particle diameters. The magnetic properties of nickel powders were found to be related to the effective constant of magnetic anisotropy produced by magnetic interaction of particles. The remagnetization mechanism of nickel powders for 300 and 450 °K remains constant, but the magnetic anisotropy constant for these temperatures takes values of  $5 \cdot 10^4$  erg/cm<sup>3</sup> and zero, respectively. The type of remagnetization in nickel powders with particle sizes of  $d \leq 1100$  Å can be qualitatively explained by approximation of the "twisting" and the chain models of spheres. In powders with  $d > 1100$  Å particle sizes, the character of remagnetization is more complex. The exchange anisotropy, dependent on the presence of NiO, was found to have no effect on magnetic properties. Five figures, fourteen bibliographic references.

1/1

USSR

UDC: 669.24:538.248

YERMAKOV, A. Ye., IVANOV, O. A., SHUR, Ya. S., GRECHISHKIN, R. M., IVANOVA, G. V., Institute of Physics of Metals, UNTs, Academy of Sciences of the USSR, Ural State University imeni V. I. Lenin

"Magnetic Properties of Single-Crystal Nickel Powders"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 3, Mar 72, pp 558-563

Abstract: The authors investigate the magnetic properties of nickel single crystal spherical particles as a function of diameter from 22 to 320 nm. It is shown that as particle size increases, the coercive force and residual induction first increase, then decrease after reaching a maximum. The magnetic structure goes through three stages with an increase in particle size from 22 to 320 nm: superparamagnetic, monodomain and polydomain. The authors thank M. Ya. GEN for procedural guidance in making the particles.

1/1

- 48 -

USSR

UDC 669.24:538.221

IVANOV, O. A., YERMAKOV, A. YE., and SHUR, YA. S., Institute of Metal Physics, Ural National Center of the Academy of Sciences USSR, and Ural State University imeni A. M. Gor'kiy

"Temperature Dependence of Magnetic Properties of Fine Singlecrystal Nickel Powders"

Sverdlovsk, Fizika Metallov i Metallovedeniya, Vol 33, No 4, Apr 72, pp 752-757

Abstract: The effect of magnetostatic interaction on magnetic properties has been evaluated on the basis of a study of the temperature dependence of magnetic properties of fine nickel powders. The investigation included magnetic structures from superparamagnetic to nearly multidomain structures in the 220 to 3200 Å interval. It was found that for the over 300°K temperature range the magnetic properties of powders are basically determined by the chain-like alignment of particles which results in an anisotropy of the demagnetizing field. At temperatures below 300°K, in addition to the indicated anisotropy, the magnetic properties are essentially affected by the magnetocrystalline anisotropy. A possible mechanism of the remagnetization of such chain-like structures is discussed. A drop of the residual

1/2

USSR

IVANOV, O. A., et al., Fizika Metallov i Metallovedeniya, Vol 33, No 4,  
Apr 72, pp 752-757

magnetization with the temperature is observed for pseudosuperparamagnetic particles and particles with maximum coercivity at  $T > 300^{\circ}\text{K}$ , this drop being effected by the appearance of the superparamagnetic phase. Apparently, the same sources cause the anomalous shape of the temperature curve of coercivity with the decreasing size of particles. Six illustrations, four formulas, twelve bibliographic references.

2/2

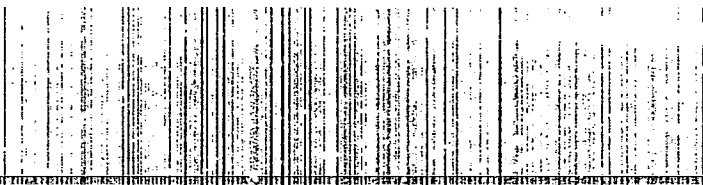
- 63 -



1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--EXAMPLE OF THE EMPLOYMENT OF THREE DIMENSIONAL MINIMISATION  
FUNCTIONS -U-  
AUTHOR--(02)-TARKHOVA, T.N., IVANOV, O.F.  
COUNTRY OF INFO--USSR  
SOURCE--KRISTALLOGRAFIYA (USSR), VOL. 15, NO. 3, P. 573-6 (MAY 1970)  
DATE PUBLISHED---MAY70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--X RAY DIFFRACTION, COPPER COMPOUND, ACETATE, QUINOLINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605029/E07 STEP NO--UR/0070/70/015/003/0573/0576  
CIRC ACCESSION NO--AP0141750

... TARKHOVA AND ABLOV, ... OF THE FUNCTIONS M SUB2, M SUB4, ...  
TABULATED TOGETHER WITH THEIR DEVIATIONS FROM THE VALUES GIVEN BY  
TARKHOVA AND ABLOV.

UNCLASSIFIED



2/2 012

CIRC ACCESSION NO--AP0141750

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

FUNCTION METHOD IS APPLIED TO X-RAY

COMPOUND BETWEEN

UNCLASSIFIED

ABSTRACT.

A THREE DIMENSIONAL

PROCESSING DATE--04DEC70

IVANOV, O. G.

"LUNA-17"

DESIGN AND OPERATION OF THE 'LUNA-17' STATION AND 'LUNOKHOD-1'

PART I

Chapter 1

GENERAL DESIGN AND CONSTRUCTION OF 'LUNA-17' STATION

K. S. Arisov, V. I. Kharikov, O. G. Ivanov, I. N. Leonidov, G. N. Nikolayev, A. D. Dneprov, A. K. Alexandrov, F. S. Semenov, A. F. Grachev, V. I. Komarov, G. N. Shasterny, A. V. Rybakov, R. L. Bykov, M. I. Bol'shov, F. P. Yakovlev, V. K. Markin, M. B. Kolesov, and P. N. Mamonov

1. Design

The "Luna-17" automatic station consists of two main parts: a unified landing stage and an automatic self-propelled vehicle, the Lunokhod.

The unified landing stage (Fig. 1) is an independent rocket unit designed for making flight trajectory corrections on the earth-moon path, putting the station into a lunar artificial satellite orbit, and implementing a prelanding circumlunar orbit and a soft landing on the lunar surface.

The unified landing stage includes a correcting-braking engine with a fuel system, two compartments which can be jettisoned, instrument compartments, and a landing apparatus.

The supporting element in the landing stage assembly is the set of main tanks, to which the engine, ejectable compartments and landing apparatus are attached.

The main tanks unit consists of four spherical tanks for fuel joined into a single assembly by means of hollow cylindrical construction components. The two larger ones are pressurized instrument compartments holding the station flight control system. On the outside of the smaller ones there are spherical cylinders and tanks with compressed gas for air-jet microengines

Translation of Russian-language monograph  
Peredatshaya laboratoriya im. Lome  
Lunokhod-1, 1971, issued to press 4 June 71  
resp. editor Academician A. P. Vinogradov;  
Nauka Publishing House, Moscow 188 pp.

JPRS 54, 525  
22 November 1971

IVANOV, O. G.

"LUNA-17"

RADIO COMPLEX, CONTROL SYSTEM AND SOURCE OF ELECTRIC CURRENT

Chapter 2

V. P. Puzhkov, I. L. Puchenko, P. I. Babkov, R. O. Salov, G. G. Kvanov, V. I. Malin, A. S. Makov, I. B. Merkov, Ye. G. Utkiy, N. A. Zhitzenov and V. M. Sudayev

1. Control System for "Luna-17" Station

Among the systems on the "Luna-17" automatic station, one of the principal problems is solved by the control system. This is a complex of sophisticated instrumentation ensuring station flight and landing.

The principal in-flight missions performed by the control system are:

Maintenance of a stipulated position of the last stage of the carrier-rocket with the station during flight in circumterrestrial orbit and at a very specific time firing the engine of the last stage for imparting to the station a velocity close to second cosmic velocity necessary for flight to the moon;

Spatial control of station position in the flight segment to the moon, during performance of trajectory corrections in seleno-centric orbit, during corrections of this orbit, and during landings on the lunar surface;

Stabilizing the station during operation of the landing stage engine in a fixed, rigorously determined position;

Regulating landing stage engine thrust in accordance with the stipulated program during deceleration during the course of landing on the lunar surface.

The control system includes gyroscopic instruments, computers, engine control units, commutating units, and actuating components.

The angular deviations of the station from stipulated spatial, normal, lateral and angular velocity components are determined using a system of gyroscopic instruments in the automatic stabilization system.

Translation of Russian-language monograph  
Перевод с русского языка монографии  
Иванова О. Г., 1971, signed to press 4 June 71  
Resp. editor Academician N. P. Vinogradov;  
Mauka Publishing House, Moscow 128 pp.

SPRS 54, 525  
22 November 1971

IVANOV, O. G.

LUNOKHOD

CONTROL AND RESULTS OF PROGRAM IMPLEMENTATION

Chapter 4

A. A. Aleksandrov, P. A. Artem'yev, G. I. Bogatov, A. I. Yelenov, O. G. Ivanov, V. A. Ryvkina, Ye. G. Uzkly, A. I. Shakhov, F. P. Pavlov, Yu. P. Kotlov and L. N. Polenov

1. System for Lunokhod Remote Control

The Lunokhod remote control system (RCS) was designed to ensure safe movement along the lunar surface in the stipulated direction with the maximum mean velocity. With respect to volume of processed information and number of instruments employed, to use the terminology adapted at the present time, this system can be classified as a saturated system. A peculiarity of the described system is that it is a closed automatic control system.

Ground and on-board radio complex equipment is used in the remote control of movement. This complex ensures the transmission and reception of control radio commands, telemetric information, and television images. The Lunokhod is remotely controlled by a group of operators, the Lunokhod crew.

The driver, receiving from the vehicle a monoscopic television image of the terrain in front of the Lunokhod, determines the possibilities for moving over it and gives appropriate commands ("Turn," "Proceed," "Stop," "Back up"). The position and dimensions of the obstacle are evaluated using a special range scale plotted on the videocontrol apparatus (VCA) screen.

The navigator, using telemetric data received from the vehicle's course gyroscopes, gyrovertical and sensors registering the traversed path, calculates the trajectory and lays out the route to be followed in the stipulated direction.

Accordingly, the driver determines the system quality during Lunokhod movement about its center of gravity and the navigator determines movement along the trajectory. The effect of movement along the trajectory on movement about the center of gravity is related to the requirements on the accuracy in adhering to the trajectory.

Translation of Russian-language monograph  
Paradizhnaya laboratoriya na Lune  
Lunokhod-2, IVI, signed to press 6 June 71  
comp. editor Academician A. P. Vinogradov,  
Maika Publishing House, Moscow 126 pp.

JPRS 54,525 22 Nov 1971  
on September 1971

Glass and Ceramics

UDC 677.52:539.67

USSR

POSTNIKOV, V. S., IVANOV, N. V., and BALASHOV, YU. S., Voronezh Poly-technic Institute

"Internal Friction and Shear Modulus of Thin Glass Fibers"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 6, No 7, Jul 70, pp 1327-1330

Abstract: The authors describe a device created by the authors which... physical properties of thin glass fibers... diameter. The device is based on a low-frequency torsion micropendulum and makes it possible to study the temperature dependence of internal friction and shear modulus in the -70 to 300° C temperature range with automatic recording of vibrations. A study of the internal friction and shear modulus of sodium silicate, sodium aluminosilicate (Al/Na = 1), and alkali-free aluminoborosilicate fibers showed that

1/2

UDC: 677.52:539.67

USSR

IVANOV, N. V., KONAN, I. A., and MOSEV, Ye. S.

"Pre-Ionization of a Gas by the Electric Field in the Corona Chamber"

Leningrad, Zhurnal tekhnicheskoy fiziki, No 3, 1977, pp 127-128

Abstract: This paper describes the experimental results of an investigation into the characteristic oscillation of a laser in the... characteristics of high-frequency... of the... in the... the... with a... of the... of the...

USSR

POSTNIKOV, V. S., et al., Izvestiya Akademii Nauk SSSR, Neorgani-  
cheskiye Materialy, Vol 6, No 7, Jul 70, pp 1327-1330

there is a qualitative similarity in the relaxation spectra of macro-  
and microspecimens. Quantitative differences which are found are  
evidently due to the more open structure of thin glass fibers.

2/2

- 30 -



USSR

UDC 669.76:538.221

YERMAKOV, A. Ye., ~~IVANOV, O. A.~~, and SHUR, Ya. S., Institute of Physics of Metals, Ural National Center of the Academy of Sciences USSR, and Ural State University imeni A. M. Gor'kiy

"Rotational Hysteresis in Single Crystal Nickel Powders"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 6, Jun 72, pp 1182-1187

Abstract: A study was made of the temperature dependence of rotational hysteresis in single-crystal nickel powders with 220-3200 Å particle diameters. The magnetic properties of nickel powders were found to be related to the effective constant of magnetic anisotropy produced by magnetic interaction of particles. The remagnetization mechanism of nickel powders for 300 and 450 °K remains constant, but the magnetic anisotropy constant for these temperatures takes values of  $5 \cdot 10^4$  erg/cm<sup>3</sup> and zero, respectively. The type of remagnetization in nickel powders with particle sizes of  $d \leq 1100$  Å can be qualitatively explained by approximation of the "twisting" and the chain models of spheres. In powders with  $d > 1100$  Å particle sizes, the character of remagnetization is more complex. The exchange anisotropy, dependent on the presence of NiO, was found to have no effect on magnetic properties. Five figures, fourteen bibliographic references.

1/1

- 24 -

USSR

UDC: 669.24:538.248

YERMAKOV, A. Ye., IVANOV, O. A., SHUR, Ya. S., GRECHISHEKIN, R. M., IVANOVA, G. V., Institute of Physics of Metals, UNTs, Academy of Sciences of the USSR, Ural State University imeni V. I. Lenin

"Magnetic Properties of Single-Crystal Nickel Powders"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 3, Mar 72, pp 558-563

Abstract: The authors investigate the magnetic properties of nickel single crystal spherical particles as a function of diameter from 22 to 320 nm. It is shown that as particle size increases, the coercive force and residual induction first increase, then decrease after reaching a maximum. The magnetic structure goes through three stages with an increase in particle size from 22 to 320 nm: superparamagnetic, monodomain and polydomain. The authors thank M. Ya. GEN for procedural guidance in making the particles.

1/1

- 48 -

USSR

UDC 669.24:538.221

IVANOV, O. A., YERMAKOV, A. YE., and SHUR, YA. S., Institute of Metal Physics, Ural National Center of the Academy of Sciences USSR, and Ural State University imeni A. M. Gor'kiy

"Temperature Dependence of Magnetic Properties of Fine Singlecrystal Nickel Powders"

Sverdlovsk, Fizika Metallov i Metallovedeniya, Vol 33, No 4, Apr 72, pp 752-757

Abstract: The effect of magnetostatic interaction on magnetic properties has been evaluated on the basis of a study of the temperature dependence of magnetic properties of fine nickel powders. The investigation included magnetic structures from superparamagnetic to nearly multidomain structures in the 220 to 3200 Å interval. It was found that for the over 300°K temperature range the magnetic properties of powders are basically determined by the chain-like alignment of particles which results in an anisotropy of the demagnetizing field. At temperatures below 300°K, in addition to the indicated anisotropy, the magnetic properties are essentially affected by the magnetocrystalline anisotropy. A possible mechanism of the remagnetization of such chain-like structures is discussed. A drop of the residual  
1/2

USSR

IVANOV, O. A., et al., Fizika Metallov i Metallovedeniya, Vol 33, No 4,  
Apr 72, pp 752-757

magnetization with the temperature is observed for pseudosuperparamagnetic particles and particles with maximum coercivity at  $T > 300^{\circ}\text{K}$ , this drop being effected by the appearance of the superparamagnetic phase. Apparently, The same sources cause the anomalous shape of the temperature curve of coercivity with the decreasing size of particles. Six illustrations, four formulas, twelve bibliographic references.

2/2

- 63 -

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--EXAMPLE OF THE EMPLOYMENT OF THREE DIMENSIONAL MINIMISATION  
FUNCTIONS -U-  
AUTHOR-(02)-TARKHOVA, T.N., IVANOV, O.F. *I*  
COUNTRY OF INFO--USSR  
SOURCE--KRISTALLOGRAFIVA (USSR), VOL. 15, NO. 3, P. 573-6 (MAY 1970)  
DATE PUBLISHED----MAY70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--X RAY DIFFRACTION, COPPER COMPOUND, ACETATE, QUINOLINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605029/E07 STEP NO--UR/0070/70/015/003/0573/0576  
CIRC ACCESSION NO--AP0141750  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0141750

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A THREE DIMENSIONAL MINIMISATION FUNCTION METHOD IS APPLIED TO X RAY DIFFRACTION DATA FOR THE ADDITION COMPOUND BETWEEN COPPER ACETATE AND QUINOLINE, 47N (TARKHOVA AND ABLOV, ABSTR. 1197 OF 1969). THE PROJECTIONS OF THE FUNCTIONS M SUB2, M SUB4, M SUB8 ON THE (010) PLANE ARE ILLUSTRATED; ATOMIC COORDIANATES ARE TABULATED TOGETHER WITH THEIR DEVIATIONS FROM THE VALUES GIVEN BY TARKHOVA AND ABLOV.

UNCLASSIFIED

IVANOV, O. G.

"LUNA-17"

DESIGN AND OPERATION OF THE 'LUNA-17' STATION AND 'LUNOKHOD-1'

PART I

Chapter I

GENERAL DESIGN AND CONSTRUCTION OF "LUNA-17" STATION

K. S. Anisov, V. I. Maslakov, O. G. Ivanov, L. N. Leonidov, G. N. Nikolayev, A. D. Dneprov, A. K. Alekseyev, P. S. Semenov, A. F. Grachev, V. I. Komarov, G. N. Shesterev, A. V. Rybakov, R. L. Bykova, M. I. Bol'shov, F. P. Yakovlev, V. K. Mishkin, M. B. Kolesov, and P. N. Nurov

1. Design

The "Luna-17" automatic station consists of two main parts: a unified landing stage and an automatic self-propelled vehicle, the Lunokhod.

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The unified landing stage includes a correcting-braking engine with a fuel system, two compartments which can be jettisoned, instrument compartments, and a landing apparatus.

The supporting element in the landing stage assembly is the set of main tanks, to which the engine, ejectable compartments and landing apparatus are attached.

The main tanks unit consists of four spherical tanks for fuel joined into a single assembly by means of hollow cylindrical construction components. The two larger ones are pressurized instrument compartments holding the station flight control system. On the outside of the smaller ones there are spherical cylinders and tanks with compressed gas for air-jet micro-engines

Translation of *Russkoye-Langungo monograph*  
*Peredvizhnaya laboratoriya na Lune*  
*Lunokhod-1, 1971*, signed to press June 71  
resp. editor Academician A. P. Vinogradov;  
Nauka Publishing House, Moscow 128 pp.

JPRS 54,525  
22 November 1971

IVANOV, O. G.

"LUNA-17"

RADIO COMPLEX, CONTROL SYSTEM AND SOURCE OF ELECTRIC CURRENT

Chapter 2

V. P. Puchkov, L. L. Puchenko, F. I. Babkov, R. O. Belova, O. G. Ivanov, V. I. Malin, A. S. Makov, I. B. Reikov, Ye. C. Utkiy, N. A. Zhelaznov and V. M. Sudayev

1. Control System for "Luna-17" Station

Among the systems on the "Luna-17" automatic station, one of the principal problems is solved by the control system. This is a complex of specialized instrumentation ensuring station flight and landing.

The principal in-flight missions performed by the control system are:

maintenance of a stipulated position of the last stage of the carrier-rocket with the station during flight in circumterrestrial orbit and at a very specific time firing the engine of the last stage for imparting to the station a velocity close to second cosmic velocity necessary for flight to the moon;

spatial control of station position in the flight segment to the moon, during performance of trajectory corrections in seleno-centric orbit, during corrections of this orbit, and during landing on the lunar surface;

stabilizing the station during operation of the landing stage engine in a fixed, rigorously determined position;

regulating landing stage engine thrust in accordance with the stipulated program during deceleration during the course of landing on the lunar surface.

The control system includes gyroscopic instruments, computers, engine control units, commutating units, and actuating components.

The angular deviations of the station from stipulated partial, normal, lateral and angular velocity components are determined using a system of gyroscopic instruments in the automatic stabilization system.

Translation of Russian-language monograph  
Perodvizhnaya laboratoriya na Lune  
Lunar-17, 1971, edited by P. P. Vinogradov,  
chief editor Academician A. P. Vinogradov,  
Izdatel'stvo Nauka Publishing House, Moscow 128 pp.  
JPRS 54,525  
22 November 1971



IVANOV, O. G.

LUNOKHOD

CONTROL AND RESULTS OF PROGRAM IMPLEMENTATION

Chapter 4

A. A. Aleksandrov, P. A. Artem'yev, G. I. Bogatov, A. I. Yelenev,  
O. G. Ivanov, V. A. Ryvkina, Ye. G. Uzkiy, A. I. Shakhov, F. P.  
Pavlov, Yu. P. Kotlov and L. N. Polenov

1. System for Lunokhod Remote Control

The Lunokhod remote control system (RCS) was designed to ensure safe movement along the lunar surface in the stipulated direction with the maximum mean velocity. With respect to volume of processed information and number of instruments employed, to use the terminology adopted at the present time, this system can be classified as a saturated system. A peculiarity of the described system is that it is a closed automatic control system.

Ground and on-board radio complex equipment is used in the remote control of movement. This complex ensures the transmission and reception of control radio commands, telemetric information, and television images. The Lunokhod is remotely controlled by a group of operators, the Lunokhod crew.

The driver, receiving from the vehicle a monoscopic television image of the terrain in front of the Lunokhod, determines the possibilities for moving over it and gives appropriate commands ("Turn," "Proceed," "Stop," "Back up"). The position and dimensions of the obstacle are evaluated using a special range scale plotted on the videocontrol apparatus (VCA) screen.

The navigator, using telemetric data received from the vehicle's course gyroscopes, pyrovertical and sensors registering the traversed path, calculates the trajectory and lays out the route to be followed in the stipulated direction.

Accordingly, the driver determines the system quality during Lunokhod movement about its center of gravity and the navigator determines movement along the trajectory. The effect of movement along the trajectory on movement about the center of gravity is related to the requirements on the accuracy in adhering to the trajectory.

Translation of Russian-language monograph  
Perevlizhnaya Laboratoriya na Luno  
Imennoy-1, 1971, signed to print 4 June 71  
resp. editor Academician A. P. Vinogradov;  
Nauka Publishing House, Moscow 108 pp.

JPRS 54, 525 22 NOV 1991  
on Washington 1071

IVANOV, O. G.

Chapter 9

THE RIFMA LUNAR AUTOMATIC SPECTROMETRIC APPARATUS

I. N. Kocharov, N. F. Borodulin, S. V. Viktorov, O. M. Voropayev, A. Yu. Ivanovskaya, O. G. Ivanov, G. V. Kir'yan, V. V. Petrov, and V. A. Sakul'skiy

The chemical composition of a planetary body is among the most important characteristics of the history of its origin and evolution. In the overall program for studying the chemical composition of the surface of planetary bodies in the solar system the most important object for investigation is naturally the moon.

In studying the composition of the lunar surface it was first necessary to determine the general relationship between the distribution of chemical elements on its surface and their distribution on the earth. This problem has been partially solved by Soviet scientists in experiments for investigation of lunar gamma activity [1] and x-radiation made from orbital stations and through the efforts of American scientists who analyzed the elements found on small sectors of the lunar surface at the Surveyor 5, Surveyor 6, and Surveyor 7 landing sites [2].

A sufficiently complete program for investigating the chemical composition of the moon must include an analysis of many individual sectors on the visible and far sides of the lunar surface, the regions of seas and continents, craters of different sizes, "rays," etc., investigations of chemical composition in depth, etc. [2,3].

These investigations can be made both by lunar stations of different types directly on the surface and by returning ground samples to the earth for their study in laboratories.

Information exceptional in its scope and value was obtained by lunar expeditions of the Apollo ships and the "Luna-16" station. They returned to earth samples of lunar ground from the Mare Tranquillitatus, Mare Fecunditatis, and Oceanus Procellarum.

LUNAR

Translation of Russian-Language monograph  
Perevishnaya laboratoriya na Lune  
Izdatel'stvo "Mir", signed to press 4 June 71  
resp. editor Academician A. P. Vinogradov;  
Nauka Publishing House, Moscow 128 pp.

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23 November 1971

USSR

UDC 535.383

IVANOV, O. I., Leningrad Institute of Precision Mechanics and Optics

"The Effect of Elastic Deformations of the Gimbal Suspension on the Nutation Oscillation Frequency of a Gyroscope"

Leningrad, Priborostroyeniye, Vol 16, No 5, 1973, pp 80-84

Abstract: The design of minimum weight gyro instruments is frequently limited by constraints on the nutational frequency, since reducing the rigidity of the gimbal elements lowers this frequency. Although other studies have considered the effect of elastic deformation in individual elements, this one covers all parts of the suspension -- rings, bearings, journals, shafts, etc. Expressing the equations of motion as second order Lagrange equations with the angles as general coordinates, the overall system description can be broken up into two parts, one of which is discarded because it has no effect on the nutational movement. The remaining expressions can be further simplified, since the nutational oscillations are usually of significantly lower frequency than those caused by elastic deformations of the suspension.

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IVANOV, O.I.

Gyroscope

SO JPRS 59740  
8 Feb 73

(SIC)

INFLUENCE OF THE ELASTIC DEFORMATION OF THE GIMBAL SUSPENSION ON THE FREQUENCY OF THE MUTATIONAL OSCILLATIONS OF A GYROSCOPE

UDC 535.243

Article by O. I. Ivanov, Leningrad Institute of Precision Mechanics and Optics; Иванов, Овксилья Юрьевич, Ленинградский институт точной механики и оптики, рекомендовано Ученым Советом Ленинградского института точной механики и оптики, опубликовано 28 апреля 1972, pp 80-84]

Equations of motion of a gyroscope are derived, with consideration of the angular pliability of the basic elements of the gimbal suspension and a functional dependence is obtained between the frequency of the mutational oscillations of the gyroscope and the elastic properties of the gimbal suspension.

The designing of gyro instruments of minimum weight with a given kinetic moment of the rotor is almost always associated with a limitation on the frequency of the mutational oscillations of the gyroscope. Frequently this condition is determining, since the minimization of the weight is unavoidably associated with a decrease in the rigidity of the frames of the gimbal suspension which, in turn, leads to a decrease in the frequency of the mutational oscillations of the gyroscope. Data are available concerning the effect of the elastic properties of only individual elements of the gimbal suspension on the mutational frequency of the gyroscope. In the proposed work, the effect of all the basic elements of the gimbal suspension on the mutational frequency of the gyroscope is investigated, namely: the external frame (VR), internal frame (VR), rotor axis, membranes of the rotor and the ball-bearing supports of the frames and axis of the rotor. We will consider a gyroscope whose kinematic diagram is shown in Figure 1.

We will write the equations of its motion with consideration of the inertial properties of the rotor, VR, NR, and angular pliability of the elements of the gimbal suspension indicated above. For a description of the motion of the gyroscope, we will introduce a system of coordinate axes:  $x_1, y_1, z_1$  are axes connected with the pivots of the NR,  $x_2, y_2, z_2$  are connected with the bushings of the NR,  $x_3, y_3, z_3$  with the

USSR

UDC: 538.383

IVANOV, O. I., Leningrad

"Concerning the Influence of Elastic Deformations of a Cardan Suspension on the Motion of a Three-Degree Astatic Gyroscope"

Leningrad, Izvestiya VUZov: Priborostroyeniye, Vol 16, No 2, 1973, pp 80-83

Abstract: Equations of motion are derived for a gyroscope with regard to deformation of the principal components of the Cardan suspension. An investigation is made of conditions where there are no moments on the axes of the gyroscope caused by elastic deformations, and it is shown that the principle of equal rigidity does not account for a number of important properties of the Cardan suspension.

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USSR: 531.365

IVANOV, O. I.

"Determining the Deformation and Rigidity of Cardan Gyroscope Suspension Frames"

Leningrad, Priborostroyeniye, No 1, 1972, pp 94-97

Abstract: To eliminate unusual tightness of Cardan gyroscope suspension frame ball bearings, the frame supports are designed with thermal decoupling systems to compensate for the thermal causes of the tightness. The frame loading is then the function of a rigid body simulating the action of a stable platform or the inner frame of a Cardan suspension. This article theoretically examines three configurations of such a rigid body: elliptical, circular, and rectangular. The elliptical body is treated by setting up the equations of equilibrium for the forces and moments acting on it; the circular body is treated by considering it as a special case of the elliptical body; the rectangular body is treated in much the same way as the elliptical. This theoretical investigation produces formulas for determining the deformation and rigidity of these three types of frame, which embrace most of the frames encountered in practice; the formulas can be used to compute the elastic properties of the Cardan suspension.

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USSR

UDC 531.583

IVANOV, O. I., (Leningrad Institute of Precise Mechanics and Optics

"Concerning the Determination of Deformation and Rigidity of Gyroscope  
Gimbals Ball Bearing Supports"

Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy, Priborostroyeniye,  
Vol 14, No 9, 1971, pp 89-93

Abstract: Consideration of the effect of elastic deformations of gyroscope gimbal ball bearing support is described. A rigid rotor with its journals supported by ball bearings is understood as a ball bearing support. This problem requires to consider the support as a elastic mechanical system with six degrees of freedom, with five of them determined by the elastic contact deformations of oscillating bodies and the sixth by the own rotor rotation. As a result of calculations general relationships are obtained for determining the center of gravity displacement, governed by contact deformation of bearing oscillating bodies. The results are substantiated by a numerical example.

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Nuclear Science and Technology

USSR

IVANOV, O. S., and BADAYEVA, T. A., Resp. Editors

Stroyeniye i svoystva splavov dlya atomnoy energetiki (Structure and Properties of Alloys for Atomic Energy), Moscow, "Nauka," 1973, 192 pp

Translation of Annotation: The book contains the results of investigations of the structure of equilibrium and metastable phases, the transformation kinetics of solid solutions, the formation and physical chemistry and mechanical properties of alloys based on uranium, thorium, zirconium, and niobium, as a function of composition and temperature. New data are presented on the phase equilibria in binary, ternary, and quaternary systems of uranium with C, Mo, W, Mn, Al, Si, Fe, and other metals, of zirconium with Nb, Sn, O, of niobium with Hf, and Ti, and others; on crystal structures and transformations of metastable phases in binary and ternary systems of uranium with Zr, Mo, Nb, Re, Ru, and others, which were observed during hardening and tempering; on the mechanical and thermoelectric properties of alloys of uranium with Zr, Nb, Mo and Al, and of thorium with Y. On the basis of the systems considered, general principles are presented on structural changes and alloy properties. The collection is intended for researchers, metal scientists, designers, metallurgists, and teachers and students specializing in atomic materials.

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- LYUTINA, E. M., GOMOZOV, L. I., and IVANOV, O. S., "Dimensions of the Nucleus of Low Alloy Uranium Alloys with Zirconium, Niobium, Molybdenum and Aluminum" 86
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- IVANOV, O. S., and BADAYEVA, T. A., Structure and Properties of Alloys for Atomic Energy, Moscow, "Nauka," 1973, 192 pp
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TARARAYEVA, YE. M., MURAV'EVA, L. S., and IVANOV, O. S., "The Effect of Oxygen and Lead on Mechanical and Corrosion Properties of Zirconium Alloys with 1 and 2.5 at. Percent Nb" 158

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USSR

UDC 669.296:620.18:669.017.11

IVANOV, O. S., ADAMOVA, A. S., TARARAYEVA, YE. M., and TREGUBOV, I. A.,  
Struktura Splavov Tsirkoniya (The Structure of Zirconium Alloys), Akademiya  
Nauk SSSR, Izd-vo "Nauka," Moscow, 1973, 199 pp

Translation of Annotation: A critical generalization is presented of investigations published until 1970. The structure of zirconium alloys in states of equilibrium and inequilibrium is examined. The structure in the state of equilibrium, discussed in the first part of the book, is analyzed from structural diagrams of binary and ternary systems on a zirconium base. In the second part general rules are given for the formation of metastable phases in zirconium alloys and also the structure of alloys in inequilibrium state in concrete diagrams of binary and ternary alloys. A list of the investigated systems is presented. The publication is intended for investigators, including scientists, metallurgists, and mechanical engineers working in the fields of investigation, development, and production and application of zirconium alloys; it is also intended for teachers and students at metallurgical and mechanical higher institutes of learning. Eight tables, 222 figures, 594 bibliographic references.

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UDC 541.121.536.7

UDOVSKIY, A. L., VAMBERSKIY, YU. V., and IVANOV, O. S., Institute of Metallurgy  
Imeni A. A. Baykov, Academy of Sciences USSR, Moscow

"Calculation of the Concentration Functions of the Excessive Entropy and  
Enthalpy of Mixing U-Mo Systems at 1100°K"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 6, Apr 73, pp 1377-1380

Abstract: Calculation of the concentration function of excessive entropy and enthalpy of mixing has been carried out for the U-Mo system at 1100°K, and compared with experimental data, looking for the properties of atomic interaction of the component in these solid solutions. The unorderd solid solution can be viewed as a solid body changing its physical properties in a continuous fashion through the entire range of concentrations and temperatures of the existence of the solution. It can also be viewed as an additive system consisting of noninteracting subsystems. Formulas were developed and curves obtained from them compared in a qualitative fashion with experimental data. It is noteworthy that the calculation was carried out without using any thermodynamic data for cumulative entropy or for the enthalpy of mixing solid solutions.

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USSR

UDC 669.293'295'296'297.017.11:537.312.62

IVANOV, O.S., RAYEVSKIY, I. I., and STEPANOV, N.V.

Sverkhprovodyashchiye splavy sistemy niobiy-titan-tsirkoniy-gafniy (Superconducting Alloys of the System Niobium-Titanium-Zirconium-Hafnium), Moscow, "Nauka" Press, 1971, 161 p., illustrations, bibliographic references, 1550 copies printed.

Translation of Annotation:

The monograph discusses a system based on decaying solid solutions of niobium. Data on the phase structure of two- and three-component alloys (as a part of the above quaternary system) as well as on their superconducting properties have been critically analyzed and correlated. Presented are the latest data on the phase structure of alloys produced by the authors and other investigators. Presented are, for the first time, the phase structure of the entire quaternary system Nb-Ti-Zr-Hf and the superconducting properties of this system. The effects of various factors (composition, structure, thermo-mechanical treatment) on changes in the critical parameters of binary, ternary, and more complex alloys are described. The book is intended for metal scientists, physical metallurgists, and other specialists engaged in the research, synthesis, and application of plastic superconducting materials.

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IVANOV, O.S., et al., Sverkhprovodyashchiye splavy sistemy niobiy-titan-tsirkoniy-gafniy, Moscow, "Nauka" Press, 1971.

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2/3	Binary Alloys: Niobium-Titanium (47); Niobium-Zirconium (50);	

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IVANOV, O.S., et al., Sverkhprovedyashchiye splavy sistem niobiy-titan-tsirkoniy-gafniy, Moscow, "Nauka" Press, 1971.

	Niobium-Hafnium (54)	
	Ternary Alloys: Niobium-Titanium-Zirconium (57); Niobium-Zirconium-Hafnium (62); Niobium-Titanium-Hafnium (67)	
	Alloys of the System Niobium-Titanium-Zirconium-Hafnium:	
	Section With 70 at.% Niobium (73); Section With 50 at.% Niobium (79); Section With 30 at.% Niobium (85)	
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1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--SHORT RANGE ORDER IN URANIUM AND NIOBIUM SOLID SOLUTIONS -U-  
AUTHOR--(03)-STRELOVA, S.V., UMANSKIY, YA.S., IVANOV, O.S.  
COUNTRY OF INFO--USSR  
SOURCE--J. NUCL, MATER. 1970, 34(2) 160-4  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MATERIALS, PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--URANIUM ALLOY, NIOBIUM ALLOY, SOLID SOLUTION, CRYSTAL LATTICE,  
X RAY DIFFUSION, ORDERED ALLOY  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1985/0382 STEP NO--NE/0000/70/034/002/0160/0164  
CIRC ACCESSION NO--AP0100868  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100868

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SHORT RANGE ORDER IN MUTUAL ARRANGEMENT OF AT. COMPONENTS IN A U-NB SOLID SOLN. OF EQUIAT. COMPN. WAS STUDIED BY AN X RAY DIFFUSION SCATTERING METHOD. THE ATOMS OF U MAINLY SURROUND ATOMS OF NB AND ATOMS OF NB SURROUND ATOMS OF U. AFTER ISOTHERMAL TREATMENT OF THE ALLOY FOR 1 HR AT 1400DEGREES OR 24 HR AT 1050DEGREES, THE SHORT RANGE ORDER PARAMETERS WERE MEASURED FOR 3 SHELLS, AND THE STATIC DISTORTION PARAMETERS OF THE CRYSTAL LATTICE DUE TO DIFFERENCES IN THE AT. VOLS. OF THE COMPONENTS WERE DETD. THE PARAMETERS WERE GREATER FOR THE LOWER TEMP. TREATMENT.

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1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--SOLUBILITY OF ZIRCONIUM, NIOBIUM, AND MOLYBDENUM IN ALPHA URANIUM  
-U-  
AUTHOR--(03)-GOMOZOV, L.I., LYUTINA, E.M., IVANOV, O.S.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK USSR, METALLY, NO 2, MAR-APR 70,  
PP 210-215  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SOLUBILITY, ZIRCONIUM CONTAINING ALLOY, NIOBIUM CONTAINING  
ALLOY, MOLYBDENUM CONTAINING ALLOY, URANIUM ALLOY, ENTHALPY, GRAIN SIZE  
METAL RECRYSTALLIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1601

STEP NO--UR/0370/70/000/002/0210/0215

CIRC ACCESSION NO--AP0120366

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT7  
CIRC ACCESSION NO--AP0120366  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SERIES OF URANIUM ALLOYS,  
CONTAINING FROM 0.05 TO 2 AT . PERCENT OF ZIRCONIUM, NIOBIUM OR  
MOLYBDENUM, WERE MELTED TO DETERMINE TO SOLUBILITY OF THESE ALLOYING  
ELEMENTS IN URANIUM ALPHA-PHASE AT 550-660DEGREESC. THE INGOTS  
OBTAINED WERE SUBJECTED TO HOMOGENIZING ANNEALING FOR 50 HR AT  
950DEGREESC, QUENCHED IN WATER, AND COLD ROLLED WITH REDUCTIONS OF  
50PERCENT. THE PREPARED SPECIMENS WERE ANNEALED AT 550-660DEGREESC FO  
240-180 HR, AND SUBSEQUENTLY COOLED IN WATER. IT WAS FOUND THAT THE  
SOLUBILITY OF THESE ELEMENTS IN THE URANIUM ALPHA-BASE DECREASES WITH  
INCREASING ANNEALING TEMPERATURE, AND IN ANY CASE DOES NOT EXCEED 0.5 A  
. PERCENT. THE RELATIVE PARTIAL ENTHALPIES OF SOLUTIONS OF ZIRCONIUM,  
NIOBIUM AND MOLYBDENUM ARE 15, 20.8, AND 36.8 KCAL-GAT, RESPECTIVELY.  
INTRODUCTION OF UP TO 0.2 AT . PERCENT OF THE ABOVE MENTIONED ELEMENTS  
INTO URANIUM LEADS TO A RAPID DROP OF RECOVERY RATE DURING ANNEALING  
AFTER COLD DEFORMATION, AND TO REDUCTION OF GRAIN SIZE TO 15-25 MICRONS  
DURING RECRYSTALLIZATION.

UNCLASSIFIED

USSR

UDC: 621.373.442

NERONOV, V. V., IVANOV, O. V., VOROB'YEVA, L. N.

"A Low-Frequency Pulse Generator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzysy, Tovarnyye Znaki, No 22, 1970, Soviet Patent No 275156, Class 21, filed 26 Nov 68, p 38

Abstract: This Author's Certificate introduces a low-frequency pulse generator made in the form of a transistorized multivibrator. As a distinguishing feature of the patent, the effect of destabilizing factors on frequency change is eliminated by connecting the collector of one of the transistors in the multivibrator to the base of a matching stage based on two transistors. Connected between the emitter of the output transistor and the positive pole of the power supply is the winding of a resonance relay made in the form of an energizing winding in an oscillatory system and a commutating contact pair which connects the collector of the multivibrator transistor to the positive pole of the power supply during relay operation.

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1/2 028 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--CLINICAL FORMS OF ACUTE HEPATIC INSUFFICIENCY AND MODES OF THEIR  
THERAPY --U-  
AUTHOR--(05)--GALPERIN, E.I., NEKLYUDOVA, YE.A., IVANOV, P.A., OVNATANDV,  
B.S., YAREMA, I.V.  
COUNTRY OF INFO--USSR  
SOURCE--KHIRURGIYA, 1970, NR 2, PP 40-48  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--LIVER FUNCTION, JAUNDICE, CIRRHOSIS, PROTEIN METABOLISM,  
HEMORRHAGE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1986/1730 STEP NO--UR/0531/70/000/002/0040/0048  
CIRC ACCESSION NO--APG103494  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--090CT70

CIRC ACCESSION NO--APG103494

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS COMMIT TO PAPER OBSERVATIONS OVER 158 PATIENTS IN WHOM AFFECTION OF THE LIVER AND BILE DUCTS WAS ACCOMPANIED BY MANIFESTATIONS OF HEPATIC INSUFFICIENCY. THESE PATIENTS WERE DIVIDED INTO TWO GROUPS, VIZ. WITH BILIARY HYPERTENSION (OBSTRUCTIVE JAUNDICE) AND WITH CIRRHOSIS AND TUMORS OF THE LIVER, AS WELL AS DISTURBED PORTAL AND HEPATIC CIRCULATION. COMPLEX TREATMENT IS INDICATED IN HEPATIC INSUFFICIENCY IT BEING AIMED AT IMPROVING HEPATIC FUNCTION, CORRECTION OF THE WATER ELECTROLYTE BALANCE, PROTEIN METABOLISM, REDUCTION OF AMMONIA INTOXICATION, CHECKING HEMORRHAGES IN PATIENTS WITH PORTAL HYPERTENSION AND BLEEDING FROM DISTALTED ESOPHAGEAL VEINS. WITH THE DEVELOPMENT OF A SEVERE FORM OF INSUFFICIENCY PREMATOUS STATE AND INEFFECTIVENESS OF CONSERVATIVE THERAPY, EXTRACORPOREAL CLEARANCE OF THE BLOOD, WHICH DIMINISHES INTOXICATION, IS INDICATED.

UNCLASSIFIED

USSR

UDC: 531.862

RUSINOV, M. M., ~~IVANOV, P. D.~~, POPOV, L. Ye., LIVSHITS, E. M., GOL'DBERG, G. R., KUDRYASHOV, A. M., Leningrad Institute of Precision Mechanics and Optics

"A Sighting Tube for Observing Objects in an Aqueous Medium"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, Feb 72, Author's Certificate No 328410, Division G, filed 16 Sep 70, published 2 Feb 72, p 143

Translation: This Author's Certificate introduces: 1. A sighting tube for observing objects in an aqueous medium which contains two objective lenses with protective glasses, collective lenses and erecting systems. The tube also contains a commutating flip mirror and an ocular. As a distinguishing feature of the patent, the tube is designed for simultaneous use of the visual optical system and photography of the field of view of the objective lenses. Placed directly in front of the photosensitive film is a three-component system of single positive menisci with concavity facing the object. The three-component system is introduced into the beam path by an auxiliary beam-splitting flip mirror. 2. A

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RUSINOV, M. M. et al., USSR Author's Certificate No 328410

modification of this tube distinguished by the fact that provision is made for compensating for rotation of the image and correcting for chromatic aberrations. Placed in front of the ocular is a PK-0° prism and a plane-parallel plate with chromatic radius.

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12-001.97 1977

IVANOV, P. I. and KOTEN, P. *Latvian Academy and Republic Sanitary-Epidemiological Station*

"Vibration Disease among Manganese Miners in the Northern Latitudes"

Moscow, *Gigiyen i Professionsnaya Zashchita*, no 2, 1970, pp 86-87

Abstract: Proliferate mica is mined in the Arkhangel'sk region of the Latvian ASSR, where the winter lasts 7-8 months and the temperature often drops to  $-50^{\circ}$  C. Extreme dustiness, drafts, low temperatures, and noise are occupational hazards of the miners. Few cases of vibration disease were reported prior to 1965, when the PR-24L drill was introduced, after which the incidence of the disease rapidly increased. Now termed, this high-speed drill (5000 strokes per minute) has to be held close to the chest and abdomen. It has both local and general effects, as shown by the sharp rise in number of cases of hypertension that followed its introduction. In a nearby plant where the workers are also subjected to low ambient temperatures but not to noise, dust, or vibration, the incidence of peripheral nervous disorders is almost the same as in the mica mines, but hypertension is 2.7 times less frequent and heart disease 20 times less frequent.

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UDC 681.3

IVANOV, P. M.

"Equivalent Transforms in Microprogram Algebras"

Teor. Kibernetika. Vyp. 3 [Theory of Cybernetics, No. 3 -- Collection of Works]  
Kiev, 1970, 32-60 (Translated from Referativnyy Zhurnal Kibernetika, No. 4,  
April, 1971, Abstract No. 4 V615).

Translation: A pair of microprogram algebras is described and calculation of the algebra of conditions is constructed, where the solution of a certain equation in this algebra is added to the rule of substitution as a conclusion rule, making the algebra of conditions axiomatizable. A necessary and sufficient condition of equivalence of two logic expressions is formulated, the use of which allows us to establish whether any pair of logic expressions in the microprogram algebras is equivalent or not.

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UDC 612.766.1-06:613.24

KAKURIN, L. I., PURAKHIN, YU. N., GEORGYEVSKIY, V. S., KATKOVSKIY, B. S.,  
VYSOTSKIY, V. G., CHEREPAKHIN, M. A., USHAKOV, A. S., LARICHEVA, K. A.,  
PETUKHOV, B. N., IVANOV, P. P., MACHINSKIY, G. V., MIKHAYLOV, V. M., POBYTOV,  
YU. D., and SMIRNOVA, G. I.

"Locomotor Activity of Man Kept on a Reduced Food Ration"

Moscow, Voprosy Pitaniya, No 3, May/June 1971, pp 7-12

Abstract: The combination of drastic limitation in locomotor activity with reduction to a low-calorie diet (down to basal metabolism) was studied in six healthy men 24-35 years of age who were confined to bed for a number of days under conditions of hypokinesia. Pronounced changes were observed in the functions of the cardiovascular, respiratory, nervous, and muscular systems of the body. Tabular data were collected on physiological tremor of closed eyes, maximum physical work fitness, muscle tone dynamics, and the cardiovascular system in the orthostatic position. Asthenia of the nervous system and a slowing down of the biopotentials in the cerebral cortex were observed. Likewise, it was noted that hypokinesia caused disturbances in body coordination and statics. The pulse rate increased and the arterial pulse pressure was

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KAKURIN, L. I., Voprosy Pitaniya, No 3, May/Jun 1971, pp 7-12

reduced in persons subjected to the orthostatic test. Three persons reached a state of near collapse. These changes were attributed to a significant reduction in the compensating actions of the blood circulation. It was found that after about 10 days, the observed changes gradually decreased in the test subjects. This regression was largely of a functional character and was linked to the "detraining" of the various systems of the body. The authors believe that the severity of the changes in the body functions is directly proportional to the degree of hyperkinesia to which the tested persons were subjected. It is proposed that maintenance of homeostasis requires a certain level of motor activity even with a low-calorie ration.

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UDC: 681.3.06:51

ZAYTSEV, V. G., ~~IVANOV, P. P.~~, FALKOV, F. B.

"Principles of Compiling a Sector-Wide Descriptive Dictionary"

Tr. NII upravl. mashin i sistem (Works of the Scientific Research Institute of Control Computers and Systems), 1971, vyp. 5, pp 191-196 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V932)

Translation: The authors consider the problem of making up a sector-wide descriptive dictionary by merging existing narrow-area glossaries. The requirements to be met by the dictionary are enumerated. In particular, it is pointed out that synonymous key words in the dictionary are united by denotation of communality of meanings into classes of conditional equivalence, each of these classes being designated by a symbol -- a descriptor. If the word has no symbols, then it forms an individual class. The dictionary has its own system of reference tags, whose functions and meaning are taken up in detail in this paper. Two forms of merging narrow-area glossaries are proposed, and recommendations are given on using each form. A detailed analysis is given of a method of compiling a sector-wide dictionary based on narrow-area glossaries of base organizations and

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