

USSR

LYANE, R., IVANOV, Yu., Izvestiya Akademii Nauk Estonskoy SSR, Fizika, Matematika, Vol. 19, No. 4, 1970, pp. 456-462

results produced can be used to clarify the regularities involved in the development of vortex flow in short chambers as well. It is concluded that movement of the vortices along the chamber leads to a thickening of the stream, an increase in the tangential velocity component, and static pressure along the circular chamber. The influence of the surrounding medium at the chamber exit extends to a limited area $L/D_k = 2$ near the outlet section. The greatest change in stream momentum occurs in the initial section of the chamber at a distance of up to one diameter from the intake edge of the nozzle.

2/2

- 58 -

USSR

L'YANOV, B.

"Electronarcosis"

Alma-Ata, Kazakhstanskaya Pravda, 13 Oct 73, p 4

Translation: The car with the red cross rushed to the hospital. The patient's condition became worse every minute.

Candidate of Medical Sciences V. Ya. Tabak and his colleagues from the traveling reanimation center quickly prepared a defibrillator and an electro-narcosis apparatus. A short electric impulse, lasting only a fraction of a second, was applied, and the patient's heart rhythm became normal.

Apparently, it is not necessary to explain what myocardial infarction is. But what about arrhythmia? Imagine an engine whose valves became misaligned. Rattles which gradually destroy the motor appear. The same happens with the heart. If it is healthy, it works smoothly and harmoniously, but when afflicted with a disease, it is deprived of the conductor's skillful hand. The "waves" rush restlessly, running into each other. In these cases physicians resort to the services of an electric instrument, i.e., the defibrillator.

1/4

USSR

L'YANOV, B., Kazakhstanskaya Pravda, 13 Oct 73, p 4

Viktor Yakovlevich Tabak, a worker in the laboratory for the resuscitation of the organism of the Academy of Medical Sciences, came to medicine by vocation. Even when he was a student he was greatly interested in crisis states.

Tabak learned a great deal from his teacher -- V. A. Negovskiy, corresponding member of the USSR Academy of Medical Sciences. Most Soviet defibrillators were developed in his laboratory. Viktor Yakovlevich shows the latest model, i.e., the DKI-01, developed by N. Gurevich together with engineer I. Venin from L'vov. A device which makes the defibrillator impulse more efficient is used in the new apparatus. Recently, the laboratory workers have also been engaged in another problem, i.e., general anesthesia. Electric impulse therapy is impossible without it. They decided to test electro-narcosis.

The division of cybernetics of the First Moscow Medical Institute does not resemble much a medical institution. It has dozens of electronic instruments, sensors, and printed circuits. It also has an electronic computer.

"Everything that you see here is directly connected with medicine," said Vladimir Zhukovskiy, the division director.

2/4

- 37 -

USSR

L'YANOV, B., Kazakhstanskaya Pravda, 13 Oct 73, p 4

Having received a physician's diploma, he began working in the Department of Physics of the First Moscow Medical Institute under Professor Liventsev. On his advice he took a complete course of studies in the Department of Biophysics of Moscow State University. The alluring opportunity for research at the junction of two sciences opened for him. The young scientist was included in a group of specialists headed by M. I. Kuzin, corresponding member of the USSR Academy of Medical Sciences, chief surgeon of the USSR Ministry of Health.

The specialists of the First Moscow Medical Institute tested electro-narcosis on 1,000 animals. Only after that was it introduced into practice. However, the patient woke up at a critical moment. The operation was completed under ordinary narcosis. The action of the electric current was prolonged several times by means of narcotics.

"We resorted to all sorts of currents, i.e., direct current, alternating current, and high-frequency current," said M. I. Kuzin. "The low-frequency current proved to be the most ideal. However, it too had a shortcoming. It caused sensations of pain."

Finally, physicists developed an apparatus which made it possible to "damp" oscillations of different frequencies. The high-frequency currents fed

3/4

USSR

L'YANOV, B., Kazakhstanskaya Pravda, 13 Oct 73, p 4

from two generators to the patient's head interfered in the brain, cancelling each other, and the patient fell asleep instantly. He regained consciousness just as instantly when the apparatus was turned off.

Now it also became possible to give up narcotics. Instead of them V. I. Sachkov, head of the institute's anesthesiological laboratory, proposed preparations harmless for the body which made electronarcosis more controllable.

Thus, two instruments were combined into one unit. Electronarcosis began to be used in "pure form" without preparing the patient for it in any way. The current connected for a fraction of a second cuts off consciousness instantly and during this time interval the defibrillator has a chance to operate. The patient feels no pain!

4/4

- 38 -

USSR

L'YANOV, B.

"At an Appointment ... With a Ray"

Moscow, Sovetskaya Rossiya, 25 May 72, p 4

Abstract: A laser apparatus is being used for the painless treatment of skin diseases at the First Moscow Medical Institute. The laser ray is absorbed by the dark tissue of a precancerous tumor or by the stained tissue of other diseased areas, while the ray is reflected by the healthy light-colored tissue. Since every substance in the body has its limit of light absorption, scientists hope that the ray can direct the retardation or development of various types of cells. Eczema, severe dermatitis, and erythema are treated with polarized monochromatic red light with a wave length of 6328 \AA and with 0.5-1.0 milliwatts of power. The laser ray dilates blood vessels and thus speeds the healing of infected tissue. Doctors are working with physicists on a method of increasing the width of the beam without increasing the wattage.

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1/2 024
 UNCLASSIFIED
 PROCESSING DATE--13NOV70
 TITLE--EXPERIMENTAL STUDY OF RADIONUCLIDE TRANSFER THROUGH THE PLACENTA
 AND THEIR BIOLOGICAL ACTION ON THE FETUS -U-
 AUTHOR--(05)-MOSKALEV, YU.I., BULDAKOV, L.A., LYANGINSKAYA, A.M.,
 GVCHARENKO, E.P., YEGOROVA, T.M.
 COUNTRY OF INFO--USSR
 SOURCE--(CONF 690501, PP 153-60)
 DATE PUBLISHED-----70
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, NUCLEAR SCIENCE AND
 TECHNOLOGY
 TOPIC TAGS--PLACENTAL TRANSPORT, RADIOACTIVE ISOTOPE, TRANSURANIUM
 ELEMENT, FETUS, STRONTIUM ISOTOPE, AMERICIUM ISOTOPE, IODINE ISOTOPE,
 RADIATION BIOLOGIC EFFECT
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--3001/2183
 STEP NO--UR/0000/70/000/000/0153/0160
 CIRC ACCESSION NO--AT0127547
 UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0127547

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LEVELS OF RADIONUCLIDE TRANSFERRED TO THE FETUS AND RADIONUCLIDE RETENTION IN THE PLACENTA DEPEND ON THE CHEMICAL CHARACTERISTICS OF THE NUCLIDE AND THE PERIOD OF PREGNANCY. THE PLACENTAL TRANSFER OF ALL NUCLIDES INCREASED BETWEEN MIDTERM (11 TO 15 DAYS OF GESTATION) AND THE END OF PREGNANCY. THE RATIOS OF THE NUCLIDE TRANSFERRED TOWARD TERM TO THAT TRANSFERRED EARLIER WERE PRIME239 PU, 1.7; PRIME241 AM, 2.8 TO 4.5; PRIME137 CS, HTO, AND PRIME237 NP, 5; PRIME90 SR, 20; AND PRIME131 I, 1700 TO 6000. THE CONTENT OF TRANSURANIC ELEMENTS IN THE PLACENTA AT ALL PERIODS OF PREGNANCY WAS 3 TO 15 TIMES HIGHER THAN IN THE FETUSES. RADIOINDUCED CHANGES IN THE EMBRYO DEPEND ON THE AMOUNT OF ACTIVITY INJECTED, THE DISTRIBUTION PATTERN, AND THE PHYSICAL PROPERTIES OF THE RADIONUCLIDE. THE MOST CHARACTERISTIC CHANGES ASSOCIATED WITH THE VARIOUS RADIONUCLIDES ARE: PRIME90 SR, A DECREASE IN THE TRANSFER OF NUCLIDE FROM PLACENTA TO FETUS; PRIME241 AM, EARLIER INDUCTION OF RADIATION DISORDERS IN THE PLACENTA THAN IN THE FETUSES; PRIME131 I, OCCURRENCE OF RADIOINDUCED EMBRYOPATHY DEPENDS ON THE PRODUCTION OF DISORDERS IN THE MOTHER'S THYROID; HTO, GENERALIZED VASCULAR CHANGES IN THE MOTHERS AND FETUSES.

FACILITY: MINISTRY OF PUBLIC HEALTH, MOSCOW.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--115⁴P70
 TITLE--MEASURING FIELD STRENGTH AT SHORT WAVELENGTHS WITH THE AID OF A
 FRAME ANTENNA -U-
 AUTHOR--LYANNOY, B.YE. L
 COUNTRY OF INFO--USSR
 SOURCE--GEOMAGNETIZM I AERONOMIIA, VOL. 10, NO. 1, 1970, P. 157, 158
 DATE PUBLISHED-----70
 SUBJECT AREAS--NAVIGATION
 TOPIC TAGS--ANTENNA, RADIO SIGNAL
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1986/0789 STEP NO--UR/0203/70/010/001/0157/0158
 CIRC ACCESSION NO--AP0102752
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11SEP70

272 020

CIRC ACCESSION NO--AP0102752

ABSTRACT/EXTRACT--(U) SP-0- ABSTRACT. BRIEF COMMENT NOTING THE NEED FOR A CORRECTION TO THE PRESENTLY USED METHOD OF MEASURING THE FIELD STRENGTH OF A SHORT WAVE SIGNAL WITH THE AID OF A ROTATING VERTICAL FRAME ANTENNA. IT IS SHOWN THAT THE ASSUMPTION THAT THE FRAME IS LOCATED IN A FREE SPACE AND THUS HAS A CIRCULAR RADIATION PATTERN IN THE VERTICAL PLANE LEADS TO CONSIDERABLE ERRORS IN DETERMINING THE FIELD STRENGTH. IT IS CONCLUDED THAT IN MEASURING THE FIELD STRENGTH ON REAL SIGNAL PATHS IT IS NECESSARY TO TAKE INTO ACCOUNT THE CHANGE IN THE RADIATION PATTERN IN THE VERTICAL PLANE RESULTING FROM THE PRESENCE OF THE SEMICONDUCTING SURFACE OF THE EARTH.

UNCLASSIFIED

USSR

L'YANOV, B.

"The Two-Faced Virus"

Moscow, Sovetskaya Rossiya, 15 Sep 71, p 4

Abstract: The bacteriophage was first thought to be a useful agent in combatting disease, and some bacteriophage drugs were produced. The discovery and use of antibiotics halted medical interest in them, but some scientists, especially geneticists, continued studying them. The method by which the bacteriophage attacks and destroys the bacteria was determined; it makes a "breach" in the cell wall and injects DNA, so that reproduction of the phage occurs using the resources of the bacteria. Margarita Dmitriyevna Krylova, Laboratory Head at the Moscow Institute of Epidemiology and Microbiology, tells how diptheria research led to discovery of the sinister side of the bacteriophage. Their study of the apparent cause of the disease, bacteria, led them to realize that it is actually the bacteriophage accompanying the microbe which produces the deadly toxin. This led the Krylova group to further study of phages with Staphylococcus and Streptococcus bacteria found in healthy persons. Further investigation permitted them to establish twelve groups of phage types (out of 3,000 cultures). A large number of

1/2

USSR

L'YANOV, B., Sovetskaya Rossiya, 15 Sep 71, p. 4

phages comprise nine groups. It was established that 70% of these phages are incapable of harming the human organism, and 30% can cause disease.

2/2

- 10 -

Analysis and Testing

USSR

GONCHAROVA, V. V., LYAPICHEV, I. G., GABCHIAK, A. G.

"Technology of Chemical-Heat Treatment and Structural Testing of YuNDK35T5 Magnetic Alloy"

Moscow, *Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya*, No 8, 1972, pp 136-139.

Abstract: Results are presented from experimental study of the influence of the composition of a borocementing medium on the properties and depth of the surface saturated layer of YuNDK35T5 alloy. Metallographic and x-ray structural analysis of the surface saturated layer are performed. Stabilization of the gamma-phase following chemical and heat treatment help to improve the workability of this alloy. The depth of the layer increases when the alloy is saturated in the two-phase state and its bonding with the main volume is improved following high-temperature thermomagnetic treatment. Testing by the method of measurement of the thermo emf in comparison with measurement of microhardness provides greater productivity and stability of results.

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USSR

LYAPICHEV, I. G., GONCHAREVA, V. V., and SAVCHENKO, L. B., Tomsk Polytechnic Institute

"Effect of Structure on the Engineering Properties of Hard-to-Machine Alloys"

Novokuznetsk, IVUZ-Chernaya Metallurgiya, No 6, 1971, pp 128-131

Abstract: Improvement of engineering properties of steels and alloys alloyed with Ni, Co, Al, and Ti permit the use of more productive cutting modes and, in individual cases, special pressure treatment with a complex stressed state. The alloys investigated were YuNDK24, YuNDK25B, YuNDK30T5, YuNDK35T5, YuNDK40T7, and YuNDK42T8.

X-ray and metallographic analysis was used to check the high-temperature state of Fe-Ni-Al-Co alloys. Lattice constants and intensity (number) of basic phases as well as alloy microhardness of the alloys in the 450-1000°C interval were measured. Upon increasing the temperature of Fe-Ni-Al-Co alloys hardness is lowered, phase periods (lattice constants) are converged, and number of phases increases, which improves homogeneity and the corresponding deformability and machineability of the alloys. A combination of these properties should provide the opportunity of being able to hot-turn the alloys. Three figures, one table, six bibliographic references.

1/1

- 87 -

USSR

UDC 669.14.582-15:628.187

LYAPICHEV, I. G., and GONCHAROVA, V. V., Tomsk Polytechnic Institute

"Effect of Alloying and Heat Treatment of Alloy YuNDX35T5 on Fine Structure"

Moscow, IVUZ. Chernaya Metallurgiya, No 12, Dec 72, pp 130-134

Abstract: The refining and disorientation of blocks takes place in the hard-to-work Fe-Ni-Co-Al-Ti alloys during abrasive grinding. After refining of the structure to critical magnitude of blocks (100-200 nm) and microstresses [(0.4 - 0.8) 10^3 rad] cracks appear in alloys. Secondary selenium, sulfur, and boron alloying is suggested for the purpose of increasing the technological durability of Fe-Ni-Co-Al-Ti alloys. It is recommended to evaluate the effect of microalloying according to its influence on the fine structure (blockability, microstresses) and the dynamics of its change in the process of elastoplastic deformation.

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USSR

UDC 539.1.074.2

VOLKOV, N. G., GORBACHENKO, G. M., and LYAPIDEVSKIY, V. K.

"Determining the Saturation Current in an Ionization Chamber from Two Experimental Points"

Moscow, Pribory i Tekhnika Eksperimenta, No 1, 1973, pp 94-96

Abstract: The authors note that measurement of the saturation current in an ionization chamber at high radiation intensities is determined by computational methods, which are not always accurate. They therefore propose a highly accurate way of making this measurement from two arbitrary points on the volt-ampere characteristic of the chamber. Use is made of two equations: $I = I_s \sin 2\xi/2\xi$, and $U = Bf(\xi) \cos \xi/\xi$: in which I and U are the current and voltage in the chamber; I_s is the saturation current; B is a constant whose value depends on the radiation intensity, the chamber dimensions, and the gas characteristics; ξ is a parameter varying from $\pi/2$ to 0; and $f(\xi)$ is a correcting function. The accuracy of this method is explained, and a way of simplifying the procedure under certain conditions is presented. The authors thank M. S. Kozodayev for his comments.

1/1

- 71 -

1/2 026 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--FRICTION COEFF. AS DEPENDENT ON HARDNESS. EXPERIMENTAL VERIFICATION
-U-
AUTHOR--(02)-MIKHIN, N.M., LYAPIN, K.S.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(3), 50-6
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--FRICTION COEFFICIENT, COPPER ALLOY, METAL FRICTION, METAL
HARDNESS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0848 STEP NO--UR/0139/70/013/003/0050/0056
CIRC ACCESSION NO--AT0132938
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132938

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE FRICTION COEFF. ON HARDNESS IS STUDIED ON AN IDEALLY PLASTIC CONTACT OF A RIGID ROUGH SURFACE WITH A PLASTICALLY DEFORMABLE HALF SPACE IN THE PRESENCE OF ADHESION IN THE CONTACT ZONE. THE FRICTION COEFF. IS A FUNCTION OF THE PENETRATION AND ADHESION IN THE CONTACT ZONE. THE ADHESION COMPONENT OF THE FRICTION COEFF. IS EQUAL TO THE RATIO OF THE SHEAR RESISTANCE OF THE ADHESION BOND TO THE BRINELL HARDNESS OF THE MATERIAL. THE DEPENDENCE OF THE TANGENTIAL STRENGTH OF THE ADHESION BOND ON THE HARDNESS WAS STUDIED ON PLANE SAMPLES OF VARIOUS TYPES OF CU. THE SPHERICAL INDENTORS WERE 10 MM IN DIAM. THE TANGENTIAL STRENGTH OF THE ADHESION BOND INCREASES WITH THE HARDNESS OF THE SAMPLES, THE ADHESION COMPONENT OF THE FRICTION COEFF. DECREASES WITH INCREASING HARDNESS. THE DEPENDENCE OF THE TOTAL COEFF. OF EXTERNAL FRICTION ON HARDNESS WAS STUDIED BY GLIDING OF A SPHERICAL INDENTOR ON THE POLISHED SURFACES OF PLANE CU SAMPLES. THE DEPENDENCES OF THE ADHESION AND DEFORMATION COMPONENTS OF THE FRICTION COEFF. CORRECTLY DESCRIBES THE DEPENDENCE OF THE TOTAL FRICTION COEFF. ON THE HARDNESS OF THE MATERIAL. THE FRICTION COEFF. DETD. ON A 1 BALL TANEGNITIDMETER IS THE ADHESION COMPONENT OF THE FRICTION COEFF. FACILITY: MOSK. TEKHNOI. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

udc 591.1.15

KATKOV, A. YE., LYAPIN, YE. N., GUSEV, D. I., and NECHAYEV, L. N.

"Kinetics of Polonium-210 in the Tissues of Fish at 0° C and in Water of Different Salinity"

Tr. Atlantich. NII ryb. kh-va i okeanogr. (Transactions of the Atlantic Scientific Research Institute of Fisheries and Oceanography), No 44, 1971, pp 60-65 (from RZh-Biologicheskaya khimiya, No 11, jun 73, Abstract No 11 F1419

Translation: The kinetics of the accumulation and the character of metabolism of polonium-210 were investigated in tissues in simulated winter conditions of habitation in water of different salinity.

1/1

- 60 -

USSR

UDC 591.1.15

LYAPIN, YR. N., GUSEV, D. I., KATKOV, A. YE., PODGURSKIY, A. M., and NECHAYEV.
L. I.

"The Dependence of the Accumulation of Radionuclides in the Tissues of Fish on Temperature and Saline Conditions in the Environment"

Tr. Atlantich. NII ryb. kh-va i okeanogr. (Transactions of the Atlantic Scientific Research Institute of Fisheries and Oceanography), No 44, 1973, pp 45-59 (from RZh-Biologicheskaya khimiya, No 11, 10 Jun 73, Abstract No 11 F1418)

Translation: The work presents the findings of an experimental study of the accumulation of cesium-137, strontium-90, cerium-144, antimony-125, chromium-51, iron-59, cobalt-60 and ruthenium-106 in the tissues of fish (golden carp, lake ruff, rainbow trout) at a temperature of 0° and 17° in fresh water (mineralization up to 100 milligrams per liter) and in artificial sea water prepared according to the Bruyevich method using salts of super chemical purity.

1/1

- 59 -

UDC 612.115-06; 1577.161.11+577.161.4+613.2

USSR

KUDRYASHOV, B. A., BAZAZ'YAN, G. G., LYAPINA, L. A., and SYTHIA, N. P.,
Laboratory for the Physiology and Biochemistry of Blood Coagulation, Moscow
State University

"Significance of a Relative Excess of Vitamin A and Unsaturated Fatty Acids in
the Formation of Complex Heparin Compounds in Stressed Animals Kept on Natural
and Atherogenic Diets"

Moscow, Voprosy Pitaniya, No 1, 1973, pp 23-29

Abstract: Administration of linethol (a mixture of ethyl esters of unsaturated fatty acids, especially linoleic and linolenic acids, contained in linseed oil) and excessive amounts of vitamin A to rats kept on natural and atherogenic diets stimulated the complexing of heparin with fibrinogen and plasminogen after the induction of stress by ringing a loud bell for 1 1/2 minutes. An epinephrine-heparin complex was also produced in the animals that received the atherogenic rations; the amount was greater than in the control, but less than in healthy animals. Intravenous injection of the experimental animals with thrombin completely prevented death from thrombosis (100% survival rate) compared to a 38% mortality rate among the controls that did not receive linethol.

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- 63 -

UNCLASSIFIED

PROCESSING DATE--11SEP70

1/2 021

TITLE--ON THE NATURE OF LYTIC EFFECT OF FIBRINOGEN HEPARIN AND TYROXIN
HEPARIN COMPLEXES ON FIBRIN -U-

AUTHOR--KUDRYASHOV, R.A., LYAPINA, L.A., MOLCHANOVA, L.V., RUSTAMOVA, B.A.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 161-168

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FIBRINOGEN, HEPARIN, THYROXINE, FIBRIN, FIBRINOLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0794

STEP NO--UR/0301/70/015/002/0161/0169

CIRC ACCESSION NO--AP0102757

UNCLASSIFIED

PROCESSING DATE--11SEP70

UNCLASSIFIED

2/2 021

CIRC ACCESSION NO--AP0102757

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COMPLEX TYROXIN HEPARIN (TYRH) POSSESSING BOTH IN VIVO AND IN VITRO BY ANTITHROMBIN AND LYTIC ACTION ON FIBRIN IN MODEL SYSTEM WAS OBTAINED. FIBRINOLYTIC ACTIVITY OF THE COMPLEX IS PRESERVED IN THE PRESENCE OF EPSILON AMINOCAPROIC ACID OR ANTIPLASMIN. THE COMPARATIVE STUDY OF TYRH AND FIBRINOGEN HEPARIN (FH) COMPLEXES SHOWED THE IDENTITY OF THEIR ANTITHROMBIN AND LYTIC ACTION. IT WAS ESTABLISHED THAT THESE COMPLEXES DO NOT POSSESS BY THE TRUE FIBRINOLYTIC ACTIVITY AND ACT AS SOLVENTS OF ONLY UNSTABILIZED FIBRIN. INASMUCH AS TYRH COMPLEX DOES NOT CONTAIN PROTEIN IN THE STRUCTURE, ITS LYTIC ACTIVITY IS NOT OF THE ENZYMATIC NATURE. TYRH AND FH COMPLEXES CAN BE CHARACTERIZED AS "PHYSIOLOGICAL SOLVENTS" OF UNSTABILIZED FIBRIN. THE MAXIMAL ACTIVITY OF THE COMPLEXES IS OBSERVED DURING THEIR INCORPORATION INTO THE CLOT OF FIBRIN POLYMER. FH COMPLEX ALSO POSSESS BY THE INHIBITORY ACTION ON THE PROCESS OF FIBRIN STABILIZATION BY XIII FACTOR. IT WAS PUBLISHED EARLIER THAT FH COMPLEX ARISES IN THE BLOOD AS THE DEFENCE REACTION OF THE ORGANISM ON I. V. THROMBIN ADMINISTRATION. THEREFORE THE "PHYSIOLOGICAL SOLVENTS" OF UNSTABILIZED FIBRIN ARE THE NATURAL HUMORAL AGENTS OF ANTICOAGULATING SYSTEM.

UNCLASSIFIED

USSR

UDC 612.129:612.452.018+612.115.35]-06:[612.825.8+612.821:3]-
053:7

KUDRYASHOV, B. A., PODOL'SKAYA, O. V., and LYAPINA, L. A., Laboratory of the
Physiology and Biochemistry of Blood Coagulation, Biology and Soil Faculty.
Moscow State University

"Formation of Noradrenalin-Heparin and Adrenalin-Heparin Complexes in the
Blood of Young People Under Emotional and Intellectual Stress"

Moscow, Voprosy Meditsinskoy Khimii, Vol 17, No4, 1972, pp 385-390

Abstract: The dynamics of adrenalin-heparin (ADH) and noradrenalin-heparin (NDH) complexes and free adrenalin and noradrenalin were traced over 1 school year in different groups of students experiencing different levels of emotional and mental stress. At the end of the winter session, students taking examinations had high ADH levels in their blood. Students that returned to normal studies had no ADH but higher levels of NDH. On the other hand, students preparing for spring examinations had no ADH or NDH but higher levels of free adrenalin and noradrenalin by the spring examination period, possibly due to inadequate levels of heparin. Thromboelastograms of the blood of such students indicated heightened tolerance of plasma to heparin and inhibition of the anti-coagulation system. It is concluded that prolonged emotional and mental stress

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USSR

KUDRYASHOV, B. A., et al., Voprosy Meditsinskoy Khimii, Vol 17, No 4, 1972,
pp 385-390

causes blood hypercoagulation, which disrupts complex formation between
adrenalin and noradrenalin, and heparin, which in turn impairs the metabolism
of these biogenic amines.

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- 59 -

1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--MASS SPECTROMETRIC STUDY OF THE STRUCTURE OF SOME ORGANIC SULFIDES
AND THIOPHENES SEPARATED FROM ARLANSKII PETROLEUM -U-
AUTHOR-(03)-BRODSKIY, YE.S., NIKITINA, V.S., LYAPINA, N.K.
COUNTRY OF INFO--USSR
SOURCE--NEFTEKHIMIYA 1970, 10(1), 120-2
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--MOLECULAR STRUCTURE, PETROLEUM DEPOSIT, GEOGRAPHIC LOCATION,
CHEMICAL COMPOSITION, THIOPHENE, SULFIDE, ORGANIC SULFUR COMPOUND,
SOLVENT EXTRACTION, MASS SPECTROSCOPY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/2078 STEP NO--UR/0204/70/010/001/0120/0122
CIRC ACCESSION NO--AP0127451
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0127451

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. S COMPODS. SEPD. BY EXTN. WITH 86PERCENT H SUB2 SO SUB4 FROM A 150-250DEGREES KEROSENE FRACTION OF ARLAN PETROLEUM AND FURTHER SEPD. INTO SULFIDES BY COMPLEX FORMATION WITH AGND SUB3 AND INTO THIOPHENES BY SUCCESSIVE EXTN. WITH B2 AND 86PERCENT H SUB2 SO SUB4 WERE IDENTIFIED BY MASS SPECTRAL ANAL. THE SULFIDES CONSISTED OF 3.0PERCENT ALKYL SULFIDES, 1.6PERCENT CYCLOALKYL SULFIDES, 68.8PERCENT THIACYCLOALKANES HAVING ONE LONG CHAIN ALKYL AND 2-3 ME SUBSTITUENTS, 24.3PERCENT THIABICYCLOALKANES HAVING 1-3 ME SUBSTITUENTS, AND 2.3PERCENT THIA TRICYCLOALKANES. THE THIOPHENES CONSISTED OF 74PERCENT ALKYLTHIOPHENES HAVING A C SUB2-3 AND A C SUB3-5 ALKYL GROUP AND 1-2 ME GROUPS, 24PERCENT CYCLOALKYLTHIOPHENES, AND 2PERCENT THIAINDANS. FACILITY: VSES. NAUCH.-ISSLED. INST. PERERAB. NEFT., MOSCOW, USSR.

UNCLASSIFIED

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USSR

UDC: 621.374

BOGACHEV, A. I., ISAKOV, Yu. D., LYAPINSKIY, Yu. V., LYAPINSKIY, V. V., and KHORN, V. N.

"Method of Transforming Time Shift Between Pulses"

Moscow, Izmeritel'naya tekhnika, No 3, 1972, pp 52-54

Abstract: The necessity occasionally arises, in automatic control and computer engineering, to determine the time shift of one pulse train relative to another or to transform it linearly into pulse widths. A device for doing this is discussed in this article. A block diagram of the device is given and its operation explained, together with a timing diagram. Some details of the method of its testing are given. The device is subject to two types of error: one, in determining the the moment of passage of zero value of the sinusoidal signal; two, in the magnitude of the insensitivity zone. Advice in the reduction of these errors is provided. The instrument can be used in the mass production of functional elements.

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Contribis

UDC: 621.374

USSR

BOGACHEV, A. I., ISAKOV, Yu. D., LYAPINSKIY, Yu. V., LYAPINSKIY, V. V., and KHORN, V. N.

"Method of Transforming Time Shift Between Pulses"

Moscow, Izmeritel'naya tekhnika, No 3, 1972, pp 52-54

Abstract: The necessity occasionally arises, in automatic control and computer engineering, to determine the time shift of one pulse train relative to another or to transform it linearly into pulse widths. A device for doing this is discussed in this article. A block diagram of the device is given and its operation explained, together with a timing diagram. Some details of the method of its testing are given. The device is subject to two types of error: one, in determining the the moment of passage of zero value of the sinusoidal signal; two, in the magnitude of the insensitivity zone. Advice in the reduction of these errors is provided. The instrument can be used in the mass production of functional elements.

1/1

AA0044746

Lyapkalo, I. L.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

1/70

241063 TEMPERATURE AND LUMINESCENCE METHOD OF LEAK DETECTION, for hollow components, can be applied as a test method for fluid-tightness by completely filling the component with a luminescent liquid, for example, a penetrant, sealing it up and exposing it to UV irradiation. Any leakage of the penetrant fluid, resulting in gathering of fluid on the outer surface, will be visually detected by luminescence. In order to provide excess internal pressure the component, after filling and sealing is placed in a heating chamber, for a given time at a given temperature, to cause volumetric expansion of the contained detector fluid.

20.3.67 as 1142371/25-28. I.L.LYAPKALO et alia.
 DNIIEPROPEIROVSK UNIVERSITY. (15.8.69) Bul 13/1.4.69
 Class 42k. Int.Cl.G 01n.

MT

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21

19771506

AA0044746.

AUTHORS: Lyapkalo, I. L.; Bantsarevich, V. G.; Belyayev, N. M.; Nerovnya, I. V.;
Slipchenko, V. S.; Kobylkin, V. V.

Dnepropetrovskiy Gosudarstvennyy Universitet

19771507

7/2

USSR

UDC: 576.851.48

ASTAPOV, A. A., and LYAPKALO, YA. M., Chair of Microbiology, Kuban Medical Institute, Krasnodar

"Reversion of the Nontransmissible R-Factor to Transferability"

Moscow, Genetika, Vol 7, No 5, 1971, pp 164-165

Abstract: In a study performed on *Escherichia coli*, *Shigella sonnei*, and *Shigella flexneri* strains sensitive to antibiotics, it was shown that the nontransmissible R-factor loses its determinants of resistance to streptomycin, colimycin, tetracycline, and monomycin after the host cells are kept on a semiliquid meat-peptone agar. During conjugation, *Shigella sonnei* transmits the segregant R(X)-factor (but not the initial R-factor) to *Escherichia coli* with a relatively low frequency (10^{-7} to 10^{-9}), but *E. coli* further transmits this factor to *Shigella flexneri* with a high frequency (3.1×10^{-4}). After the carrier cells are treated with acridine dyes, the transmissible R-factor is eliminated in 1-24% of cases. Though this is probably the first observation of the reversal of R-factors from a nontransferable to a transferable condition, the existence of this transmutability is now beyond doubt, and this finding may be helpful in explaining the evolutionary nature of autonomous R-determinants.

1/1

- 23 -

Acc. Nr: **AP0051921**

Ref. Code: **UR 0219**

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i Meditsiny, 1970, Vol **69**, Nr **2**, pp **49-52**

THE EFFECT OF VEGETABLE AND ANIMAL FATS ON THE DISTRIBUTION OF EXOGENOUS CHOLESTEROL IN ANIMALS

V. F. Markelova, B. G. Lyapko

Institute of Nutrition of the AMS of the USSR, Moscow

Absorption and the nature of distribution of a one-time introduced labeled cholesterol dissolved in sunflower oil were investigated in rats which received isocaloric food rations containing 27 or 60% of lard or vegetable oil (calculated to the value of their calorificity). Diets with sunflower oil, particularly those containing large amounts of it, contributed to the increase of the radioactive cholesterol in the liver, as compared to other rations with lard. Inclusion of sunflower oil in the diet was found to be followed by an increase of the cholesterol level in the blood, liver and by its fall in the fatty tissue.

REEL/FAME

19820404

2 kc

Acc. Nr: **AP0044158**

Ref. Code: UR 0244

PRIMARY SOURCE: *Voprosy Pitaniya*, 1970, Vol 29, Nr 1,
pp 34-38

THE MODE OF INFLUENCE EXERTED BY DIVERSE CARBOHYDRATE DIETS
ON THE FORMATION OF FATTY ACIDS IN THE ORGANS OF RATS

V. F. Markelova, B. G. Lyankov (Moscow)

Summary

Excess amounts of complex carbohydrates in a food ration of high-standard caloric value brings on after 30 days of testing an increase of the fatty acids content in the liver, blood and aorta, along with the intensified activity of glucose-6-phosphate-dehydrogenase and accelerated incorporation of 1-¹⁴C-glucose and 2-¹⁴C-acetate into fatty acids of the liver. Substitution of saccharose for a portion of starch in a high-standard food ration gives rise to analogous changes with a somewhat more notable increase in the amount of fatty acids in the blood and the aorta. The recorded rise of pyruvic, oxalo-acetic and α -ketoglutaric acids in the liver of rats receiving saccharose in the diet could be consequent to the specific effect of fructose and possible stimulation of the insular system leading to accelerated glycolysis, suppression of the gluconeogenic enzymes synthesis and to transamination.

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REEL/FRAME
19770639

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UDC 612.822.3+612.825.54

USSR

SHUL'GINA, G. I., OBLACHEVA, N. K., and LYAPKUSOVA, A. V., Institute of Higher Nervous Activity and Neurophysiology, Academy of Sciences USSR

"Interaction of Specific and Nonspecific Afferent Impulses in the Rabbit Visual Cortex"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti, No 5, 1972, pp 1046-1054

Abstract: Spike activity and slow evoked potential of the surface and deep layers of the visual cortex were studied in alert, unrestrained rabbits following separate and combined action of light flashes and electrical stimulation of an extremity and in response to direct electrical stimulation of the lateral geniculate body (LGB) and reticular formation (RF). In some cases, nonspecific stimulation caused an unequal weakening of the slow waves in both the surface and deep layers of the cortex evoked by specific stimulation. Stimulation of the LGB elicited a deep negative wave that preceded a slow, deep positive oscillation which was not inverted on the surface of the cortex. An oscillation of similar parameters was also recorded in the deep cortical layers following stimulation of the RF. The combined action of the LGB and RF intensified this oscillation more than did stimulation of the LGB alone. The deep negative oscillation in response to stimulation of the RF reflected activation of 20%

1/2

- 46 -

USSR

SHUL'GINA, G. I., et al., Zhurnal Vysshey Nervnoy Deyatel'nosti, No 5, 1972, pp 1,046-1,054

of the neurons recorded. It apparently helped to weaken the recurrent inhibition arising in the visual cortex in response to the specific stimulus.

2/2

USSR

UDC 620.193.5

MIGAY, L. L., KOZLOVA, N. N., LYAPUNOV, A. I., MAL'CHEVSKIY, YE. G., BEKETOV, B. I., State Scientific Institute of the Rare Metal Industry

"Oxidation of Heat-Resistant Steels and Alloys"

Moscow, Zashchita Metallov, Vol 8, No 6, 1972, pp 722-723

Abstract: A study was made of the oxidation rate of several standard and experimental steels and alloys in a current of technical oxygen and in a calm air atmosphere at 1000°. Sheet specimens 2 mm thick were used to determine the oxidation resistance by the increase in mass after oxidation and its loss after removal of the scale.

The difference in oxidation resistance of the investigated materials in a calm air atmosphere is not so great as in technical oxygen. The Kh25N20S2 chromium-nickel steel alloyed with silicon is the least oxidation resistant, and materials alloyed with aluminum were the most oxidation resistant. Analogous results were obtained during prolonged experiments in the air for 5000-10,000 hours [N. N. Kozlova, et al., Struktura i svoystva zharoprochnykh metallicheskih materialov, Moscow, Nauka, 306, 1967]. The UKh13S2Yu2BT (EP 676) steel without nickel and KhN45Yu (EP 747) alloys sparingly alloyed with nickel had the greatest oxidation resistance in oxygen and air.

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USSR

UDC 669.18.001.5:669.14.015.853

KOZLOVA, N. N., LYAPUNOV, A. I., MASLENKOV, S. B., and BELYAYEVA, V. A.

"Oxidation Resistance of Steels in the System Fe-Cr-Ni-Al as a Function of Relationship of Alloying Elements"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works], No 77, Metallurgiya Press, 1970, pp 27-32.

Translation: Alloys in the system Fe-Cr-Ni-Al were studied in the 1000-1250°C temperature interval. The principal regularities of the influence of alloying elements on the oxidation resistance of the alloys were established, and the dependence of oxidation resistance and phase composition of scale on the relationships of alloying elements was demonstrated. 4 figures; 2 tables; 2 biblio. refs.

1/1

- 47 -

6

USSR

UDC 669.71.053.4.065

LYAPUNOV, A. N.

"Prospects of Development of Aluminate Solution Refining Technology"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrokn. prom-sti
(Works of the All-Union Scientific Research and Planning and Design Institute
of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 136-144 (from
RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G150)

Translation: The next problems of improving the indexes of decomposition and carbonization of aluminate solution were defined. These problems are investigated as applied to the production of Al_2O_3 by hydrochemical and sintering methods from bauxites and nephelines. There are 2 tables.

1/1

USSR

UDC 669.712.051

LYAPUNOV, A. N., KHODAKOVA, A. G., and MELKINA, Z. G.

"Investigation of the Carbonization of Aluminate Solution With $Al(OH)_3$ Priming"

Moscow, Tsvetnyye Metally, No 2, Feb 71, pp 34-37

Translation: It is shown that the rate of separation of aluminum hydroxide from aluminate solution in the process of carbonization with priming ratio 1 and higher at any given moment is proportional to the supersaturation of the solution in the first degree. Use of priming protects the walls of the vessel from aluminum hydroxide deposits, and also increase grain size. The absorption of the gas carbon dioxide by the solution increases with an increase in the priming ratio.

1/1

UDC 669.712.1.05

USSR

AGRANOVSKIY, A. A., BERKH, V. I., KAVINA, V. A., LEVIN, M. V., LYAPUNOV, A. N.,
MONTVID, A. E., MUNITS, I. N., and CHERNIN, V. N.

"Spravochnik metallurga po tsvetnym metallam" (Metallurgist's Handbook of
Non-Ferrous Metals); Moscow, Izd-vo "Metallurgiya," 1970, 320 pp

Translation of Annotation: Data on the physico-chemical properties of the
most important aluminum compounds and aluminum solutions are presented,
phase diagrams of chemical systems determining the processes of alumina
production by alkali methods are given, and standards and technical con-
ditions are reviewed.

Various alumina production methods and reference data on the technology and
equipment of alumina production are described.

The handbook is intended for engineers and technicians engaged in the alum-
inum industry. Ninety-one figures, 116 tables, 176 references.

TABLE OF CONTENTS (Abridged)

1/3

USSR

AGRANOVSKIY, A. A., et al., "Spravochnik metallurga po tsvetnym metallam" (Metallurgist's Handbook of Non-Ferrous Metals), Moscow, Izd-vo "Metallur- giya," 1970, 320 pp

Foreword ...

Section One. PHYSICO-CHEMICAL DATA AND STANDARDS	
Chapter I. Minerals, Basic and Auxiliary Raw Materials and Final Products of Aluminum Oxide Production	9
Chapter II. Aluminum Compounds and Other Substances, Presenting Interest for Aluminum Oxide Production, Alkaline and Aluminate-Alkaline Solutions	11
Chapter III. Physico-Chemical Transformations in Aluminum Oxide Production Processes	24
Section Two. INDUSTRIAL PRODUCTION METHODS	
Chapter I. Short Classification of Types of Aluminum Raw Materials and Methods for Processing Them	91
Chapter II. Thermal Methods of Aluminum Oxide Production	134
Chapter III. Hydrochemical and Combined Methods of Aluminum Oxide Production	143

2/3

USSR

AGRANOVSKIY, A. A., et al., "Spravochnik metallurga po tsvetnym metallam" (Metallurgist's Handbook of Non-Ferrous Metals), Moscow, Izd-vo "Metallur-giya," 1970, 320 pp

Chapter IV.	Method of Producing Aluminum Oxide From Alunite	227
Chapter V.	Acid and Acid-Alkaline Aluminum Oxide Production Methods	232
Chapter VI.	Automatic Control and Regulation of Production Processes	283

References

1/2 018

UNCLASSIFIED
 TITLE--MATHEMATICAL MODEL OF THE CONTINUOUS STRIPPING OF SLAGS -U-
 AUTHOR--(05)-LISOVSKIY, O.I., IVANOV, V.A., SHAPIROVSKIY, M.R., GOLUBEV,
 V.I., LYAPUNOV, I.O.
 COUNTRY OF INFO--USSR
 SOURCE--IZV.VYSSH. UCHEB. ZAVED., TSVET. MET. 1970, 13(1), 141-7
 DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MATHEMATIC MODEL, METALLURGIC SLAG, METALLURGIC PROCESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--3005/0841

STEP NO--UR/0149/70/013/001/0141/0147

CIRC ACCESSION NO--AT0132931
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 018

CIRC ACCESSION NO--AT0132931

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

IS DESCRIBED BY 11 MATH. EQUATIONS.
SPLAYOV, MOSCOW, USSR.

ABSTRACT. THE PROCESS OF STRIPPING THE SLAG
FACILITY: MOSK. INST. STAL

UNCLASSIFIED

PROCESSING DATE--04DEC70

1/3 019

TITLE--STRIPPING OF SLAGS FROM THE SHAFT MELTING OF NICKEL ORES IN AN
ELECTRIC FURNACE WITH COKE CONDUCTANCE +U-

AUTHOR--(04)--LISOVSKIY, D.I., SOSNOVSKIY, D.V., LYAPUNOV, I.D., GOLUBOV,
V.I.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(4), 36-9

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS, MECH., IND.,
CIVIL AND MARINE ENGR
TOPIC TAGS--ELECTRIC FURNACE, NICKEL ORE, SLAG, METAL MELTING,
FERRONICKEL, METAL REDUCTION, METAL OXIDE, CHROMIUM OXIDE, COBALT,
FILTRATION, COKE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0148

STEP NO--UR/0136/70/043/004/0036/0039

ACCESSION NO--AP0132436

UNCLASSIFIED

2/3 019

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132436

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DEALS WITH THE EFFICIENCY OF THIS TYPE OF FURNACE IN THE FILTRATION OF MOLTEN NI SLAGS THROUGH COKE AND THE EFFECTS OF VARIOUS FACTORS ON SLAG STRIPPING. THE SLAG COMPN. WAS SIO SUB2 45, FEO 15, CAO 25, AL SUB2 0 SUB3 8, AND MGO 6PERCENT. THE SLAG WAS CHARGED INTO THE FURNACE CONTAINED NI 0.06-0.14 AND CO 0.01-0.02PERCENT. THE COMPN. OF THE PPTD. FERRONICKEL FROM 2 DIFFERENT MELTS WAS NI 4.5, 12.8; S 2.15, 154; SI 0.0055, 0.034; CR 0.073, 0.056; C 4.63, 5.73; MN 0.14, 0.093; AND P 0.084, 0.092. AT HIGH COKE LAYER TEMPS., THE DEOXIDN. OF FE IS SIGNIFICANT, SO THAT THE NI AND CO CONTENTS OF THE FERRONICKEL ARE LOW. THE LATTER ALSO EXHIBITS LARGE AMTS. OF CR AND SI. THE EXPTL. MELTS INDICATE THAT THE EXTN. OF NI AND CO IS ASSOCD. WITH THE EXTENT OF DEOXIDN. OF THE FE, THIS BEING DETD. BY THE SLAG COMPN., THE ENTRY AND EXIT TEMPS. OF THE SLAG, THE SIZE OF THE COKE FINES FILTER, AND THE FLOW OF SLAG. CURVES ARE GIVEN SHOWING THE DISTRIBUTION COEFF. OF NI AND CO BETWEEN THE SLAG AND THE METAL PHASE AS A FUNCTION OF THE TEMP. THESE EXHIBIT WELL DEFINED MIN. AT 1275-1325DEGREES. THE INCREASE IN THE DISTRIBUTION COEFF. BELOW 1275DEGREES CAN EVIDENTLY BE EXPLAINED BY INADEQUATE SETTLING OF THE FENI PARTICLES RESULTING FROM THE HIGH VISCOSITY OF THE SLAG AND THE SMALLNESS OF THE SETTLING TANK. DECREASING THE COKE TEMP. DECREASES THE IMPURITY CONTENT IN THE ALLOY OBTAINED. THIS IS EVIDENTLY ASSOCD. WITH THE CONSIDERABLE REDN. OF CR AND SI OXIDES WHICH OCCURS DUE TO THE FORMATION OF HIGH POWER INCRO ARCS WHEN THE CONTACTS BETWEEN THE COKE PARTICLES ARE DISTURBED.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

3/3 019
CIRC ACCESSION NO--/P0132436
ABSTRACT/EXTRACT--AN INDUSTRIAL FURNACE OF FLOOR AREA 1.5-2.0 M PRIME² IS
CAPABLE OF ACHIEVING 50-60PERCENT EXTN. OF NI AND 40-5PERCENT EXTN. OF
CO FOR A SP. POWER CONSUMPTION OF 50 KW-H4-TON SLAG.

UNCLASSIFIED

USSR

UDC 621.372.831.1

SEDYKH, V. M., DENISOV, D. S., LYAPUNOV, N. V., SAPRYKIN, I. I.

"Calculating the Equivalent Coupling Diagram of Two Coaxial Lines with Different Sizes of Conductors"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 61-65 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B172)

Translation: The compensating shift for which the coupling has minimum reflection is calculated. There are 2 illustrations and a 5-entry bibliography.

1/1

USSR

UDC 621.372.833

SEDYKH, V. M., DENISOV, D. S., LYAPUNOV, N. V., SAPRYKIN, I. I.

"Calculating Nonreflecting Supporting Discs in Coaxial-Strip Junctions"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 15, pp 55-61 (from RZh-Radiotekhnika, No. 4, Apr 71, Abstract No 4B173)

Translation: Expressions are obtained for calculating the voltage standing wave ratio of a support disc as a function of its geometric dimensions and operating frequency. There are 2 illustrations and a 5-entry bibliography.

1/1

Vector Studies

USSR

UDC 599.323.4:577.9(470.311)

SUDEYKIN, V. A., LYAPUNOVA, K. L., and TIKHOMIROV, S. I., Central Control-
Research Laboratory of the Moscow City Disinfection Station

"Multiplication of the Ordinary Hamster (*Cricetus cricetus*) in the Territory
of the City of Moscow"

Moscow, Zoologicheskii zhurnal, Vol 51, No 8, 1972, pp 1,258-1,259

Abstract: Evidence has reached the Control-Research Laboratory of the Moscow
Municipal Disinfection System of the multiplication of the hamster population
in the city. In 1971, burrows of the animals were found throughout the fields
from the banks of the Moscow River to the city limits. The territory occupied
by the animals is at most 25 square kilometers, limited by the bends of the
river and the houses of the city. It is estimated that, at the present time,
hamsters have an uneven population distribution over the Lyublinskiy fields;
the probability is that in the course of a long period of time the population
will sink to an unnoticeable level.

1/1

1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--MECHANISM OF THE CYTOSTATIC ACTION OF AMINOACRIDINES -U-
AUTHOR--(05)-ZELENIN, A.V., KIRYANOVA, YE.A., LYAPUNOVA, YE.A., MELNIKOVA,
YE.YU., STEPANOVA, N.G.
COUNTRY OF INFO--USSR
SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(1), 96-101
DATE PUBLISHED----- 70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ANTITUMOR DRUG EFFECT, MITOSIS, PROTEIN SYNTHESIS, NUCLEIC
ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1158 STEP NO--UR/0390/70/033/001/0096/0101
CIRC ACCESSION NO--AP0115177
UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSIGN NO--AP0115177
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 3,6,DIAMINDACRIDINES, INCLUDING
ACRIDINE ORANGE, PROFLAVINE, ACRIFLAVINE, EUCRISINE 2, AND
CORIPHOSPHINE, WERE CHARACTERIZED BY SIGNIFICANT ANTIMITOTIC ACTION
STARTING IN THE 1ST FEW MIN OF THE EXPT., WITH A SHARP PARALLEL NOTED
BETWEEN INHIBITION OF MITOTIC ACTIVITY AND PROTEIN SYNTHESIS, AND
DELAYED PASSAGE OF CELLS THROUGH THE MITOTIC G SUB2 PERIOD. ACRICHINE
AND RIBOFLAVINE ANTIMITOTIC ACTIONS APPEARED ONLY SEVERAL HR AFTER THE
START OF THE EXPT. AND WERE NOT ACCOMPANIED BY EFFECTS ON PROTEIN
SYNTHESIS OR BY ANY CHANGE IN THE G SUB2 PERIOD OF THE CYCLE.
ANTIMITOTIC ACTIVITY OF THE 3,6,DIAMINDACRIDINES APPARENTLY INVOLVES
DIRECT INHIBITION OF PROTEIN SYNTHESIS, WHILE THE 2ND GROUP OF COMPS.
INTERFERES WITH NUCLEIC ACID SYNTHESIS. FACILITY: INST. MOL.
BIOL., MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--ELECTRON MICROSCOPIC STUDY OF EPITHELIUM OF THE UPPER RESPIRATORY
WAYS IN PATIENTS WITH ACUTE RESPIRATORY VIRUS INFECTIONS -U-
AUTHOR-(02)-LYARSKAYA, T.YA., KETILADZE, YE.S.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 190-196
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ELECTRON MICROSCOPY, RESPIRATORY VIRUS DISEASE, ADENOVIRUS,
INFLUENZA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0731 STEP NO--UR/0402/70/000/002/0190/0196
CIRC ACCESSION NO--AP0108937
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108937

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRON MICROSCOPIC STUDY WAS CARRIED OUT WITH ULTRATHIN SECTIONS OF MATERIALS OBTAINED BY SMEARS OR IMPRESSIONS FROM THE MUCOUS MEMBRANE OF INFERIOR NASAL CONCHA IN PATIENTS WITH INFLUENZA, PARAINFLUENZA AND ADENOVIRUS DISEASE. DEGENERATIVE CHANGES IN CELLS OF COLUMNAR EPITHELIUM CONSISTING OF CONGLOMERATIONS OF NUCLEAR CHROMATIN; LACK OF DOUBLE CONTOURS OF THE NUCLEAR MEMBRANES, CHANGES IN MITOCHONDRIAL STRUCTURES. IN INFLUENZA AND PARAINFLUENZA INFECTIONS 2 TYPES OF CYTOPLASMIC INCLUSIONS WERE FOUND. ONE WERE ELECTRON DENSE OR GRANULAR STRUCTURES AND WERE PROBABLY DEGENERATING ORGANELLE OF THE CELL; OTHERS CONSISTED OF RINGFORM VIRUS LIKE PARTICLES. NUMEROUS VIRUS LIKE PARTICLES WERE FOUND IN NUCLEI OF EPITHELIAL CELLS OF THE NASAL MUCOSA FROM PATIENTS WITH ADENOVIRUS DISEASE.

UNCLASSIFIED

USSR

UDC 539.192/.194+535.33/.34.01

BOLOTIN, A. B., LYASH, A. V., LITINSKIY, A. O.

"Electron Structure of Aluminum Hydride"

Lit. fiz. sb. (Lithuanian Physics Collection), 1972, Vol. 12, No. 2,
pp 253-257 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D118)

Translation: The AlH_3 molecule was investigated within the framework of the expanded Wolfsberg-Helmholtz method for two possible structures: plane and pyramidal. The Slater wave functions were used as base functions for the Al and H atoms. Self-consistent MO, single-electron energy levels, the population of orbitals, and charges on the atoms were obtained from solving the Wolfsberg-Helmholtz equations. The dipole moment was calculated. A comparison is made with the theoretical results obtained for this molecule by other authors. 10 ref. Authors abstract.

1/1

USRR

UDC 669.29.669.017

KORNILOV, I. I., VAVILOVA, V. V., MAKSIMOV, YU. A., and LYASHCHENKO, A. B.,
Institute of Metallurgy imeni A. A. Baykov

"On the Nature of Solid Solutions of Titanium-Vanadium-Oxygen and Titanium-Vanadium-Aluminum-Oxygen Systems"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 4, Apr 72,
pp 881-884

Abstract: Investigation was made of the oxygen effect on the change in strength of the interatomic bond in the lattice of α -solid solutions of titanium-vanadium and titanium-vanadium-aluminum systems in the region of existing binary and ternary solid solutions based on α -titanium. Titanium alloys with 2.5% V and up to 0.5% varying oxygen content and titanium alloys with 2.5% V, 3% Al, and up to 0.5% wt % varying oxygen content were investigated. Values of the Debye temperature and of the mean square atomic shift were calculated from measured data of the modulus of elasticity. Functions of the oxygen-dependence of the modulus of elasticity and the shear modulus show that the introduction of oxygen into the titanium alloys guarantees increased moduli of elasticity and shear, increased Debye temperature, and decreased mean square atomic shift from the equilibrium condition in

1/2

- 54 -

USSR

KORNILOV, I. I., et al., Fizika Metallov i Metallovedeniya, Vol 33, No 4, Apr 72, pp 881-884

lattice points of α -titanium. The introduction of up to 0.5 wt% oxygen into titanium alloys with vanadium and aluminum results in increased bonding forces of ternary and tetrad α -solid solutions. The rate of the drop of the modulus of elasticity decreases with rising temperature in alloys with high oxygen content. Three illustrations, two tables, four bibliographic references.

2/2

1/2 056 UNCLASSIFIED PROCESSING DATE--13NOV70
 TITLE--HEAT RESISTANCE AND STRENGTH OF THE INTERATOMIC BOND IN SOLID
 SOLUTIONS OF THE TI-SN-O SYSTEM -U-
 AUTHOR-(04)-KENINA, YE.M., KORNILOV, I.I., VAVILOVA, V.V., LYASHCHENKO,
 A.B.
 COUNTRY OF INFO--USSR
 SOURCE--METALLOVEDENIE I TERMICHESKAIA OBRABOTKA METALLOY, NO. 3, 1970, P.
 54-56
 DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
 TOPIC TAGS--SOLID SOLUTION, TITANIUM ALLOY, TIN ALLOY, OXYGEN, ELASTIC
 MODULUS, HEAT RESISTANCE, MECHANICAL STRENGTH, METAL CREEP, METAL
 BONDING, BIBLIOGRAPHY, CHARACTERISTIC FUNCTION, COVALENT BONDING,
 TEMPERATURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--1997/0013

STEP NO--UR/0129/70/000/003/0054/0056

CIRC ACCESSION NO--AP0119009

UNCLASSIFIED

2/2 056

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0119009

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

ABSTRACT. STUDY OF THE STRENGTH OF THE INTERATOMIC BOND IN SOLID SOLUTIONS OF THE TI-SN-O SYSTEM WITH RESPECT TO THEIR HEAT RESISTANCE AT ELEVATED TEMPERATURES. THE INTERATOMIC BONDING FORCE WAS ESTIMATED ON THE BASIS OF THE ELASTICITY MODULUS. IT IS FOUND THAT AN INCREASE IN THE OXYGEN CONTENT RESULTS IN AN INCREASE OF THE ELASTICITY MODULUS, WHILE THE CHARACTERISTIC TEMPERATURE AND THE MEAN SQUARE SHIFT OF ATOMS ARE DECREASED. A RELATIONSHIP WAS FOUND BETWEEN THE STRENGTH CHARACTERISTICS OF THE INTERATOMIC BOND AND THE CREEP RESISTANCE OF ALLOYS. THE STRENGTHENING EFFECT OF OXYGEN AT ELEVATED TEMPERATURES IS SUGGESTED TO BE DUE TO THE INCREASE IN THE INTERATOMIC BONDING FORCES.

FACILITY: AKADEMIA NAUK SSSR,

INSTITUT METALLURGI, MOSCOW, USSR.

UNCLASSIFIED

USSR

REF 669.295'782'787:539.434:54.165

KENINA, YE. M., KORNILOV, I. I., VAVILOVA, V. V., and LYASECHENKO, A. B.
(Institute of Metallurgy imeni A. A. Baykov AN SSSR)

"Heat Resistance and Strength of the Interatomic Bond of Solid Solutions of the Ti-Sn-O System"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 54-56.

Abstract: The strength of the interatomic bond of solid solutions of Ti-Sn-O alloys is investigated. Tests were conducted on alloy samples whose characteristic points were located on cuts parallel to the Ti-Sn side with constant oxygen content (1, 2 and 5%). Iodide titanium (99.9%), ChDA tin, and a titanium-oxygen alloy with 20.5% oxygen content served as the original materials. The preparation of alloys and the experimental technique are described. The mean square displacements of atoms from the equilibrium position in nodes of the crystal lattice were calculated. Results are presented in graphs in the form of the dependence of elasticity modulus, characteristic temperature, and mean square atom displacement on Sn concentration for Ti-Sn-O system alloys. Their analysis shows that in solid solutions of Ti-Sn-O systems the modulus of elasticity and the characteristic temperature increase with increasing oxygen content, while the mean square atom displacement decreases. A link exists between the characteristics of the
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USSR

KENINA, YE. M., et al., Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 54-56

atomic bond strength and the creep resistance of the alloys. The strengthening effect of oxygen at high temperatures may be explained by the increase in atomic bond strength in alloying binary alloys of Ti-Sn by oxygen. 2 figures, 1 table, 10 references.

2/2

- 5 -

USSR

UDC 621.762.4:621.77.2 (1)

PAVLOV, V. A., ZHIVOV, L. I., SHCHERBINA, V. V., LYASHENKO, A. P.,
PETRYKINA, R. YA., LITVIN, Zaporozh'ye Machine Building Institute imeni
V. Ya. Chubar'

"Hot Extrusion of Powdered Titanium"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug 73, pp 15-19

Abstract: Hot extrusion of titanium powder was studied using a 1600 ton-force crank press. The raw powder, sintered billets, and, for comparison, sheet titanium were extruded. Both open and closed dies were used. It was observed that there was a decrease in grain size with a simultaneous increase of their total surface area, promoting intensification of intergranular diffusion which occurs with a significant increase in the diffusion rate, caused by the high specific force and temperature (950°C). Mechanical properties of briquets extruded at 950°C and heat treated by annealing at 750°C for three hours in a vacuum of $2 \cdot 10^{-4}$ mm Hg are compared with briquets which were vacuum sintered at 1200°C for three hours prior to extruding and given the same heat treatment as stated above after extruding. Density and mechanical properties of the vacuum sintered briquets is slightly higher than the non-vacuum sintered briquets but not enough to warrant the additional
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USSR

PAVLOV, V. A., et al., Poroshkovaya Metallurgiya, No 8, Aug 73, pp 15-19

cost of vacuum sintering. The introduction of extruded powder-titanium parts and titanium-alloy powder parts to replace cast parts will result in increased savings by using a less expensive raw material, shortening of intermediate operations, increased die strength, increased labor productivity, and decreased metal losses. Three figures, one table, three bibliographic references.

2/2

- 47 -

1/2 035 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF CONTINUOUS NEUTRON IRRADIATION ON THE STRUCTURE AND
PROPERTIES OF MAGNETIC ALLOYS OF THE YUNDK , IRON NICKEL ALUMINIUM
AUTHOR--(05)-GRINBLAT, YU.N., LYASHCHENKO, B.G., ROGOZYANOV, A.YA.,
SAKATUNOV, YU.S., SHELKOVNIKOVA, G.YE.
COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 252-255

DATE PUBLISHED----FEB70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--NEUTRON IRRADIATION, PERMANENT MAGNET MATERIAL, MAGNETIC
PROPERTY, RESISTIVITY, ALLOY STRUCTURE, COBALT IRON ALLOY, IRON NICKEL
ALLOY, ALUMINUM CONTAINING ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3002/1676

STEP NO--UR/0126/70/029/002/0252/0255

CIRC ACCESSION NO--AP0129046

UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129046

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF CONTINUOUS NEUTRON IRRADIATION (10 PRIME21 N-CM PRIME2) AT TEMP. UP TO 630DEGREESC ON CAST AND SINTERED ALLOYS OF THE YUNDK TYPE (FE,NI,AL AND FE,NI,AL,CO) USED FOR PERMANENT MAGNETS WAS STUDIED. BECAUSE OF THE RADIATION, SPECIAL METHODS WERE REQUIRED FOR MEASURING THE MAGNETIC PROPERTIES AND ELECTRICAL RESISTANCE AND FOR STUDYING THE MATERIAL IN THE OPTICAL AND ELECTRON MICROSCOPES. NO CHANGES IN THE STRUCTURE OR PROPERTIES ATTRIBUTABLE TO THE IRRADIATION WERE OBSERVED; CHANGES OCCURRING ABOVE 600DEGREESC WERE DUE SOLELY TO THE ORDINARY EFFECTS OF HEAT TREATMENT.

UNCLASSIFIED

USSR

UDC 621.396.677.71

GOROBETS, N. N., LYASHCHENKO, V. A., SIROTNIKOV, A. I.

"Experimental Study of the Field Distribution in Slot Waveguide Radiators"

Antenna-fidern. i izmerit. ustroystva sverkhvysok. chastot --- V sb. (Superhigh Frequency Antenna Feeder and Measuring Devices --- Collection of Works), Khar'kov, Khar'kov University, 1971, pp 14-22 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10B29)

Translation: The distribution of the tangential component of the electric vector on the surface of a slot is determined from the condition of continuity of the tangential component of the magnetic vector on transition through the slot. A method of direct measurement of the electric field distribution in slot radiators is described. The field is measured by means of a disturbing body which moves along the slot. Here, the amplitude of the reflected wave varies proportionally to the field distribution in the slot. The block diagram of the measuring device and the results of an experimental study of the field distribution along longitudinal slots in the wide wall of a rectangular waveguide are presented. It is demonstrated that the distribution along the nonresonance slots differs from sinusoidal by no more than 10%. The field distribution along the dumbbell-shaped slots has a table shape. There are 6 illustrations and a 4-entry bibliography.

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USSR

UDC: 621.396.67

LYASHCHENKO, M. A.

"Parameters of a Slot Radiator in a \square Waveguide"

Kiev, Izvestiya VUZ--Radioelektronika, Vol. 14, No. 1, 1971,
pp 49-55

Abstract: This paper gives the results of theoretical and experimental work in investigating the radiation and reflection factors of a nonresonance slot as functions of its length, orientation on the waveguide wall, and critical and operating wavelengths. The assumption is made that the slot is cut into the wide wall of an infinite pi-shaped waveguide at a specified distance from the middle of the guide and at a specified angle to the waveguide axis. The radiation and reflection factors of the slot are then found for the case in which the waveguide is excited by a fundamental wave. Experiments performed to substantiate the theoretical findings are also described. Graphically compared theoretical and experimental results show fairly good agreement.

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USSR

UDC 621.396.677.71

SHUBARIN, YU. V., LYASHCHENKO, V. A.

"Slot Radiator in a Wave Guide with An L-Type Transverse Cross Section"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 14, pp 128-134 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4835)

Translation: Formulas are obtained for the scattering matrix coefficients of an inclined slot and a symmetrical cross slot in an L-type wave guide. There are 5 illustrations and an 8-entry bibliography.

1/1

USSR

UDC 621.514.61 (088.8)

LYASHENKO, A. I.

"Control Device For Regulated Rectifier Using Thyristors"

USSR Author's Certificate No 272425, filed 6 Sept 68, published 11 Sept 70 (From RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 48369P)

Translation: The proposed device for control of a regulated rectifier is characterized by the stability of the output parameters, which makes it possible to obtain a rigorous temporal binding among the pulses and to maintain a stable displacement between them of 60° . With such control the rectifier has a stable output voltage and a steady ripple ratio during a change within wide limits of the ambient temperature. The precise displacement of 60° is attained by use of a supplementary synchronizing network fulfilled in the form of a series connected trigger (with separate inputs), a balance rectifier, a differential amplifier, and a supplementary delay element. A block diagram of the control device and a description of it are provided. 1 ill. L.R.

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AA0052625- LYASHENKO B.A. UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

2414/4 HEATING SYSTEM reduces heating time, produces a required thickness of the hardened layer and permits local hardening. It consists of a heat source 1 and a body 2 which focuses the heat energy on to the product mounted inside a quartz tube 3. The body is in the form of an elliptical cylinder with end covers 4. It is water cooled and mirror polished inside. For local heating a suitably cut-out screen 5 is positioned between the source and the product. Quenching bath 6, mechanism 7 for feeding and discharging product into the bath, the temperature sensor 8 and the light heat controller 9 complete the installation. When the correct temperature is reached, the product is discharged automatically into the bath and the heat source is switched off. The heat source can be a super high tension arc lamp of 10 KWT.

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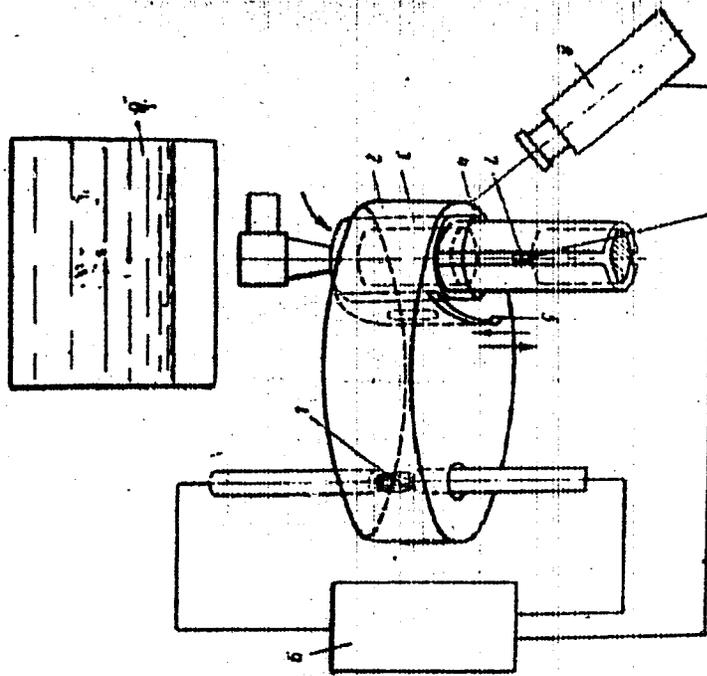
22.1.68 as 1213610/22-1 G.V. ISAKHANGV et al.
 Strength Problems Inst. Acad. Sciences Ukrainian
 SSR (29.9.69) Bul. 14/18.4.69. Class 18c, Int.
 Cl. C 21d.

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Isakhanov, G. V.; Lyashenko, B. A.; Eskin, E. A.; Rodichev, Yu. M
Institut Problem Prochnosti AN Ukrainskoy SSR

19821334

3/3

USSR

UDC 518:517/944.947

LYASHENKO, I. N. and MEREDOV, Kh. M.

"Critical Frequencies in the Propagation of Electromagnetic Waves in H-Waveguides With a Dielectric Strap"

Ashkhabad, Izvestiya Akademii Nauk, Turkmenkoy SSR, No 6, 1972, pp 29-35

Abstract: The authors consider the problem of determining the eigenvalues and eigenfunctions of the boundary value problem

$$\Delta u + \lambda \rho(x,y)u = 0; \quad (1)$$

$$u|_S = 0;$$

where S is the boundary of a region G composed of rectangles D , D' , and D'' ; λ is a numerical parameter; $\rho(x,y) > 0$ is a piecewise-constant function which takes the values of $\rho_1 = \sqrt{\epsilon_1 \mu_1}$ in rectangles D' and D'' , and $\rho_2 = \sqrt{\epsilon_2 \mu_2}$ in rectangle D (ϵ and μ are dielectric and magnetic permeabilities of dielectrics, respectively); and $u = u(x,y)$ is the scalar form of the electrical Hertz vector. It is assumed that G is covered by a rectangular, uniform grid with the steps $h = a/(n+1) = 1/2$

USSR

LYASHENKO, I. N. and MEREDOV, Kh. M., Izvestiya Akademii Nauk, Turkmeniskoy SSR, No 6, 1972, pp 29-35

$a'/(m'+1)$ along the X-axis and $h_1 = b/(n+1) = b'/(n'+1)$ along the Y-axis. Equation (1) is then rewritten for the three rectangles in piecewise-difference form, and the resulting equations are solved. The important particular case, when $n' = n$, is considered, and a numerical example to illustrate the results obtained is given.

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- 41 -

USSR

UDC 51.155.001.57.612.82.

AUZIN', P. K., LYASHENKO, T. V.

"Synthesis of Threshold Elements by the Method of Minimization of a Functional"

Kibernetika i Diagnostika [Cybernetics and Diagnosis -- Collection of Works], No. 4, Riga, 1970, pp 43-53 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V725 by the author).

Translation: Two algorithms for synthesis of threshold elements (TE) are studied. The first algorithm is based on minimization of the functional by the method of coordinate-by-coordinate descent, but involves great expenses for search for the direction of motion. In order to decrease costs, in the second algorithm a derivative functional is determined, providing the necessary information concerning the direction of motion toward the minimum. The algorithms allow the minimum structure of the TE to be produced, which is quite important with a large number of variables, to produce the physical realization of the TE. An example of the application of algorithms and a block diagram of the program for determination of TE parameters by computer are presented.

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USSR

UDC 577.12

LYASHENKO, V. A. and SIDOROVA, Ye. V., Institute of Vaccines and Sera, USSR Ministry of Health, and Moscow Institute of Epidemiology and Microbiology, Academy of Sciences USSR, Moscow

"Study of 'Immune RNA' by the Specific Immunosorption Method"

Moscow, Biokhimiya, No 1, 1973, pp 178-184

Abstract: Injection of mice with "immune" RNA isolated from the spleens of animals immunized with polysaccharide O or Vi antigens induced the formation of specific O or Vi antibodies. Treatment of O-RNA with ribonuclease resulted in almost complete disappearance of its capacity for antibody formation, whereas similar treatment of the O antigen did not affect its immunizing properties. RNA from animals immunized with radioactive O or Vi antigens contained a radioactive substance that proved to be an antigen bound to RNA. Antigen in a complex with RNA was unable to react specifically with antibodies fixed on an immune sorbent (cellulose with globulin from a nonimmune rabbit). However, it could combine nonspecifically with the sorbent owing to the high sorption capacity of the ribonucleic part of the antigen -- RNA complex. After the complex was treated with ribonuclease, the antigen present in the RNA preparation acquired a capacity for specific immunosorption.

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1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--COAXIAL HEATING OF MOLDS FOR PLASTICS -U-
AUTHOR--(02)-BARYLO, M.S., LYASHENKO, V.A.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (6), 75-6
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--ELECTRIC CURRENT, HEATING, PLASTIC FABRICATING MACHINERY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0703 STEP NO--UR/0191/70/000/006/0075/0076
CIRC ACCESSION NO--AP0136142
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136142

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COAXIAL ELEC. HEATER CONSISTS OF A STEEL ROD 8 MM IN DIAM. WELDED AT 1 END CENTRALLY INTO A STEEL TUBE OF 16 MM INSIDE DIAM. THE FREE ENDS OF THE TUBE AND ROD ARE CONNECTED TO THE TERMINALS OF 12V ELEC. A.C. SOURCE. DUE TO OPPOSITE CURRENT FLOWS IN THE TUBE AND ROD THERE IS AN INTERACTION BETWEEN THE MAGNETIC FLUXES IN THE NARROW GAP AND A GENERATION OF HEAT. PANELS CONTG. SEVERAL OF THESE HEATERS ARE SUITABLE FOR THE UNIFORM HEATING IN THE 150-250DEGREES RANGE OF MOLOS FOR PLASTICS. THE HEATERS HAVE MUCH LONGER LIFE EXPECTANCY AND ARE MORE ECONOMICAL THAN RESISTANCE OR INDUCTION HEATERS.

UNCLASSIFIED

USSR

UDC: 8.74

LYASHENKO, V. F.

"Programming for the M-20, BESM-3M, BESM-4 and M-220 Digital Computers"

Programmirovaniye dlya tsifrovyykh vychislitel'nykh mashin M-20, BESM-3M, BESM-4, M-220 (cf. English above), Tbilisi, Tbilisi University, 1971, 432 pp, ill. 1 r. 30 k. (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V488 K)

[No abstract]

1/1

USSR

UDC 535.215.1:621.519.4

SYTENKO, T.N., EMITRJA, N.L., LYASHENKO, V.I.

"Residual Photoconductivity Of Gallium Arsenide At Cryogenic Temperatures"

Fiz. i tekhn. poluprovodnikov (Physics And Technology Of Semiconductors), 1971,
2, No 6, pp 1217-1219 (from RZh--Elektronika i yeye primeneniye, No 10, October
1971, Abstract No 10E244)

Translation: The effective capacitance of the structure metal-siica-epoxy resin-n-GaAs was measured at temperatures to 10° K with strong illumination in the intrinsic region of the semiconductor. It is discovered that the initial effective capacitance of a capacitor increases during illumination by 2-5 picofarad/cm² and after shutting off the illumination the specimens maintain residual photoconductivity. The properties of the residual photoconductivity are established and an explanation of them is given. 6 ref. N.S.

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USSR

DMITRUK, N.L., ZUYEV, V.A., LYASHENKO, V.I., and TERESHCHENKO, A.K.

"Photoelectric Phenomena in the Near-Surface Region of GaAs"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 654-662

Abstract: Although the situation usually assumed in investigating photoelectric phenomena in semiconductors that the photocurrent carriers are always concentrated in a quasi-neutral region while the effect of the surface can be described by the rate of surface recombination is typical for Ge, it is extremely rare in GaAs. The existence of highly developed depletion layers close to the GaAs surface must lead to the localization of photocarriers in the near-surface charge region. Hence there is a need for a detailed investigation of this charge region, a task which this article undertakes. It investigates experimentally and computes theoretically the photoconductivity of semiconductors of the GaAs type, taking into account the minority carrier lifetime as a function of the coordinate in the charge region. In doing so, the authors did not assume a quasi-equilibrium situation in this region since it ordinarily does not occur in GaAs. They also consider quasi-monopolar photoconductivity. The experimental method consisted in measuring the steady-state photoconductivity and capacitive photo-emf in the characteristic absorption region of weakly compensated n-type GaAs. The authors express their gratitude to D.I. Zlobin for his assistance in computing the GaAs photoconductivity, and to V.K. Malyutenko and R.O. Litvinov for their comments.

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1/2 024 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--CHANNEL CURRENTS ON THE SURFACE OF SILICON P-N JUNCTIONS -U-
AUTHOR--(02)-LITVINOV, R.O., LYASHENKO, V.I. L
COUNTRY OF INFO--USSR
SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(4), 599-605
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--SILICON SEMICONDUCTOR, PN JUNCTION, VOLT AMPERE
CHARACTERISTIC, SPACE CHARGE DENSITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/1135 STEP NO--UR/0185/70/015/004/0599/0605
CIRC ACCESSION NO--AP0136555

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 024

CIRC ACCESSION NO--AP0136555

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF CHANNELS FORMED ON REAL SI P-N JUNCTION SURFACES DUE TO THE VARIATION OF THE SURFACE POTENTIAL ON THE REVERSE CURRENT VOLTAGE CHARACTERISTICS OF THE JUNCTION WAS STUDIED EXPTL. THE CHANNELS WERE FORMED BY THE APPLICATION OF AN EXTERNAL ELEC. FIELD, BY CHANGING THE GASEDUS MEDIA, OR BY LOW TEMP. HEATING. THE EXPTL. RESULTS WERE COMPARED WITH THEORETICAL CALCNS. MADE ON THE BASIS OF SEVERAL INDEPENDENTLY MEASURABLE CHANNEL PARAMETERS. POSSIBLE MECHANISMS CONSIDERING THE LOCALIZATION EFFECT OR THE POSSIBILITY OF INCREASED CONC. OF RECOMBINATION CENTERS WITHIN THE SURFACE SPACE CHARGE REGION OR THE NONEQUIL. CONDITIONS IN THE CHANNEL ARE SUGGESTED TO FIND GOOD AGREEMENT BETWEEN THE EXPT. AND THE THEORY.

FACILITY: INST. POLUPROV., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 621.311.22:621.3.016.31

CHELIDZE, G. V., LYASHENKO, YU. V., SVANISHVILI, R. N., ZAZIYEV, B. N.

"Problem of Optimizing Electric Load Distribution of a Thermal Electric Power Plant"

Vopr. razrab. i vnedreniya sredstv vychisl. tekhn. -- V sb. (Problems of Development and Introduction of Computers -- Collection of Works), Tbilisi, 1970, pp 250-254 (from RZh-Elektrotehnika i Energetika, No 2, Feb 71, Abstract No 2 Yell9)

Translation: The problem of economical distribution of the electric load between the turbo units of thermal electric power plants can be solved by means of the analog computer based on an algorithm developed utilizing the method of relative increments of heat consumption. The data on the thermal loads of the units and the total electric load of the electric power plant are input to the analog computer, and the characteristics of the expenditure and relative increments of heat consumption are simulated. The distribution of the electric load of the condensation section of the turbo units is calculated by comparing the relative heat increments in the condensation flow of steam after which the values of the optimal electric loads of the units are determined. There is 1 illustration and a 2-entry bibliography.

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- 103 -

LYASHEV, K. F.

JPRS 55782
15 May 72

INVESTIGATION OF SUPRAMOLECULAR STRUCTURES OF WATER-SOLUBLE POLYMERS AND THEIR ADSORPTION ACTIVITY

[Article by K. F. Lyashov and I. A. Dumansky, Kiev; Kiev, Hlonika, Russian, No 5, 1971, Izd-vo Naukova Dumka, pp 98-100]

One of the methods for decreasing turbulent friction drag is the introduction of insignificant quantities of polymers (high-molecular polyacrylamide, carboxymethyl cellulose, polyethylene oxide, and others) into the boundary layer zone.

Some authors [8, 10, 13, 15, 16] attempt to attribute the effect of a decrease in frictional drag to the viscoelastic properties of solutions of polymers. In this case the mechanism is as follows: under the influence of great shear stresses the macromolecules, being deformed, store elastic energy and transform it into the potential energy of linear expansion and deformation.

The opinion also prevails that the extinction of small-scale turbulence at the expense of the viscoelastic characteristics of the solution can occur only at an essentially supramolecular level, that is, with the presence of supramolecular formations in the boundary layer [1-3].

Since there is still no definite point of view concerning the mechanism of the influence of addition of polymers on the structure of a turbulent boundary layer, it was desirable to investigate in what region of concentrations the macromolecules are capable of structure formation in aqueous solutions of polymers used as anti-turbulent admixtures.

For detecting associates in aqueous solutions of polymers it is common to employ the same methods as in the colloidal chemistry of surface-active substances with a colloidal-micellar structure [4].

Acc. Nr: **AP0045596**

Ref. Code:
UR 0497

PRIMARY SOURCE: **Klinicheskaya Meditsina, 1970, Vol 48,
Nr 2, pp 98-102**

**THE REMOTE RESULTS OF CORTICOSTEROID THERAPY
OF PATIENTS WITH INFECTIOUS HEPATITIS**

Kortev, A. I.; Lyasheva, A. P.; Taran, V. V.

Summary

The authors examined 318 patients convalescing from infectious hepatitis in periods up to five years who were subjected to steroid (198 cases) and routine desintoxication (120 cases — control) therapy. After steroid therapy recovery ensued in 65.9 per cent of patients, in the control group — in 53.6 per cent. Hormone therapy reduces the incidence of formation of chronic hepatitis. There was not a single case of liver cirrhosis, whereby the number of relapses decreased by 2 1/2 times. Under the influence of steroids there was seen a marked tendency to normalization of the metabolism of trace elements (copper, cobalt, tungsten and manganese) studied colorimetrically, this being less noticeable in routine therapy, however, their content in the blood, urine and feces after an acute stage of the disease does not reaches normal values. The accumulation of cobalt and tungsten in the blood of convalescents within 12 months was noted in persons with residual manifestations of hepatitis, moreover, the level of cobalt was above normal by 103.5 per cent, that of tungsten — by 41.1 per cent, whereas in persons with chronic hepatitis a distinct cupremia was observed.

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REEL/FRAME
19780573

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USSR

UDC 533.601.16:533.9

SERGEYEV, V. L., BEZLADNOV, G. M., LYASHKEVICH, V. D.

"Experimental Study of Heating of Blunt Body by a Plasma Stream"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol. 20, No. 4, Apr. 71, p. 622-627.

Abstract: This paper presents the results of measurement of the heat flux from a high temperature gas jet to a blunt body in the area of the stagnation point as a function of blunt radius, top angle of cone body, pressure and stagnation enthalpy. A generalized formula is produced, relating the heat flux to the parameters mentioned. The results of measurements performed with an electric arc heater agree well with measurements made in shock tubes.

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- 51 -

USSR

UDC 517.949

LAPIN, A. V., and LYASHKO, A. D., Kazan'

"Study of the Net Method for Nonlinear Elliptic Equations of Any Order"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy -- Matematika, No 10, Oct 70, pp 37-43

Abstract: The article studies a difference scheme (solvability, approximation, convergence) for quasilinear elliptic equations of the order $2m$, for which the ideas of nonlinear monotone operator theory and the method of energy inequalities are widely used. Proving convergence involves a certain difficulty due to the inhomogeneity of the boundary condition, which occurs in constructing difference schemes for equations of an order higher than the second. The "effect" of this condition is eliminated by special construction of an auxiliary function. The article is limited to the case of one equation.

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UDC 595.421-154

USSR

LYASHKO, G. I., Talas Sanitary-Epidemiological Station of the Kirghiz SSR

"The Ecology of the Ticks *Ixodes kazakstani* Ol. et Sor. The Seasonal Course of the Activity of the Ticks"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 42, No 1, Jan/Feb 73, pp 36-39

Abstract: In a study conducted in the vicinity of the town of Talas, Kirghiz SSR, by reason of frequent attacks of *Ixodes kazakstani* on humans, it was established that ticks of this species parasitize on small animals and birds that feed on the ground, including mouse-like rodents, hares, and pheasants. They inhabit places with high humidity, and occur generally near the ground, where the temperature and humidity are most stable. Ticks of this species are seldom found on cows and horses. The imago have two peaks of activity, in the spring and fall, being most numerous in the fall. They are practically not encountered from the middle of June until the early part of August. Nymphs are active from early May until the end of October and larvae from the middle of June until the middle of August.

1/1

USSR

LYASHKO, I. I., VELIKOIVANENKO, I. M., and MISTETSKIY, G. YE.

"One Type of Problem in Planned Percolation From Channels to Intermittent Drainage in Inhomogeneous Soils"

Kiev, Matematicheskaya Fizika, No 8, 1970, pp 112-117

Abstract: The article considers problems in the planned steady pressureless percolation of a heavy incompressible fluid from parallel channels to intermittent perfect drainage. Numerical-analytic solutions are constructed.

1/1

Higher Algebra & Geometry and Topology
UDC 518/539

USSR

BUBLYK, B. M., and LYASHKO, I. I., Corresponding Member of the Academy of Sciences Ukrainian SSR, Kiev State University

"Determining the Dynamic Characteristics of Orthotropic Plates by the Method of Total Representations"

Kiev, *Dopovidi Akademii Nauk Ukrainiskoi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky*, No 8, Aug 70, pp 702-706

Abstract: The use of the finite difference method to solve problems in elasticity theory involves difficulties resulting from the need to study systems of algebraic equations of a rather high order, especially in the case of problems involving the search for the dynamic characteristics of thin elastic plates. The article shows that these difficulties can be largely overcome by the method of total representations. The authors consider problems of determining the frequencies and forms of natural oscillations, critical forces, and forms of stability loss of orthotropic plates. Solutions are given in relation to boundary conditions. The problem of finding the frequencies and criti-

1/2

USSR

BUBLYK, B. M., and LYASHKO, I. I., *Dopovidi Akademii Nauk Ukrainiskoi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky*, No 8, Aug 70, pp 702-706

cal forces reduces to finding the roots of certain characteristic determinants of a rather low order, which does not exceed the number of nodes along the plate edges. A study of these determinants makes it possible to prove theorems about their representation in the form of the sums of partial fractions and polynomials of low degree. The usual net method as applied to problems of this type involves finding the roots of characteristic determinants of a high order, equal to the number of all interior points of a domain.

2/2

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--RENTOGRAPHY AS A METHOD OF EARLY DIAGNOSIS OF PRECLINICAL FORMS OF
RENAL ANGIOPATHIES IN PATIENTS WITH DIABETES MELLITUS -U-
AUTHOR-(03)-OGANESOVA, V.T., LYASHKO, K.YA., YUDIN, L.A.
COUNTRY OF INFO--USSR
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 75-77
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DIAGNOSTIC METHODS, DIABETES MELLITUS, KIDNEY, RADIOSOTOPE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1910 STEP NO--UR/0504/70/042/006/0075/0077
CIRC ACCESSION NO--AP0129259
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129259

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF RADIOISOTOPE RENOGGRAPHY WAS USED FOR INVESTIGATING PATIENTS WITH DIABETES MELLITUS TO REVEAL EARLY PRECLINICAL FORMS OF RENAL AFFECTION. A TOTAL OF 50 PATIENTS WITH DIFFERENT DEGREE OF THE DISEASE SEVERITY (MILD, MODERATE, ACUTE) INCLUDING 22 PERSONS WITHOUT ANY CLINICAL SYMPTOMS OF RENAL AFFECTION WERE EXAMINED. IT WAS ESTABLISHED THAT RENOGGRAPHY IS OF DIAGNOSTIC VALUE WHEN USED IN COMBINATION WITH OTHER METHODS OF INVESTIGATION AND WHEN ACCURATELY DONE CAN BE USED FOR EARLY DIAGNOSIS OF PRECLINICAL FORMS OF RENAL AFFECTION IN DIABETES MELLITUS. FACILITY: KAFEDRA GOSPITAL'NOY TERAPII I KAFEDRA RADIOLOGII I RENTGENOLOGII, I MOSKOVSKOGO MEDITSINSKOGO INSTITUTA IM. I. M. SECHENOVA.

UNCLASSIFIED

USSR

UDC 537.312.5

KARPIKOV, I. I., LITVINOV, R. O., and LYASHOK, A. P.

"Effect of Laser Radiation on the Electrical Parameters of MOS Structures"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 4, 1970, pp 105-107

Abstract: The purpose of this article is to investigate the effects of laser radiation, used for welding, perforating, and resistor adjusting in integrated circuits, on the semiconductor devices going into these circuits. Specifically, the article studies laser-made metal-oxide-semiconductor transistors of the planar structure, using n- and p-type silicon, as well as MOS varactors made of n-type Si. The laser used as the radiation source in the experiments was of the "Luch-1" type operating in the pulse mode, in which the active material was ruby with a 0.05% admixture of Cr. The MOS structures were irradiated with an unfocused beam whose energy was insufficient to damage the target surfaces. Changes of transient characteristics in the MOS transistors were investigated; the varactors were investigated for changes in the voltampere characteristics and in the capacitance as a function of the voltage applied in the cut-off direction.

1/1

USSR

UDC: 621.375.82

KARPIKOV, I. I., LITVINOV, P. O., LYASHOK, A. P.

"Influence of Laser Radiation on Electrical Parameters of Metal-Oxide-Semiconductor Structures"

Poluprovodn. Tekhn. i Mikroelektronika. Resp. Mezhved. Sb. [Semiconductor Technology and Microelectronics. Republic Interdepartmental Collection], No. 4, 1970, pp 105-107, (Translated from Referativnyy Zhurnal Fizika, No. 8, 1970, Abstract #8D1145, by the authors).

Translation: The influence of laser radiation on the characteristics of MOS (metal-oxide-semiconductor) devices is discovered. In the case of MOS transistors, devices of n-type silicon are most strongly affected. The discharge current is increased by 2-3 times. For MOS variactors, a decrease in capacitance and an increase in leakage current are noted after irradiation. The changes which develop are stable and irreversible. The presumed nature of the changes is discussed. 8 biblio. refs.

1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--INFLUENCE OF SOME FACTORS ON THE MOLDING OF TUBES FROM QUARTZ GLASS
-U-
AUTHOR--LYASIN, V.F.
COUNTRY OF INFO--USSR
SOURCE--STEKLO KERAM. 1970, 27(2), 14-16
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--QUARTZ GLASS, GLASS PROPERTY, GLASS TUBE, INDUSTRIAL
PRODUCTION, VACUUM FURNACE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1256 STEP NO--UR/0072/70/027/002/0014/0016
CIRC ACCESSION NO--AP0116718
UNCLASSIFIED

PROCESSING DATE--23OCT70

UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AP0116718
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE WIDESPREAD TECHNIQUE OF THE PRODUCTION OF TUBES CONSISTS IN THE PERIODIC MELTING OF ROCK CRYSTAL OR GLASS BLOCKS IN A HIGH FREQUENCY VACUUM ATM. FURNACE, WITH THE SUBSEQUENT DRAWING OF THE MELT VERTICALLY DOWNWARDS THROUGH A RINGLIKE SLIT AT THE BOTTOM OF A GRAPHITE CRUCIBLE. FOR MOLDING PURPOSES, A BULB IS FORMED AT THE BOTTOM OF THE CRUCIBLE. THE PROCESSES INVOLVED ARE CLOSELY CONNECTED WITH HEAT TRANSFER PHENOMENA, MECH. MOVEMENT OF THE HIGHLY VISCOUS MELT, AND THE PHYS. PROPERTIES OF THE QUARTZ GLASS, FROM WHICH IN THE FINAL ANAL. THE GEOM. DIMENSIONS OF THE TUBE DEPEND. THE EFFECT OF THE TECH. FACTORS ON THE MOLDING OF THE TUBES IS AT THE PRESENT TIME STILL NOT SUFFICIENTLY CLEAR. A LARGE NO. OF EXPT. WERE MADE RELATIVE TO THE MEASUREMENT OF THE OUTFLOW AND THE YIELD COEFF., AND RELATIVE TO THE STUDY OF THE EFFECT OF TECH. FACTORS ON THE GEOM. SIZES OF THE TUBES MADE FROM QUARTZ GLASS. FROM THE MEASURED PARAMETERS OF THE TUBES, GRAPHS WERE CONSTRUCTED SHOWING THE RELATION OF THE PRODUCTIVITY OF THE PROCESS ON THE TEMP. AND THE RATE. THE RELATION OF THE PRODUCTIVITY ON THE DRAWING RATE AT A CONST. TEMP. IN THE WORKING TEMP. RANGE IS CLOSE TO LINEAR. A FORMULA WAS DERIVED TO DESCRIBE THIS RELATION.

UNCLASSIFIED

UDC 535.215.1

USSR

LYASINKOV, V.N., ARSEN'YEVA-GEYL', A.N.

"Photoemission From Thin Layers Of Barium"

Uch. zap. LGU (Scientific Annals. Leningrad State University), 1970, No 354, pp 30-33 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A9)

Translation: With the object of determining the depth of the photoelectron yield, the photoemission from barium films of various thicknesses (obtained by successive deposition on quartz substrates) is investigated. The resultant dependences are presented of the quantum yield on the thickness of the layer, which have a maximum, the position of which does not depend on the wave length and which corresponds to $\sim 75 \text{ \AA}$. The work function of barium is determined by the Fowler method and its dependence on the thickness of a film which displays a monotonic growth during decrease of the thickness from 100 to 50 \AA is presented. On the basis of the results obtained, the minimum value of the depth of photoelectron yield from barium is estimated to be a magnitude of $\sim 60 \text{ \AA}$. 2 ill.

7 ref. N.S.

1/1

- 53 -