

NORMAN, G. E.

PHYSICS OF LOW-TEMPERATURE PLASMA  
(Conference in Moscow)

[Article by Candidate of Technical Sciences G. E. Norman; Moscow, Vsesoyuznaya Akademiya Nauk SSSR, Russian, Vol 41, No 10, October 1971, pp 91-93]

The Third All-Union Conference on the Physics of Low-Temperature Plasma was held in Moscow on 21-25 June. Side by side with Soviet scientists, leading specialists from England, Bulgaria, East Germany, Italy, Poland, the USA, and France participated in it. The Organizing Committee greatly limited the number of reports in order to discuss in detail only the most promising directions of that area of science. The work of the conference proceeded in seven sections: methods of obtaining and diagnosis of plasma; thermodynamics; transport and optical properties; the kinetics and non-equilibrium processes; nonlinear phenomena; instabilities, and turbulence; magnetohydrodynamics; and phenomena on the plasma-solid boundary.

Reports on methods of obtaining plasma can be divided into two groups. The first included reports on work directed toward the achievement of extreme parameters of plasma. Noteworthy here was interest in powerful pulsed discharges and the appearance of a new method of obtaining plasma -- continuous optical discharge (Yu. P. Keyser and co-workers). The second group of reports dealt with the development of methods of quantitative description of processes in sources of plasma of both liquid, medium, and high pressure. Note should be made of increased attention to uhf discharges. An unquestionable step forward in that area are the attempt to quantitatively describe the parameters of equilibrium and nonequilibrium stationary uhf discharge and analysis of the mechanism of propagation of the front of ionization in a strong uhf field (V. M. Batenin and co-workers). A large survey report of M. D. Morquillis and A. M. Prishonskiy was devoted to analysis of the processes in a photoresonant cesium plasma.

SPAS 574678  
10 Acc. 1971

1/2 037 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--THERMODYNAMICS OF A HIGHLY NONIDEAL PLASMA -U-  
AUTHOR--(02)--NORMAN, G.E., STAROSTIN, A.N.  
COUNTRY OF INFO--USSR N  
SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(2), 413-38  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--EQUATION OF STATE, COMPUTER APPLICATION, THERMODYNAMICS,  
MODEL, LOW TEMPERATURE PLASMA, NONUNIFORM PLASMA  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3005/1412 STEP NO--UR/0294/70/008/002/0413/0438  
CIRC ACCESSION NO--AP0133364

UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0133364

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. A SURVEY IS GIVEN TO ANALYZE CRIT. AND SYSTEMATICALLY THE AVAILABLE APPROXNS. ON DENSE PLASMA, WITH EMPHASIS ON LOW TEMP. PLASMA (10 PRIME3-10 PRIMESDEGREE5K). THE SIMPLER MODEL APPROXNS. ARE EVALUATED TO STUDY STRONGLY INTERACTING COULOMB PARTICLE SYSTEMS. THE GENERAL FORM OF THERMODYNAMIC QUANTITIES IS CONSIDERED, WHICH FOLLOWS FROM THE UNIFORM COULOMB POTENTIAL IN CLASSICAL AND QUANTUM STATISTICS. THE APPLICABLE CHARACTERISTICS OF THERMODYNAMIC FUNCTIONS IN A WEAKLY NONIDEAL PLASMA ARE TREATED. THERMODYNAMIC INSTABILITIES, BOTH FAST AND SLOW, QUANTUM EFFECTS IN FREE CHARGE INTERACTIONS, EQUATIONS OF STATE AND THE POSSIBILITY OF LAYER SPEN. OF DENSE PLASMA INTO PHASES, THE PHASE DIAGRAMS, THE EXISTENCE OF CRIT. PCINTS, THE POSSIBLIITY OF THE OVERCOOLED METASTABLE STATE OF DENSE PLASMA, COMPUTER TREATMENTS OF STRONG INTERACTION OF COULOMB SYSTEMS AND NONIDEAL PLASMA, REGIONS OF APPLICABILITY OF VARIOUS APPROXNS. AND CALCN. METHODS IN DENSE PLASMA THEORY, AND THE RESULTS OF EXPTL. INVESTIGATION OF THE EQUATION OF STATE OF A HIGHLY NONIDEAL PLASMA ARE DISCUSSED. 108 REFS. FACILITY: INST. VYS. TEMP., MOSCOW, USSR.

UNCLASSIFIED

1/2 051 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--MONTE CARLO STUDY OF AN EQUILIBRIUM NONIDEAL PLASMA -U-  
AUTHOR--(03)-VOROBYEV, V.S., NORMAN, G.E., FILINOV, V.S.  
COUNTRY OF INFO--USSR  
SOURCE--PRIKL. SPEKTRISK. 1970, 12(3), 399-402 (RUSS)  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--MONTE CARLO METHOD, COULOMB INTERACTION, PARTICLE MOTION,  
QUANTUM MECHANICS, MARKOV PROCESS, HYDROGEN PLASMA, DENSE PLASMA,  
CORRELATION FUNCTION, THERMODYNAMIC PROPERTY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/1488 STEP NO--UR/0368/70/012/003/0399/0402  
CIRC ACCESSION NO--AP0118475  
UNCLASSIFIED

2/2 051

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118475

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MONTE CARLO (MC) STUDY WAS MADE OF A NONDEGENERATE PLASMA. THE QUANTUM EFFECTS OF INTERACTION WERE TAKEN INTO ACCOUNT BY REPLACEMENT OF THE COULOMB POTENTIAL BY A PSEUDOPOTENTIAL AT SMALL DISTANCES. THE PSEUDOPOTENTIAL WAS DETO. FROM QUANTUM MECH. CONSIDERATION OF THE MOTION OF 2 CHARGED PARTICLES. THE LIMITS OF THAT MODEL ARE DISCUSSED. THE COMPARATIVELY SHORT MARKOV CHAINS (10 PRIME4) WERE USED. THE NO. OF PARTICLES IN THE MC CELL WAS ONLY 30-40. THE THERMODYNAMIC PROPERTIES AND CORRELATION FUNCTION WERE CALCD. FOR VERIFICATION OF THE METHOD USED, THE CALCN. FOR A NEARLY IDEAL PLASMA OF H ATOMS WAS MADE, AND THE RESULTS WERE GOOD. FOR A DENSE H PLASMA AT 30,000DEGREESK, THE IONIZATION DEGREE WAS 0.4 AT GAMMA EQUALS 1 AND IS SMALLER THAN 0.2 AT GAMMA EQUALS 2, WHERE GAMMA IS THE INTERACTION PARAMETER OF FREE CHARGES.

UNCLASSIFIED

USSR

UDC 535.33

AVILOVA, I. V., BIBERMAN, L. M., VOROB'YEV, V. S., ZAMALIN, V. M., KOBZEV, G. A., MNATSAKANYAN, A. KH., and NORMAN, G. E., Institute of High Temperatures of the Academy of Sciences USSR

"Optical Properties of Hot Gases. CO<sub>2</sub> + N<sub>2</sub> Mixture"

Moscow, Teplofizika Vysokikh Temperatur, Vol. 8, No. 1, Jan/Feb 70, pp 1-11

Abstract: Elementary radiation processes associated with the presence of carbon atoms, either free or in molecules, in planetary atmospheres are studied. Certain spectral and integral characteristics of CO<sub>2</sub> and N<sub>2</sub> mixtures are calculated and compared. Particular attention is given to the composition 90% CO<sub>2</sub> + 10% N<sub>2</sub>, which approximately corresponds to the atmosphere of Venus according to data from "Venera-4" and "Mariner-5". Computer programs and a computational technique developed earlier by the authors were used to obtain absorption cross sections for processes associated with atomic hydrogen in CO<sub>2</sub> + N<sub>2</sub> mixtures. The absorption cross sections of CN, CO, C<sub>2</sub>, and C<sub>2</sub> are given for the temperatures 4000, 8000, and 12,000°K. The degree of blackness  $\epsilon$ , the Rosseland average A, and the Planck average B were calculated for  $T = (6-10) \cdot 10^3$ °K and  $P = 0.1-10$  at.

1/2

USSR

AVILOVA, I. V., et al, Teplofizika, vysokikh temperatur, Vol. 8, No. 1, Jan/  
Feb 70, pp 1-11

A comparison with experimental data showed that the authors' method of tabulating optical properties of hot gases is applicable to  $CO_2 + N_2$  mixtures and produces satisfactory accuracy. From the gas dynamics aspect, the calculations show that radiation transfer plays a considerable role in entry into planetary atmospheres. It is pointed out that the degree of blackness of the mixture studied here is considerably greater than that of air and that the difference is especially great in relatively low temperatures.

2/2

1/19

Pharmacology and Toxicology

USSR

NORMAN, T. N.

"The Effect of High Dose X-Ray Irradiation on the Glycolipids Content in the Brain of White Rats"

Vest. Belorus, un-ta (Newspaper of the Belorussian University), 1973, ser 2, No 2, pp 24-27 (from RZh-Biologicheskaya Khimiya, No 21, Nov 73, Abstract No 21F1106)

Translation: Quantitative levels of general fractions of gangliosides and cerebrosides in the white rat brain has been determined after a single general x-ray irradiation at a 700 roentgen dose. A wave-like type of glycolipid changes in the brain of irradiated animals has been demonstrated. In the initial phase of radiation damage the ganglioside level drops to 20%; at the peak of radiation sickness the level of the gangliosides drops drastically. Even after 30 days following the exposure to ionizing radiation the content of gangliosides is not reestablished. The quantity of cerebrosides in the early stage after radiation exposure (1 hr, 1 day, 3, 7 days) is lower than in control animals, however, after 15 days it exceeds the standard by 27.3%. After 30 days the level of cerebrosides in the brain of irradiated rats returns to the control level.

1/1



USSR

UDC 632.43-233.13

MOZOKHIN, N. G., NORMUKHAMEDOV, B. F., SYRKIN, P. E., Candidate of Technical Sciences. Gor'kiy Motor Vehicle Plant. Zavolzhskiy Motor Vehicle Plant.

"An Investigation of the Lubrication Conditions in the Crankshaft Bearings of the GAZ-53 Engine"

Moscow, Avtomobil'naya Promyshlennost', No 10, September 1971, pp 4-7

Abstract: The operation of GAZ-53 engines shows that the longevity of crankshafts necks and of their bearings is determined by the value the wear of the necks and bottom liners of the crankshaft bearings, the wear intensity of which is on the average 2 - 3 times greater than the wear intensity of the connecting rods and liners. In order to determine the reasons for this, measurements were made of the thickness of the lubricating layer in the crankshaft bearings and the connecting-rod bearing (and of the temperature field of the crankshaft bearings, not treated in this article). The thickness of the lubricating layer was determined by measuring it by means of a capacitance method, first developed in the USSR. The principle of measurement is described. It is shown that the thickness of the lubrication layer in the connecting-rod bearings of the GAZ-53 engine is entirely sufficient

1/2

USSR

MOZOKHIN, N. G., et al, *Avtomobil'naya Promyshlennost'*, No 10, September 1971, pp 4-7

to provide liquid friction under all conditions of engine operation. The investigations showed that the thickness of  $h$  in the crankshaft bearings has the greatest values in the zones situated on the crankshaft necks opposed to the counterweights. On the contrary sides, the values of  $h_{min}$  are sufficient at all conditions of engine operation. When the engine is idling, the values  $h_{min}$  in the regions of the lower and upper bearing liners are practically identical. With a load upon the engine, the loads upon the bottom liners increase considerably; here  $h_{min}$  decreases, and increases in the region in the upper bearing liners. Consequently, the longevity of the upper liners is considerably greater than that of the lower liners. The increased longevity of the connecting-rod necks and liners of the GAZ-53 engine is five times greater than that of the GAZ-51 engine, due mainly to the provision of sufficient values of  $h_{min}$  in the connecting-rod bearings at all conditions of engine operation; this, in turn, is caused by selection of the optimal design parameters of the associated parts. 5 figures. 5 tables. 6 references.

2/2

- 178 -

USSR

UDC: 621.315.592.001.5:537.533.8

KASYMOV, A. Kh. and NORMURADOV, M.

"Secondary Electron Emission of a Silicon Monocrystal Doped by Ion Bombardment as a Function of the Temperature"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1769-1770

Abstract: This brief communication is the follow-up to a previous paper written by the authors named above in the same journal (5, 17, p 1109) in which the method of measurement and the preparation of the target used in the present communication were given. In the present paper, the target to be bombarded by various ions is monocrystalline silicon with a resistivity of 130 ohm-cm, n-type, and a second crystal, p-type, with a resistivity of 2000 ohm-cm. The purpose of the experiment is to investigate the electron secondary emission from the target. Curves were obtained for the coefficient of secondary electron emission as functions of the energy of the primary electrons, in the energy range of 100-1800 ev for doped specimens heated to various temperatures. Curves are also plotted for the effect of target heating on the secondary electron emission coefficient as a function of the primary

1/2

USSR

KASYMOV, A. Kh., et al, Radiotekhnika i elektronika, No 8, 1972,  
pp 1769-1770

electron energy, and for the maximum secondary emission coefficient as a function of the heating time at various specimen temperatures. It is noted that with an increase in specimen temperature up to 400° C at the time of the doping, there is a decrease in the relative change of the coefficient as compared to the change at room temperature.

2/2

- 94 -

1/2 008

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--REACTIONS OF BENZENE WITH IODINE-125 AND ASTATINE-211 FORMED IN NOBLE GASES AS A RESULT OF K CAPTURE -U-

AUTHOR--(J5)-NEFEDOV, V.D., TOROPOVA, M.A., KHALKIN, V.A., NORSEYEV, YU.V., KUZIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--RADIOKIMIYA 1970, 12(11), 194-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--IODINE ISOTOPE, ASTATINE ISOTOPE, BENZENE, XEON ISOTOPE, RADON ISOTOPE, CHEMICAL REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1227

STEP NO--UR/0186/70/012/001/0194/0195

CIRC ACCESSION NO--AP0128643

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128643

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRIME125 I AND PRIME211 AT FORMED AS A RESULT OF K CAPTURE IN PRIME125 XE AND PRIME211 RN, RESP., IN CONTACT WITH DEGASSED C SUB6 H SUB6 AT ROOM TEMP. AND IN THE LIGHT, REACT WITH THE C SUB6 H SUB6; THE ONLY REACTION PRODUCTS ARE PHI AND ASTATOBENZENE, RESP., BUT IS SIMILAR TO 30PERCENT OF THE AT REMAINS IN THE AT PRIME(O) FORM AND CANNOT BE EXTD. FROM THE C SUB6 H SUB6 BY N H SUB2 SO SUB4 OR N H SUB2 SO SUB4 SATD. WITH SO SUB2.

UNCLASSIFIED

USSR

NIKOLAYEV, A. V., GRIBANOVA, I. N., KHOL'KINA, I. D., NORTSEVA, A. A.,  
MAMATYUK, T. V.

"Phosphorus and Sulfur-Containing Sorbents. V. Organothiophosphorus Sorbents"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR -- Seriya  
Khimicheskikh Nauk, No 1, 1973, pp 79-83

Abstract: Data are presented on the synthesis, physical-chemical evaluation and sorptive power of organothiophosphorus sorbents -- cation-exchange resins and "mixed" complexites.

Two types of phosphorus and sulfur-containing sorbents were synthesized. The first type were cations with the functional group  $-P(S)(OH)_2$ . The sorbents of the second type were "mixed" complexites containing the cation-exchange functional groups and  $-P(S)(OR)_2$  where R are alkyls. The physical-chemical characteristics and sorptive powers of the synthesized sorbents are given with special attention to the selectivity of the sorbents and their sorptive power with respect to extracting gold from acid solutions.

The "mixed" complexites were distinguished by a somewhat reduced sorption rate apparently as a result of an increase in steric factors. For the cation-exchange resins a small reduction in the degree of sorption of gold was  
1/2

USSR

NIKOLAYEV, A. V., et al., Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSR --  
Seriya Khimicheskikh Nauk, No 1, 1973, pp 79-83

observed with an increase in the hydrochloric acid concentration in the aqueous  
phase; for the "mixed" complexites there was some increase in the degree of  
sorption in the 0.5-3.0 normal HCl range.

2/2

- 2 -



USSR

UDC 547.96:576.3/:576.858.5

DYACHENKO, N. S., NOSACH, I. M., VANTSAK, N. P., and GUSHCHA, K. P., Institute of Microbiology and Virology, Academy of Sciences UkSSR

"Intensity of Protein Accumulation in the Dynamics of Formation of Intracellular Inclusions in Cells Infected With Type I Adenovirus"

Kiev, Mikrobiologicheskii Zhurnal, Vol 33, No 4, Jul/Aug 71, pp 478-483

Abstract: The accumulation of protein in nuclei and cytoplasm of KB cells infected with type I adenovirus was investigated cytophotometrically according to Mazia. Cells with inclusions of the following types in the nucleus (corresponding to types II-VI of DNA-containing inclusions) were subjected to cytophotometric study: 1) fine-grained, 2) granular, 3) coarse-grained inclusions, 4) unformed central corpuscle, 5) formed central corpuscle. Accumulation of protein continued only in stage 1. In stages 2-5 the amount of protein in the nucleus remained constant. Its amount in the cytoplasm decreased in stages 2-4 to a level corresponding to that for uninfected controls, while it increased in stage 5. The results indicated that the accumulation of protein, which began in the nuclei and cytoplasm before any changes in the cells were discernible upon staining according to Mazia, was completed in stage 1. One may assume that in stages 2-5 the

1/2

USSR

UDC 576.858.5

NOSACH, L. M., DYACHENKO, N. S., GUSHCHA, K. P., and VANTSAK, N. P., Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR

"Cytofluorometric Study of the Synthesis of Structural Proteins in Type 1 Adenovirus"

Kiev, Mikrobiologicheskii Zhurnal, Vol 32, No 4, Jul/Aug 70, pp 463-466

Abstract: A cytofluorometric study was made of protein synthesis in type-1 adenovirus. Certain patterns were observed in the nature of the distribution and dynamics of accumulation of structural antigens. The intensity of luminescence of the hexone and peptone antigens increased markedly 16 and 19 hours after infection, respectively, reaching a peak 22 hours after infection.

1/1

Microbiology

USSR

UDC 576.858.5

DYACHENKO, N. S., and NOSACH, L. N., Institute of Microbiology and Virology,  
Academy of Sciences Ukrainian SSR

"Reproduction of Type I Adenovirus Under Conditions of Blocking of Cell DNA  
Synthesis With Mitomycin C"

Kiev, Mikrobiologicheskii Zhurnal, Vol 33, No 5, Sep/Oct 71, pp 604-608

Abstract: A culture of KB cells was exposed from 20 hours with mitomycin C in concentrations of 2 and 10 micrograms per 100,000 cells. As shown by the extent of inclusion of H<sup>3</sup>-thymidine, DNA synthesis in the cells was inhibited partially and to 97.3 percent by mitomycin in the first and second concentrations, respectively. Upon infection of the cell culture with type I adenovirus, previous blocking of the synthesis of cellular DNA by the effect of mitomycin C had no effect on virus reproduction or the nature of intranuclear DNA-containing adenovirus inclusions in the cells.

1/1

USSR

UDC: 576.858.5:612.015.33

DYACHENKO, N. S., NOSACH, L. N., GUSHCHA, K. P., and VANTSAK, N. P., Department of Viral Biophysics, Institute of Microbiology and Virology of the Academy of Sciences Ukrainian SSR, Kiev

"Cytophotometric Study of the Degree of Protein Accumulation in Cells Infected With Type 1 Adenovirus"

Leningrad, Tsitologiya, Vol 13, No 2, Feb 71, pp 252-258

Abstract: The sequence of stages in the development of type 1 adenovirus and the formation of intranuclear inclusions was studied in connection with a proposed mechanism for the action of adenovirus on a sensitive cell. The accumulation of proteins in cells and cytoplasm of normal and infected KB cells was studied by use of preparations stained with bromophenol blue sublimate. Statistically reliable values of the mean concentration of protein in the cytoplasm and nuclei of infected cells were observed 18 and 24 hours, respectively, after infection. This process occurs together with the replication of the infected virus and with synthesis of the sensitizing antigen. The protein accumulation is accompanied by the formation of finely divided inclusions. At later stages in the development of these inclusions, the protein contents of the nuclei remain the same, whereas those of the cytoplasm are reduced to control level.

1/2

USSR

DYACHENKO, N. S., et al, Tsitologiya, Vol 13, No 2, Feb 71, pp 252-258

Cells containing formed nuclear bodies represent an exception: a considerable increase in the protein contents is observed in them. The data obtained indicate that the inclusions have a different function in the replication of adenovirus and in cellular metabolism at different stages of formation.

2/2

- 15 -

USSR

UDC: 535.14:621.001

BOROVICH, B. L., ZUYEV, V. S., KATULIN, V. A., NOSACH, O. Yu., TYURIN, Ye. L., SHCHEGLOV, V. A.

"Concerning Propagation of a Light Pulse in a Moving Two-Level Absorbing Medium"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 88-89

Abstract: A solution is found for equations of propagation of a monochromatic pulse with arbitrary time dependence  $I_0(t)$  through a two-level absorbent medium with density of active particles  $N_0 = \text{const}$  and velocity  $v(t)$ . It is found that depending on the ratio of  $v$  and  $v_0 = 2I_0/N_0$ , there are two modes of wave propagation with interface at  $v = v_0$ . The analysis is also applicable to a source of emission moving with an arbitrary velocity in the medium. Bibliography of six titles.

1/1

- 45 -

USSR

UDC 621.375.82

BOROVICH, B. L., ŽUYEV, V. S., KATULIN, V. A., NOSACH, O. A., YU., TYURIN, Ye. L., SHCHEGLOV, V. A.

"On the Propagation of a Light Pulse in a Moving, Two-Level Absorption Medium"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 2, Moscow, "Sov. radio", 1972, pp 88-89 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D845)

Translation: A solution is obtained for the transfer equations for a monochromatic pulse of radiation of an arbitrary time form  $I_0(t)$  in a two-level absorption medium with a density of active particles  $N_0 = \text{const}$  and a velocity  $v(t)$ . It is shown that, depending on the relationships  $v$  and  $v_0 = 2I_0/N_0$ , there exist two modes of propagation of illumination waves with the interface at  $v = v_0$ . The study is also applicable for a radiation source moving with an arbitrary velocity in the medium. 6 ref. Authors abstract.

1/1

USSR

UDC 621.313.12+536.46

KOMKOV, S. M., NOSACH, V. G.

"Calculation of the Optimal Parameters of a Combustion Chamber"

Teplofiz. i teplotekhnika. Resp. mezhved. sb. (Heat Physics and Engineering. Republic Interdepartmental Collection), 1972, No. 21, pp 106-108 (from RZh - 34. Aviatsionnyye i raketnyye dvigateli, No 9, Sep 72, Abstract No 9.34.160)

Translation: Initial data are presented on the results of an optimal calculation of an MHD generator in calculating the optimal parameters of the combustion chamber of the MHD generator for a cycle with chemical regeneration. The method of equivalent problems is applied, making it possible to carry out further optimization depending on the proposed problem. 3 ill., 6 ref. Resume.

1/1



USSR

UDC: 629.78.533.95

NOSACHEV, L. V., SKVORTSOV, V. V.

"Study of Slow Ions in a Stream of Rarefied Plasma Using a Multiple-Electrode Probe"

Uch. Zap. Tsentr. Aerogidrodinam. In-ta [Scientific Writings of Central Institute of Aerodynamics and Hydrodynamics], 1973, 4, No 3, pp 32-40 (Translated from Referativnyy Zhurnal Raketostroyeniye, No 11, 1973, Abstract No 11.41.83, from the resume)

Translation: Results are presented from studies of the mean energy and concentration of slow ions arising due to recharging in a stream of a rarefied plasma during the course of laboratory experiments on ionospheric aerodynamics. The measurements were performed using a multiple-electrode probe which performed spatial separation of the streams of fast and slow ions. It was established that the mean energy of slow ions can be compared to the temperature of electrons in the stream, while the concentration of these ions, under conditions typical for experiments on ionospheric aerodynamics, is more than an order of magnitude less than the concentration of primary ions. 4 Figures; 1 Table; 8 Biblio. Refs.

1/1

USSR

Measuring, Testing, and Calibrating.

UDC 620.1.05:678

~~NOSAL'SKIY, V. S.~~, Kiev

"Installation for High Temperature Testing of Reinforced Plastics and Their Binders"

Kiev, Problemy prochnosti, No. 1, 1971, pp 105-106

Abstract: The device described is based on a universal FM-1000 machine and consists of the test machine itself, two neighboring chambers in which tests and measurement of deformation are performed and the systems for heating, recording of temperatures, maintenance of inert gas atmosphere within test chamber, continuous recording of forces and deformation of specimen and the control panel, controlling all systems and units. The device is designed for high temperature (up to 1100°C) mechanical tests of reinforced plastics and their binders in oxidizing and inert gas media in extension, compression, torsion and shear. The maximum force on a specimen is 1,000 kg with a constant rate of deformation in the 10-19 mm/min interval.

1/1

UNCLASSIFIED

PROCESSING DATE--23OCT70

1/2 022  
TITLE--INFLUENCE OF ATOM ORDERING ON NMR QUADRUPOLE EFFECTS IN  
INTERSTITIAL ALLOYS -U-  
AUTHOR--NOSAR, A.I.

N

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(2), 281-9

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--INTERSTITIAL NITRIDE, ORDERED ALLOY, NMR, GOLD ALLOY, COPPER  
ALLOY, INTERMETALLIC COMPOUND, CRYSTAL LATTICE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/1941

STEP NO--UR/0185/70/015/002/0281/0289

CIRC ACCESSION NO--AP0118903

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118903

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INFLUENCE OF COMPN. AND LONG RANGE ORDER IN THE ARRANGEMENT OF 2 KINDS OF ATOMS IN ALLOY CRYSTAL LATTICES ON THE INTENSITY OF THE NMR LINES OF INTERSTITIAL ATOMS OF THE 3RD KIND OF ELEMENT WAS STUDIED. GENERAL EXPRESSIONS DETG. THE INFLUENCE OF QAUDRUPOLE INTERACTIONS ON NMR SIGNAL INTENSITIES WAS OBTAINED. A PARTICULAR CASE CONCERNING THE ALLOY OF THE TYPE AUCU SUB3 WAS CONSIDERED. FACILITY: INST. METALLOFIZ., KIEV, USSR.

UNCLAS

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--PHYSIOCHEMICAL STUDIES OF BISMUTH, CADMIUM, MERCURY SYSTEM ALLOYS -U-  
AUTHOR--(03)-NOSEK, M.V., YANG, S.H., ATAMANOVA, N.M.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(1), 30-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS .  
TOPIC TAGS--BISMUTH ALLOY, CADMIUM ALLOY, MERCURY ALLOY, THERMOGRAPHIC  
ANALYSIS, MICROHARDNESS, SOLID SOLUTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1506 STEP NO--UR/0350/70/020/001/0030/0036  
CIRC ACCESSION NO--AP0120287  
UNCLASSIFIED

2/2 015

CIRC ACCESSION NO--AP0120287

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMOGRAPHIC ANAL. OF THE TERNARY  
 SYSTEM SHOWED 2 ISOTHERMAL PLANES CORRESPONDING TO THE PERITECTIC  
 REACTION AT 117DEGREES, CD PLUS LIQ. FORMS AND IS FORMED FROM OMEGA PLUS  
 BI AND AT MINUS 34DEGREES, OMEGA PLUS LIQ. FORMS AND IS FORMED FROM (HG)  
 PLUS BI. BOTH SECTIONS CONTAINED 5 AREAS FREE OF LIQ.: BI PLUS CD, BI  
 PLUS CD PLUS OMEGA, BI PLUS OMEGA, BI PLUS OMEGA PLUS (HG), BI PLUS  
 (HG). X RAY ANAL. REVEALED THAT IN THE TERNARY SYSTEM, BI APPEARS AS A  
 DISTINCT PHASE AND THAT HG FORMED A SOLID SOLN. WITH CD. MICROHARDNESS  
 TESTS SHOWED THAT BI DID NOT AFFECT THE HARDNESS. FACILITY:  
 INST. KHIM. NAUK. ALMA-ATA, USSR.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--FUNCTIONAL DISORDERS OF THE LIVER IN CHRONIC TONSILLITIS -U-  
AUTHOR--PLYUYKO, M.YE., NOSENKO, A.G., YEDOMAKHA, V.KH. N  
COUNTRY OF INFO--USSR  
SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 47-49  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RESPIRATORY SYSTEM DISEASE, LIVER FUNCTION, CLINICAL MEDICINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1986/0964 STEP NO--UR/0475/70/000/003/0047/0049  
CIRC ACCESSION NO--AP0102903  
UNCLASSIFIED

2/2 028

CIPC ACCESSION NO--AP0102903  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT. A STUDY OF THE FUNCTIONAL STATE OF THE LIVER IN 157 PATIENTS SUFFERING FROM CHRONIC TONSILLITIS REVEALED DISORDERS OF THE HEPATIC FUNCTION MANIFESTED IN CHANGES OF THE METABOLIC, ANTITOXIC, PIGMENTARY, CARBOHYDRATE FUNCTIONS AND OTH. LONG LASTING SUBCOMPENSATED AND DECOMPENSATED FORMS OF TONSILLITIS ARE ACCOMPANIED BY MORE SEVERE DISORDERS OF THE HEPATIC FUNCTION. GRADUAL NORMALIZATION OF THESE INVOLVED FUNCTIONS OF THE LIVER IS OBSERVED FOLLOWING TONSILLITIS CURE.

UNCLASSIFIED



USSR

UDC 621.315.592

SANDULOVA, A. V., GORTYNSKAYA, I. D., NOSENKO, A. YE., GONCHAROV, A. D., L'vov Polytechnic Institute

"Optical and Photoelectric Properties of Thin Layers of Tellurium Obtained by Compression of a Melt"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 5, 1972, pp 976-977

Abstract: A study was made of the optical absorption and reflection spectra and the photoconductivity of model crystalline layers of tellurium in the spectral range of 2.5-15 microns at temperatures of 390°K. The studies were performed in nonpolarized light, and modulated illumination was used. The characteristic curve of the spectral distribution of the photoconductivity of thin layers of tellurium obtained by compression of a melt at 90°K is presented. Two peaks in the short-wave absorption edge region are observed. The distinguishing feature of the spectral curves of the photoresponse are the presence of a weak peak in the vicinity of 7 microns and a sharp increase in the photoconductivity in the longer wave region. Explanations are offered for these effects. The simplicity of obtaining model crystalline tellurium layers and the presence of photoconductivity in the ~3.5 and ~11 micron range make these layers prospective for the manufacture of photoreceivers to operate at the temperature of liquid nitrogen.

1/1

- 201 -

1/2 005

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--ABSORPTION SPECTRA OF NI PRIME2 POSITIVE AND CO PRIME2 POSITIVE IN  
CADMIUM TUNGSTATE -U-

AUTHOR--(03)-NOSENKO, A.YE., PASHKOVSKIY, M.V., FUTORSKIY, D.L.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(2), 297-301

DATE PUBLISHED-----70

N

SUBJECT AREAS--NONE

TOPIC TAGS--ABSORPTION SPECTRUM, NICKEL, COBALT, CADMIUM COMPOUND,  
TUNGSTEN COMPOUND, SINGLE CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/1319

STEP NO--UR/0051/70/028/002/0297/0301

CIRC ACCESSION NO--AP0049481

UNCLASSIFIED

2/2 005

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0049481

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION SPECTRA OF CDWO SUB4 SINGLE CRYSTALS ACTIVATED BY NI PRIME2 POSITIVE AND CO PRIME2 POSITIVE IONS ARE INVESTIGATED IN THE ENERGY REGION 4000-25,000CM PRIME NEGATIVE1 AT 300 AND 90DEGREEK. THE OBTAINED EXPTL. RESULTS CORRELATED WITH THE SCHEME OF ENERGY TRANSITIONS CALCD. BY THE METHOD OF CRYSTAL FIELD THEORY FOR A HAMILTONIAN OF ORTHORHOMIC SYMMETRY.

UNCLASSIFIED

USSR

UDC 633.11"324":632.4

NOSENKO, V. V., head of the Seed Breeding Laboratory, and ROGOZHINSKIY, B. I.,  
head of the Plant Protection Laboratory, Cherkasskaya Agricultural Testing  
Station

"Increased Resistance of Mironovskaya 808 Wheat Strain to Brown Rust"

Moscow, Seleksiya i Semenovodstvo, No 1, Jan/Feb 73, pp 53-55

Abstract: Because of its high susceptibility to brown rust, the elite strain Mironovskaya 808 was selectively bred for 6 years. From the 1965 summer crop with an average infection with brown rust of 52%, the least diseased 700 ears were collected and, after further selection in the laboratory, the best seeds were sown in the autumn. This selection, according to the smallest degree of infection with brown rust and the best quality of the ears, was performed each successive year. The summer crop of 1971 was divided into three groups: 1) highly resistant, with a 7.9% incidence of brown rust (44% in the controls) and a yield of 3.96 kg of grain per family; 2) medium resistant, with a 10.8% incidence of brown rust; and 3) poor, which was discarded. In the fall of 1971, 10 ha of land were sown with the superelite of the first two groups.

1/1

1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ACTIVITY OF SUCCINEATE DEHYDROGENASE, HAD H SUB2 AND HAD F H SUB2  
DIAPHORASE IN CHICK EMBRYO FIBROBLAST CULTURE INFECTED WITH VACCINIA  
AUTHOR--(03)--NOSIK, N.N., YEGIAZARYAN, L.A., BIKBULATOV, R.H.  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 3, PP 275-277 N  
DATE PUBLISHED--70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--DEHYDROGENASE, TISSUE CULTURE, BIOSYNTHESIS, VIRUS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/1938 STEP NO--UR/0402/70/000/003/0275/0277  
CIRC ACCESSION NO--AP0125527  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125527

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REPRODUCTION OF VACCINIA VIRUS IN CHICK EMBRYO FIBROBLAST CULTURE WAS ACCOMPANIED BY EARLY ACTIVATION OF SUCCINATEDEHYDROGENASE, AT 3-6 HOURS AFTER INOCULATION, WHEREAS AT 9-12 HOURS AFTER INFECTION THE ACTIVITY OF THE ENZYME DECLINED. THE ACTIVITY OF NAD-H SUB2 AND NADF-H SUB2 QIAPHORASE ALSO INCREASED AS EARLY AS 3 HOURS AFTER INFECTION, BUT IN THIS CASE THE DECLINE OF ENZYMATIC ACTIVITY WAS OBSERVED LATER, ONLY 24-48 HOURS AFTER INFECTION. THE EVIDENCE OBTAINED INDICATES THE POSSIBLE ROLE OF THE OXIDATIVE REDUCTIVE ENZYMES UNDER STUDY IN METABOLIC PROCESSES OF INFECTED CELLS PROVIDING ENERGY FOR BIOSYNTHESIS OF VACCINIA VIRUS. FACILITY: INSTITUT VIRUSOLOGII IMENI D. I. IVANOVSKOGO AMN SSSR, MUSKVA.

UNCLASSIFIED

USSR

UDC 629.78.015.4

NOSIK, V. N.

"The Stability of a Heated Three-Layer Plate with Various Load-Bearing Layers"

Samoletostr. i Tekhn. Vozd. Flota. Resp. Mezhved. Temat. Nauch.-Tekhn. sb.  
[Aircraft Building and Air Force Technology Republic Interdepartmental Thematic Scientific and Technical Collection], No 24, 1971, pp 49-53, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 2, 1972, Abstract No 2.41.164 from the Resume).

Translation: The stability is studied of a three-layer plate compressed in one direction, the load-bearing layers of which are made of different materials, differing in thickness and temperature. A compressive load is received not only by the load-bearing layers, but by the fillers as well. It is assumed that the hypothesis of straight normals is correct for the load-bearing layers. The general dependences of the theory of elasticity are used for the filler. The temperature stresses and deformation in the filler are not considered. A transcendental equation for determination of the critical value of compressive load is produced in the form of a sixth order determinant. A specific plate is calculated by computer. 2 Figures; 4 Biblio. Refs.

1/1

- 99 -

USSR.

UDC 577.15:539.12.04

NOSKIN, L. A., SVERDLOV, A. G., and FOMICHEV, V. N., Leningrad Institute of Nuclear Physics, USSR Academy of Sciences

"Mechanism of Protection of Glutamic Acid Dehydrogenase by Mexamine Against Gamma Irradiation"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 3, 1973, pp 733-736

Abstract: Inactivation of glutamic acid dehydrogenase in relation to the radiation dose was exponential, but the extent of inactivation was exponentially dependent on the inverse concentration of the enzyme. The addition of mexamine (5-methoxytryptamine) to the enzyme prior to irradiation had a markedly protective effect, as manifested by a change in the angle of slope of the exponent on the dose curve. When the concentration of the irradiated enzyme was kept constant while that of mexamine was varied, saturation of the radioprotective effect occurred at a certain concentration of the compound. The concentration that resulted in saturation was independent of the radiation dose. The mechanism of the protective effect of mexamine is assumed to be based on the latter's binding to the most radiosensitive portions of the glutamic acid dehydrogenase molecule and to protection of these portions from inactivation by the radicals formed during irradiation.

1/1



USSR

UDC 669.71.472(083.8)

SMORODINOV, A. N., POPCHENKOV, I. N., NOSIKHOV, V. I., KIL', I. G., AND  
YAZEV, M. V.

"Electrolyzer With Calcined Anodes for Production of Aluminum"

USSR Author's Certificate No. 262396, Filed 19/07/68, Published 21/05/70,  
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract  
No. 1 G140 P)

Translation: The anode packets of buses and anodes are fastened on the  
inside with an anode frame in order to improve sealing and simplify the  
design of an electrolyzer.

1/1

1

USSR

UDC 669.71.472(088.8)

BELYAYEV, A. S., BICH, I. I., VIKHLYAYEV, A. A., NOSIKOV, G. M., and FEDULOV, A. I., Novokuznetsk Aluminum Plant and Mining Institute of Siberian Department of Academy of Sciences USSR

"Device for Disassembly of Lining of Aluminum Electrolyzers"

USSR Authors' Certificate No 290949, Cl. C 22d 3/02, C 22 d 3/12, filed 18 Nov 69, published 11 May 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No IG125P)

Translation of Abstract: This device for the disassembly of the lining of aluminum electrolyzers in accordance with author's certificate (RZh-Metallurgiya, 1967, Abstract No 7G131) is unique in that, in order to raise operating reliability, the rotating column consists of a pi-shaped pillar, to which a crane arm is hinged, and a rotating platform, on which are mounted the mechanism for rotating the column, the control panel, and hydraulic lifting jacks for hoisting the crane arm. The mechanism for rotating the column is made in the form of two hydraulic cylinders with two-way pistons, rigidly connected by racks meshing with an immobile pinion shaft. Two illustrations.  
1/1

USSR

UDC: 621.382.323

GALSTYAN, V. G., NOSIKOV, S. V., PRESS, F. P., PASTUSHKOV, V. V.

"Use of a Scanning Electron Microscope to Study Defects in Dielectric Films and Semiconductor Structures"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1911-1919

Abstract: A scanning electron microscope was used to study defects in films of silicon dioxide, processes of dopant penetration through defects during diffusion, and the influence of localized diffusion regions on the properties of MOS structures. A procedure is developed for studying semiconductor objects on the scanning electron microscope and interpreting the observed patterns in accordance with the nature of the contrast.

1/1

Instrumentation and Equipment

USSR

UDC 669.71.472

SMORODINOV, A. N., VELICHKO, B. P., NOSIKOV, V. I., KIL', I. G.

"Bottom of an Aluminum Electrolyzer"

USSR Author's Certificate No 281825, filed 18 Jul 69, published 3 Dec 70 (from RZh-Metallurgiya, No 7, Jul 1971, Abstract No 7G211P)

Translation: The bottom comprises cathode units with conducting steel rods embedded in them. In order to reduce the consumption of materials for the manufacture of the cathode units and the electrical resistances in the bottom, the cathode units in the upper section have grooves with inclined walls and up to 0.25 of the total height of the unit deep along their entire length. There is 1 illustration.

1/1

USSR

UDC 669.71.472(088.8)

NOSIKOV, V. I., VELICHKO, B. P., and GERASIMCHUK D. I.

"Cathode Aluminum Electrolyzer Device"

USSR Author's Certificate No 270254, Filed 19/08/68, Published 20/08/70  
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract  
No 2 G151 P)

Translation: To reduce electric power losses in the contact between metal and bottom mass and to increase the service life of the cathode device, the cathode rods are made as assembled packets of bars, with the space between bars corresponding to the bar placement space in the working zone of a cathode device, while the ends of the bars where the packets extend out of the shell are connected into a common contact set.

1/1

USSR

UDC 669.71.472(088.8)

VELICHKO, B. P., and ~~NOSIKOV, V. I.~~, All-Union Scientific Research and Design Institute of Aluminum, Magnesium, and Electrode Industry

"Device for Tightening and Freeing of Contact Terminals of Anode Pins of Aluminum Electrolytic Reduction Cells"

USSR Author's Certificate No 262395, filed 16 Jan 69, published 21 May 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G113 P)

Translation: A device is proposed for tightening and freeing of contact terminals of anode pins of aluminum electrolytic reduction cells, which includes a mechanical key and rotating and lifting drives. To simplify the design and the possibility of servicing external and internal rows of anode pins, the device is made in the form of a frame connected to the shaft of a bridge crane to which are attached two analogous mechanisms, consisting of a hollow tube with a key, located in the tube of a guiding shaft, engaged with it, and of drives for rotating and vertical travel of the tube. The coupling of the tube with the guiding shaft is done by a key slot joint of by a quadratic joint.

1/1

- 15 -

USSR

UDC: 519.2

BELYAYEV, Yu. K., NOSKO, V. P., SVESHNIKOVA, A. A.

"Probabilistic Characteristics of Overshoots of a Two-Dimensional Random Field"

Teoriya veroyatnostey i mat. stat. Mezhd. nauch. sb. (Probability Theory and Mathematical Statistics. Interdepartmental Scientific Collection), 1972, vyp. 6, pp 24-31 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V124)

Translation: A bilateral estimate is obtained for the average number of overshoots of the random two-dimensional field  $z = z(x, y)$  beyond level  $a$ . The paper gives results relating to the characteristics of the contours and stationary points of the field, and revising the results of a section in a monograph by A. A. Sveshnikov (RZhMat, 1969, 3V141K) dealing with random functions of several variables. Authors' abstract.

1/1

AA0018118

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1

223884 SYNCHRONISATION OF TWO GENERATORS is made more reliable. Pulses are formed by networks (1-6) at the beginning of each phase voltage. Considering channel (a<sub>1</sub>, a<sub>2</sub>): when the above pulses coincide a pulse is developed by "AND" (10) which turns off via transformer (13) thyristors operating in channels (a<sub>1</sub>, b<sub>2</sub>) and (a<sub>1</sub>, c<sub>2</sub>); through multi-vibrator (16) and transformer (19) it triggers thyristors (31-33) which connect power supplies (22-24) so that power triacs (40-42) are triggered. As a result the corresponding phases (a<sub>1</sub>, a<sub>2</sub>; b<sub>1</sub>, b<sub>2</sub>; c<sub>1</sub>, c<sub>2</sub>) are connected. Thyristors (31-33) are turned off by parallel connected transistors which are biased on by a pulse derived from (a<sub>2</sub>, b<sub>2</sub>) or (a<sub>1</sub>, c<sub>2</sub>). Blocks (49-54) are sections of current limiting reactors which are in series with the triacs.

19  
⑤  
24

30.5.67. as 1162151/24-7, KAMSHA, M.M. and NIOSKOV  
 (14.1.69) Bul. 25/6.B.68. Class 21c, Int.  
 Cl. H 02J.

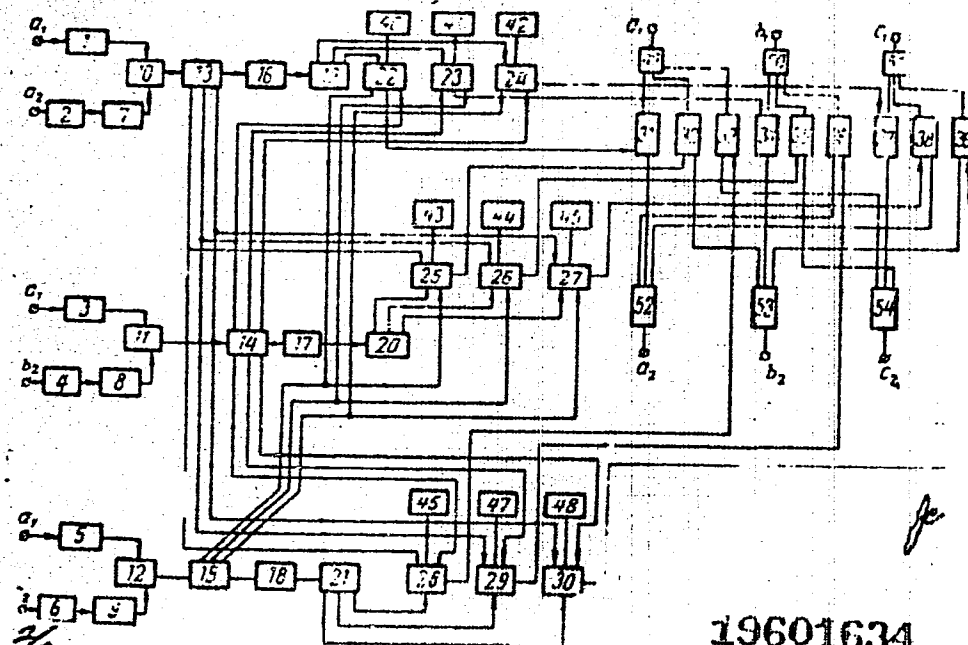
1/2

19601633

4



AA0018118



19601634

USSR

UDC 531.55:521.1

NOSKOV, B. N.

"Evolution of a Hyperbolic Orbit Under the Action of Atmospheric Resistance"

Soobshch. Astron. in-ta im. P. K. Shternberga (Communications of the Astronomy Institute imeni P. K. Shternberg), 1970, No. 154, pp 14-34 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9A67)

Translation: Perturbations in hyperbolic orbits generated by atmospheric resistance are discussed for the case of a spherically symmetric, non-rotating atmosphere with time invariant parameters and an exponential change in density with altitude. Selected as an intermediate orbit was the solution of the generalized problem of two fixed centers under constant energy greater than zero. The problem is solved in a movable system of coordinates with center at a moving point. The equations of perturbed motion in osculating elements were derived for the general case of a perturbing force. In writing the expression for the force of resistance of the medium the dependence of air density on altitude is given in the form

1/2

- 5 -

USSR

NOSKOV, B. N., Soobshch. Astron. in-ta im. P. K. Shternberga, 1970, No. 154, pp 14-34

$$\rho = \rho_0 \exp[\xi_0 - \xi]/H$$

where  $\xi$  is a coordinate replacing the geocentric distance and accounting to a certain degree for the compression of the atmosphere at the poles of the earth. Equations are derived for secular perturbations which as a whole are caused by perturbations in the elements  $a$ ,  $e$  and  $i$ . The theoretical result is illustrated with a numerical example. G. S. Suvorov.

2/2

USSR

UDC 621.791.85

N  
NOSKOV, D. A., and PANKOVETSK, N. F., Tomsk"Explosionlike Processes in the Pulse Working of Materials with an Electron Beam"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 70, pp 16-20

Abstract: In experiments on the pulsating electron beam working of steel and molybdenum, intensive sputtering of fine, glowing droplets from the electron beam zone of the impact was observed. Droplet size reached tens of microns. The droplets moved with considerable velocities and, on reaching the substratum surface, left an elongated trace on it. It is suggested that these droplets are expelled by forces induced by thermal explosion. The beam strength concentration was higher than  $10^7$  watts/cm<sup>2</sup>. Here the energy required for thermal explosion is accumulated in 5-10 microseconds. Metal in the impact zone was melted and expelled in droplet form during this time. The amount of melt expelled by forces of thermal explosion is tens of times greater than the amount of metal evaporated during this same period. For example, when steel was being worked, during a single pulse it was possible to remove up to  $2 \cdot 10^{-4}$  g, while about  $5 \cdot 10^{-6}$  g could be evaporated during this period. Explosionlike processes were also observed when diamond was worked on with a pulsating electron beam. Other causes of this phenomenon can be thermal stresses exceeding the strength of the material worked with and a rise in pressure within a volume in which the energy of the electron beam is transmitted

1/2

USSR

NOSKOV, D. A., and PANKOVETSK, N. F., Fizika i Khimiya Obrabotki Materialov, No 4,  
Jul-Aug 70, pp 16-20

due to decomposition of certain chemical compounds constituting part of the solid.  
Since the nature of the explosionlike process depends on the working conditions  
and beam parameters, it can be controlled.

2/2

NOSKOV, F.S.

MEDICINE

VOYENNO-MEDITSINSKIY ZHURNAL, NO. 4, 1970, pp. 67-71

USE OF INDIRECT HEMAGGLUTINATION REACTION FOR DETECTION AND IDENTIFICATION OF THE VIRUS OF EPIDEMIC HEMORRHAGIC FEVER (EHF)

by F.S. Noskov, Lt. Col. of Med. Serv. E.K. Gavrilov

J-8848

78 G.I.C.I.V.

In spite of the solution of the viral etiology of EHF in principle, until now no sufficiently reliable method could be worked out for its laboratory diagnostics. However, as the researches of recent years showed, the method of fluorescent antibodies can be used for these purposes (A.P. Belyayev et al., 1965). With its help we could isolate the virus of EHF and could passage it in a one-layer culture of the renal cells of human embryo.

In the present communications data are presented on the elaboration of the method of staining active preparations of red cells sensitized with antibodies against EHF virus, and their use in an indirect hemagglutination test (IHT) for the detection of homologous viral antibodies in tissue cultures. The experiments were made with the "Trefimov" strain of EHF virus which we isolated from a patient's blood.

The preparation of red cells was based upon sensitization of fixed red cells with antibodies with the aid of the bifunctional compound dihydrofluoride-4, 4'-diphenylene-bis-diazonium. From hyperimmune sera obtained by immunization of rabbits with cultivated EHF virus according to the method of Finger and Hunter (1962) electrophoretically homogeneous gamma-globulin was isolated with Konig's alcoholic method. Red cells were fixed with acetone according to the method which we have elaborated. For this purpose red cells from sheep's fresh defibrinated blood were washed twice in a 0.15 M sol. of NaCl. Their sediment was added to the acetone solution (0.15 M sol. of NaCl ... 492.5 ml; 0.15 M sol. of twice-substituted Na2PO4 ... 5 ml; chemically pure acetone ... 2.5 ml; pH 7.6 - 7.7) in such an amount that a 2% suspension can be obtained in the reagent mixture. The fixation was made with constant stirring on the magnetic mixer for 30 minutes at room temperature. Then, the red cells were washed 10 times in physiological solution by centrifugation at 3000 rpm for 10 minutes with subsequent resuspension in the washing fluid. The washed red cells were finally suspended in 0.01 M phosphate buffer solution (PBS) which contained 0.15 M NaCl, pH 7.2 - 7.4, as a 30-40% suspension; Na-methylolate was added (final concentration 1:10,000) and it was stored at +40. Before use, the fixed red cells were once or twice washed in PBS, and resuspended in the same buffer solution. The dihydrofluoride-4, 4'-diphenylene-bis-diazonium, synthesized by I. M. Lerner at our request, practically was stored in powder form in dark bottles at +40 temperature. In such a condition, its activity did not change in 2 years (time of observation, which was confirmed by titration with Scheffer salt solutions).

For the combination of antibodies with red cells, a 0.1% solution of gamma globulin was prepared in PBS, pH 7.2-7.4 which was heated 15 minutes at 56-580. To the gamma-globulin solution red-cells suspension was added to a final concentration (2%), and then the prescribed amount of the aqueous sol. of bis-diazonium salt. The latter was prepared directly before its use. For an hour the mixture stood at room temperature with mechanical stirring.

USSR

UDC 616.61-002.151-02

AGAFONOV, V. I., Maj Gen Med Serv, Docent; LEV, M. I., Col Med Serv; NOSKOV, F. S., Lt Col Med Serv, Candidate of Medical Sciences; KONIKOVA, R. Ye., Candidate of Biological Sciences; YBLIGULASHVILI, R. K., Candidate of Medical Sciences; GAVRILYUK, B. K., Doctor of Medical Sciences; KULIKOV, I. A., Lt Col Med Serv; YEFIMOV, L. S., Lt Col Med Serv; SERGEYCHIK, I. I., Capt Med Serv; BELYAYEVA, H. S.

"Etiological Decoding of an Outbreak of Hemorrhagic Fever With a Renal Syndrome"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 9, Sep 71, pp 46-49

Abstract: In June and July 1970, in the southern area of Khabarovskiy Kray, an outbreak of hemorrhagic fever with a renal syndrome (HFRS) occurred among workers employed on construction work and housed in a tent camp located on a hill surrounded by swampy meadows. Despite repeated rodent extermination, the camp area was infested with rodents and ticks. Relocation of the workers to a nearby village halted the outbreak. Only one of the 34 hospitalized workers died. The onset of the

1/2

USSR

AGAFONOV, V. I., et al, Voyenno-Meditsinskiy Zhurnal, No 9,  
Sep 71, pp 46-49

disease was acute, and fever of 39-41°C lasted 3-15 days. Renal and cardiovascular insufficiency developed in five patients. The clinical picture was atypical, suggesting both HFRS and leptospirosis. After test for *Leptospira* proved negative in all patients, two types of tests for hemorrhagic fever antigens were performed: indirect hemagglutination inhibition and agglutination with fluorescent antibodies. In the indirect hemagglutination tests, sheep erythrocytes sensitized with antibodies against the 10-10 strain of hemorrhagic nephrosonephritis (HNN) were used. All tests were positive. The fluorescence tests yielded green granular fluorescence in spleen smears. It is concluded that the green granular fluorescence is specific for HNN, and that the granules represent areas of replication of the HNN virus.

2/2

- 41 -



UDC 616.61-002.26:612.118.221.2

USSR

NOSKOV, F. S., Lt Col Med Serv and GAVRILYUK, B. K.

"The Use of the Indirect Hemagglutination Reaction for Detection and Identification of Hemorrhagic Nephroso-Nephritis Virus"

Moscow, *Voyenno-Meditsinskiy Zhurnal*, No 4, 1970, pp 67-71

Abstract: Fluorescent antibodies against hemorrhagic nephroso-nephritis virus (HNN) were obtained from hyperimmune rabbit serum. Erythrocytes were sensitized with fluorescent antibodies and a preparation for the indirect hemagglutination reaction was obtained. This preparation was specific and efficacious with HNN antigen in solution. It was concluded that the indirect hemagglutination inhibition reaction may be used for identification and titration of antibodies to hemorrhagic nephroso-nephritis virus. This is a possible practical method of serodiagnosis of hemorrhagic fever.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--INVESTIGATION OF REPRODUCTION OF VIRUS OF HEMORRHAGIC  
NEPHROSONEPHRITIS, HEMORRHAGIC FEVER WITH RENAL SYNDROME BY MEANS OF THE  
AUTHOR--(04)-NOSKOV, F.S., GAVRILYUK, B.K., YERMAKOV, N.V., AVDEYENKO, M.M.  
COUNTRY OF INFO--USSR  
SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 225-231  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--HEMORRHAGIC FEVER, FLUORESCENT ANTIBODY, TISSUE CULTURE, BLOOD  
SERUM, GAMMA GLOBULIN, SYNDROME, NEPHRITIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1990/0739 STEP NO--UR/0402/70/000/002/0225/0231  
CIRC ACCESSION NO--AP0108945  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108945

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DYNAMICS OF REPRODUCTION OF VIRUS OF HEMORRHAGIC NEPHROSONEPHRITIS, HEMORRHAGIC FEVER WITH RENAL SYNDROME (HNN-HFRS) IN HUMAN EMBRYO KIDNEY CELL CULTURES WAS STUDIED BY MEANS OF INDIRECT AND DIRECT FLUORESCENT ANTIBODY TECHNIQUE WITH COUNTERSTAINING OF THE BACKGROUND. SPECIFIC FLUORESCENT GAMMA GLOBULINS AGAINST HNN-HFRS VIRUS HAVE BEEN PREPARED FOR THE FIRST TIME FROM HYPERIMMUNE RABBIT SERA; THEY ARE HIGHLY SPECIFIC, HAVE GOOD STAINING ACTIVITY AND MAY BE USED FOR LABORATORY DIAGNOSIS OF HNN-HFRS.

UNCLASSIFIED

USSR

UDC 621.791.927.011

NOSKOV, I. G., Uralkhimmash Plant

"Effect of Complex Ferroalloys on the Transition of Alloyed Elements to the Fused Metal"

Kiev, Avtomaticheskaya Svarka, No 12, Dec 70, pp 36-39

Abstract: Investigations made at the Uralkhimmash plant, in which R. P. CHERNAYA, Ye. A. SHAMSHURINA, and B. V. YEROSHKIN participated, have shown that the defects connected with manual arc melting through plating or flux can to a large extent be eliminated by the introduction of alloying elements in the form of complex ferroalloys into the plating. The purpose of this paper is to explain the increased transition of the elements into the metal of the seam in using such ferroalloys. Used as subjects for the tests were samples of complex ferroalloys with the composition 0.2-0.3% C, 13.5-14.5% Si, 0.7-0.8% Mn, 54.0-56.0% Cr. These were compared with standard ferroalloys made up of 75% ferrosilicon and type Khr.3 ferrochrome. It was found that for the same concentration of alloyed elements in the plating and welding wire, all other things being equal, the transition of the alloys to the melt increased with reduced dimensions of the cupels transferring the metal through the arc space.

1/1

USSR

NOSKOV, M. M., OKUN', G. L., and CHERVA, YE. G.

"Multichannel Device for Linking a Computer With Telegraph Communication Channels"

USSR Authors' Certificate No 379923, Cl. G 06f 3/02, filed 28 Dec 70, published 20 Apr 73 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 20, 1973, p 144)

Abstract: The device consists of interlink units, in each of which the control circuit is connected to a teletype receiver and transmitter and input and output registers connected to the computer. The distinctive feature is that, to eliminate the loss of inputted information, an interlock circuit is inserted between the teletype transmitter and the control circuit, and an additional output of the control circuit is connected to the corresponding computer inputs directly and through the interrupt-cause register.

1/1

YEGOROV, YU. I., et al., Optimal'n. planir. razvitiya i razmeshch. otrasley  
prom-sti, Part 1, Novosibirsk, 1972, pp 174-186

of a more general form are also considered; in particular, those which are the  
natural generalization of fixed supplementary payments. The specific example  
of the formalization of the logical condition for the problem of optimizing  
the construction and functioning of a new mine is given.

2/2

- 42 -

USSR

UDC: 669.24:535.323

SASOVSKAYA, I. I. and NOSKOV, M. N., Institute of Physics, Ural Scientific Center, Academy of Sciences USSR

"Optical Interband Transitions in Nickel and Nickel-Base Alloys"

Sverdlovsk, Fizika metallov i metallovedeniye, Vol 33, No 1, Jan 72, pp 86-93

Abstract: Presented are the results of interband transitions (IT) studies in nickel alloys with additions of Cu, Al, Mn and Fe. The measurements included the light conductance  $\sigma(\omega)$  within the spectral range of 0.7-4.0 eV as well as the contribution of IT to  $\sigma(\omega)$  for nickel and some of its alloys with Cu, Al, Fe and Mn additions. The energy levels for the occurrence of IT in nickel are: 0.075; 0.095; 0.135; 0.18; 1.05; 2.3 and 2.6 eV. The regularities governing IT changes in nickel alloys are discussed and ways of identifying IT in nickel and its alloys are proposed. The optical constants for Ni-2% Cu, Ni-5% Fe and Ni-5% Mn are listed in a table. The results for alloys with relatively small additions of the second components are explained on a band model of ferromagnetic nickel. The applicability of such interpretations to alloys with high contents of

1/2

USSR

SASOVSKAYA, I. I., et al, Fizika metallov i metallovedeniye, Vol 33, No 1,  
Jan 72, pp 86-93

the second component is yet to be confirmed. (4 illustrations, 1 table,  
31 bibliographic references).

2/2

- 42 -



UDC: 51:621.391

USSR

MARKOV, Al. A., NOSKOV, V. V.

"On the Construction and Some Properties of Fixed-Weight Binary Codes Without Overlaps"

V sb. Diskretn. analiz (Discrete Analysis--collection of works), vyp. 18, Novosibirsk, 1971, pp 49-65 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V411)

Translation: In the paper by V. N. Levenshteyn (RZhMat, 1965, 9V150), so-called codes without overlaps were introduced into the discussion. A characteristic property of these codes consists in the fact that the intersection of the set of all inherent prefixes of code combinations with the set of all their inherent suffixes is the null set. This property ensures localization of the effect of the synchronization error within the limits of a single code combination.

In this paper, the authors consider fixed-weight binary codes without overlap. A method of constructing codes without overlaps of length  $dn$  and constant weight  $d \cdot w$  designated by  $K_{n,w}^d$  is described for an arbitrary inte-

1/2

1/2 031 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--STRUCTURE OF EXTRACTABLE MIXED CHELATE COMPOUNDS STUDIED BY AN  
INFRARED SPECTROSCOPIC METHOD -U-  
AUTHOR--(03)-NOSKOVA, M.P., ZOLDTOV, YU.A., GRIBOV, L.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 220-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHELATE COMPOUND, IR SPECTRUM, ZINC COMPLEX, COPPER COMPLEX,  
COBALT COMPLEX, FLUORINATED ORGANIC COMPOUND, ACETONE, PYRAZOLE, KETONE  
CENTRAL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0075/70/025/002/0220/0225  
PROXY REEL/FRAME--3005/0002  
CIRC ACCESSION NO--AP0132302  
UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--20NOV70  
CIRC ACCESSION NO--AP0132302  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLEXES FORMED DURING THE EXTN.  
OF ZN, CU, AND CO WITH 2 THENOYLTRIFLUOROACETONE AND 1 PHENYL 3 METHYL 4  
BENZOYL 5 PYRAZOLONE 5 IN THE PRESENCE AND ABSENCE OF TRI N  
OCTYLPHOSPHINE OXIDE WERE STUDIED BY IR SPECTROSCOPIC METHODS. THE  
STRUCTURES OF THE COMPLEXES WERE EXAMD. IN CONNECTION WITH THE  
SYNERGISTIC EFFECTS OBSD. DURING THE EXTN. OF METALS BY THE ABOVE  
REAGENT MIXTS. FACILITY: INST. GEOCHEM. ANAL. CHEM., MOSCOW,  
USSR.

UNCLASSIFIED

USSR

UDC 669.71.539.370

VIL'DANOVA, N. F., NOSKOVA, N. I., and PAVLOV, V. A., Institute of Metal Physics, UNTs [expansion unknown] Academy of Sciences USSR

"Effect of Ultrasonic Vibrations on the Mechanical Properties and Fine Structure of Aluminum and an Al-Mg Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 1, 1973, pp 129-134

Abstract: Alloy grade AL27-1 (containing (in Wt %): 10-11 Mg, 0.1 Ti, 0.1 Zr, 0.1 Be) and pure aluminum (99.99%) were studied in order to determine the effect of ultrasonic action of low power (5-19 v/cm<sup>2</sup>) on the structure and mechanical properties of these materials. Alloy AL27-1 had increased tensile strength and an exceptional increase in ductility after ultrasonic treatment (from 4 to 12% elongation). These improvements in mechanical properties are attributed to the formation of dislocations which interact to form a large number of vacancies. The appearance of a large number of dispersed precipitations is explained by acceleration of aging processes due to the large amount of vacancies. The somewhat lowered yield strength of the alloy after ultrasonic treatment is attributed to the presence of free dislocations formed by ultrasonics. Three figures, one table, fourteen bibliographic references.

1/1

Transformation and Structure

USSR

UDC 620.187

VIL'DANOVA, N. F., NOSKOVA, N. I., PAVLOV, V. A., BELOUSOV, N. N., and MIKHEYEVA, Ye, N., Institute of Metal Physics, Academy of Sciences USSR

"Electron Microscope Study of Al-Mg Alloys Cooled With Varying Rates From the Homogenization Temperature"

Sverdlovsk, Fizika Metallov i Metallovedeniye, No 6, Vol 30, Dec 70, pp 1264-1269

Abstract: Changes were investigated in the structure of alloys Al+Mg(11%) and Al+Mg(11%)+Ti, Zr, Be, Mn (0.1%) which result in connection with the use of different cooling rates after a homogenizing anneal. The cast and heat-treated alloys were rolled into plates measuring 20 x 50 x 0.2 mm and then subjected to a homogenizing anneal at 435° C for 20 hours with different cooling rates: quenched in cold water (+20), quenched in hot water (+90), and air cooled.

Thin foils of the alloys were investigated by electron microscopy. The foils were made from plates, which had been heat treated, by chemically thinning them in a 40% solution of sodium hydroxide with subsequent electropolishing  
1/2

USSR

VIL'DANOVA, N. F., et al, Fizika Metallov i Metallovedeniye, No 6, Vol 30,  
Dec 70, pp 1264-1269

in an electrolyte at +70 C. The investigation was conducted with an SEM-3  
microscope.

It was shown that aging processes take place in these alloys independently  
of the cooling rate and grains are detected in the structure along the  
boundaries and in the volume of which there are precipitations. Complex  
alloying accelerates aging; in the structure of the alloy after cooling  
at the maximum rate practically no grains were observed without precipi-  
tates, but coagulation of the precipitated phases takes place. A decrease  
in the cooling rate leads to a fuller passage of aging processes and to  
phase coagulation in all the alloys.

2/2

- 74 -

12

USSR

KALUGINA, G. N., MATSNEVA, N. M., IBRAGIMOVA, F. I., NOSKOVA, V. A., ARONOVA, Ye.R. and YEVSIGNEYEVA, O. F. Uzbek Scientific Research Institute of Hematology and Blood Transfusion

"The Effect of Certain Solutions of Synthetic Polymers on Formed Elements in Preserved Blood"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 6, 1970, pp 36-38

Abstract: The suitability of three synthetic polymers -- polyvinyl alcohol, carboxymethyl cellulose, and polyvinyl pyrrolidone -- for the preservation of donor blood was investigated. The results indicate that these substances prolong the life span and maintain a perfect physiological state of erythrocytes for up to 40-45 days, of leukocytes up to 20-25 days, and of thrombocytes up to 5-7 days. These synthetic colloids also speed up the sedimentation rate of blood and thus make it possible to separate formed elements from plasma without undue trauma.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70  
 TITLE--THE EFFECT OF PREDNISOLONE ON THE METABOLISM OF ISOLATED HOMOLOGOUS  
 HEART IN PERFUSION WITH THE AID OF A DONOR -U-  
 AUTHOR--(C4)--NUSCCA, I.M., NIKULIN, V.I., KOROTKINA, R.N., SHORINA, L.V.  
 COUNTRY OF INFO--USSR  
 SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49,  
 NR 6, PP 45-47  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
 TOPIC TAGS--PREDNISONE, HEART, LACTATE DEHYDROGENASE, TRANSAMINASE, SULFUR  
 ISOTOPE, CHEMICAL LABELLING, METHIONINE  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAME--3004/C7C6 STEP NO--UR/0219/70/049/006/0045/0047  
 CIRC ACCESSION NO--AP0131305  
 UNCLASSIFIED



2/2 018

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131305

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE AUTHORS CONDUCTED STUDIES OF THE EFFECT OF PREDNISOLONE ON THE SYNTHESIS OF TOTAL, CONTRACTILE AND SARCOPLASMATIC PROTEINS (BY THE INCORPORATION OF S PRIME35 LABELLED METHIONINE) OF DIFFERENT REGIONS OF ISOLATED HOMOLOGOUS HEART IN ITS PERFUSION WITH THE AID OF A LIVE DONOR. THE PREDNISOLONE EFFECT WAS ALSO INVESTIGATED ON THE ACTIVITY OF A NUMBER OF ENZYMES OF THE BLOOD PLASMA AND MYOCARDIUM OF THE PERFUSED HEART. PREDNISOLONE WAS INTRODUCED IN A DOSE OF 10 MG-KG OF BODY WEIGHT EVERY FIVE MINUTES FOR ONE HOUR. INHIBITION OF THE SYNTHESIS OF SARCOPLASMATIC PROTEINS OF ALL REGIONS OF THE ISOLATED HEART WAS NOTED, THE SYNTHESIS OF CONTRACTILE PROTEINS DID NOT CHANGE. IN THE BLOOD PLASMA 90 MINUTES AFTER PERFUSION THE ACTIVITY OF LACTIC DEHYDROGENASE AND GLUTAMIC OXALOACETIC TRANSAMINASE INCREASED IN COMPARISON WITH THAT AT THE BEGINNING OF PERFUSION. THE ENZYMIC ACTIVITY IN THE PERFUSED HEART AND DONOR HEART DID NOT CHANGE. FACILITY: A. V. VISHNEVSKY INSTITUTE OF SURGERY OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, MOSCOW.

UNCLASSIFIED

USSR

UDC: 539.3

NOSOV, A. K.

"Optimum Forms of Openwork Shells With a Flat Support Contour"

Nauchn. tr. Saratov. politekhn. in-t (Scientific Works of Saratov Poly-technical Institute), 1970, vyp. 46, pp 13-22 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7V119)

Translation: The author determines the optimum shape of a shallow shell of rectangular planform made up of a uniform grid of polygonal ribs. The optimum shape is assumed to be that in which uniformly distributed stresses arise in the ribs with respect to cross section as well as lengthwise, and in which there are no bending moments or torques. In solving the problem, the normal forces are assumed as known and close to the carrying capacity of the rib material, while the z-coordinates of the points of intersection of the ribs are assumed as unknown. The z-coordinates are found from the condition of equilibrium of the points of intersection of the ribs. Open shells with plane support contours are considered; in this case, the z-coordinates of the points of intersection and the loads at these points may be considered in terms of trigonometric orthogonal series where the coefficients of the goal series for the z-coordinates are found from conditions of equilibrium of the points of intersection of the ribs. Some examples are given of finding the optimum shape for shallow shells. Kh. Kh. Eesorg.

1/1

Industrial & Mining

USSR

UDC 621.18.004

VAVILIN, A. N., BERLINSKIY, YU. N., NOSOV, B. N., Engineers, and GOLDBERG, YU. A.,  
Candidate of Technical Sciences (Kirishskaya State Regional Electric Power  
Plant)

"First Period of Operation of the Gas-Tight TGMP-324 Boiler Unit"

Moscow, Energetik, No 6, June 1973, pp 3-5

Abstract: The single-pass, single-unit TGMP-324 boiler unit, with a steam productivity of 1000 t/hour at a superheated-steam temperature of 545/545°C, was designed for operation with pressure charging at an efficiency of 94.7% with the combustion of mazut M100. The unit is described, and its distinguishing features are enumerated. In its first year of operation, the unit was in service for more than 4500 hours, including over 3600 hours with pressure charging. The following conclusions are drawn from an analysis of its first year of operation:

1. The decisions adopted in designing the gas-tight features of the TGMP boiler unit are satisfactory; the unit was viable for operation with pressure charging. With attentive and skilled installation, difficulties were not encountered in providing the seals with the requisite tightness.

2. Unsatisfactory design of hatches for observation of the heating

1/2

USSR

VAVILIN, A. N., et al., Energetik, No 6, June 1973, pp 3-5

regime of the boiler, during operation with pressure charging, hinders the determination of flaws and breaches on the pipes of the heating surfaces.

3. The design of the joints of the combustion-chamber screens is in need of improvement.

4. The adopted burned devices with steam-mechanical nozzles permit operation within the load range of 10 to 100% of  $D_{nom}$  without turning the burners off.

5. The temperature regime of the heating surfaces has been satisfactory.

6. Increasing the capacity of the unit to the nominal value during operation of the boiler with pressure charging was attained by decreasing the resistance of the gas-air channel and increasing the thrust of the blower fans.

7. By means of appropriate adjustments, it became possible to attain economical operation of the unit with a unit consumption of standard fuel of 336 g/kwh at a capacity utilization factor of 70% and a preparedness factor pf 88% (in separate months). 5 figures.

2/2

USSR

UDC:621.313.522.11

GUBAREV, A. V., NOSOV, I. G.

"Selection of Parameters for an Open-Cycle Heat and Electric Power Plant with a Faraday-Type MHD Generator"

Teplotekhn. Probl. Pryamogo Preobrazovaniya Energii [Heat Engineering Problem of the Direct Conversion of Energy -- Collection of Works], No 4, Kiev, Nauk. Dumka Press, 1973, pp 25-33 (Translated from Referativnyy Zhurnal Turbostroyeniye, No 11, 1973, Abstract No 11.49.152)

Translation: Results are presented from optimization of the parameters of an MHD electric power plant with a steam turbine on the basis of the minimum calculated expenditures. Studies for an MHD power plant to utilize the combustion products of type ASH pole in air with added  $K_2CO_3$  were performed as applicable to a Faraday-type MHD generator with constant parameters of magnetic induction  $B$ , gas velocity  $V$  and electric load factor  $n$  over the length of the channel, considering end effects. The magnetic system is superconducting, based on  $Nb_3Sn$  stabilized with copper. The influence of end effects on the efficiency of the station is particularly significant as  $B$  is increased. Based on calculations, the optimal parameters of the cycle of the MHD power plant are determined: pressure in the combustion chamber 10.8 bar,  $B=6$  T, air temperature  $1300^\circ$  K, which

1/2

USSR

GUBAREV, A. V., NOSOV, I. G., Teplotekhn. Probl. Pryamogo Preobrazovaniya Energii, No 4, Kiev, Nauk. Dumka Press, 1973, pp 25-33

with the gas flow velocity used  $V=800$  m/sec,  $n=0.8$ , end loss factor 0.2, provides a gross power of the image degenerator and the steam turbine of 679.8 and 431.7 Mw respectively and an electrical capacity of the station of 884.4 Mw with  $\eta_{st}=50.6$ . If the superconductor costs 200 rubles per kg, expenditures for fuel represent 48.8%, the turbine 18.3%, the superconducting magnet 11%, the air heater 5.9%, the inverter 5.8% of total costs, and the cost of 1 kw-hr of electric power is 0.672 kopecks (8% lower than for an ordinary heat and electric power plant). M. I. Osipov

2/2

1/2 014 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--EFFECT OF FORMATION CONDITION ON THE MOLECULAR ORIENTATION OF  
KAPRON FIBERS -U-  
AUTHOR--(021)-NOSOV, M.P., SKRIPNIK, S.I.  
COUNTRY OF INFO--USSR  
SOURCE--KHM. VOLOKNA 1970, (1) 4-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--CAPRONE, SYNTHETIC FIBER, TEXTILE ENGINEERING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1989/0482 STEP NO--UR/0183/70/000/001/0004/0007  
CIRC ACCESSION NO--AP0107087  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107087

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EQUATION RELATING THE BIREFRINGENCE ( $\Delta N$ ) OF UNSTRETCHED KAPRON (I) FIBERS, RATE OF FLOW OF I MELTS THROUGH THE SPINNERET, SPINNING RATE, AND DIAM. OF I FIBER WAS DERIVED FROM EXPTL. EVIDENCE AND LITERATURE DATA. THE PRELIMINARY ORIENTATION OF I FIBERS WAS AFFECTED BY HEAT TRANSFER EFFECTS DURING FIBER FORMATIONS. THE PROBABLE CAUSE FOR THE STATISTICAL VARIATION OF  $\Delta N$  IN I FIBERS WAS THE NONUNIFORM BLOWING (I.E., AIR VELOCITY PAST THE FIBERS IN THE CENTER IS LESS THAN THAT PAST THE OUTER FIBERS) OF DISCRETE FIBERS DURING YARN FORMATION.

UNCLASSIFIED



1/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--EFFECT OF HEAT TREATMENT ON THE STRUCTURE OF HIGHLY ORIENTED KAPRON  
SPUN THREADS -U-  
AUTHOR--(05)-NOSOV, M.P., MIKHLINA, V.V., PAKHOMOVA, L.N., OLEYNIK, V.G.,  
BYCHKOVSKIY, N.I.  
COUNTRY OF INFO--USSR  
SOURCE--KHM. VOLOKNA 1970, (1), 18-21  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--CAPRONE, IR SPECTRUM, MOLECULAR STRUCTURE, THERMAL EFFECT,  
MACROMOLECULE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1984/1820 STEP NO--UR/0183/70/000/001/0018/0021  
CIRC ACCESSION NO--AP0100394  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 025

CIRC ACCESSION NO--AP0100394

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

HIGHLY ORIENTED KAPRON (I)

ABSTRACT. THE STRUCTURE OF HEAT TREATED  
YARN (93.4

UNCLASSIFIED

USSR

UDC 621.396.677.83

POPERECHENKO, B. A., ROSOV, G. N., and BONDARENKO, V. N.

"Investigating the Frequency Characteristics of Selectively Reflecting Radio Screens"

Moscow, Antenny, No. 10, 1971, pp 27-47

Abstract: The principle of the method of selectively reflecting screens is briefly explained, and the authors attack the problem of finding their frequency characteristics by using the solution of the electromagnetic problem regarding the diffraction of an arbitrarily polarized plane wave slantingly incident on a fine, infinite metallic screen with a system of slots, of width  $a_1$  and  $a_2$  cut in two mutually perpendicular directions, at intervals of  $d_1$  and  $d_2$ . It is assumed that the width of the slots is much less than  $d_1$  and  $d_2$ , and that  $a_1$  and  $a_2$  are much less than the wavelengths throughout the range of investigated frequencies. A system of equations is derived for which an approximate solution can be found with an electronic computer, and the solution is found directly and analytically for the case of normal incidence of the wave. For the experimental part of the paper, a diagram of the equipment and an explanation of the experimental method are given. The results of the experiments, with inductance coils connected

1/2

USSR

POPERECHENKO, B. A., et al, Antenny, No. 10, 1971, pp 27-47

between the metallic plates of the selectively reflecting screen, show that the steepness of the antenna's experimental curve increases in its transition region. The experimental curves for the antenna are plotted.

2/2

USSR

UDC: 621.396,677.833.2

POPERECHENKO, B. A., NOSOV, O. N., BONDARENKO, V. N.

"Investigation of the Frequency Responses of Selectively Reflecting Radio Shields"

V sb. Antenny (Antennas--collection of works), vyp. 10, Moscow, "Svyaz'", 1971, pp 27-47 (from RZh-Radiotekhnika, No 5, May, 71, Abstract No 5B58)

Translation: The authors present the results of theoretical and experimental studies of some selectively reflecting shields used in multichannel parabolic antennas. Ten illustrations, bibliography of eight titles. Resumé.

1/1

USSR

UDC 614.4:616-036.2

NOSOV, S. D., Institute of Pediatrics, Academy of Medical Sciences USSR, Moscow

"The Object of Epidemiology and the Epidemiology of Noninfectious Diseases"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, Jul 70,  
pp 8-13

Abstract: It is argued that noninfectious diseases cannot properly be included within the scope of the science of epidemiology. The specific object of epidemiology is the study of the epidemic process, i.e., the laws governing the spread of infectious diseases. Besides the familiar infections, epidemiology should study those whose causative agents are still unknown or whose infectious nature is only suspected, as well as certain chronic diseases (e.g., rheumatism), whose infectious etiology is now generally considered proven. Such study must not be limited to statistical analyses correlating spread of diseases with various factors. It should in addition concern itself with determining the characteristics of the epidemic process. Mass acute and chronic noninfectious diseases are not the proper objects of epidemiology. To be sure they can be studied effectively by using certain epidemiological methods (particularly statistical analysis) as well as the experience of epidemiologists in investigating widespread disease and

1/2

USSR

NOSOV, S. D., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 7, Jul 70,  
pp 8-13

establishing causal connections. But this approach does not justify changing the  
very content of epidemiology as an independent science, and including common non-  
infectious diseases in its field of inquiry.

2/2

USSR

NOSOV, V.

"Immunity to Tumors"

Minsk, Sovetskaya Belorussiya, 12 Jul 70, p 4

Abstract: The article describes some findings of G. V. Kovalevskiy of the Institute of Genetics and Cytology of the Belorussian Academy of Sciences. Cancer cells are just as incompatible with the organism as a foreign body, which provokes a defense reaction from the organism. Uninhibited cancer growth in the organism has been explained by the hypothesis that the growth of cancer cells results from anomalous immunological reactions of the organism. Experiments to test this showed that while the organism does mobilize its defense mechanism to overcome the tumor caused by carcinogens, the carcinogens have a strong inhibiting effect on the spleen and lymph nodes, which are the essential part of the defense mechanism. If the ratio of cancer cells to spleen cells is 1:40, or more in favor of the latter, the organism can overcome cancer; however, if the ratio is 10:1 (cancer:spleen), then cancer growth is accelerated. An experiment with Ehrlich's carcinoma showed that cancer has great adaptability, and can change its heredity to counter immune reactions from the organism. While it is possible to induce immunity to one type of cancer, it is not possible to do so against all the numerous varieties of cancer.

1/1



USSR

UDC 534.232.46.8

KAMCHATNYY, YU. G., NOSOV, V. A. /In-t avtomatiki--Institute of  
Automatics/

"Method of Excitation of Piezoelectric Radiator"

USSR Author's Certificate No 264829, filed 28 March 1968,  
published 1 July 1970 (from RZh-Elektronika i yeye primeneniye,  
No 2, February 1971, Abstract No 2A441P)

Translation: A new method is proposed for excitation of a piezoelectric radiator which makes it possible to increase the slope of the leading edge of an ultrasonic signal. This amounts to the fact that after the original excitation by a positive drop of the electrical voltage within an interval of time, equal to an odd number of half-cycles of the resonance oscillations of the radiator, the radiator once more quickly gives rise to a damped high-frequency electrical pulse with a negative first half-cycle, the amplitude of which exceeds the voltage drop and the duration is equal to a half-cycle of the resonance oscillations of the radiator. The principal circuit is presented of the excitation oscillator as well as an oscillogram of the form of the 1/1 signal at the piezoelement. 2 illustrations. N.B.

USSR

UDC 669.18:621.746

SOBKIN, S. I., NOSOV, V. A., ISUPOV, V. F., BREUS, V. M., CHEPURNOVA, A. A., GROMOV, G. P., and ISMANOVA, T. A.

"Certain Factors Influencing the Increase in Density and Purity of Boiler Steel Ingots"

Proizvodstvo Chernykh Metallov (Production of Ferrous Metals--- Collection of Works), no 75, Metallurgiya Press, 1970, pp 240-251

Translation: A study is made of four ingots melted by the scrap process, the scrap ore process, and from a high-carbon semi-finished product of 100% cast iron with synthetic slag treatment of the semi-finished product and steel, cast under a layer of slag with heating of the riser of the ingot by lungerite or an exothermic mixture and lungerite in combination with heat insulation of the mold with asbestos.

The influence of these factors on the segregation of chemical elements, gas content, content of nonmetallic inclusions, density and dendritic structure of the ingot is established. 8 figures; 2 biblio. refs.

1/1

USSR

UDC 621.396.234

ROZOV, V.M., VINOGRADOV, A.A., NOSOV, V.I. [Members, Scientific-Technical Society Of Radio Engineering, Electronics, And Communication imeni A.S. Popov]

"Effect Of AGC On The Level Of Transient Interference In Multichannel Systems Of Shortwave Communication"

Radiotekhnika, No 4, Apr 1972, pp 1-7

Abstract: The effects are considered of a change of the amplitude of signals in a shortwave channel on the level of transient noise in communication systems with orthogonal signals. A method is presented for finding the averaged value of the rate of change of the signal envelope from the integral distribution of the envelope, making it possible to manage without involved mathematical apparatus. The decrease of the reliability of reception because of transient interference during fading is evaluated and the requirements are determined for an automatic gain control system in the receiving channel [trakt] of the multiplexing device in order to reduce the probability of error. An analysis is made of the impairment of orthogonality under conditions of slow fading when the signal envelope throughout the sample changes insignificantly and abrupt phase fluctuations leading to a frequency drift of the signal being received are absent. Knowing the magnitude of the signal and the transient interference, it is possible to find  $1/2$

USSR

ROZOV, V.M., et al, Radiotekhnika, No 4, Apr 1972, pp 1-7

the dependence of the signal/noise ratio on the principle and rate of change of the signal amplitude. It is demonstrated that transient interference reduces the reliability of reception which cannot be increased by an increase of the signal power. However, it can be decreased by separation of all the bands of a telephony channel into narrow bands and the use of AGC in each of them. 1 tab. 4 ill. 6 ref. Received, 3 July 1970; after further improvement, 1 Feb 1971.

2/2

Acc. Nr:

AP0054190

Abstracting Service:

NUCLEAR SCI. ABST. 5-7C

Ref. Code:

4R 0089

18620 HETEROGENEOUS REACTORS FLATTENING BY  
FUEL RODS ARRANGEMENT. Ponomarev-Stepnoi, N. N.;  
Glushkov, E. S.; Nosov, V. I.; Barkov, S. N. At. Energ. (USSR);  
28: 58-60(Jan 1970). (In Russian).

Tabulated data show variations of fuel element distributions and  
effective coefficient of breeding during flattening as functions of  
the number of heat transfer areas along the gradient. (8 refer-  
ences) (R.V.J.)

— 471C

REEL/FRAME  
19831306

2

USSR

Titanium

UDC 669,295

KOLACHEV, B. A., NOSOV, V. K., LIVANOV, V. A., SHCHIPUNOV, G. I.,  
CHUCHURYUKIN, A. D.

"Influence of Hydrogen on Technological Ductility of Ti Alloy with 9% Al"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Svedeniy, Tsvetnaya  
Metallurgiya, No 4, 1972, pp 137-142.

Abstract: This work presents a confirmation of data on the favorable influence of hydrogen on the technological ductility of alloys with high aluminum content at hot pressure working temperatures. The favorable influence of hydrogen is manifested not only as a decrease in the temperature of the anomalous increase in plasticity related to the  $\alpha + \beta \rightarrow \beta$  conversion (about  $1,100^\circ$  for the alloy Ti + 9% Al), but also as an expansion in the temperature interval of increase ductility for upsetting from  $1,000^\circ$  to  $1,050^\circ$ . The positive influence of hydrogen is also manifested as a significant reduction in the force of deformation throughout the entire interval of temperatures and hydrogen concentrations studied. Hydrogen has its most favorable influence in the 0.50-0.2% (by mass) concentration interval.

1/1

USSR

UDC 537.311.33:546.28/.289

VAYKHBROT, E.I., GRIZHKO, V.M., GRISHAYEV, I.A., NOSOV, V.M.

"Transients In Germanium And Silicon During Irradiation By The Momentum Of Electrons Of Linear Accelerator With 35 Mev Energy"

V sb. Radiatsion. fiz. nemets. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 57-66 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B24)

Translation: The paper investigates transients in Ge and Si, originating under the influence of the momentum of electrons with 35 Mev energy. The specimens were prepared from plates of Ge and Si and during the investigation were placed in a uniform field of electrons. The thickness of the specimens was selected so that generation of charge carriers might take place uniformly with respect to all the space. It is shown that dependence of the amplitude of additional conduction on the flux density is nonlinear. During analysis of transients it is necessary to take into account the time change of the mobility because of the additional mechanism for scattering by the ionized atoms of the semiconductor and the decrease of the life time of the nonequilibrium charge carriers. 7 ill. 8 ref. Summary.

1/1

USSR

UDC 621.375.4:621.317

ZAGORSKIY, YA. T., LEVCHENKO, D. G., NOSOV, V. M.

Izmeritel'nyye usiliteli na tranzistorakh (Transistorized Measuring Amplifiers), Moscow, Energiya Press, 1971, 217 pp, ill., 62 k. (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4D120K)

Translation: Means of constructing high accuracy class measuring amplifiers are investigated. Primary attention is given to analysis and synthesis of complex amplifier systems containing dynamic loads, multiloop feedback, and so on. The dependence of the basic parameters of the transistorized measuring amplifiers on the temperature and feed voltage variation is investigated. A method is proposed for analyzing the instability of complex amplifying circuits made of transistors permitting determination of the parameters of the elements insuring autocompensation for instability. Examples of calculating a number of practical circuits are presented. The book is intended for scientific workers and engineers studying and developing amplifiers and also for postgraduates and students in the advanced courses of institutes of electrical engineering and radio engineering specialties.

1/1



USSR

UDC 621.373.5

YAMSHCHIKOV, V. S., ~~NOSOV, V. N.~~, KAKORIN, B. M.; Moscow "Order of the Red Banner of Labor" Mining Institute

"A White Noise Generator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 4, Feb 72, Author's Certificate No 326699, Division H, filed 28 May 70, published 19 Jan 72, p 207

Translation: This Author's Certificate introduces a white noise generator which contains a noise source based on a stabilitron, a voltage stabilizer, a voltage divider and a transistor. As a distinguishing feature of the patent, the output impedance is reduced by connecting the input of the stabilitron through a resistor to the emitter of the transistor, and through a capacitor to the transistor base, which is connected to the voltage stabilizer and to the collector of the transistor through the voltage divider.

1/1

1/2 031 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--CHANGE IN THE STRUCTURE AND PROPERTIES OF HARDENED RESINS UNDER THE  
INFLUENCE OF A FILLER. 2. INFLUENCE OF A FILLER ON THE INTERACTION  
AUTHOR--(04)-POIMANOV, A.M., TROSTYANSKAYA, YE.B., NOSOV, YE.F., BELNIK,  
A.F.  
COUNTRY OF INFO--USSR  
SOURCE--MEKH. POLIM. 1970, 6(1), 54-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--FILLER, EPOXY RESIN, MECHANICAL STRENGTH, PRESSURE EFFECT,  
ENTROPY, THERMAL EXPANSION, ELASTIC MODULUS, COMPRESSIVE STRENGTH  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1992/1899 STEP NO--UR/0374/70/006/001/0054/0059  
CIRC ACCESSION NO--AP0112879  
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112879

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INCREASE IN THE MECH. STRENGTH OF EPOXY RESINS (I) CAUSED BY THE ADDN. OF FILLERS (QUARTZ OR GLASS POWDERS) WAS CORRELATED WITH THE INCREASE OF THE INTERNAL PRESSURE (P SUBINT) OF THE SYSTEM. P SUBINT EQUAL (DELTA U-DELTA V) SUBT AND CONFORMS TO THE THERMODYNAMIC RELATION: P EQUALS T (DELTA S-DELTA V) SUBT-P SUBINT (WHERE P, T, V, S, AND U ARE, RESP., EXTERNAL PRESSURE, TEMP., VOL. ENTROPY, AND INTERNAL ENERGY). ALSO P SUBINT EQUALS T ALPHA K-P (ALPHA IS THE THERMAL EXPANSION COEFF. AND K IS THE VOL. ELASTICITY MODULUS, BOTH BEING DETERMINABLE EXPTL.) AND THUS IT CAN BE DETD. BY CXPT. IT WAS SHOWN THAT THE COMPRESSION STRENGTH OF FILLED I INCREASES LINEARLY WITH THE INCREASE IN P SUBINT AND THE AMT. OF THE FILLER.

UNCLASSIFIED