

USSR

KIDIN, I. M. et al, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metal-  
lurgiya, No 9, 1970, pp 137-140

change in the structure and nature of the diffusion layer. The external brittle  
phase is absent in the layer. Which consists of an  $\alpha$ -solid solution of 260  
kg/mm<sup>2</sup> microhardness. Aluminum concentration on the surface is 15%.

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USSR

UDC 620.186:621.785.539

KIDIN, I. N., ANDRYUSHECHKIN, V. I., LEVTONOVA, N. M., and GULYAYEVA, V. M.  
Moscow Institute of Steels and Alloys

"Structure and Phase Composition of the Calorized Layer"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No. 2, 1971,  
pp 7-11

Abstract: The structure and phase composition of the layer formed by thermomdiffusion calorizing of specimens heated in a furnace at rates of 0.1 and 10°/sec, and also electrically heated at 50 and 1000°/sec are studied. Results are presented from metallographic studies, X-ray phase and microrentgenospectral local analyses, and measurement of microhardness and thermal EMF of the layer. The dependence is established between the data produced by the various methods. The curve of the change in thermal EMF allows the concentration of aluminum in the layer and its phases to be determined. The influence of electric heating on the structure and phase composition of the calorized layer is demonstrated. Studies are performed for base specimens of Armco iron (0.05% C) and Kh5M steel (0.1% C); 4.42% Cr; 0.05% Mo). When calorizing was performed in a furnace from a vapor-gas phase with heating rates of 0.1 and 10°/sec at 950-1200°C with

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KIDIN, I. N., et al., Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1971, pp 7-11

holding from 1 minute to 8 hours, the layer formed consisted of two zones, an outer, brittle layer consisting of an ordered solid solution of FeAl, containing 18-33% Al, plus a thicker solid solution of aluminum at the base, going over to a superstructure of Fe<sub>3</sub>Al when the aluminum content reaches 10%. Electric heating prevents formation of the outer brittle zone. The entire layer consists of a solid solution of aluminum in iron, with aluminum concentration only 18-20% at the surface.

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USSR

UDC 669.15-194:669.295:621.785.545:620.183

KIDIN, I. N., ANDRYUSHECHKIN, V. I., RAGIMOV, M. M., and KUZNETSOV, A. S.,  
Moscow Institute of Steel and Alloys

"The Effect of Fast Heating on the Formation of the Transition Zone in Bi-  
metals of the Iron-Titanium System"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya,  
No 11, 1970, pp 130-133

Abstract: An investigation was made of the kinetics of the formation of the transition zone in the bimetals Armco iron-VT1-0 and steel 20-VT1-0 in repeated heating with rates of  $v = 4$  deg/sec (furnace heating) and  $v = 100$  deg/sec (electroheating), in a 940-1070°C interval, and with aging for 0-150 min ( $v = 4$  deg/sec) and 0-4 min ( $v = 100$  deg/sec). The deformation process of the diffusion transition zone in the bimetals intensifies in fast heating with  $v = 100$  deg/sec. The diffusion of titanium in iron in fast heating takes place primarily in the grain boundaries. Microhardness and micro-thermoelectric power methods and X-ray phase analysis and metallographic analysis showed that an increased heating rate from 4 to 100 deg/sec in repeated heating after rolling does not affect the phase composition and structure of the transition zone in the bimetals.

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Coatings

UDC: 669.12:691.785.53

USSR

~~FRIDY, I.N.~~ ANDRIUSHECHNIK, V.I., and RAGEKOV, N.M., Moscow Institute of Steel and Alloys

"Gas Titanium Plating of Iron in High-Speed Electric Heating"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5, 1970, pp 123-126

Abstract: A report is presented on the development and investigation of a process for titanium plating of iron from a hydrogen-free vapor-gas phase using high-speed electric heating. Titanium tetrachloride vapors were used as the active medium and were introduced into the reactor by a flow of purified argon. The latter served as a  $TiCl_4$  vapor carrier and diluent. The process was studied in the 950-1200°C temperature range with holding time from 1-9 minutes and heating rates of 1, 100, and 1000 degrees per second on commercial iron (about 0.07% carbon). The kinetics of the gas titanium plating process and the structure and nature of the phases formed in gas titanium plating under high-speed electric heating conditions were studied by microscopic analysis methods and measurement of microhardness and microthermo-electromotive forces. Acceleration of heating intensifies the gas titanium plating process, and diffusion layers are obtained only

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KIDIN, I.N., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5, 1970, pp 123-126

under fast electric heating conditions (100-1000 degrees per second) at temperatures of 1100°C and higher. Thickness of the layers formed ranges between 20 and 80 microns, depending on saturation conditions. The layers formed represent a solid solution of titanium in Alpha-iron. In some cases, especially in increase of titanium tetrachloride content in the gas mixture of 25%, the formation of two-phase layers was observed.

2/2

1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--MEASUREMENT OF THE CONCENTRATION OF OXYGEN DISSOLVED IN TANTALUM  
-U-  
AUTHOR--(05)-ANUCHKIN, A.M., VOLKOV, A.K., KIDIN, I.N., ROZHNOVA, T.M.,  
SHTREMEL, M.A.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(1), 140-2  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--OXYGEN, TATALUM, SOLUBILITY, SOLID SOLUTION, REFRACTORY METAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1986/1008 STEP NO--UR/0148/70/013/001/0140/0142  
CIRC ACCESSION NO--AT0102942  
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AT0102942

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETN. OF THE CONC. OF INTERSTITIAL SOLID SOLNS. IN REFRACTORY METALS ON THE BASIS OF THE RESIDUAL ELEC. RESISTANCE IS FASTER THAN THAT BASED ON CELL PARAMETERS, AND OFTEN MORE RELIABLE THAN METHODS USING VACUUM FUSION OR VACUUM EXT. TO AVOID ERRORS RESULTING FROM THE GEOMETRY OF THE SPECIMENTS, THE PARAMETER EMPLOYED IS CHI, THE RATIO OF THE RESISTANCES AT 2 TEMPS., CHI IS A NONLINEAR FUNCTION OF THE CONC., BUT THE FUNCTION Z EQUALS (CHI MINUS 1) PRIME NEGATIVE 1 IS A LINEAR FUNCTION OF THE CONC. C IS THE MATTHIESSEN RULE IS OBEYED. THE RELATION Z EQUALS ALPHA PLUS QC IS EVEN MORE WIDELY VALID WITHIN ADEQUATE LIMITS OF ACCURACY. TA STRIPS CONTG. TRACES OF NB, MO, AND FE WERE ADDNL. PURIFIED BY PULSE HEATINGS (4-7 SEC) IN HIGH VACUUM (BELOW THE M.P.) AND THE RESISTIVITY MEASUREMENTS WERE MADE AT 293DEGREESK AND 770DEGREESK BY A POTENTIOMETRIC METHOD. INITIAL VALUES OF 2.71-3.50 FOR THE RATIO CHI INCREASED TO 4.60-5.33 AFTER PURIFICATION. SAMPLES WERE DEGASSED, AND THEN SATD. WITH O FOR 5-30 MIN AT 1100DEGREESC UNDER PRESSURES OF 2-4 TIMES 10 PRIME NEGATIVE 3 TORR, AND O WAS THEN REMOVED AT A PRESSURE SMALLER THAN 5 TIMES 10 PRIME NEGATIVE 5 TORR. CONC. WAS DETD. BY 3 METHODS: GRAVIMETRIC, LATTICE PERIOD, AND RESISTANCE AT 20DEGREESC. THE 3 METHODS GIVE COMPATIBLE RESULTS.

UNCLASSIFIED



Steels

USSR

UDC 669.14.018.85:620.186.8

KIDIN, I. N. and DORONIN, I. V. (Moscow Institute of Steels and Alloys)

"The Influence of Grain Size on Short-Time High-Temperature Strength of Steels and Alloys"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 6-7

Abstract: The possibility of using the fine-grained structure of heat-resistant steels and alloys under service conditions at high temperature for short periods of time (from minutes up to 1 hour) was investigated. Experiments on short-time heat resistance were conducted on the IP-4 experimental setup in accordance with a method described earlier. The same setup was used for tests on prolonged heat resistance (more than 10 hr) in accordance with a standard method (GOST 10145-62). The Kh12N20T3R and Kh25N16G7AR steels and KhN77TYu nickel alloy were tested. The results confirmed the assumption that the fine-grained structures of heat-resistant steels and alloys are stronger than the coarse-grained structure, within the range of relatively high temperatures considered. 3 figures, 6 references.

1/1

1/2 037 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--EFFECT OF GRAIN SIZE ON THE SHORT TERM HIGH TEMPERATURE STRENGTH OF  
STEELS AND ALLOYS -U-  
AUTHOR--(02)-KIDIN, I.N.; DORONIN, I.V.  
COUNTRY OF INFO--USSR *R*  
SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (3), 6-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--GRAIN SIZE, HIGH TEMPERATURE STRENGTH, HEAT RESISTANT STEEL,  
HEAT RESISTANT NONFERROUS ALLOY/(U)KH12N20T3R STEEL, (U)KHV77TYU STEEL,  
(U)KH25NI6G7AR STEEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1989/1936 STEP NO--UR/0129/70/000/003/0006/0008  
CIRC ACCESSION NO--AP0108265  
UNCLASSIFIED

272 037

UNCLASSIFIED

PROCESSING DATE--02JCT70

CIRC ACCESSION NO--AP0108265

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY WAS INVESTIGATED OF EMPLOYING A FINE GRAINED STRUCTURE OF THE HEAT RESISTANT STEELS AND ALLOYS UNDER THE CONDITIONS OF SHORT TERM SERVICE OF SEVERAL MIN TO 1 HR AT HIGH TEMPS. THE FOLLOWING STEELS WERE STUDIED: KH12N20T3R, KHV77TYU WITH INTERMETALLIDE HARDENING, AND KH25N16G7AR HARDENED BY THE ALLOYING OF THE SOLID SOLN. IN GENERAL THE CONCLUSION IS THAT FOR SHORT TERM USE AT HIGH TEMPS. THE FINE GRAINED STRUCTURE IS PREFERRED.

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UNCLASSIFIED

1/2 026

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--GASEOUS NITROGEN CASE HARDENING OF STEEL DURING INDUCTION HEATING

AUTHOR--(03)-KIDIN, I.N., ANDRYSUHECHKIN, V.I., KAMBUROV, K.D.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(3), 134-8

DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CASE HARDENING, STEEL HEAT TREATMENT, NITRIDATION, INDUCTION HEATING, AMMONIA, PROPANE, STEEL QUENCHING, MICROHARDNESS/LU20 STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3005/0836

STEP NO--UR/0148/70/013/003/0134/0138

CIRC ACCESSION NO--AT0132926

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132926

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTENSIFICATION OF N CASE HARDENING (TO 1-5 MIN) WAS ACHIEVED BY HEATING SPECIMENS OF STEEL 20 BY MEANS OF A HIGH FREQUENCY CURRENT. A MIXT. OF NH SUB3 AND PROPANE BUTANE WAS USED. THE INSTALLATION OF A HIGH FREQUENCY HEATER ALLOWED SUBSEQUENT QUENCHING OF SPECIMENS IN WATER. THE NITROCEMENTATION WAS CARRIED OUT AT 900-1200DEGREES WITH HEATING RATES 50DEGREES-SEC, HOLDING SPECIMENS AT THE INDICATED TEMPS. FOR 0, 30, 150, AND 300 SEC. AFTER NITROCEMENTATION, SOME OF THE SPECIMENS WERE QUENCHED IN WATER FROM 900DEGREES AND THE OTHERS WERE COOLED SLOWLY IN A GAS STREAM. THE HIGHERST MICROHARDNESS AND DEPTH OF NITRIDED LAYER WAS PRODUCED WHEN THE GAS MIXT. CONTAINED NH SUB3 30PERCENT AND PROPANE BUTANE 70PERCENT. WHEN HOLDING SPECIMENS AT 1100-50DEGREES FOR 150-300 SEC THE DEPTH OF NITROCEMENTED ALYER WAS 0.35-0.55 MM, WHILE THE SAME DEPTH WITH CONVENTIONAL SLOW HEATING COULD BE PRODUCED ANLY AFTER 3-5 HR. EVEN WITHOUT ANY HOLDING PERIOD THE DEPTH OF NITROCEMENTED LAYER WAS 0.15-0.20 MM. OPTIMAL NITROCEMENTATION TEMP. WAS 1100DEGREES WITH HOLDING TIME 4-5 MIN WHEREBY A GOOD QUALITY LAYER WAS PRODUCED 0.3-0.5 MM DEEP WITH MICROHARDNESS 900-1000 DAN-MM PRIMEZ. FACILITY: MOSK. INST. STALI SPLAYOV, MOSCOW, USSR.

UNCLASSIFIED

5 PPS 59208  
6-73

I-B. STATISTICS OF THE INITIAL STAGE OF THE FORMATION OF THE CRYSTALLIZATION CENTERS

Article by D. N. Aleksandrov, B. I. Kidyrov, Novosibirsk; Nevozhitsk, III Symposium on Processes of Growth of Crystals, Poluprovodnikoviy Kristally I Plesk, Rostov, 22-27 June, 1972, p 101

In the thermodynamic and fluctuation theory, the formation of the crystallization centers is considered as a random process. Therefore, the complete quantitative description of the crystallization laws requires knowledge of the corresponding statistical-probability characteristics reflecting the effect of the external factors and the characteristic features of nucleation. The further development of the mathematical theory of the nucleus formation process as a random process has been carried out. Considering the basic principles of the theory of stochastic processes, the theory of procedural statistics and the thermodynamic theory of nucleus formation, a study was made of the statistical laws of homogeneous and heterogeneous nucleation of the solid phase in supercooled melts and supersaturated solutions.

A probability theory analysis is performed of the type of distribution function of the waiting time for the appearance of the first crystallization center in the procedure of experimental research with one and many samples, in the case of variable and constant supercooling, in the presence of heterogeneity in the melt, nonstationarity and the nonisothermal nature of the process. The effect of the mechanism of nucleus formation on the type of distribution function and also the dependence of the kinetic parameters of the process defined from the distribution function of the incubation periods of crystallization on the external conditions are discussed. The investigated mathematical models are compared with the experimental data with respect to nucleus formation statistics and solution and melts of different substances.

KIDYAROV, B. I.

KIDYAROV, B. I.

SPRS 59008  
L.73

3

V-11. GROWTH OF ZINC OXIDE CRYSTALS IN THE  $ZnO$  solid- $H_2$ - $O_2$ - $H_2$  and  $ZnO$  solid- $H_2$ - $R_2O$ - $H_2$  SYSTEM

Article by T. D. Levitskaya, P. G. Pav'ko, B. I. Kidyarov, Novosibirsk; Novosibirsk, Tsi Sibirskum Po Protsessam Rozn. I Khim. Poluprovodnikov Kh. Kristallov. Prilozh. Kuznet, 11-17 June, 1972, p 62]

A thermodynamic analysis was performed on the  $ZnO$  solid- $H_2$ - $O_2$ - $H_2$  system, and an experimental study was made of the crystallization process in this system.

The hydrogen flow diluted with nitrogen passes over sintered zinc oxide, reducing it and transporting it into the crystallization zone to which the mixture of oxygen and nitrogen is fed. The quantity, size and perfection of the zinc oxide crystals depend on the process temperature and the oxygen and hydrogen concentrations.

The feeding of water vapor together with hydrogen into the reduction zone promotes a decrease in the number of fine acicular crystals and growth of larger perfect crystals. With a duration of the process of 50-70 hours, well faceted crystals of needles were obtained which are elongated along the c axis 3-6 mm in diameter and 20-30 long.

The replacement of oxygen by water in the oxidation zone changes the crystallographic direction of the predominant crystal growth: the crystals have the shape of a three-sided prism extended along the a-axis and with dimensions of  $3 \times 3 \times 30$  mm.

In the general case where a flow of hydrogen, water and nitrogen passes over the sintered zinc oxide and oxygen, water, nitrogen are fed into the crystallization zone, the form of crystals, growth is determined by the ratio of the component concentrations in both flows.

The process temperature of crystallization of quite perfect crystals is reduced to 1200°C by comparison with 1300°C-1400°C used in similar processes.

KIDYAROV, B. I.

SPRS 59208  
6-73

3

XI-1. STUDY OF THE CRYSTALLIZATION LAWS OF SEMICONDUCTOR SUBSTANCES

SESSION XI

Article by B. I. Kidyarov, P. L. Hitzelsky, I. I. Aleksandrov, N. S. Babitskiy, Novosibirsk, III Symposium on Nonlinear Resonance, Sverdlovsk Polytechnical University, Krasnoyarsk, Russia, 12-17 June 1972, p. 149.

A theoretical study was made of the initial stage of crystallization of semiconductors. It is shown that the rate of crystallization is determined by the law of the supercooled melt and the supercooled solution. It was demonstrated that there is a discrete series of temperatures and concentrations for which the beginning of crystallization of the supercooled melt and the supercooled solution is most probable. The height of the peaks of the nucleation rate of the crystallization centers decreases with an increase in superheating and duration of holding in the superheated state, and their position does not depend on the preliminary treatment of the melt. The existence of such a discrete series of temperatures is detected at the present time for the following substances which melt with different variations of the chemical bond type: semiconductor-semiconductor (Te), semiconductor-metal (Ge, In, Sb), semiconductor-metal (AlIn), metal-metal (Bi, Sn), dielectric-metal (LiNO<sub>3</sub>).

The waiting time distribution function for the appearance of the first crystallization center (1) at the peaks of the nucleation rate is subjected to the exponential law of the nonuniform batch (1) and at the minima it has a more general form connected with the presence of prolonged nonstationary crystallization periods (2):

$$(1) f = \frac{1}{N_0} \exp(-\frac{t}{\tau_0}) \exp(-\frac{t}{\tau_0})$$
$$(2) f = \frac{1}{N_0} \exp(-\frac{t}{\tau_0}) \exp(-\frac{t}{\tau_0}) \exp(-\frac{t}{\tau_0})$$

where N<sub>0</sub> is the total number of samples for the number of tests on one sample, n is the number of samples crystallized by the time t.

The indicated relations (1) and (2) were also observed when studying the crystallization of tin whiskers and they obviously have a general nature.



USSR

UDC 621.375.82

KIDYAROV, B. I., KRIVOSHCHEKOV, G. V., MITNITSKIY, P. L., SAMARIN, V. I.,  
STROGANOV, V. I., TARASOV, V. M.

"Dispersion of Wave Synchrony in a  $\text{LiIO}_3$  Crystal"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics--collection of works), Vyp. 2, Novosibirsk, 1972, pp 399-407 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D858)

Translation: A study is made of the dependence of the nonlinear characteristics of  $\text{LiIO}_3$  on the frequency in order to discover new possibilities of applying this crystal for cascade laser emission frequency multipliers. The  $\text{LiIO}_3$  crystals in the hexagonal version were grown from an aqueous solution containing 10%  $\text{HIO}_3$  with respect to  $\text{LiIO}_3$ . The nonlinear characteristics of the crystal were investigated by means of a glass Nd-laser with a broad generation spectrum of  $0.008 \text{ \AA}$ . An experimental check was made of the intensity of the excited second harmonic as a function of the wavelength of the radiation propagated along the direction of synchrony. A study was also made of the dependence of the intensity of the second harmonic on the pumping beam deflection from the direction of synchrony. When determining the magnitude of  $d\theta_c/d\lambda$ , additional possibilities for a nonlinear frequency discriminator were discovered. The bibliography has 7 entries.

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--02 OCT 70  
TITLE--STATISTICAL STUDY OF THE KINETICS OF NUCLEATION IN MELTS. I.  
FORMATION RATE OF CRYSTALLIZATION CENTERS -U-  
AUTHOR--(03)-KIDYAROV, B.I., BCLKHOVITYANOV, YU.S., DENYANOV, E.A.  
COUNTRY OF INFO--USSR *R*  
SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 668-72  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--NUCLEATION, CRYSTALLIZATION, SUPERCOOLING, FUSED SALT, INDIUM  
ANTIMONIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1993/0277 STEP NO--UR/0075/70/044/003/0668/0672  
CIRC ACCESSION NO--AP0113207  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113207

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE RATE OF  
NUCLEATION ON THE DEGREE OF SUPERCOOLING IS DERIVED FROM A STATISTICAL  
INVESTIGATION OF SUPERCOOLING OF A MELT. THE RATE OF NUCLEATION OF IN  
ANTIMONIDE ON THE DEGREE OF SUPERCOOLING WAS MEASURED. FACILITY:  
INST. FIZ. POLUPROV., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

SAVIN, G. N., et al, Prikladnaya Mekhanika, Vol 6, No 11, 1970, pp 3-9

factor of 2 in the megacycle frequency range. The development of acoustical equations for theories with gradients, and particularly their experimental testing, encounters certain methodological difficulties at the present time primarily resulting

UDC 534.21:539.3

USSR

SAVIN, G. N., LUKASHEV, A. A., Kiev, Kishinev  
"Some Acoustical Effects in a Medium With Internal Degrees of Freedom (Review)"

Kiev, Prikladnaya Mekhanika, Vol 6, No 11, 1970, pp 3-9

Abstract: Most actual solids which are considered isotropic and homogeneous in solid state mechanics actually have microheterogeneities in their internal structure. Consideration of nonlinearities in the theory of isotropic elastic models of solids which internal degrees of freedom (non-local theory of elasticity) leads to a dependence of the velocity of longitudinal and transverse acoustic waves on pressure, while consideration of the internal structure leads to a dependence of the speed of sound on frequency (velocity dispersion). Both effects are comparatively slight. For example, in polycrystalline metals, the relative change in the speed of sound does not exceed  $10^{-4}$ - $10^{-3}$  with a change in pressure of  $10 \text{ Mn/m}^2$ , and will be of the same order of magnitude with a change in oscillating frequency by a

UDC: 621.317.332.1.088: 620.179.14

USSR

KIFER, I.I., SHKARLET, YU.M., FASRITSKIY, V.S.,  
BCNDARENKO, N.L. and KLYAGIN, YU.F.

"Estimate of Accuracy of Approximate Formulae for Calculation of  
Printed Transducer Impedance Due to Ferromagnetic Products"

Sb. Electromagnit. metody nerazrushayushch. kontrolya  
(Symposium on Electromagnetic Methods of Nondestructive Control)  
Minsk, Nauka i Tekhnika Publishing House, 1971, pp 91-101 (from  
Referativnyy Zhurnal-Metrologiya i Izmeritel'naya Tekhnika, No 8,  
1972, Abstract No 8.32.219)

Translation: Formulae derived by the authors are analyzed. It is  
shown that the results obtained from the approximate formulae are  
quite satisfactory in the range  $0.2 < \frac{|\mu|}{\beta_0} < 8.0$  with  $\alpha_3 > 0.85$ ,  
where  $|\mu|$  is the magnetic permeability of the product;  $\beta_0$  is the  
generalized parameter,  $\alpha$  is the relative distance between the

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USSR

KIFER, I. I., et al., Sb. Electromagnit. metody nerazrushayushch. kontrolya, Nauka i Tekhnika Publishing House, 1971, pp 91-101

transducer and the product. The errors relative to the results obtained by exact formulae in this case do not exceed 16% on permeability and 17° on the phase. Considering the simplicity of the approximate formulae (in spite of somewhat high errors), they can be used in the recommended range of parameters for the preliminary calculations of printed transducers (4 illustrations, 3 tables, 4 references).

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USSR

UDC 517.946

KIGAY, A. K.

"Substantiation of Solution of the Third Boundary Value Problem for the Equation of Heat Conduction in a Rectangular Parallelepiped"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Fiziko-Matematicheskaya, No 1, Jan-Feb 71, pp 42-49

Abstract: The article considers the solution of the equation

$$\frac{\partial u}{\partial t} = a^2 \left( \frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2} \right)$$

in the region  $R(0 < x < l, 0 < y < h, 0 < z < r)$ , given  $t > 0$ ,

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USSR

KIGAY, A. K., Izvestiya Akademii Nauk Kazakhskey SSR, Seriya Fiziko-Matematicheskaya, No 1, Jan-Feb 71, pp 42-49

which satisfies the initial condition

$$u(x, y, z, t)_{t=0} = f(x, y, z)$$

and the boundary conditions

$$\left(\frac{\partial u}{\partial x} - h_1 u\right)_{x=0} = \varphi_1(y, z, t),$$

$$\left(\frac{\partial u}{\partial x} + h_2 u\right)_{x=l} = \varphi_2(y, z, t),$$

2/4



USSR

KIGAY, A. K., Izvestiya Akademii Nauk Kazakhs koy SSR, Seriya Fiziko-Matematicheskaya, No 1, Jan-Feb 71, pp 42-49

$$\left(\frac{\partial u}{\partial y} - h_3 u\right)_{y=0} = \psi_1(x, z, t),$$

$$\left(\frac{\partial u}{\partial y} + h_4 u\right)_{y=h} = \psi_2(x, z, t),$$

$$\left(\frac{\partial u}{\partial z} - h_5 u\right)_{z=0} = \omega_1(x, y, t),$$

$$\left(\frac{\partial u}{\partial z} + h_6 u\right)_{z=b} = \omega_2(x, y, t),$$

where  $h_1, h_2, h_3, h_4, h_5, h_6 \geq 0$  are coefficients of heat ex-  
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USSR

KIGAY, A. K., Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Fiziko-Matematicheskaya, No 1, Jan-Feb 71, pp 42-49

change with the environment;  $f(x,y,z)$ ,  $\varphi_1(y,z,t)$ ,  $\varphi_2(y,z,t)$ ,  $\psi_1(x,z,t)$ ,  $\psi_2(x,z,t)$ ,  $\omega_1(x,y,t)$ ,  $\omega_2(x,y,t)$  are given and continuous in the Hölder sense.

The solution is found by the finite integral transform method and substantiated by means of the generalized theta function introduced by A. M. ZHURAVSKIY.

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USSR

UDC 621.385.632

ALGAZINOV, E.YE., KIGAYEV, YU. I.

"Use Of Method Of Successive Approximations For Analysis Of Multisignal Operation Of A TWT (Abstract Of Deposited Manuscript)"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology, Scientific-Technical Collection. Microwave Electronics), 1970, Issue 12, p 49 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A177)

Translation: Use of the method of successive approximations is considered for analysis of the processes in a traveling-wave tube during amplification of several signals with near frequencies. A comparison of the results of the first and second approximations is presented. The limits of applicability of simple analytical expressions obtained in a first approximation are evaluated. Particular attention is allotted to an investigation of crossmodulation phenomena. The behavior of the suppression function is analyzed as a function of the level of both signals and for various parameters of dissynchronism. It is shown that with an increase of the amplitude of the signal being suppressed, the effect of the suppression is decreased. The proposed method can be successfully utilized for detection of the high-frequency spectrum at the output of the TWT in the case of amplification of any number of signals with near frequencies. Summary.

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1/2 007 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--INTENSIFICATION OF THE FINISHING OF A CUT STAPLE FIBER -U-  
AUTHOR--(05)-KREHNEV, D.A., BOROVSKIY, V.R., SATANOVSKIY, A.L., KIGEL,  
T.B., BUGAYCHUK, N.F.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. VOLOKNA 1970, (2), 53-5 (RUSS)  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--RAYON, TEXTILE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1661 STEP NO--UR/0183/70/000/002/0053/0055  
CIRC ACCESSION NO--AP0125283  
UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--13NOV70  
CIRC ACCESSION NO--AP0125283  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CON. CONTINUOUS WASHING OF  
RAYON STAPLE WITH DIL. NAOH SOLN. AT 78DEGREES REQUIRES 135 SEC TO  
REDUCE ITS S CONTENT BELOW 0.075PERCENT. THE INSERTION OF ROLLERS,  
WHICH COMPRESS THE STAPLE PERIODICALLY DURING ITS PASSAGE THROUGH THE  
BATH, AND TEMP. INCREASE TO 95DEGREES REDUCED THIS TIME TO 20-5 SEC.  
THE WASHING TIME WAS ALSO REDUCED TO 15-20 SEC WHEN VIBRATIONS OF 200  
CYCLES-MIN AND 50 MM AMPLITUDE WERE APPLIED TO THE WASH SOLN. HELD AT  
80DEGREES. BOTH OF THESE METHODS INCREASED PRODUCTIVITY. THE  
VIBRATIONS GAVE SOFTER, EASIER TO DRY FIBERS. FACILITY: INST.  
TEKH. TEPLOFIZ., KIEV, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--EXAMINATION OF VIRUS CULTURES WITH REGARD TO MYCOPLASMA  
CONTAMINATION AND DEVELOPMENT OF PURIFICATION METHODS -U-  
AUTHOR--KIKAVA, E.M.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 241-244

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MYCOPLASMA, VIRUS, CULTURE METHOD, TETRACYCLINE, BLOOD SERUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0741

STEP NO--UR/0402/70/000/002/0241/0244

CIRC ACCESSION NO--AP0108947

UNCLASSIFIED

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025

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108947

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER PRESENTS THE RESULTS OF EXAMINATION OF VIRUS CULTURES FROM THE ALL UNION COLLECTION OF VIRUSES WITH REGARD TO POSSIBLE CONTAMINATION WITH MYCOPLASMA AND DEVELOPMENT OF PURIFICATION METHODS. OUT OF 120 VIRUS CULTURES TESTED 50 (43PERCENT) WERE CONTAMINATED WITH MYCOPLASMA. IN THE COURSE OF IDENTIFICATION IT WAS FOUND THAT ALL THE CONTAMINATING MYCOPLASMA BELONGED TO M. HOMINIS II. THE DEVELOPED METHODS FOR DECONTAMINATION OF VIRUS CULTURES FROM MYCOPLASMA BY USING TETRACYCLINE OR HYPERIMMUNE RABBIT SERA PROVIDED COMPLETE PURIFICATION OF CULTURES IN THE 1ST PASSAGE.

UNCLASSIFIED

USSR

UDC 681.2.002.56:661.92

KIKIY, B. F., IVASHCHENKO, B. P., ROZHENTSEVA, S. A., Odessa Technological  
Institute of the Refrigeration Industry

"Semiconductor Low-Temperature Hygrometer"

Moscow, Kholodil'naya Tekhnika, No 7, 1971, pp 22-23

Abstract: The new GTA-70 automatic thermoelectric hygrometer developed by the Odessa Technological Institute of the Refrigeration Industry is described, and test results are presented. The new hygrometer permits determination of the dew point to  $-70^{\circ}\text{C}$  at an ambient temperature of  $20-30^{\circ}$ . The operation of the optical system and other units of the hygrometer are described in detail. Operation of the instrument under laboratory and production conditions revealed that it requires a warm-up time of 1.5-2 hours for accumulation of cold in the intermediate tank with the water-alcohol solution. By leaving the auxiliary thermopile with an intake of no more than 100 volt-amperes on the warm-up time can be avoided. The reproducibility of the measurements is within the limits of  $1^{\circ}$ . At a dew point of  $-70^{\circ}\text{C}$ , 20-30 measurements per hour can be obtained, and at a dew point of  $-40^{\circ}\text{C}$ , 50-60 measurements per hour are possible.

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KIKLEVICH, Y.M.

*Handwritten:* Study of some indicators of the higher nervous activity of men

Article by S. G. Bulvar, Ye. M. Malozem, S. G. Fevny, and S. S. Stetsko. *Specialty*  
Dopelnik State University Kiev, Filozoficheskiy Zhurnal Akademicheskoy  
Ukrayins'koyi Nivnitsi, Vol 14, No 3, 1972, pp 7-12.

Ukr 612.531.770.32

STUDY OF SOME INDICES OF THE HIGHER NERVOUS ACTIVITY OF MEN  
SUBMITTED TO UNDERWATER ENVIRONMENT FOR SHORT HOURS

A long experiment of men to underwater laboratories of an open type with an optimal parameters equating that of the underwater environment is one of the most promising methods for the study of oceanic. An effective use of the underwater dwelling depends on the ability of aquanauts to perform some physical and mental tasks directly in the water for long time intervals.

Little is known about the mental activity of aquanauts in an underwater environment. In fact, only initial attempts were made to evaluate the activity of men at Great Ocean depths (167). A positive correlation was established between alpha rhythms on EEG and underwater saturation (107). There are literature data indicating that the ability to perform physical work and that work output decreases with increasing water depth (117). It was established during the Scripps II experiments that serious coordination and work effectiveness deteriorate under water (127). Lack of a uniform methodological basis, the multifaceted approach to the problem, and environmental variations make it impossible to establish the functional state of the higher nervous activity of aquanauts. Furthermore, a short underwater stay of aquanauts cannot be extrapolated for much longer time intervals.

The aim of this work was to study some indicators of the higher nervous activity of aquanauts subjected to an underwater environment for many hours.

Experimental Methods

Two types of experiments were carried out: with 10 divers (R-2) years old performing periodically a definite kind of physical work under water for 3-6 hours and with aquanauts subjected to relative hypoxemia for 26 (1 aquanaut) and for 38 hours (2 aquanauts). In order to dif-

I.N. KIKNADZE

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Acc. Nr.: MP0042570

Ref. Code: UR0293  
JPRS 50162

Study of Geoactive Corpuscles and Photoelectrons

(Abstract: "Study of Geoactive Corpuscles and Photoelectrons on the 'Kosmos-261' Satellite," by A. D. Bolyunova, M. L. Bragin, Yu. I. Gal'perin, V. A. Gladyshev, N. V. Dzhordzhio, G. N. Zlotin, I. N. Kiknadze, R. A. Kovrazhkin, T. M. Mulyarchik, Yu. N. Ponomarev, V. V. Temnyy, N. Fedorova, Yu. P. Shilyayev, F. K. Shuyskaya and R. V. Shulenina; Moscow, Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 104-136.)

The artificial earth satellite "Kosmos-261" was used in a study of low-energy geoactive corpuscles and fresh photoelectrons and their interaction with the earth's upper atmosphere. The satellite was launched on 30 December 1968. Orbital inclination to the equator was 71°, so that for a relatively long time it moved almost along a tangent along the auroral zone over the Soviet Far North, making it possible to increase the volume of simultaneous measurements from the satellite and from ground observatories. The storage regime made it possible to extend continuous measurements for periods of several revolutions, including passes over the auroral zones in the Arctic and Antarctic and over the polar caps as far as invariant geomagnetic latitudes 82-85°. During the initial period the satellite apogee was at 670 km and perigee was at 217 km, but it finally

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burnt up upon entering into the dense layers of the atmosphere on 12 February 1969 after making 857 revolutions of the earth. The experiment lasted 53 days. The orbit was such that in the northern hemisphere middle and high latitudes the satellite moved below or close to the maximum of the F-region so that ionospheric electron density along its trajectory and its variations could be determined in a number of regions on the basis of measurements by ground ionospheric stations. The period of the experiment included both quiet periods and those with strong disturbances. The experiment was conducted under the "Program of Cooperation Among Socialist Countries in the Field of Space Research and Peaceful Use of Space." Ground measurements were made in Bulgaria, Hungary, East Germany, Poland, Rumania, USSR and Czechoslovakia. Observatories and special expeditionary stations in the USSR participated: in Yakutia, the Far North, Siberia and middle latitudes. The article cited below is divided into four parts: 1) Description of Experiment; 2) Measurement of Low-Energy Electrons; 3) Measurement of Low-Energy Ions; 4) Measurements of Charged Particles with Intermediate and High Energies. Parts 2)-4) are essentially independent articles and are abstracted separately.

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USSR

UDC 612.45+612.766.1

KASSIL', G. N., MATLINA, E. SH., VASIL'YEV, V. N., and KIKOLOV, A. I.,  
Laboratory for Problems of Control of Functions in Humans and Animals imeni  
N. I. Grashchenkov, Academy of Sciences USSR, and Laboratory of Mental Work,  
All-Union Scientific Research Institute of Railroad Hygiene, Ministry of  
Public Transport

"The Influence of Intense Mental Work During the Day and Night Hours on the  
Excretion of Catecholamines in the Urine"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 8,  
Aug 73, pp 1,151-1,157

Abstract: The excretion of catecholamines in the urine was studied for 68  
railway employees who alternated day and night shifts. In the daytime,  
operators and on-duty men exhibited only a decrease in the reserve capacities  
of the sympatho-adrenalin system, while dispatchers, said to do more intense  
work, also showed an increase in noradrenalin excretion. During the night  
shift the dispatchers showed a larger increase in adrenalin excretion than  
other railway workers, though less than a control group not accustomed to  
night work, and a larger increase in noradrenalin excretion than either group.  
Dispatchers also increased their excretion of the dihydroxyphenylalanine  
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USSR

KASSIL', G. N., et al., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 8, Aug 73, pp 1,151-1,157

precursor. The operators and on-duty men showed a larger increase in nor-adrenalin excretion during the night work than the controls. Excretion levels returned to the initial on the second day of rest. These results are said to show that even after many years of adaptation to a certain type of neuro-emotional work the excretion of catecholamines still depends on the intensity of the work, and that adaptation to night work is more difficult than to day work.

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- 49 -

Acc. Nr: AP0038028

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Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 60-67

QUANTUM OSCILLATIONS OF PHOTOMAGNETIC EFFECTS AND PHOTOCONDUCTIVITY IN InSb AND InAs

Kikoin, I. K.; Lazarev, S. D.; Shepel'skiy, G. A.; Yefremova, G. D.

Quantum oscillations of photomagnetic phenomena in the degenerate semiconductors  $n$ -InSb and  $n$ -InAs are investigated in magnetic fields up to 50 kOe and temperatures between 1.8 and 4.2° K. At magnetic field strengths at which the photomagnetic e.m.f. changes sign (anomalous region) a pronounced nonlinear dependence of the photomagnetic effects on incident light intensity is observed under conditions of weak illumination ( $\Delta n \ll n$ ). With increase of light intensity the photomagnetic e.m.f. passes through a maximum and then changes sign. Photoconductivity in a magnetic field was studied in the same samples. A negative photoconductivity in a transverse magnetic field was observed. A theoretical interpretation of the anomalous phenomena apparently requires that the role of not electrons be taken into account.

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19731069

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1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--EFFECT OF ELECTRON CORRELATION IN METALS ON THEIR HYBRIDIZATION AND  
MAGNETIC PROPERTIES -U-  
AUTHOR--(02)-KIKGIN, K.A., MAKSIMOV, L.A.  
COUNTRY OF INFO--USSR K  
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,  
NR 6, PP 2184-2194  
DATE PUBLISHED--70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--ELECTRON, CORRELATION ANALYSIS, HYDRIDE, METAL, MAGNETIC  
PROPERTY, MODEL, ATOMIC STRUCTURE, ELECTRON SHELL STRUCTURE,  
FERROMAGNETIC STRUCTURE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1693 STEP NO--UR/0056/70/058/006/2184/2194  
CIRC ACCESSION NO--AP0120405  
UNCLASSIFIED

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PROCESSING DATE--20NOV70

CIRC ACCESSION NO--APG120405  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A MODEL OF METALS IS CONSIDERED IN WHICH ELECTRONS CAN EXIST IN ALMOST FREE STATES AND ALSO BE LOCALIZED AT NODES IN THE D PRIME1 AND D PRIME2 STATES OF THE ATOMIC D SHELLS. THE FERMI ELECTRON EXCITATION SPECTRUM IS FOUND BY TAKING INTO ACCOUNT HYBRIDIZATION OF THE STATES AND INTRA ATOMIC INTERACTION OF THE D ELECTRONS. THE INFLUENCE OF THE INDICATED INTERACTIONS ON MAGNETIC PROPERTIES OF THE SYSTEM IS INVESTIGATED AND IT IS SHOWN THAT WHEN THE NUMBER OF ELECTRONS ON THE ATOM N LESS THAN OR SIMILAR TO 2, FERROMAGNETIC ORDERING IS POSSIBLE AND ENERGETICALLY PROFITABLE.

UNCLASSIFIED



USSR

UDC 616.986.7-036.22

KIKTENKO, V. S., University of Friendship Among Peoples imeni Lunumba,  
Moscow

"Natural Reservoirs and Foci of Leptospirosis"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1972,  
pp 106-110

Abstract: From the epidemiological standpoint, there are 3 kinds of foci of leptospirosis each of which possesses several reservoirs of the infection: natural, rural, and urban. The main reservoirs in the natural focus are murine rodents, insectivorous and possibly game and predatory animals. Farm animals, pets, and in part murine rodents are the reservoirs in a rural focus. The reservoirs in an urban focus are rats, dogs, and possibly cats. In all 3 foci human beings become infected by coming in contact with the animals or their excretions directly or through consumption of contaminated water or food. The methods needed to prevent and control leptospirosis must be chosen with regard to the peculiarities of the area affected.

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USSR

UDC: 621.396.2

KULESHOV, A. V., KIKTEV, A. A.

"Errors in Transmission of Binary Information Over Ionospheric Communications Channels"

Sb. nauchn. tr. TsNII svyazi (Collected Scientific Works of the Central Scientific Research Institute of Communications), 1970, vyp. 2, pp 70-82 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A266)

Translation: The article contains a systematization of concepts which explain the physical side of causes which could be responsible for errors in ionospheric channels. An experimental ionospheric channel is described which was used for preliminary statistical studies. A method is proposed for making statistical measurements on ionospheric channels and the set of measuring equipment is briefly described. Resumé.

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Acc. Nr.: AT0046537

Ref. Code: UR0146

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USSR

UDC 621.391.82

KOSTYUK, V.I.. KIKU, A.G.

"Determining Plant Parameters in the Presence of Additive Stationary Noise"

K voprosu opredeleniya parametrov ob"yektov v prisutstvi  
additivnykh statsionarnykh pomekh (cf. English above),  
Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy, Priboro-  
stroyeniye, 1970, No 1, pp 58-61

Translation:

A method is proposed for forming a functional which makes it possible to obtain unbiased and effective estimates of plant parameters when additive stationary noise acts on the linear portion of a plant of known structure.

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Reel/Frame  
19781798

USSR

UDC 681.3.06.51

KIKVADZE, N. N.

"One Realization of ALGOL-60"

Tr. Vychisl. Tsentra. AN Gruz SSR [Works of Computer Center, Academy of Sciences, Georgian SSR], Vol. 9, No. 3, 1970, pp 16-57 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V660 by V. Mikhevev).

Translation: A description is presented of a translator for ALGOL-60, developed at the computer center of the Georgian SSR Academy of Sciences in 1966-1967. The translator is composed for a three-address computer with a memory capacity of 2048 42-bit words, 4- magnetic drums with a total capacity of  $4 \times 2048=8192$  words, one index register, a punch card input, and a printer output. The computer operates with an average speed of 8,000 operations per second in a floating point mode, and the instruction system contains the arithmetic and logic operations usually encountered in computers, control operations and operations on codes. The input language for the translator is a reduced version of ALGOL-60 (IFIP subset) with the following changes: 1. rows and descriptors are eliminated in descriptions of types and files; 2. identifiers are differentiated only in the first 8 characters; 3. the number of formal parameters of one procedure cannot exceed 23; 4. files with dimensionalities of not over 3 are permitted, while the number of identifiers of files included in one segment cannot exceed 9; 5. additional operators -- the input and output operators, simplified versions of the corresponding input and output operators of ALGANS -- are included.

Исследования в области  
Institute of Control Systems, Academy of Sciences, Gruzinskaya  
SSR), No 2, 1970, pp 5-11 (from Referativnyy Zhurnal, Metrologiya  
i Izmeritel'naya Tekhnika, No 12, 1970, Abstract No 1232.607  
by V. S. K.)

Translation: In the article are presented the method of calculation, a description of the operating principle, and a description of the arrangement of a photoelectric pyrometer for measuring the temperature of bodies of small area, developed at the Institute of Electronics, Automation, and Remote Control of the Academy of Sciences, Gruzinskaya SSR. The operation of the pyrometer is based upon a comparison of the radiation of the surface, the temperature of which is being measured, with the radiation of a standard lamp that has been graduated by standard pyrometer. The range of measured temperatures is from 1000 to 2000°C, the measurement exactness is to within  $\pm 1\%$ , the minimum area of 1/2

USSR

KILADZE, N. SH., et al, Trudy Instituta Sistem Upravleniya AN GruzSSR, No 2, 1970, pp 5-11

radiating surface is  $0.5 \text{ mm}^2$ , the average wave length of the measurement is  $6800 \text{ \AA}$ , the width of the spectrum band is  $70 \text{ \AA}$ .  
2 illustrations, 2 bibliographic entries.

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USSR

KIKUST, P. B.

"Hamiltonian Cycles in a Homogeneous Graph of Power 5"

Garmil'tonov Tsikl v Odnorodnom Grafe Stepeni 5 [English Version Above], Riga, 1972, 9 pages (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V419 DEP, by the author).

Translation: One sufficient condition for existence of a Hamiltonian cycle in an ordinary homogeneous graph of power 5 is studied. The following theorem is proven:

Theorem. If the surroundings of all points of a homogeneous connected graph of power 5 are connected, there is a Hamiltonian cycle in this graph. The surroundings of a given point in this case refer to the subgraph generated by all adjacent points.

During the course of the proof, a method is demonstrated, which can be used, beginning with any simple cycle, to construct a sequence of simple cycles of increasing length until a Hamiltonian cycle is produced.

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USSR

KIKVIDZE, R. R., KOTETESHVILI, G. G., RUKHADZE, A. A., Physics Institute  
Imeni P. N. Lebedev, Academy of Sciences of the USSR, Moscow

"Interaction Between an Electron Beam and the Plasma of a Solid"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 2, Feb 73, pp 622-623

Abstract: In a previous paper (Fizika Tverdogo Tela, Vol 14, 1972, p 2231) the authors showed that the longitudinal waves excited by a nonrelativistic electron beam in the plasma of a solid are the normal modes with accuracy to terms of the order of  $v_0/c \ll 1$ . Axially symmetric modes with  $l=0$  were treated there for the sake of simplicity. In this paper the authors study excitation of arbitrary electromagnetic waves with  $l \neq 0$  in the absence of an external magnetic field. Using Maxwell's equations and the expression for the operator of the tensor of permittivity, they derive differential equations for the fields  $E$  and  $B$ . It is shown that the mode with largest  $l$  has maximum efficiency of conversion, which is determined from the condition of smallness of transverse diffusion. The efficiency of conversion for axially asymmetric modes increases with a reduction in  $\omega_0 a/v_0$ .

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USSR

KIKVIDZE, R. R.; KOTETISHVILI, V. G.; RUKHADZE, A. A. (Lebedev Physics Institute of the USSR Academy of Sciences, Moscow)

"Radiation Yield of a Solid-State Plasma during the Development of Beam Instability"

Leningrad, Fizika Tverdogo Tela; August, 1972; pp 2231-5

ABSTRACT: The possibility of the generation and amplification of electromagnetic waves by means of an electron beam passing through a cylindrical slit in a solid is studied. It is shown that potential oscillations in such a system, studied earlier, are natural, with an accuracy up to the terms  $v_0/c \ll 1$ . One of the modes of quasi-longitudinal oscillations has a maximum increment. The Umov-Poynting vector, connected with this mode, and the efficiency factor of the transformation of energy of the beam into energy of transverse electromagnetic radiation are found. At the same time, nonlinear theory is used to determine the amplitude of the steady-state oscillation. A definite advantage of the perturbation of surface over spatial oscillations is indicated. The article includes 19 equations. There are four references.

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USSR

KIRVITDZE, R. R.; KOTETESHVILI, V. G.; RUKHADZE, A. A. (Lebedev Physics Institute of the USSR Academy of Sciences, Moscow)

"Perturbation of Longitudinal Electromagnetic Waves by an Electron Beam in the Plasma of a Solid"

Leningrad, Fizika Tverdogo Tela, January, 1972, pp 183-6

Abstract: The authors studied the possibility of the generation and amplification of longitudinal electromagnetic waves by means of an electron beam passing through a cylindrical aperture in a solid specimen, with and without an external longitudinal magnetic field. The effect of the dissipative mechanism of scattering of current carriers in the solid on the development of instability was determined. It was shown that perturbation of oscillations is possible not only under conditions in which the increment of increase is larger than the effective frequency of collisions of free carriers but also in the opposite case. In the latter case there is already a spectrum of perturbed oscillations. The threshold points of the electron beam above which the development of an instability takes place were determined. An evaluation of the amplitude of the non-linear oscillations occurring was made.

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USSR

KIKVIDZE, Ye. A.

"The Exclusion Principle as One Approach to Pattern Recognition"

Nekotor. zadachi raspoznavaniya obrazov i teorii grafov [Some Problems from Pattern Recognition and Graph Theory -- Collection of Works], Tbilisi, Metsniyereba Press, 1972, pp 31-36 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V696 by V. Mikheyev)

Translation: The method suggested for recognition is included in the group of methods in which a pattern is distinguished by man and only recognized by machine. Suppose there are  $m$  classes ( $s_1, s_2, \dots, s_m$ ) of objects to be recognized. The input of the machine receives not the object itself, but rather only its properties. The set of these properties is a description of the object or its mapping. Using this mapping, the machine creates (restores) a pattern corresponding to each class  $s_i$  and concludes that the object, the mapping of which was received at the input, belongs to class  $s_i$ . It is assumed in this case that each object is characterized by a finite number of parameters.

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USSR

KIKVIDZE, Z. A., TKEMALADZE, N. T., CHAVCHANIDZE, V. V.

"Methods of Delineation of a Pattern by Means of Computers"

Nekotor. zadachi raspoznavaniya obrazov i teorii grafov [Some Problems from Patter Recognition and Graph Theory -- Collection of Works], Tbilisi, Metsniyereba Press, 1972, pp 49-56 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V695 by V. Mikheyev)

Translation: Methods of solution of the following problem are studied. Suppose  $\theta = \{\theta_i\}$  is a finite set of objects, in which the subdivision into classes of equivalence by condition R is defined. By R we mean similarity, i.e., objects with same nomenclature are considered to be equivalent or to be included in the same class. In this case,  $\theta$  becomes the union of the intersecting classes  $\theta = \bigcup_k S_k$ , while the set of such classes is a factor-set in relationship to equivalence R. One and only one element of set  $\theta/R$  corresponds to each element of set  $\theta$ , but not vice versa. For each element  $\theta_i \in \theta$ , condition R allows us immediately to determine class  $\delta_k$ , of which

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USSR

KIKVIDZE, Z. A., TKEMALADZE, N. T., CHAVCHANIDZE, V. V., Nekotor. zadachi raspoznavaniya obrazov i teorii grafov, Tbilisi, Metsniyereba Press, 1972, pp 49-56

$\theta_i$  is a representative, since each object corresponds the class of its nomenclature. Two methods of construction of  $\theta/R$  by computer are presented.

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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.

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USSR

UDC 669.71.472(088.8)

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.

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1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--REMOVAL OF UNPOLYMERIZED MONOMERS FROM LATEXES -U-

AUTHOR--(05)-KIL, T.A., ZADORSKIY, V.M., LUKYANOVA, I.P., VOLKOVA, N.I.,  
KENZHETAYEVA, V.D.  
COUNTRY OF INFO--USSR

K

SOURCE--U.S.S.R. 265, 430  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--MONOMER, LATEX, DISTILLATION, FREON, CHEMICAL PATENT, CHEMICAL  
SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1424

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128823

UNCLASSIFIED



272 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
CIRC ACCESSION NO--AA0128823  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNPOLYMD. MONOMERS ARE REMOVED  
FROM LATEXES BY DISTG. THEM WITH H SUB2 O VAPOR MIXED WITH FREQN 12.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--REMOVAL OF UNPOLYMERIZED MONOMERS FROM LATEXES -U-

AUTHOR--(051)-KIL, T.A., ZADORSKIY, V.M., LUKYANOVA, I.P., VOLKOVA, N.I.,  
KENZHETAYEVA, V.D.  
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,431  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--MONOMER, LATEX, CHEMICAL PATENT, BUTADIENE, INDUSTRIAL  
BYPRODUCT, UNSATURATED HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1425

STEP NO--UK/0482/70/000/0000/0000/0000

CIRC ACCESSION NO--AA0128824

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128824

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNPOLYMD. MONOMERS ARE REMOVED FROM LATEXES BY DISTG. THEM WITH STEAM MIXED WITH THE ETHER PART OF A PIPERYLENE FRACTION (BY PRODUCT OF 1,3,BUTADIENE PRODUCTION AS DESCRIBED BY S. V. LEBEDEV).

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--REMOVAL OF UNPOLYMERIZED MONOMERS FROM LATEXES -U-

AUTHOR--(05)-KIL, T.A., ZADORSKIY, V.M., LUKYANOVA, I.P., SHVETSOV, N.V.,  
VOLKOVA, N.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,382

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--26JAN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MONOMER, LATEX, CHEMICAL PATENT, DISTILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3007/0836

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136270

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70  
CIRC ACCESSION NO--AA0136270  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNPOLYMD. MONOMERS ARE REMOVED  
FROM LATEXES BY DISTG. THEM WITH STEAM MIXED WITH H.

UNCLASSIFIED

USSR

UDC 621.316.722.1

KILADZE, N.SH., CHUBINASHVILI, D.N., CHUTKERASHVILI, T.D.

"Precision Regulators Of The Effective Value Of Large-Power A-C Voltage"

Tr. in-ta elektron. avtomatiki i telemekh. AN Gruz SSR (Works Of The Institute Of Electronic Automatics And Telemechanics, Academy Of Sciences, Georgian SSR), 1970, 8, No 2, pp 66-71 (from RZh--Elektronika i ysye primeneniye, No 11, November 1970, Abstract No 11B498)

Translation: In order to regulate a-c voltage with a power above 0.5 kw with great precision and small nonlinear distortion, it is advisable to use regulators with a saturation choke connected to the primary winding of an autotransformer. An electron-tube diode is used in the sensor [datchik] of effective voltage. In the circuit at 3 kw a control circuit using transistors is employed and in the circuit at 0.5 kw, a control circuit using tubes. The basic parameters of the regulators with an output voltage of 220 v plus or minus five percent at 3 and 0.5 kw, respectively, are: load current 13.6 and 2.3 amp; specific power 45 and 25 wt/kg; coefficient of nonlinearity distortion 5 and 4 percent; temperature range from 5 to 50° C and from 10 to 40° C. 2 ill. 2 ref. S.D.

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USSR

UDC 621.316.722.1

KILADES, N.SH.

"Low-Voltage Regulator Of Controlled Voltage Without Reference Stabilatron"

Tr. In-ta elektron. avtomatiki i telemekh. AN GruzSSR (Works Of The Institute Of Electronic Automatics And Telemechanics, Academy Of Sciences, Georgian SSR), 1970, 8, No 2, pp 62-65 (from RZh--Elektronika i yeye primeneniya, No 11, November 1970, Abstract No 11B489)

Translation: The circuit is described of a d-c voltage regulator for 0.6--6 v controlled output voltage, in which a special reference stabilatron is not used. The regulator is arranged in a circuit with twin compound regulator transistors, and a two-stage d-c amplifier which is fed from a parametric regulator using a silicon stabilatron. As a reference voltage, the voltage shift of the current-voltage characteristic of a Type P105 silicon transistor is used. In the regulator a circuit is used for protection from overload and a short circuit, based on a transistor with a resistor-sensor [-datchik] for the overload current. 1 ill. S.D.

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- 53 -

1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ON THE PROBLEM OF STATISTICAL PARAMETERS CHANGE OF RIVER RUNOFF  
WHEN THE HYDROGRAPH IS DIFFERENTLY CUT INTO SECTIONS WITH ANNUAL  
AUTHOR--(03)-SVANIDZE, G.G., PIRANASHVILI, Z.A., KILASONIYA, A.N.

COUNTRY OF INFO--USSR

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 6, PP 69-77

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--RIVER, RUNOFF, HYDROGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1760

STEP NO--UR/0050/70/000/006/0069/0077

CIRC. ACCESSION NO--AP0125376

UNCLASSIFIED



2/2 010

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125376

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHANGES OF VALUES OF VARIATION AND CORRELATION COEFFICIENTS WITH DIFFERENT DATES OF THE BEGINNING OF THE HYDROLOGICAL YEAR AND VARIOUS FEATURES OF RIVER RUNOFF PROCESS ARE ANALYSED. FACILITY: GRUZINSKIY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT ENERGETIKI.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--PRINCIPLES OF THE ANALYTICAL MECHANICS OF SHELLS -U-  
AUTHOR--KILCHEVSKIY, N.A.  
COUNTRY OF INFO--USSR  
SOURCE--OSNOVY ANALITICHESKOY MECHANIKI OBULOCHEK. I KIEV. AN UKSSR. 353  
PP  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--DIFFERENTIAL EQUATION, TENSOR ANALYSIS, GOEMETRY, SHELL  
STRUCTURE, ELASTICITY  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1998/1450 STEP NO--UR/0000/70/000/000/0001/0353  
CIRC ACCESSION NO--AM0121902  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AM0121902

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PREFACE 9. INTRODUCTION 11. CHAPTER I ELEMENTS OF TENSOR ANALYSIS AND THEIR APPLICATIONS TO DIFFERENTIAL GEOMETRY OF SHELLS 16. II BASIC RELATIONSHIPS OF THE NONLINEAR THEORY OF ELASTICITY IN INVARIANT FORM 52. III THE REDUCTION OF THREE DIMENSIONAL PROBLEMS OF THE MECHANICS OF ELASTIC BODIES TO TWO DIMENSIONAL PROBLEMS OF THE THEORY OF SHELLS 83. IV APPROXIMATELY EQUIVALENT SYSTEMS 175. V INTEGRAL AND INTEGRO DIFFERENTIAL EQUATIONS OF THE THEORY OF SHELLS 285. BASIC LITERATURE 346. NAME INDEX 349. SUBJECT INDEX 351. EXAMINED ARE ANALYTICAL METHODS OF CONSTRUCTING ELASTOSTATIC AND ELASTODYNAMIC SYSTEMS OF DIFFERENTIAL AND INTEGRAL EQUATIONS OF THE THEORY OF SHELLS WITHOUT ATTRACTING AUXILIARY ASSUMPTIONS CONCERNING THE DEFORMATION OF SHELLS. THE AUTHOR DOES NOT USE THE KNOWN HYPOTHESES ON WHICH THE CLASSIC THEORY OF SHELLS IS BASED BUT PROCEEDS FROM GENERAL PRINCIPLES OF THE THEORY OF ELASTICITY AND GETS IMPROVED DIFFERENTIAL EQUATIONS OF THE THEORY OF SHELLS OF A HIGHER ORDER THAN THE EQUATIONS OF THE CLASSICAL THEORY OF SHELLS.

UNCLASSIFIED

USSR

UDC: 539.3.534.231.1

KIL'CHYNS'KA, H. O., Institute of Mechanics, AS UkrSSR

"Coupled Thermoelastic Perturbations in a Half-Space When its Surface is Subjected to Thermal Shock, Assuming a Finite Rate of Heat Propagation"

Kiev, Dopovidi Akademii Nauk Ukrain's'koi RSR, Seriya A: Fizyko-Tekhnichni ta Matematychni Nauki, No 4, Apr 71, pp 368-371

Abstract: An investigation is made of the propagation of coupled thermoelastic disturbances when a constant heat flux is suddenly incident on the surface of a half-space. A self-similar solution of the traveling wave type in the one-dimensional connected problem of thermoelasticity is found. The rates of propagation of plane traveling wave fronts are determined. Special cases are considered with the most extensively used simplifications: absence of coupling between elastic and temperature fields, and infinite rate of heat propagation. It is shown that if the coupling effect between elastic and temperature fields is disregarded, stresses increase without limit on the acoustic wavefront and wave resonance takes place.

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- 113 -

USSR

UDC: 681.3

NESHOKOTSAS, E., CHIRITSA, V., KILDA, B. V.

"Concerning the Construction of an Analog-Digital Complex Based on the MN-14 and Razdan-3 Computers and the UP-1 Converter"

V sb. Analogovaya i analogo-tsifr. vychisl. tekhn. (Analog and Analog-Digital Computer Technology--collection of works), vyp. 4, Moscow, "Sov. radio", 1971, pp 3-8 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V550)

Translation: The paper deals with the problems of constructing a combination computer system which provides controllable accuracy and speed. Authors' abstract.

1/1

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USSR

UDC: 8.71

KILDA, B. Yu., YASINEVICHUS, R. Yu.

"Concerning Analog Computer Realization of a Dynamic Classification Algorithm"

V sb. Vychisl. tekhn. T. 2 (Computer Technology. Vol 2--collection of works), Kaunas, 1971, pp 577-583 (from RZh-Kibernetika, No 1, Jan 72, Abstract No LV1100)

Translation: The paper describes block diagrams of analog or hybrid computers for realizing three algorithms of dynamic linear classification of sources of continuous signals representable by certain realizations of a given length. Authors' resumé.

1/1

Acc. Nr: AF0037239

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Ref. Code: UR 0367

PRIMARY SOURCE: Voprosy Meditsinskoy Khimii, 1970, Vol 16,  
Nr 1, pp 51-58

ACTIVITIES OF HEXOKINASES AND DEHYDROGENASES OF PENTOSE-  
PHOSPHATE CYCLE IN TRANSPLANTED HEPATOMAS OF MICE

Il'in, V. S.; Teras, L. E.; Kil'dema, L. A.; Birk, R. V.;  
Pyldvere, E. I.

The Department of Biochemistry, Institute of Experimental Medicine USSR Academy  
of Medical Sciences, Leningrad. The Department of Biochemistry, Institute of Experimental  
and Clinical Medicine Estonian SSR Ministry of Health, Tallinn

Activities of hexokinase, glucokinase and fructokinase, and dehydrogenases of glucose-6-phosphate and 6-phosphogluconate in cytostructures of slowly-growing (hepatoma 48 and 46) and rapidly-growing (hepatoma 22) transplanted hepatomas of C<sub>3</sub>H mice were studied. Specific activity of hexokinase is significantly elevated in soluble as well as in mitochondrial fractions of all hepatomas studied. The specific activity of glucokinase in soluble fraction of slowly-growing hepatomas was more than in the

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control. This may be connected with substantial decrease in protein content in this fraction of hepatomas. The specific activity of hepatomas glucokinase in mitochondria from hepatomas 48 and 46 was significantly lower than in the control, and does not developed in the tissue of rapidly-growing hepatomas. The specific activity of fructokinase in soluble fraction and mitochondria from slowly-growing hepatomas was slightly less than in the control. The activity of fructokinase in mitochondria of rapidly-growing hepatomas has not been noted. The specific activity of glucose-6-phosphate and 6-phosphogluconate dehydrogenases is sharply increased in soluble fraction of both slowly-growing and rapidly-growing hepatomas.

D.H.

2/2  
19730165



USSR

UDC:534.1.014.5: 539.43

KIL'DIBEKOV, I. G., and MITSYUK, A. A.

"Investigation of Load Carrying Capacity of Reinforced Panels  
in Acoustic Field"

Kiev, Prikladnaya Mekhanika, Vol 7, No 12, 1971, pp 82-86

Abstract: Cylindrical panels reinforced by stiffeners and subject to axial load in an acoustic field were investigated. The spacing between axial stiffeners was ten times the geometric mean between the radius of curvature and the wall thickness. The sound pressure level was 164-168 decibel, the frequency was about 300 hertz, which was close to resonance. The following results were obtained:

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KIL'DIBEKOV, I. G. et al, Prikladnaya Mekhanika, Vol 7, No 12, 1971 pp 82-86

1. The acoustic field resulted in the reduction of load carrying capacity by 5 to 7%.
2. The maximum vibrations of the panel in the acoustic field occur under axial load causing local buckling.
3. Fatigue cracks appear at the stress concentration areas such as the riveted joints.

Photographs of static and fatigue failures are given.

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KILDISHEV, V.N.

SO: DCS

INTER.

Radiotekhnika

CONF. ON MAGNETIC DRIVER B-10 APRIL 71

DELETED

TWO-STAGE PARAMETRIC EXCITATION OF THE MAGNETOACOUSTIC RESONANCE IN YIG DISK BY PARALLEL PUMPING  
 V.N. Kildishev, V.P. Litsvinskii, V.A. Litovskiy  
 Institute of Radio & Electronics Academy of Sciences of USSR, Moscow, USSR

The results of 5-hrnl experiments on parametric excitation of magnetoacoustic resonance (MAR) in ferrite YIG disks with polished surfaces by parallel pumping are presented. The threshold power of the MAR excitation was measured above that of spin wave instability. The excitation of elastic oscillations in disks with different sizes with the dc magnetic field applied parallel to the face of the disk is observed. In fig. the threshold power of MAR as a function of the static magnetic field is presented ( $\Delta H = H_0 - H_c$ , where  $H_0$  is the applied static magnetic field, and  $H_c$  is the field, corresponding to the point of minimum threshold of subsidiary absorption by parallel pumping).

In the region of subsidiary absorption the excitation of MAR is accompanied by the phenomenon, that resemble those, which take place at MAR excitation in the region of ferrimagnetic resonance [1], that is, not longitudinal elastic waves are excited, but there one, a great number of harmonics is observed, etc. The calculated values of the elastic resonance frequency for the main (the lowest) type of oscillation well agree with experimental one only with assumption that disks are bar, fastened by the parameter.

By means of the method of construction of inhomogeneity surfaces [2] it is shown, that on two-stage mechanism excitation of MAR the wave number of pumping wave is governed by the equation

$$k_z = \frac{\omega}{v_s} - k_{\text{res}}$$

(where  $v_s$  is the velocity of the elastic waves), for YIG the values of  $k_{\text{res}}$  are equal to  $20 \text{ cm}^{-1}$ , that is on two-stage MAR the "second" pumping wave is not exchange spin wave, but magnetoacoustic one. The region of the

static magnetic field, where the two-stage MAR can exist, has the following limits

$$H_0 M_2 - 2N_2 \sqrt{2E_0} \leq (H_0)^2 \leq H_0 \leq \omega / \gamma + N_2 M_2$$

where  $N_2$  is the demagnetization factor in the direction

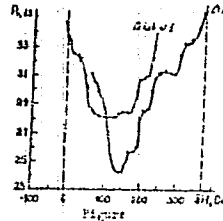


Figure  
 of the static external magnetic field  $H_0$ . In Fig. the theoretical limits of MAR existing are shown by dotted lines. A good accordance with experimental data takes place.

References  
 1. V. D. Burakov, A. N. Mikhlin, V. N. Kildishev, Radiotekhnika i elektronika, **14**, 4, 707, (1970)  
 2. P. V. Litovskiy, Radiotekhnika i elektronika, **14**, 8, 1521, (1969)

A VNSAKOVSKY  
 Teeth are very poor  
 wears glasses  
 Short perhaps 5'5", WTA 145265  
 FURT

AA0047084- Kildishev, V.S.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

241515 STATOR WINDING ARRANGEMENT OF ELECTRICAL MACHINES  
with liquid cooling is reduced in size and provides more reliable electrical connections. The basic solid conductors (1) of winding (2) are bent and form two separate groups to facilitate good electrical connections. The hollow conductors (3) are brought out beyond the junction of two groups to be joined electrically. The rest of the bunch is filled with conductors (4). The coolant is admitted via hermetic joint (5,7) to which the hollow conductors are soldered.

2/70

30.1.67 as 1130120/24-7. V.S. KIL'DISHEV et al. (19.9.69)  
Bul 14/18.4.69. Class 21dl. Int.Cl. H 02k.

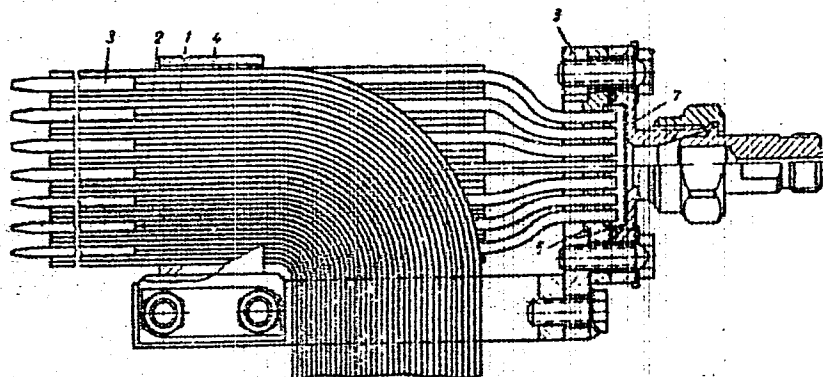
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AA0047084

AUTHORS: Kil'dishev, V. S.; Krashchenko, A. I.; Levitskiy, A. K.; Sergeyev, A. V.;  
Stanislavskiy, L. Ya.



19790561

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AN0026668

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UR 9003

TITLE-- ANNOUNCEMENT OF THE COMMITTEE ON THE LENIN AND STATE PRIZES

NEWSPAPER-- IZVESTIYA, FEBRUARY 18, 1970, P 3, COLS 1-5

ABSTRACT-- THE COMMITTEE ON THE LENIN AND STATE PRIZES HAS ANNOUNCED THE NAMES OF RESEARCHERS ADMITTED TO THE 1970 LENIN PRIZE COMPETITIONS. THE LIST INCLUDES G. V. NOVOZHILOV, YA. A. KUTEPOV, V. I. SMIRNOV, D. V. LESHCHINEB, V. M. SHEYNIN, AND A. A. OVCHAROV FOR THEIR "DEVELOPMENT OF THE INTERCONTINENTAL PASSENGER AIRLINER IL-62", AND A. S. YAKOVLEV, YE. G. ADLER, M. G. BENDERSKIY, K. M. VALIK, AND K. S. KIL DISHEVA FOR "JET PASSENGER AIRLINER YAK-40 POWERED BY THREE AI-25 ENGINES".

BOTH CANDIDATES WERE NOMINATED BY THE MINISTRY OF AVIATION INDUSTRY.

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19661717

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USSR

UDC 547.717.466.07

YAMONTAITE, A. A., KRASIL'NIKOVA, G. K., KIL'DISHEVA, O. V., and KNUNYANTS, I. L., Institute of Biochemistry, Acad. Sc. Litvanian SSR Vil'nyus

"Synthesis of Some O,O-Diethyl-S-( $\beta$ -Acylaminoethyl)-dithiophosphates"

Riga, Khimya Geterotsiklicheskikh Soyedineniy, No 4, Apr 72, pp 479-482

Abstract: Ethyleneimides of N-phtalyl-D,L-valine, -glycine, -D,L-alanine, N-carbobenzoxy-D,L-valine, N-benzoyl-D,L-leucine,  $\gamma$ -methyl ether of N-carbobenzoxy-L-glutamic acid, and monomethyl ester of succinic acid were synthesized and reacted with O,O-diethyldithiophosphoric acid in methanol to yield respective O,O-diethyl-S-( $\beta$ -acylaminoethyl)-dithiophosphates. All of these compounds exhibited intensive doublets at 655-660  $\text{cm}^{-1}$  in their IR spectra, indicating the presence of the  $\begin{matrix} \text{O} \\ \diagup \\ \text{P} \\ \diagdown \\ \text{O} \end{matrix} \text{S} \begin{matrix} \text{S} \\ \diagdown \\ \text{C} \end{matrix}$  grouping. Synthesis of

$\beta$ -chloroethylamides of N-phtalyl-D,L-valine, m.p. 131-132°C, N-acetyl-D,L-valine, m.p. 175-177°C, and monomethyl ester of succinic acid, b.p. 141-142/1.5 mm,  $n_D^{20}$  1.4854,  $d_4^{20}$  1.2480, are also reported.

1/1

1/2 008 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--PEPTIDES OF SARCOLYSINE WITH GAMMA AMINOBUYRIC ACID -U-  
AUTHOR--(04)--NAULIUKONIS, A., KARPAVICHYUS, K., KILDISHEVA, O.V.,  
KNUNYANTS, I.L. UNCLASSIFIED  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 161-2  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--PEPTIDE, ANTINEOPLASTIC DRUG  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1986/1921 STEP NO--UR/0062/70/000/001/0161/0162  
CIRC ACCESSION NO--AP0103648

UNCLASSIFIED



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UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0103648

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDN. OF 85 ML AC SUB2 O AT 50-5DEGREES TO 10.3 G H SUB2 N (CH SUB2) SUB3 CO SUB2 H IN 98PERCENT HCO SUB2 H GAVE AFTER 2 HR AT ROOM TEMP 47PERCENT HCONH (CH SUB2) SUB3 CO SUB2 H (I), M. 105-6DEGREES. TO 3.33 G N,FORMYLSARCOLYSINE AND 1.6 G 8, HYDROXYQUINOLINE IN TETRAHYDROFURAN (THF) WAS ADDED 2.1 G DICYCUHEXYLCARBODIIMIDE AND AFTER 6 HR A LITTLE ACNH WAS ADDED AND THE UREA PPT. REMOVED TO GIVE 65PERCENT N,FORMYLSARCOLYSINE 8, HYDROQUINOLYL ESTER (II), M. 132-4DEGREES. SIMILARLY, I AND P,NITROPHENOL GAVE 74PERCENT OF THE CORRESPONDING I P,NITROPHENYL ESTER(III), M. 59-60 DEGREES. KEEPING 4.6 G II WITH 2 G H SUB2 N (CH SUB2) SUB3 CO SUB2 CH SUB2 PH IN THF 1 DAY GAVE 58PERCENT BENZYL N,FORMYLSARCOLYSYL, GAMMA, AMINOBUTYRATE (IV), M. 113-14DEGREES. SIMILARLY, THE BENZYL ESTER OF SARCOLYSINE AND III GAVE 85PERCENT BENZYL ESTER OF N,FORMYL, GAMMA, AMINOBUTYRYSARCOLYSINE (V), M. 99-100DEGREES. V HYDROGENATED OVER PD BLACK IN MECH TO N,FORMYLSARCOLYSYL, GAMMA, AMINOBUTYRIC ACID, M 131-2 DEGREES. SIMILARLY, THE BENZYL ESTER YIELDED THE FREE N,FORMYL, GAMMA, AMINOBUTYRYSARCOLYSINE, M. 134-5DEGREES. KEEPING IV IN PH CH SUB2 OH WITH ACCL 1 DAY AT ROOM TEMP. GAVE AFTER ISOLATION OF THE HCL SALT OF BENZYL SARCOLYSYL, GAMMA, AMINOBUTYRATE AND TREATING IT WITH ET SUB3 N, FOLLOWED BY HYDROGENOLYSIS OF THE CRUDE PRODUCT, 91PERCENT SARCOLYSYL, GAMMA, AMINOBUTYRIC ACID, M. 123-4DEGREES. SIMILARLY WAS PREPD. THE BENZYL ESTER OF GAMMA, AMINOBUTYRYSARCOLYSINE, M. 98-9DEGREES, AND GAMMA, AMINOBUTYRYSARCOLYSINE M. 129-31DEGREES.

UNCLASSIFIED

KILDIYAROV M.A.

Acc. Nr: AP0048299 Abstracting Service: CHEMICAL ABST. 5170

Ref. Code: 4P0151 3

94384q Spectrum of electron characteristic energy losses in osmium. Zashkvara, V. V.; Korsunskii, M. I.; Lariu, M. P.; Red'kin, V. S.; Masvagin, V. E.; Kil'diyarov, M. A.; Chokin, K. Sh. (Inst. Yad. Fiz., Alma-Ata, USSR). *Fiz. Tverd. Tela* 1970, 12(1), 294-6 (Russ). The spectrum was obtained of characteristic energy losses of electrons in Os. The spectrum was obtained by reflecting a beam of electrons with energy 0.6-1.4 keV from a plane surface of a massive specimen. The energy losses detd. from the max. of the peaks are 11.4, 29.8, 46.5, and 58 eV for a scattering angle of 141°, and 11.3, 24.5, 45.2, and 57.4 eV for a scattering angle of 39°. The peak of the 1st loss is interpreted as the loss of energy for excitation of surface plasma oscillations, and the 2nd loss, as the energy loss for excitation of vol. plasma oscillations in Os. A. Libackyj

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KIL'DYUSHOV, M. S. and SURKOV, YE. L., Moscow Engineering Physics Institute

"Hyperspherical Functions in the Five-Body Problem"

Moscow, Yadernaya Fizika, Vol 14, No 3, 1971, pp 551-566

Abstract: An algorithm for constructing a system of hyperspherical functions for the quantum-mechanical five-body problem is considered. First a reduction is carried out, beginning with the step  $O_4 \supset S_5$ , an embedding problem. Then suitable kinematic variables are introduced. It is thereupon explained which representations of  $S_5$  are contained in the irreducible representation  $O_4$ . Next, employing suitable notation, projective operators are used to construct the matrix for the transition from the basis  $O_4 \supset O_3 \supset O_2$  to the basis

$O_4 \supset S_5 \supset S_4 \supset S_3 \supset S_2$ . Another possible reduction chain

$$\begin{array}{ccc} O_4 & \supset & O_2 \otimes O_2 \\ U & & U \quad U \\ S_5 & \supset & S_3 \otimes S_2 \end{array}$$

USSR

KILDYUSHOV, M. S. and SURKOV, YE. L., *Yadernaya Fizika*, Vol 14, No 3, 1971, pp 551-566

is considered, which corresponds to separating subsystems of two and three particles and which is better adapted for computing matrix elements of two-particle operators. An appendix derives matrixes for the transition from the first basis to the second. Finally, a last section presents the reduction  $O_{12} \supset O_3 \otimes O_4$  and computes the spectrum of representations when  $k < 5$ . The algorithm is formulated concisely in the concluding section.

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USSR

UDC 533.6.011.72

GORELOV, V. A., KIL'DYUSHOVA, L. A., Moscow

"Experimental Study of Certain Parameters of Ionized Air Before a Strong Shockwave"

Mekhanika Zhidkosti i Gaza, No 6, 1971, pp 17-22.

ABSTRACT: A resonant superhigh frequency probe is used to measure the electron density  $n_e$  before a strong shockwave in air. It is demonstrated that the results produced by this method agree well with results produced by ordinary probe methods. The method of electromagnetic induction is used to measure the rate of diffusion of electrons in the zone before the shockwave.

This work presents an experimental study of the parameters of ionized air before the leading edge of a strong shockwave in an electric discharge shock tube. The resonant system used is a sector of a wire line, short-circuited at each end, placed in the plasma being studied.

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UDC 911.3:616.34(575.1)

SHATROV, I. I., POKROVSKAYA, M. P., KRASKINA, N. A., BRAYNINA, R. A.,  
ELKIN, I. I., SKVORTSOV, V. V., ~~KILESSO, V. A.~~, BUNIN, K. V., NIKIFOROV,  
V. N., POKROVSKIY, V. I., and STARSHINOVA, V. S.

"Current Status of Typhoid"

V sb. Materialy XV Vses. syezda epidemiologiv, mikrobiologov i infektsionistov, Tezisy Dokl. Ch. 1 (Proceedings of the 15th All Union Conference of Epidemiologists, Microbiologists, and Infectious Disease Specialists, Theses Reports, Part 1 -- collection of works), Moscow, 1970, pp 262-269 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.258)

Translation: During the last seven years, the incidence of typhoid has decreased each year by 6-7% on the average in this country. Maximum drops were observed in the Belorussian SSR, Kazakh SSR, Lithuanian SSR, Latvian SSR, Armenian SSR, and Estonian SSR; minimum drops were found in the Uzbek SSR and Kirghiz SSR. During the last two years, the incidence of typhoid was 10% higher among rural residents than among urban residents. In comparison with 1964, a drop in incidence of approximately 40% was observed; in rural locations, the drop was 23%. The leading significance of the water factor in transfer and distribution of the agent of typhoid is  
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SHATROV, I. I., et al., Materialy XV Vses. syezda epidemiologiv, mikro-  
biologov i infektsionistov, Tezisy Dokl. Ch. 1 (Proceedings of the 15th  
All Union Conference of Epidemiologists, Microbiologists, and Infectious  
Disease Specialists, Theses Reports, Part 1 -- collection of works), Moscow,  
1970, pp 262-269 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract  
No 3.36.258)

confirmed. Of decisive importance, particularly in recent years, is the  
nutritional (milk) factor of typhoid transfer and distribution.

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1/2 034 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ACTUAL SPECIFIC HEAT AND THERMAL DIFFUSIVITY OF POLYMERS STUDIED BY  
A PULSED ADIABATIC METHOD -U-  
AUTHOR--(02)-YEGOROV, B.N., KILESSO, V.S. *K*  
COUNTRY OF INFO--USSR  
SOURCE--PLAST. MASSY 1970, (6), 72-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--ADIABATIC PROCESS, SPECIFIC HEAT, THERMAL DIFFUSION,  
POLYTETRAFLUORETHYLENE, POLYMETHYLMETHACRYLATE, TEST METHOD, POLYAMIDE  
COMPOUND, POLYETHYLENE, POLYPROPYLENE, POLYISOBUTYLENE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3006/1008 STEP NO--UR/0191/70/000/006/0072/0073  
CIRC ACCESSION NO--AP0134720  
UNCLASSIFIED



2/2 034

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0134720

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE METHOD (B. P. EGOROV ET AL., 1968 AND 1969) WAS TESTED ON POLYMERS WITH KNOWN THERMAL DIFFUSIVITY ( $\lambda$ ) AND SP. HEAT (C) (POLY(TETRAFLUORETHYLENE), POLY(METHACRYLATE)). THE MAX. EXPTL. ERRORS IN C AND  $\lambda$  GETS. WERE PLUS OR MINUS 1.2 AND PLUS OR MINUS 5PERCENT, RESP. THE INCREASE OF THE DETN. TEMP. FROM NEGATIVE 190DEGREES TO POSITIVE 70DEGREES INCREASED C AND DECREASED  $\lambda$  OF POLYAMIDE, POLYETHYLENE, POLYPROPYLENE, OR POLYISOBUTYLENE.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--APPARATUS FOR DETERMINING THE SPECIFIC HEAT OF LIQUID SUBSTANCES BY  
A PULSED ADIABATIC METHOD -U-  
AUTHOR-(04)-YEGOROV, B.N., KILESSO, V.S., KOMAROV, A.G., SLEPCHENKO, V.I.  
COUNTRY OF INFO--USSR  
SOURCE--TEPLOENERGETIKA 1970, 17(3), 84-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--CALORIMETER, THERMAL ANALYSIS, SPECIFIC HEAT, HEATING,  
ADIABATIC PROCESS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/0387 STEP NO--UR/0096/70/017/003/0084/0086  
CIRC ACCESSION NO--AP0111580  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0111580

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PULSE ADIABATIC CALORIMETER FOLLOWING THE AUTHORS' CONCEPTS (1968) WAS CONSTRUCTED FOR MEASURING HEAT CAPACITIES  $C_{SUBP}$  AND  $C_{SUBV}$  OF LIQS. AT 80-600 DEGREE SK AND IS SMALLER THAN OR EQUAL TO 300 ATM. THE INNER PART OF THE CALORIMETER CONSISTS OF SEVERAL CELLS WHICH ARE SIMULTANEOUSLY HEATED FOR SIMILAR TO 1.5 SEC AND THE TEMP. (T) OF THE CENTRAL CELL IS RECORDED. A SINGLE RUN LASTS IS SIMILAR TO 20 SEC. THE MAX. POSSIBLE ERROR WAS ESTD. AS PLUS OR MINUS 1.5 PERCENT. THE DIFFERENTIAL EQUATIONS FOR DETG. THE TIME DEPENDENCE OF T WERE SOLVED.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--OVERVOLTAGE OF THE SEPARATION OF HYDROGEN ON SILVER -U-  
AUTHOR--(02)-KILIMNIK, A.B., ROTINYAN, A.L.  
COUNTRY OF INFO--USSR  
SOURCE--ELEKTROKHIMIYA 1970, 6(3), 330-1  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--HYDROGEN, SILVER, CHEMICAL SEPARATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/1132 STEP NO--UR/0364/70/006/003/0330/0331  
CIRC ACCESSION NO--AP0121691

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121691

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE H SEPN. VOLTAGE FOR THE POS. CHARGED AG SURFACE WAS OBTAINED AS 0.93 PLUS OR MINUS 0.02 V, AND FOR NEG. CHARGED SURFACE 1.32 PLUS OR MINUS 0.02 V. THE MEASUREMENTS WERE TAKEN IN 2N H SUB2 SO SUB4 AT 25DEGREES. FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ANTIGENIC COMPOSITION OF THE ADRENALS BEFORE AND DURING  
PRESERVATION BY THE FLOW TECHNIQUE IN TYRODE'S FLUID --U-  
AUTHOR--(02)--KILIMNIK, A.M., YABLUKOVA, V.I.

COUNTRY OF INFO--USSR

SOURCE--AKUSH. GINEKOL. (MOSCOW) 1970, 46(2), 48-51

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIGEN, ADRENAL GLAND, ALPHA GLOBULIN, BETA GLOBULIN, GAMMA  
GLOBULIN, ALBUMIN, PROTEIN, ORGAN TRANSPLANT.

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0765

STEP NO--UR/0580/70/046/002/0048/0051

CIRC ACCESSION NO--AP0134498

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134498

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADRENALS OF CATTLE AND HUMAN SUBJECTS WERE ANALYZED BY ELECTROPHORESIS AND IMMUNOELECTROPHORESIS IN AGAR GEL. THE ANTIGENIC COMPN. INCLUDED 5-7 FRACTIONS CORRESPONDING TO THE ALPHA SUB2, ALPHA SUB1, BETA AND GAMMA GLOBULINS AND TO SOME ALBUMINS PRESENT IN BLOOD SERUM. HUMAN ADRENALS IN THE FRESH STATE (WITHIN 12 HR AFTER DEATH) CONTAINED MORE FRACTIONS. DURING PRESERVATION, E.G., WITH TYRODE'S FLUID, PROTEIN COMPS. ARE WASHED OUT OF THE PREPNS. THE ADRENAL TISSUE IS METABOLICALLY ACTIVE, ESP. IN THE 1ST 10 DAYS OF PRESERVATION. IT IS RECOMMENDED THAT HUMAN ADRENALS BE USED FOR TRANSPLANTATION WITHIN 10-15 DAYS AFTER COLLECTION AND PRESERVATION. FACILITY: KUBAN. MED. INST., KRASNODAR, USSR.

UNCLASSIFIED

USSR

UDC: 681.2/325

KILIMNIK, I. I., LEZOV, A. P., SAZONOV, I. A., TSEPLYAYEV, K. N., and SILU-  
YANOV, V. A.

"Specialized Digital Measuring Unit"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute),  
1972, vyp.154, pp 133-138 (from RZh-32. Metrologiya i Immeritel'naya Tekhnika,  
No 5, 1973, Abstract No 5.32.60)

Translation: The authors present a short description and the technical characteristics of a digital unit developed by the Department of Information-Measurement Technology of the Moscow Power Engineering Institute for the remote control study of high-speed processes. This unit in some ways satisfies current requirements. The unit consists of three blocks: analog-digital converter, a remote block, and a matching block. The analog-digital converter and the remote block are connected by a cable communication line 250-500m long. The following are the basic technical data of the digital remote control unit model: nominal value of the input voltage  $U_{nom.} \pm 100mV$ ; fundamental error of the measurement result at the most sensitive limit does not exceed  $\pm (0.05-0.025 \frac{U_{nom.}}{U_x})$  percent; maximum sensitivity is not less than

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KILIMNIK, I. I., et al., Tr. Mosk. energ. in-ta, 1972, vyp. 154, pp 133-138

40 microvolts; with the following input resistance: a) not less than 100 kilohms under conditions of compensation; b) not less than 50 kilohms in the equilibration process; 50, 100, 200, 400, 1000 measurement frequency; power consumed from a 220v network does not exceed 30w; unit dimensions: a) the analog-digital converter - 220 x 400 x 250 mm, b) the remote block - 180 x 270 x 170 mm, c) matching block - 180 x 200 x 180 mm. Original article: two illustrations and one bibliographic entry.

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USSR

UDC 624.041:699.841

AYZENBERG, Ya. M., KILIMNIK, L. Sh., Moscow

"Concerning the Criteria of Optimal Planning and the Limit-State Parameters of Buildings in Calculations for Seismic Effects"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 6, 1970, pp 29-34

Abstract: The article deals with the calculation criteria of optimal structures in the case of seismic effects with account taken of their recurrence and intensity. An analysis is made of various relationships of the "restoring force - movement" type for elastoplastic systems and systems with brittle local failures. A study is made of the conditions of the stability of forced oscillations of systems with nonlinear restoring relationships. 9 figures, 9 bibliographic entries.

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KILIMNIK, U.D.  
UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243917 MEASURING SPEED OF CHANGE OF PRESSURE can be used for research into dynamic processes in hydraulic systems. The measuring device contains a flexible unit, forming together with the housing of the apparatus two cavities, one of which is connected directly by a pipe with the controlled object, and a second connected through a hydraulic resistance. The sensitive unit is in the form of two symmetrically placed bellows, joined together by a flexible unit such as a spring in the centre of which there is a device for transforming displacement into an electrical signal. The device consists of housing 1 in which are housed bellows

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2 and 3. Between these is placed rod 4 at the ends of which are fitted springs 5 and 6.

The springs rest on the bottom of the bellows. Cavities 7 and 8 between the bellows and the housing are connected to the hydraulic system, the dynamic processes of which are analysed.

5.8.66 as 1095546/18-10.V.D.KILIMNIK.DONETS MINING INST. (26.9.69) Bul 17/14.5.69. Class 42k. Int.Cl. G 01 1.

Donetskiy Nauchno-Issledovatel'skiy Ugol'nyy Institut

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