UDC: 621.375:621.376.22(088.8)

USSR

ZUBKOV, V. P., SKOSYREV, I. S., Scientific Research Institute of Direct Cur-
rent

"An Amplifier of Modulated Oscillations"

USSR Author's Certificate No 258390, filed 5 Apr 68, published 19 May 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D132 P)

Translation: This Author's Certificate introduces a hybrid amplifier with
voltage divider having high efficiency due to the fact that the tube is
opened only when one of the resistors in the bias circuit is shunted with
transmission of a trigger pulse to one of the amplifier inputs. The col-
lector-emitter junction of a transistor does the shunting. N. S.

1/1

Acc. Nr.: AA0040519   Ref. Code: UR 0482

USSR   UDC 621.375:621.376.22

ZUBKOV, V. P. and SKOSYREV, I. S.

Applicant: Scientific Research Institute of Direct Current.

"Modulated Oscillations Amplifier"

Moscow Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye
zhaki, No 1, 1970, p 51. Author Certificate No 258390.

Abstract: An author certificate has been granted for an amplifier
containing a radiotube and a voltage divider. To increase its
efficiency, the control grid is connected between the resistors
of the divider one element of which consists of a transistor
(collector-emitter junction) shunted by a resistor. The input
terminal of modulating voltage is connected to the transistors base,
while the carrier frequency voltage terminal is connected to the
screen grid of the tube.

Reel/Frame
19750029

USSR   UDC   621.376.5(788.8)

FILATOV, N. A., ZUBKOV, Yu. A., KOLIBABA, I. I.

"A Pulse Modulator"

USSR Author's Certificate No 261459, Filed 23 Oct 68, Published 22 May 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D369 P)

Translation: This Author's Certificate introduces a pulse modulator which contains a high-voltage DC source with charging resistor, a vacuum-tube commutator, a submodulator, a correcting circuit made up of an inductor and a resistor, and a storage capacitor. To stabilize the amplitude of the pulses formed and to eliminate breakdowns in the commutator and in the load, the modulator contains an additional storage capacitor which is connected in parallel to the main storage capacitor through a limiting resistor. V. P.

1/1

USSR

UDC 632.954:633.511

ZUBKOVA, N. F., NADTOCHAYA, O. G., and STONOV, L. D., All-Union Scientific Research Institute of Chemical Means of Plant Protection

"The Influence of Defoliants on Two Phases of the Formation Process of the Exfoliating Layer in Cultures of Cotton Plant Seed Leaves"

Abstract: Experiments were conducted on seed leaf cultures of Gossipium hirsutum L, type 108-F, prepared from sprouts which had two true leaves. The explanted leaves measured 12 mm, and they were exposed to the defoliants by placing the stem ends in a 1% agar solution containing the test substance, in Petri dishes. Tests were made using butyphos, magnesium chlorate, and ethrel. The length of the first phase was determined to be from the time of preparation until the explanted leaves' loss of sensitivity to indolyl-acetic acid. For this reason the leaves were placed in an agar solution containing indolyacetic acid at intervals and observation was made for the cessation of the acid's inhibiting action in formation of the separating layer. The tests were repeated four times, in light, with a temperature of 25-30 C. Results indicated that butyphos and magnesium chlorate speeded the second phase of formation but did not seem to effect the first phase

1/2

USSR

ZUBKOVA, N. F., et al., Agrokhimiya, No 2, 1973, pp 128-133

of separating layer formation. In the constant presence of indolylacetic
acid both phases were speeded by these defoliants. Ethrel speeded both
phases of separation and proved to be the most active of the three tested
defoliants.

2/2

USSR

GRUZINSKAYA, N. A., ZUBKOVA, N. F., STONOV, L. D.

UDC 632.95

"Analysis of Residues of Bipyridylphosphate in Potatoes"

Translation: For analysis of bipyridylphosphate (I) in potatoes, the sample is boiled with water in an acid environment for 5 hours, the filtrate is passed through a column with an ion-exchange resin dowex 50 W $\times$ 8, it is washed with water, HCl and a 2.5% solution of NH_4Cl, the I is washed with a saturated solution of NH_4Cl, it is reduced by $Na_2S_2O_6$ and spectrophotometrically analyzed at 396 nm. The degree of detection of I is 50%.

1/1

USSR   UDC 581.148.2.04

STONOV, L. D., and ZUBKOVA, N. E., All-Union Research Institute of Plant
Protection by Chemical Agents

"Defoliating Effect of Butyphos and Magnesium Chlorate"

Abstract: The authors agree with Western investigators that the effect of
chemical defoliants is due to their tilting the balance of the antagonistic
"auxin-ethylene" system in favor of ethylene which stimulates hydrolysis. In
studying the antagonism between butyphos and magnesium chlorate and indoleace-
tic acid in cotton plants, they used tryptophan, a precursor of the hormone.
The changes produced by the defoliants in nitrogen metabolism resulted in
decreased activity of the auxin, and cancellation of the inhibitory effect
of the hormone on the formation of the separation layer. The defoliating
action of magnesium chlorate is ascribed to the depression of protein syn-
thesis and accumulation of free amino acids, while that of butyphos is
thought to be due to its increasing the content of free amino acids.

1/1

UDC 631.547:633.51

USSR

STONOV, L. D., GORDON, O. G., ZUBKOVA, N. F., and GRUZINSKAYA, N. A., All-Union Scientific Research Institute of Chemical Plant Protectants

"Transformation of Butyphos in Medium-fibrous and Fine-fibrous Cotton Plants"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 9, No 6, 1971, pp 54-56

Abstract: To study the interrelation between the transformation of butyphos in plant tissues and its defoliating activity, the authors determined the butyphos content of cotton plants by the method of thin layer chromatography. It was found that leaf blade tissues and explants (isolated abscission zones) of both fine-fibrous and medium-fibrous cotton show the same response to butyphos, viz. they decompose it. The decrease in the butyphos content of the leaf blade of medium-fibrous cotton apparently is not the direct cause of accelerated absciss layer formation in leaves.

1/1

1/2   021   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--EXPLANTS AS TEST OBJECTS FOR STUDYING THE DEFOLIATING ACTIVITY OF
   NEW COMPOUNDS -U-
AUTHOR-(04)-STONOV, L.D., ZUBKOVA, N.F., GORDON, O.G., GRUZINSKAYA, N.A.

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1970, (1), 132-8

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DEFOLIANT AGENT, ORGANIC PHOSPHORUS COMPOUND, MAGNESIUM
   COMPOUND, CHLORATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0443   STEP NO--UR/0485/70/000/001/0132/0138

CIRC ACCESSION NO--AP0116109
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0116109

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS WITH BUTIPHOS AND MG(CLO SUB3) SUB2 AS THE MOST COMMON DEFOLIANTS USED FOR DEFOLIATION OF COTTON SHOWED THAT EXPLANTS OF COTYLEDONARY AND TRUE LEAVES OF COTTON PLANTS PLACED IN PETRI DISHES IN AGAR CONTG. THESE DEFOLIANTS SHOWED THE SAME RESPONSE TO THESE DEFOLIANTS AS THE WHOLE PLANTS. EXPLANTS, THUS, MIGHT BE USED FOR PRELIMINARY TESTING OF NEW COMPDS. FOR DEFOLIATION OF COTTON.   FACILITY: VSES. NAUCH. ISSLED. INST. KHIM. SREDSTV ZASHCH. RAST., MOSCOW, USSR.

USSR   UDC 532.595.2

ZUBKOVA, N. G.

"Experimental Studies of Hydraulic Shock in a Water-Air Mixture"

Sb. nauch. tr. Mosk. gidromelior. in-t (Collection of Scientific Works of the
Moscow Hydromeliorative Institute), 1970, vyp. 2, pp 187-200 (from RZh-Mekhan-
ika, No 11, Nov 71, Abstract No 11B464)

Translation: A study was made of the effect of the gas content in a water-air
flow on the velocity C of the hydraulic shock wave. The nonstationary process
during direct impact and various initial static pressures P_c, degree of gas

content ϕ and velocity of steady-state motion V_0 were subjected to experimental
investigation.
        An experimental device made of welded horizontal steel tubes with an
experimental section 170 m long and ~5 cm in diameter is described. The pump
on the unit delivered a pressure of 62 meters. The law and time of closing of
the cock were recorded on an oscillogram with simultaneous recording of time
pulses every 0.005 seconds. The liquid flow rate was measured by an induction
flow meter, and the air flow rate by a rotameter. The natural frequency of the
galvanometers exceeded the frequency of the investigated process by more than
1,000 times. Some 204 experiments were performed with variation of the gas
1/2

USSR

ZUBKOVA, N. G., Sb. nauch. tr. Mosk. gidromelior. in-t, 1970, vyp. 2, pp 187-200

content from 0.2 to 3.2%. Diagrams of the ordinates of the first phases of the oscillograms at three points of the water line route and the functions $C = f(P_c, V_0)$; $C = f(P_c, \phi)$ and $C = f(V_0, \phi)$ are presented. The variation in propagation rate of the hydraulic shock wave along the line was established. The bibliography has 10 entries.

USSR

ZUBKOVA, O. B., GRIBOV, L. A., SHABADASH, A. N.

"The Use of Calculations of the Intensity of Absorption Bands in Infrared Spectra for the Study of Rotational Isomerism"

Minsk, Zhurnal Prikladnoy Spektroskopii, Feb 72, pp 306-312

ABSTRACT: The article concerns an analysis of the results of theoretical and experimental calculations of the intensity of infrared absorption bands of compounds of ethylene glycol from monomers to trimers in trans and gauche conformations. The calculations were made within the framework of the valence-optical theory on the intensity of infrared absorption bands, and experimental values were obtained on the basis of the recorded spectra of liquid samples of these compounds. It was shown that the theoretical calculations of the intensity make it possible to distinguish clear indications of different isomers.

On the basis of an analysis of the theoretical and experimental calculations a conclusion was drawn concerning the existence of chiefly gauche isomers in vapors of the compounds studied and a mixture of trans and gauche isomers in liquids.

The article includes one table and two figures. There are 10 references.

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USSR   UDC 621.375:621.376.22

ZUBKOV, V. P. and SKOSYREV, I. S.

Applicant: Scientific Research Institute of Direct Current.

"Modulated Oscillations Amplifier"

Moscow Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, 1970, p 51. Author Certificate No 258390.

Abstract: An author certificate has been granted for an amplifier containing a radiotube and a voltage divider. To increase its efficiency, the control grid is connected between the resistors of the divider one element of which consists of a transistor (collector-emitter junction) shunted by a resistor. The input terminal of modulating voltage is connected to the transistors base, while the carrier frequency voltage terminal is connected to the screen grid of the tube.

1/1

EQUIPMENT
Aeronautical

2

USSR   UDC: None

ABRAMOV, Ye. I., BROTSKIY, A. N., BURTSEV, V. A., ZATOLOKIN, A. S.,
ZUBKOVA, T. I., and SMIRNOV, N. P.

"Hydraulic Damper for an Aircraft Flutter Model"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye
znaki, No 27, 1971, p 119, No (11)351001

Abstract: The body of this device contains a rotor with a control-
ling valve and a charge-compensating device. By having this de-
vice in the form of an elastic membrane which converts into a seal-
ing ring between the body and a hood filled with a transparent ma-
terial, the size and weight of the damper can be reduced. A cross
sectional drawing of the device is shown.

1/1

USSR

ZUBKOVA, T. P., and SHCHERBAKOVA, V. I.

"Refinement of the Synthetic Process for Methylphenylcarbinol"

V sb. Khim sredstva Zashchity rast. (Chemical Plant Protective Agents --
collection of works), No 2, Moscow, 1972, pp 84-86 (from RZh-Khimiya, No 19,
Oct 73, Abstract No 19N483)

Translation: Methylphenylcarbinol (I) is synthesized by hydrolysis of
α-chloroethylbenzene (II) obtained from the hydrochlorination of styrene
(III). The synthetic process for I has been elaborated in detail. To find
optimal conditions for the synthetis of II, the effect of the relationship
between the reagents and reaction temperature on the yield of product has been
investigated. Optimal ratio of III-HCl is 1:82.5 g-mole, temperature change
in the range from 0° to 15° has negligible effect on the yield of II, increasing
the temperature to 20° lowers the yield to II. To a solution of 104 g of III
in 160 g C_6H_6 3.12 g $ZnCl_2$ is added, the mixture cooled to 10° and 82.5 g HCl
(gas) is passed through it for 6 hrs at $10-15^\circ$, the reaction mixture is washed
with 200 ml of a 7% solution of soda and 100 ml water, C_6H_6 is distilled off,
and the residue saponified with a solution of soda (67.5 g in 400 ml water)
1/2

USS'R

ZUBKOVA, T. P., and SHCHERBAKOVA, V. I., V Sb. Khim. sredstva zashchity rast. No 2, Moscow, 1972, pp 84-86

at $96\text{-}97^\circ$ for 5 hrs, the contents are cooled, the organic layer separated and distilled yielding 75.03 g I, b.p. $64^\circ/3$, n_D^{20} 1.5280, d_4^{20} 1.0234.

2/2

Molecular Physics

USSR   UDC 535.373.2

ANTIPENKO, K. M., DMITRYUK, A. V., ZUBKOVA, V. S., KARAPETYAN; G. O., and MAK, A. A., Institute of Precision Mechanics and Optics

"Cooperative Processes in Activated Glasses"

Abstract: Cooperative phenomena were found and studied in glasses activated with Yb--Tb, Yb—Eu. It is shown that there are at least two mechanisms for anti-Stokes excitation of the Tb^{3+} and Eu^{3+} ions: fast (cooperative sensitized luminescence) and slow (combinational excitation). Some quantitative parameters of the cooperative processes were determined. A study was made of the functional dependence of the efficiency of the cooperative processes on excitation power and energy, glass structure and composition, temperature, and activator concentration ratio. It is shown that disorder of the structure of the glasses does not prevent the occurrence in them of cumulative processes such as cooperative sensitization and combinational excitation, the efficiency of the cumulative processes in the glasses being commensurable with the efficiency of two-photon absorption with the participation of the virtual level.

1/1

1/2   031   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--PROBLEM OF A RADAR SIGNAL'S AMPLITUDE PROBABILITY DISTRIBUTION
   RULES DURING FULLY POLARIZATIONAL RECEPTION -U-
AUTHOR-(02)-IVANOV, A.V., ZUBKOVICH, S.G.

COUNTRY OF INFO--USSR

SOURCE--RADIOTEKHNIKA I ELEKTRONIKA, VOL. 15, MAY 1970, P. 960-966

DATE PUBLISHED------MAY70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--PULSE AMPLITUDE, RADAR SIGNAL ANALYSIS, RADAR ECHO

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0264   STEP NO--UR/0109/70/015/000/0960/0966

CIRC ACCESSION NO--AP0124026
                    UNCLASSIFIED

CIRC ACCESSION NO—AP0124026

ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. INVESTIGATION OF THE PROBLEM OF
USING THE POLARIZATIONAL PROPERTIES OF AN ECHO SIGNAL TO INCREASE THE
INFORMATION CONTENT OF RADAR OBSERVATIONS. TO EVALUATE THE EFFICIENCY
OF A RADAR STATION WITH FULLY POLARIZATIONAL RECEPTION, IT IS NECESSARY
TO KNOW THE STATISTICAL CHARACTERISTICS OF THE ECHO SIGNAL PARAMETERS
WITH ALLOWANCE FOR ITS POLARIZATION. ONE DIMENSIONAL DIFFERENTIAL RULES
ARE CONSTRUCTED FOR THE PROBABILITY DISTRIBUTION OF THE TOTAL AMPLITUDE,
ITS SQUARE, AND THE SUM OF THE AMPLITUDES OF ORTHOGONALLY POLARIZED
COMPONENTS OF A RADAR ECHO FROM A FLUCTUATING TARGET. MATHEMATICAL
EXPRESSIONS ARE GIVEN FOR PRACTICAL CALCULATIONS OF THESE RULES WITH ANY
DEGREE OF ACCURACY.

UNCLASSIFIED

USSR

IVANOV, A. V. and ZUBKOVICH, S. G.

"Probability Distribution Laws for Radar Signal Amplitudes in Fully Polarized Reception"

Abstract: A great deal of attention is now being given to the problem of using the polarization characteristics of radar signals for improving information obtained from observation of the target. Such problems as detection, selection, automatic target tracking, can be qualitatively solved to a better extent by including devices in the radar system which provide fully polarized reception of reflected signals. The purpose of this paper is to investigate the probability distribution of the full amplitude, the square of the amplitude, and the sum of the amplitudes of the orthogonally polarized signal components of a fluctuating radar target. The

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USSR

IVANOV, A. V., et al, Radiotekhnika i Elektronika, No 5, 1970,
pp 960-966

authors first find the formulas for the signal amplitude and the
amplitudes of the signal's orthogonal components produced by its
polarization on reflection from the target. They then take up
the class of fluctuating radar targets which take the form of a
combination of many elementary reflectors. It is assumed that the
elements of the statistical dispersion matrix most fully describing
the reflection characteristics of the target are stationary and
stationarily connected processes.

2/2

USSR

ZUBOV, A. N., Leningrad

"Generation of Rhythmic Biopotentials by Cells of the Nitella flexilis Water-Weed"

Kishinev, Elektronnaya Obrabotka Materialov, No 2, 1971, pp 62-65

Abstract: By means of intracellular microelectrodes, resting and action potentials generated across the membranes of isolated Nitella flexilis cells were studied in various solutions and at temperatures ranging from 20 to 30°C. A resting potential of 110-190 mV was recorded in artificial brook water (ABW) [0.1 mM KH_2PO_4 + 1 mM $NaHCO_3$ + 0.4 mM $CaCl_2$ + 0.2 mM $Mg(NO_3)_2$]. When this solution was replaced with 10 mM $CaCl_2$, rhythmic action potentials were generated for 30-40 minutes; thereafter, a new resting potential was established 15-85 mV below the normal level. When the 10 mM NaCl was replaced with ABW, the normal resting potential was reestablished. In 10 mM KCl, the resting potential was also smaller than normal. A 100 mM NaCl solution caused depolarization to zero for an indefinite period, with repolarization gradually taking place in ABW. The sequence in which the various solutions were exchanged determined the bioelectric response. Gradual cooling stretched the plateau of the action potentials, while rapid cooling arrested the action
1/2

USSR

ZUBOV, A. N., Elektronnaya Obrabotka Materialov, No 2, 1971, pp 62-65

potentials at a resting potential 50-60 mV lower than normal. When the
temperature was raised to 30°C, the pattern of the action potentials
changed, additional spikes appeared, and eventually all electrical activity
subsided. It is concluded that the hypothesis which states that action
potentials are generated in an NaCl solution due to a washout of potassium
ions from the cell membrane is not quite correct.

2/2

- 18 -

USSR

UDC: 51:801

ZUBOV, A. V.

"Processing a Text in a Natural Language in a Man-Machine System"

V sb. Statistika rechi i avtomatich. analiz tekstov (Statistics of Speech and Automatic Text Analysis--collection of works), Leningrad, "Nauka", 1971, pp 286-434 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1147)

Translation: The author proposes setting up a certain base language which includes the most frequent and information-loaded units of a language. This is a closed system, as distinct from a natural language. The main units of the base language are described as well as functional models for isolation of these units. Probabilistic-statistical methods applicable to the language are discussed. The principles of data processing and understanding of a text for the machine and for a man are described to differentiate these methods. Specific examples are considered. T. Nikolayeva.

1/1

USSR

ASHIN, V. M., ZUBOV, B. V., MURINA, T. M., PROKHOROV, A. M., ROGACHEV, A. A.,
and SABLINA, N. I., Physics Institute imeni P. N. Lebedev, Academy of Sciences
USSR

"Radiative Recombination of Biexcitons in Germanium"

Abstract: The article describes results of a study undertaken to obtain ad-
ditional data on the nature of the long-wave recombination radiation line
in germanium, as well as to determine the binding energy of biexcitons. Some
preliminary findings were published in previous articles by the authors. Ex-
periments were performed on samples of pure n- and p-type germanium with a
total impurity center concentration on the order of $5 \cdot 10^{10}$ cm^{-3}. Two methods
of excitation were used; viz., surface and volume. Data were obtained at T =
4.2° K in a wide range of excitation level variations showing the dependence
of the intensity of an exciton line with a quantum energy $h\nu = 0.713$ ev on
the intensity of a biexciton line with $h\nu = 0.708$ ev. A quadratic

1/2

USSR

dependence is observed up to concentrations $n_b \approx 3 \cdot 10^{14}$ cm^{-3}, while at higher excitation levels there is a linear dependence, which can be explained by the effect of nonequilibrium phonons produced when the excitons are bound into biexcitons. The energies E_b (dissociation energy of an exciton molecule) and ΔE ("recoil" energy which a biexciton receives during phonon emission) were found to be 3.6-3.8 Mev and 2.0-2.2 Mev respectively. The energy of the phonon produced during formation of the biexciton is 1.6 Mev. The experimental results prove the biexciton nature of the 0.708 ev line in germanium. Regarding the shape of this line and its energy position, it is suggested that there is a recombination process in which annihilation of one exciton is accompanied by acceleration of another as a whole.

2/2

USSR   UDC: 533.6.011

ZUBOV, E.N. and SIDOROV, A.F.

"On Solution of a Boundary Problem for Transient Space Flow of Gas and Propagation of Weak Spherical Shock Waves"

Translation: Transient motion in space of gas displaced by a piston is analyzed. It is assumed that at the initial instant the velocity and acceleration of the piston are zero and the gas flow is potential. In solving the problem the authors transform the potential equation, introducing first the velocity components and then the spherical coordinates. The possibility of transition to physical space is investigated next. The solution is in a form of series. The motion with spherical symmetry is analyzed in detail. The asymptotic law of weak spherical shock wave damping is established.

1/1

USSR

UDC 619:616.988.43-07:636.22/.28

KHUKHOROV, V. M., ZUBOV, I. V., MURAV'YEV, V. K., ONUFRIYEV, V. P., PRONINA, N. A., SMIRNOV, V. I., and FILATOV, I. P., All-Union Scientific Research Institute of Foot-and-Mouth Disease

"Course of Foot-and-Mouth Disease in Areas in Which Mass Immunization Had Been Carried Out"

Moscow, Veterinariya, No 1, Jan 73, pp 50-51

Abstract: Studies carried out at foot-and-mouth disease epizootic foci at which specific prophylaxis of cattle (immunization with inactivated aluminum hydroxide formol vaccine containing saponin) had been applied on a mass scale indicated the occurence of atypical infections in cases in which the virus of the disease had been brought in later. Virus carriers were detected among immunized animals that did not exhibit clinical symptoms of the disease, but had been in contact with sick animals, and also among animals that had recovered from the disease.

1/1

USSR

UDC 911.3.616.981.42(470.26)

ZUBOV, I. V.

"Swine Brucellosis in Kaliningradskaya Oblast"

Tr. Kalinigr. n.-i. vet. st. (Works of the Kaliningrad Scientific Research Veterinary Station) Vyp 4, 1970. pp 15-20 (from RZh-36. Meditsinskaya Geografiya No 1, Jan 71, Abstract No 1.36.114)

Translation: Results in determining the species of Brucella cultures, isolated from infected swine (Brucella suis) and cattle (B. abortus) from identical farms, ruled out the possibility of viral migration among these farm animals. Prolonged farm contact between pigs and infected cattle occasionally caused individual animals to show a positive agglutination reaction (very rarely with a positive complement fixation reaction), but there was no development of brucellosis.

1/1

USSR

ZUBOV, L. M., Rostov-na-Donu

"Variational Principles of Nonlinear Elasticity Theory: The Case of the Super-
position of a Small Deformation onto a Finite Deformation"

Moscow, Prikladnaya matematika i mekhanika, No. 5, Sep/Oct 71, pp 848-852

Abstract: General relationships and variational theorems in the theory of small
deformations of an elastic body applied to a finite deformation are given. A
relationship is established between two forms of the equilibrium equations,
one in the metric of the undeformed state and the other in the metric of the
initial deformed state of the body. The formula is obtained for the potential
energy stored in an elastic prestressed body under a small deformation. Varia-
tional principles are formulated that are similar to the variational principles
of the theory of finite deformations, and differ from the variational theorems
of classical elasticity theory in that the dual tensors are nonsymmetric. The
variational principles formulated are particularly applicable to the problem
of the bifurcation of the equilibrium of a nonlinearly elastic body. This
problem was discussed previously by the author for the particular case of a
semilinear material under an affine initial deformation and the second varia-
tional principle in the theory of small deformations with initial stresses was
formulated.
1/1

Agriculture

DASHEVSKIY, V. I., Senior Scientific Associate, KALININ, L. B., TRUNOV, I. A.,
Candidates of Agricultural Sciences, and ZUBOV, P. A., Candidate of Biological
Sciences, VNIISKhSPGA and All-Union Scientific Research Institute of Forestry
and Agroforest Melioration

"Experience in Using Rotary Sprayers in the Aerial Spraying of Upland Oak
Groves"

Abstract: Tests were carried out by VNIISKhSPGA on the spraying of upland oak
groves from aircraft using rotary sprayers with an output of toxic chemicals
in the range of 3-20 l./ha. The tests were carried out in the spring before
the opening of leaves on land managed by the Saratov Forestry Administration.
Four removable rotary sprayers are installed under the wings of AN-2M aircraft.
The four streams of aerosol, which has a dispersity corresponding to a droplet
size $\leq$ 100 micron, join to form a single stream during the flight of the plane.
At air speed of 160 km/hr, a strip 60 m wide is sprayed when the plane flies
at a height of 10 m above the treetops. This compares with a strip width of
40 m for sprayers of the present rod type. At the same output of liquid
(5 l./ha), 383.4 ha/hr could be treated with the new equipment vs. 278.5 ha/hr
1/2

USSR

DASHEVSKIY, V. I., et al., Zashchita Rasteniy, Vol 16, No 11, 1971, pp 34-35

for equipment of the older type. An oil solution of DDT (16%) + gamma-hexa-chlorocyclohexane (4%), undiluted 40% emulsion concentrates of phosphamide (rogor, Bi-58) and carbophos, and a 30% emulsion concentrate of phosphothion (malathion) were sprayed. As a result of spraying with the new equipment, 99% of gypsy moths, brown-tailed moths, leaf rollers and other insect pests were exterminated. DDT + hexachlorocyclohexane were more effective against insects that live in the open than those that live under cover. In 1971 the Ministry of the Aviation Industry will release the first shipment of serially-produced rotary sprayers for AN-2M planes.

2/2

- 1 -

UDC 632.951:634.9

USSR

ZUBOV, P. A., All Union Scientific Research Institute of Forestry and the
Mechanization of Forest Management

"Effectiveness of Using Chlorophos Against Leaf-Eating Pests and Length of
Retention of the Preparation in Forests"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 8, Aug 70, pp 37-39

Abstract: In 1968 the author studied the length of retention of chlorophos
after aerial spraying against leaf-eating pests in the oaks of the Nekhayev-
skiy Forestry Farm, Volgogradskaya Oblast. The effectiveness of the prepara-
tion against the pests was also determined. Used for the experiment was
75-percent commercial chlorophos in doses of 0.6, 0.8 and 1.0 kg/ha with a
working-liquid consumption of 25 1/ha in some variants, and in doses of 0.8
and 1.0 kg/ha with a consumption norm of 20 1/ha in others. Chlorophos was
highly effective against green leaf rollers. Its effect on gypsy moths de-
pended more on the working-liquid consumption norm that on the dose. The
preparation was also tested for various measuring worms, cutworms and leaf
rollers. Chlorophos residues were determined by taking soil samples from
underneath trees before treatment of the plantations and 3-5 days afterwards,
1/2

USSR

ZUBOV, P. A., Khimiya v Sel'skom Khozyaystve, Vol 8, No 8, Aug 70, pp 37-39

as well as grass samples on the treatment day and 1, 2, 3, 5, and 10 days
afterwards. The results of microquantitative chemical analysis (thin-layer
chromatography) indicate that the use of commercial chlorophos in a dose of
up to 1.0 kg/ha with a working-liquid consumption of 20-25 1/ha does not
result in the accumulation of residual quantities of the insecticide or its
metabolite DDVP. Under such conditions the quarantine period may be not
more than 10 days. In 1969 experiments were conducted in the oaks of the
Bazarno-Karabulak Forestry Farm, Saratovskaya Oblast. Aerial spraying was
carried out at the start of bud blossoming. Eighty-percent commerical
chlorophos in a dose of 1 kg/ha with a working-liquid consumption of 20
1/ha was used. The insecticide was found to be effective against gypsy
moths and tent caterpillars.

P. A. BANNIKOV (Volgograd Forest Protection Station) and Z. I. ZHDANOVA and
N. A. APRYSHKO (Volgograd Forestry Administration) took part in the 1968
experiments. The chemical analyses were performed by Z. F. YURKOVA and L.
SAMOYLOVICH, staff members of the All-Union Scientific Research Institute of
the Toxicology of Pesticides, Polymers and Plastics.
2/2

Adsorption

UDC 541.183

USSR

MASLOVSKAYA, R. S., PAVLINCA, T. N., MIKHAYLOVSKIY, YU. N., and ZUBOV, P. I.,
Institute of Physical Chemistry, Acad. Sc. USSR, Moscow

"Adsorption Kinetics of Monomeric Molecules on Aluminum and the Study of the
Properties of Chemosorption Layers Being Formed"

Abstract: Kinetics of the formation of adsorbed layers of organic molecules
(acrylic acid, styrene, diethylamine, and propyl alcohol) on freshly formed
and on oxidized aluminum plates was investigated. All materials reacted with
aluminum forming stable chemosorbed layers. Chemosorption of diethylamine on
the aluminum is accompanied by exchange of electrons, the organic molecule
being the electron donor. Appearance of a new phase of acrylic acid during
the adsorption is the result of its polymerization on the aluminum surface.
The film formed by propanol appears to serve as a barrier excluding the pos-
sibility of the reaction of organic molecules with the metallic ions. It has
been determined that a portion of the aluminum surface under the adsorbed lay-
ers may become oxidized indicating that some adsorption centers remain free
to react with oxygen.

1/1

PROCESSING DATE--16OCT70

UNCLASSIFIED

1/2   031
TITLE--MECHANISM OF THE RADIATION CROSSLINKING OF SOLID RUBBERS -U-

AUTHOR-(05)-KOZLOV, V.T., GURYEV, M.V., YEVSEYEV, A.G., KASHEVSKAYA, N.G.,
   ZUBOV, P.I.
COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 592-601

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--GAMMA RADIATION, POLYMER CROSSLINKING, FREE RADICAL, EPR
SPECTROMETRY, GEL, NATURAL RUBBER, POLYISOPRENE, POLYCHLOROPRENE,
POLYBUTADIENE, BUTADIENE STYRENE RESIN, COPOLYMER, POLYSILOXANE,
CHLOROFLUOROCARBON COMPOUND, FLUORINATED ORGANIC COMPOUND, SYNTHETIC
RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED   STEP NO--UR/0459/70/012/003/0592/0601

PROXY REEL/FRAME--1995/1207

CIRC ACCESSION NO--AP0116672
                           UNCLASSIFIED

CIRC ACCESSION NO--AP0116672
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SAMPLES OF 22 DIFFERENT RUBBERS
   WERE IRRADIATED BY A PRIME60 CO SOURCE.   THE FREE RADICAL YIELDS (G
   SUBR) WERE DETD. BY EPR SPECTROMETRY.   THE CROSSLINK YIELDS (G SUBC)
   WERE DETD. BY THE SWELLING DEGREE OF THE SAMPLES AND(OR) THE GEL
   FRACTION CONTENTS.   FOR MOST OF THE SAMPLES (NATURAL RUBBER,
   POLYISOPRENES, POLYCHLOROPRENES CONTG. S BONDS, POLYBUTADIENES,
   BUTADIENE STYRENE COPOLYMERS, BUTADIENE METHYLSTYRENE COPOLYMER,
   ETHYLENE PROPYLENE COPOLYMERS, POLY(DIMETHYLSILOXANE),
   POLY(DIMETHYLMETHYLVINYLSILOXANES, POLY (DIMETHYLMETHYLPHENYLSILOXANES),
   POLY(DIMETHYLDIPHENYLSILOXANE)) G SUBC GREATER THAN G SUBR-2.   THE
   HALOGEN CONTG. RUBBERS (POLY(TRIFLUOROCHLOROETHYLENE), VINYLIDENE
   FLUORIDE HEXAFLUOROPROPYLENE COPOLYMER, OR VINYLIDENE FLUORIDE
   TRIFLUOROMETHYL PERFLUOROVINYL ETHER COPOLYMERS) HAD G SUBR-2G SUBC
   SIMILAR TO 1.   THE RADIATION CROSSLINKING OF RUBBERS CONSISTS OF FAST
   PROCESSES (SIMILAR TO 10 PRIME NEGATIVE 16 SEC) WHICH FOLLOW THE
   ACTIVATION OR IONIZATION AT LOCATIONS CLOSE TO POTENTIAL CROSSLINKS, AND
   SLOWER PROCESSES INVOLVING THE TRANSFER OF EXCITONS OR CHARGES.
   FACILITY: NAUCH.-ISSLED. INST. REZ. PROM., MOSCOW, USSR.

UNCLASSIFIED

1/2   050   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--EFFECT OF ULTRAVIOLET RADIATION ON THE STRUCTURE AND PROPERTIES OF
    EPOXY COATINGS -U-
AUTHOR-(03)-SUKHAREVA, L.A., VORONKOV, V.A., ZUBOV, P.I.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 261-265

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--UV RADIATION, RADIATION EFFECT, EPOXY RESIN, MOLECULAR
    STRUCTURE, PLASTIC COATING, POLYMER DEGRADATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1552   STEP NO--UR/0069/70/032/002/0261/0265

CIRC ACCESSION NO--AP0112546
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0112546

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY HAS BEEN MADE OF THE
EFFECT OF ULTRAVIOLET RADIATION, AS ONE OF THE RAPID METHODS OF TESTING
COATINGS FOR DURABILITY, ON THE MOLECULAR AND SUPERMOLECULAR STRUCTURE
OF EPOXY COATINGS AND THEIR PROPERTIES. STRUCTURAL TRANSFORMATIONS IN
COATINGS INDUCED BY ULTRAVIOLET RADIATION ARE A MULTISTEP PROCESS
ASSOCIATED WITH THE BREAKDOWN OF MOLECULAR AND SUPERMOLECULAR STRUCTURES
ARISING DURING THE FORMATION OF COATINGS, AND WITH THE APPEARANCE OF NEW
MORPHOLOGICAL FORMS OF SUPERMOLECULAR STRUCTURES, ACCOMPANIED BY A
CHANGE IN MECHANICAL AND THERMOPHYSICAL PROPERTIES OF COATINGS.

UNCLASSIFIED

1/2   036   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--STUDY OF THE MECHANISM OF FORMATION OF POLYESTER COATINGS UNDER THE
ACTION OF ULTRAVIOLET RADIATION -U-
AUTHOR-(03)-ZUBOV, P.I., SUKHAREVA, L.A., KRYLOVA, L.M.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 218-223

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POLYESTER RESIN, AMINE, UV RADIATION, PHOTOEFFECT,
POLYMERIZATION, PLASTIC COATING, MATERIAL DEGRADATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0396   STEP NO--UR/0069/70/032/002/0218/0223

CIRC ACCESSION NO--AP0113314
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0113314
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE EFFECT OF OCTADECYLAMINE (ODA) ON THE RATE OF FORMATION AND AGEING OF POLYESTER COATINGS UNDER THE ACTION OF ULTRAVIOLET RADIATION HAS BEEN STUDIED BY IR SPECTROSCOPY AND MECHANICAL TESTS. THE OPTIMUM AMOUNT OF ODA INCREASES THE RATE OF POLYMERIZATION AND DECREASES THE RATE OF DESTRUCTION OF COATINGS.

USSR   UDC: 541.64:678.76

KOZLOV, V. T., GUR'YEV, M. V., YEVSEYEV, A. G., KASHEVSKAYA, N. G., ZUBOV, P. I., Scientific Research Institute of the Rubber Industry, Moscow, State Committee for Chemistry; Scientific Research Physico Chemical Institute imeni L. Ya. Karpov, Moscow, State Committee for Chemistry

"Investigation of the Mechanism of Radiation Cross-Linking Processes in Hard Rubber"

Abstract: The mechanism of radiation cross-linking was studied at $77^\circ K$ in 22 elastomer compounds of various structure -- saturated, unsaturated, aromatic and halogen substituted hydrocarbons and polysiloxanes with side groups $-CH_3$, $-CH=CH_2$, $-C_6H_5$ in various combinations and ratios. In nearly all elastomers studied, the cross-link yield was considerably greater than half the radical yield, based on the assumption that two radicals may form a cross link. An exception to this rule is the case of alkyl halide elastomers in which the radical yield is approximately twice the cross-link yield. In many hydrocarbon elastomers, an increase in the capacity of the molecules to form radicals leads to a reduction in the cross-link yield, the ratio of

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the radical yield to twice the cross-link yield varying from 1/20 to 1/2.   In
a number of polysiloxanes these ratios vary depending on the presence of
isolated double bonds lowers the radical yields and increases the cross-link
yields. Both radical and cross-link yields are considerably reduced by
aromatic groups, the cross-link yield being reduced to a greater degree.
Radiation cross-linking is attributed to a mechanism which takes place dur-
ing exposure and goes through a number of electron processes. These include
rapid processes (of the order of 10^{-16} second) immediately following ioni-
zation or excitation of regions in close proximity and oriented for mole-
cular cross linking; the sequence also includes processes which are slowed
down by transfer of an exciton or excited charge into these regions. A
contribution is also made by processes of the inter-action of free radicals
and the ions produced when radicals capture charges. The molecular struc-
ture of the elastomer determines the relative contribution made by each of
these processes to the overall cross-link yield.

2/2

Acc. Nr:
AP0036540

Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1,
pp 137-140

EFFECT OF THE CROSS-LINK DENSITY AND SUPERMOLECULAR STRUCTURES ON THE PROPERTIES OF POLYURETHANE COATINGS

G. A. Yablokov, L. A. Sukhareva, M. R. Kiselev, P. I. Zubov

Summary

The kinetics of the build up of internal stresses and the rate of formation of physical and chemical bonds during the production of polyurethane coatings have been correlated with the supermolecular structure nature and the cross-link density. The effect of the chemical bonds distribution inside supermolecular structures and between them on the physico-mechanical properties of coatings and the swelling kinetics has been studied.

REEL/FRAME
19721388

USSR

UDC: 621.375.82

ZUBOV, V. A. and KUZNETSOVA, T. I.

"Depth Holography of Nonstationary Light Fields"

Moscow, V sb. Kvant. elektronika (Quantum Electronics—collection of works) "Sov. radio," No 1(13), 1973, pp 135-137 (from RZh—Fizika, No 7, 1973, Abstract No 7D1097)

Translation: It is shown that in the action of an optical signal and special nonmonochromatic reference wave on a light-sensitive material, information is recorded concerning the space and time characteristics of the signal. Upon illumination of the hologram obtained the three-dimensional image of the original object is reproduced, depending on the time. The volume of information that can be recorded in such a system is computed. Authors' abstract

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USSR   UDC 621.317.729

ZUBOV, V. G., and YuRKOVSKIY, D. A.

"A Measuring Amplifier with High Input Impedance for Low DC Voltages"

Otbor i peredach inform. Resp. mezhved sb. (Selection and Transmission of
Information. Republic Interdepartmental Collection), 1972, No 32, pp 93-96
(from RZh-Avtomatika Telemechanika i Vychislitel'naya Tekhnika, No 3, Mar 73,
Abstract No 3 A299 by the authors)

Translation: An amplifier circuit using field effect transistors for the
measurement of DC voltages in the 0-100 microvolt range is described; the
instrument has high input impedance. The characteristics of its design are
explained and its basic technological characteristics are given. One
illustration, eight bibliographic entries.

1/1

USSR   UDC[537.226+537.311.33]:539.16.04

ZAKHAROVA, YE. K., ZUBOV, V. G., and OSIPOVA, L. P.

"Effect of Pile Irradiation on Structure and Various Properties of Crystalline and Fused Quartz"

Vozdeystviye reaktornogo oblucheniya na strukturu i razlichnyye svoystva kristallicheskogo i plavlenogo kvartsa (cf. English above), Moscow State University, Chair of Scientific Information, Chair of General Physics, Moscow, 1971, 131 pp, ill., bibliography with 236 titles, No 3465-71 Dep (from RZh-Fizika, No 2, Feb 72, Abstract No 2YE1533 DEP from authors' abstract)

Translation: A survey is made of data in the literature on the effect of pile irradiation on various physical properties of crystalline and fused quartz: density, refractive index, specific rotation, elastic constants, thermal and dielectric properties, absorption spectra, Raman spectra, X-ray photographs, etc. The analogy between a radiative and temperature $(\chi - \beta$ transition is considered, as well as the effect of annealing on radiation effects. The general pattern of radiation damage in fast neutron-irradiated quartz is discussed. Bibliography with 236 titles.

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USSR   UDC 621.317.346

ZUBOV, V. G., SEMENISTYY, K. S., L'vov

"A Method of Reducing Transverse Noise when Using High Speed Measuring Converters"

Kiev, Otbor i Peredacha Informatsii, No 27, 1971, pp 85-88

Abstract: The transverse noise level at the input of a measuring converter designed for operation under the effect of electromagnetic inductions of an industrial circuit was estimated for the case of significant distance between the sensors and the target of the measurement. A procedure is described for reducing the transverse noise which excludes the necessity for using additional inertial elements which lower the speed of the measuring converter. The proposed procedure for suppressing the transverse noise occurring in the input circuit formed by the measuring line, the sensor and the imput impedance of the measuring converter is based on the idea of using a symmetric differential transformer in the input circuits of the converter with preliminary conversion of the useful signal and the noise signal.
   The circuit assembled to check the procedure for reducing the transverse noise using an audio-frequency oscillator as the noise source is described, and the test results are presented.
1/1

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USSR

ZUBOV, V. G., YURKOVSKIY, D. A.

"Modulator of Small DC Voltages Based on a Field-Effect Transistor With PN Junction"

Abstract: The authors briefly discuss the principal characteristics of a field-effect transistor with gate in the form of a PN junction as compared with those of a conventional bipolar transistor. A modulator circuit for small signals is proposed which utilizes a field-effect transistor with PN junction as a switching device. Expressions are given for the main parameters of the circuit. A modulator circuit was experimentally studied in which the FET with PN junction and P-channel had the following parameters: $S_{max} = 0.3\text{-}0.35$ mA/V, $U_0 = 2\text{-}3$ V, $I_3 = 1 \cdot 10^{-9}$ A, and $r_0 = 3$ kΩ. It was found that the modulator has an average input impedance of 1.7 MΩ when the

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USSR

ZUBOV, V. G., YURKOVSKIY, D. A., Otbor i Peredacha Informatsii, No 28, 1971, pp 61-64

residual zero voltage level ΔU_0 adjusted to the modulator input is no more than 10 μV. If it is assumed that the useful signal amplitude is equal to ΔU_0, then the current sensitivity threshold of the modulator is of the order of $5 \cdot 10^{-12}$ A. The conversion factor of the circuit is 0.28. One figure, bibliography of six titles.

2/2

USSR   UDC 621.372.541

ZUBOV, V. G., SEMENISTYY, K. S.

"Analysis of the Errors in the Conversion Characteristic of a Linear Square Pulse Demodulator"

Translation: This article contains a description of a procedure for obtaining the conversion characteristic U = F(f) of a linear square pulse demodulator. An error analysis is presented for it. A smoothing RC filter is used as the demodulator. It is demonstrated that the relative error of the characteristic of the demodulator as a function of nonlinearity caused by variation of the internal resistance of the pulse source can be decreased appreciably as a result of proper selection of individual elements of the demodulator. The derived formulas permit calculation of all the elements of the demodulator beginning with the given linearity of the conversion characteristic and the level of the output voltage pulsations.

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Acc. Nr: AP0045004   Abstracting Service: 5/7U   Ref. Code:
INTERNAT. AEROSPACE ABST.   UR0109

A70-22413 #   Photomultiplier TWT with a louvered
secondary electron multiplier operating in the 600- to 900-MHz
range (FEU-LBV s zhaliuznym vtorichno-elektronnym
umnozhitelem, rabotaiushchaia v diapazone 600-900 Mgts). V. A.
Afanas'ev, V. G. Zubov, N. I. Ekamasov, A. Y. Ievskii, and N. G.
Lozovaia. Radiotekhnika i Elektronika, vol. 15, Jan. 1970, p.
155-161. 13 refs. In Russian.

Description of the design and parameters of a high-sensitivity
photomultiplier TWT microwave photodetector with an internal
louvered secondary-electron multiplier and a spiral high-frequency
getter. The device is capable of detecting light modulated at
frequencies ranging from 600 to 900 MHz. The photocathode
sensitivity in experimental specimens at a wavelength of 0.63 micron
amounted to 10 to 20 microamp/mW, the multiplication per stage is
about 3 to 4, and the equivalent output resistance is about 10 to 100
kiloohms. A photomultiplier TWT with two or three multiplication
stages is tens of times more sensitive than photo-TWT models of the
same design but without a multiplier system. With its aid it is
possible to receive light signals with a power of about 1 microwatt at
a wavelength of 0.63 micron in a band of several tens of megahertz.

A.B.K.

REEL/FRAME
19771900

USSR

UDC 681.3.055

ZUBOV, V. P., and STRELYAGOV, S. M.

"A Pneumatic Computer"

Translation: This Author's Certificate introduces a pneumatic computer
which contains a pulsating input resistor connected to series-connected
diode vessels. The device also contains a pulsating vessel, a controlled
vessel, normally closed and normally open contacts, and a cycle delay
module. As a distinguishing feature of the patent, the functional possi-
bilities of the device are extended by interconnecting the cavities of all
odd diode vessels and connecting them through a normally open contact to
the working cavity of the pulsating vessel and through a normally closed
contact to the zero pressure-level line. The controlling cavities of all
even diode vessels are connected through a normally open contact to the
supply line and are connected to the atmosphere through a normally closed
contact. The working cavity of the last even diode vessel is open to the
atmosphere. The controlling cavity of the pulsating vessel is connected
1/2

USSR

ZUBOV, V. P., and STRELYAGOV, S. M., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 21, Jul 71, Author's Certificate No 308434, Division G, filed 25 Sep 69, published 1 Jul 71, pp 185-186

through normally open and normally closed contacts respectively to the zero pressure-level line and to the supply line, and the working cavity of the pulsating vessel is connected through a normally closed contact to the cycle delay module and the controlled vessel. The controlled vessel is connected through a normally open contact to the zero pressure-level line.

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- 52 -

AUTHORS: Mil'chenko, I.S. and Zubov, V.P.   SOV-19-58-4-245/523

TITLE: A Method for Manufacturing Knitted Fabrics and a Circular
               Multi-System Knitting Machine for this Purpose (Sposob vy-
               rabotki dvoynogo pressovogo nachesnogo trikotazhnogo polot-
               na i krugovyazal'naya mnogosistemnaya mashina dlya osush-
               chestvleniya sposoba)

PERIODICAL: Byulleten' izobreteniy, 1958, Nr 4, pp 63-64   (USSR)

ABSTRACT: Class 25a. 8. Nr 112384 (575864/25032, 1 November 1954).
               Submitted to the USSR Ministry for Machine and Instrument
               Building. The invention concerns a method of manufacturing
               knitted fabrics and the necessary mechanism for circular
               multi-system knitting machines producing this fabric.

Card 1/1

USSR

KOLESOVA, L. M., NIFANT'YEV, E. Ye., and ZUBOV, V. P., Moscow State University
imeni M. V. Lomonosov

"Phosphorylation of Poly(Allyl Alcohol) With Dimethyl Phosphite"

Abstract: Phosphorylation of poly(allyl alcohol) [PAA] with dimethyl phosphite
-was carried out in an inert medium. The reaction progress was checked by the
amount of the alcohol isolated and by the phosphorus content in the reaction
product. The reaction begins to go appreciably faster at about 165°, and at
175° it yields in about 30 min a polymer with up to 20% phosphorus content.
Further rise in the temperature or reaction time does not lead to a higher
degree of phosphorylation. Using metallic sodium as a catalyst has also no
effect on the reaction rate or its temperature. Two reactions are possible
during phosphorylation of PAA: formation of a nonsymmetric phosphite fragment
and substitution of both methoxy groups with formation of cross-linked struc-
tures. Regarding the reaction mechanism, the first step involves addition
of an alcohol proton to the phosphorus atom forming a phosphonium cation which
gives an unstable intermediate product with the alkoxy group; the second step
involves breaking up this addition product with formation of a new phosphite
and an alcohol.
1/1

1/2   022
TITLE—REACTION OF MONOMERS WITH CARBONYL OR NITRILE GROUPS WITH METALS
    AND SOME REACTIONS OF THE RESULTING ANIONRADICALS —U—

UNCLASSIFIED   PROCESSING DATE—30OCT70

AUTHOR—(05)—PANASENKO, A.A., GOLUBEV, V.B., ZUBOV, V.P., KABANOV, V.A.,
    KARGIN, V.A.

COUNTRY OF INFO—USSR

SOURCE—VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 865-72

DATE PUBLISHED———70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—MONOMER, CARBONYL RADICAL, NITRILE, SODIUM, MAGNESIUM,
    ACRYLATE, ACETONE, BENZOIC ACID, FREE RADICAL, OLIGOMER

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—2000/0683

STEP NO—UR/0459/70/012/004/0865/0872

CIRC ACCESSION NO—AP0124355

UNCLASSIFIED

UNCLASSIFIED
PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0124355
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VAPORS OF NA OR MG WERE
CONDENSED ON A SURFACE, COOLED WITH LIQ. N, TOGETHER WITH THE VAPORS OF
ME METHACRYLATE, ME ACRYLATE, ME BUTYRATE, ET BENZOATE, ACH, ETCHO, ISO
PRCHO, TERT BUCHO, ACROLEIN, ACETONE, H SUB2 C:CHCN, H SUB2C:CMECN, OR
ETCN. THE CONDENSATE CONTAINED FREE RADICALS. THE REACTIONS OF THESE
MONOMERS WITH NA OR MG GAVE ANION RADICALS, SUCH AS (ME SUB2 CO), WHICH
INTIATED THE OLIGOMERIZATION BY ANIONIC MECHANISM.   FACILITY:
MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.,

UNCLASSIFIED

1/2   034
TITLE--ALDEHYDE AND KETONE POLYMERIZATION -U-   UNCLASSIFIED   PROCESSING DATE--02OCT70
AUTHOR-(03)-KABANOV, V.A., KARGIN, V.A., ZUBOV, V.P.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 134,862
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--06JAN70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, ALDEHYDE, KETONE,
CONDENSATION REACTION, MOLECULAR WEIGHT, SEMICONDUCTOR MATERIAL, ZINC
CHLORIDE, ALUMINUM CHLORIDE, ORGANIC SEMICONDUCTOR, HEAT RESISTANT
PLASTIC, CATALYTIC POLYMERIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0128
CIRC ACCESSION NO--AA0111322
                              STEP NO--UR/0482/70/000/000/0000/0000

                    UNCLASSIFIED

2/2 034
CIRC ACCESSION NO--AA0111322
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYMERS WERE PREPD. BY THE
POLYCONDENSATION OF ALIPHATIC ALDEHYDES OR KETONES HAVING ALPHA H ATOMS,
SUCH AS ACETONE OR ACH, AT 100-300DEGREES. TO OBTAIN HIGH MOL. WT.,
HEAT RESISTANT POLYMERS WITH SEMICONDUCTOR PROPERTIES, GROUP II, III,
IV, V, AND VIII METAL HALIDES, SUCH AS ZNCL SUB2 OR ALCL SUB3, WERE USED
AS CATALYSTS AND WERE ADDED TO THE REACTION AS SOLNS. IN THE
CORRESPONDING MONOMERS.

1/2   020

TITLE--EFFECT OF THE FORMATION OF ION PAIRS ON RADICAL HOMO AND
COPOLYMERIZATION OF 2,METHYL,5,VINYLPYRIDINE AND

UNCLASSIFIED

PROCESSING DATE--09OCT70

AUTHOR-(04)-GEORGYEVA, V.R., ZUBOV, V.P., KABANOV, V.A., KARGIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1128-31

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMERIZATION, PYRIDINE, VINYL COMPOUND, SULFATE,
HETEROCYCLIC NITROGEN COMPOUND, METHANOL, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/2013

CIRC ACCESSION NO--AT0112968

STEP NO--UR/0020/70/190/005/1128/1131

UNCLASSIFIED

2/2   020
CIRC ACCESSION NO--AT0112968
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HOMOPOLYMN. RATE (UPSILON) OF
1,2,DIMETHYL,5,VINYLPYRIDINIUM METHYL SULFATE (I) AT 50DEGREES IN H SUB2
O,MEOH MIXTS. CONTG. (ME SUB2 CCN) SUB2 N SUB2 IS FASTER THAN THAT OF
THE HOMOPOLYMN. OF ITS FREE BASE (II) UNDER THE SAME CONDITIONS. THE
INCREASE IN MEOH CONCN. ABOVE 70PERCENT INCREASES THE UPSILON OF I
SHARPLY.   THE UPSILON OF II DECREASES LINEARLY WITH MEOH CONCN. THE
COPOLYMN. REACTIVITY RATIOS (R SUB1 FOR II AND R SUB2 FOR I) ALSO CHANGE
WITH THE SOLVENT COMPN. (SOLVENT, R SUB1, AND R SUB2 GIVEN): MEOH,
0.58, 0.98; 4:1 MEOH,H SUB2 O, 0.54, 0.42; 1:1 MEOH,H SUB2 O 0.30, 0.01.
IN MEOH (OR MEOH RICH SOLNS.), A LARGE NO. OF THE GROWING MACRORADICALS
FORMS IONIC PAIRS WITH MESO SUB4 PRIME NEGATIVE, WHICH DECREASES THE
ELECTROSTATIC REPULSION BETWEEN THE PYRIDINE GROUPS IN THE TRANSITION
COMPLEX III, I.E., INCREASES OF UPSILON OF I.   FACILITY: MOSK.
GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

Acc. Nr:
AP0052504   Abstracting Service: Ref. Code:
CHEMICAL ABST. 5-7c

4K 0460

101153u **Polymerization of methyl methacrylate in the presence of sulfuric and phosphoric acids.** Vengerova, N. A.; Georgieva, V. R.; Zubov, V. P.; Kabanov, V. A.; Kargin, V. A. (Mosk. Gos. Univ. im. Lomonosova, Moscow, USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(1), 46-50 (Russ). The photopolymn. of Me methacrylate (I) in the presence of H_2SO_4 or H_3PO_4 was studied at -10 to $+100°$. Polymn. in the $I-H_2SO_4$ system was initiated by uv light ($\lambda = 313$ mμ) without a sensitizer, whereas polymn. in the $I-H_3PO_4$ system was initiated by uv light without a sensitizer, as well as in the presence of benzil at $\lambda = 365$ mμ. The polymn. rates and the mol. wts. of poly(Me methacrylate) (II) increased with increasing I-acid ratio, presumably due to a chem. activation of the monomer or the propagating macroradical by the acids. Max. polymn. rate and mol. wt. of II were obtained in the presence of 80% H_2SO_4, suggesting that the chain termination rate const. varied in the presence of H_2SO_4. The polymn. rate of I in the presence of either acid obeyed the Arrhenius equation; the activation energy was 4.9 kcal/mole (in the presence of H_2SO_4) and 5.0 kcal/mole (in the presence of H_3PO_4). The mi-crotacticity of II was essentially independent of the polymn. temp., indicating that the acid bound to the reactive center participated in chain propagation.

CKJR

REEL/FRAME
19821145

111879z Elementary constants of chain growth and termi-
nation during the radical polymerization of methyl methacry-
late in the presence of aluminum bromide. Lachinov, M. B.;
Zubov, V. P.; Kabanov, V. A. (USSR). Vysokomol. Soedin., Ser.
B 1970, 12(1), 4-5 (Russ). In the polymn. of Me methacrylate (I)
in the presence of $AlBr_3$ with uv irradn., it was found that the ini-
tiation rate const. (k_i) increases and the chain-transfer const. (k_o)
decreases in the $0 < AlBr_3/I < 0.35$ mole ratio range. This sup-
ports the view that $AlBr_3$ participates in the polymer chain-
growth mechanism (V. I. Zubov, et al., 1967) and explains the
decrease in the polymer mol. wt. with increase in $AlBr_3$ concn.

CPJR

UNCLASSIFIED   PROCESSING DATE—20NOV70

TITLE—A PROBLEM IN OPTIMAL STABILIZATION -U-

AUTHOR--ZUBOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, DAKLADY AKADEMII NAUK SSSR, VOL. 190, NO. 4, 1 FEB 70, PP 760-762

DATE PUBLISHED--01FEB70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--GAME THEORY, MATHEMATIC MATRIX

CONTROL MARKING---NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0470   STEP NO--UR/0020/70/190/004/0760/0762

CIRC ACCESSION NO--AT0113369
UNCLASSIFIED

CIRC ACCESSION NO--AT0113369

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBLEM OF OPTIMAL
STABILIZATION IS CONSIDERED IN THE FORM OF A DIFFERENTIAL GAME, AND
EXISTENCE CONDITIONS AND A METHOD FOR CONSTRUCTING THE OPTIMAL CONTROLS
IN ANALYTICAL FORM ARE GIVEN. THE FOLLOWING DEFINITION OF "ADMISSIBLE"
IS GIVEN: A CONTROL U(T, X) IS CALLED ADMISSIBLE IF U(T, X) EQUALS M(T)
TIMES X, WHERE M(T) IS A MATRIX WITH REAL, CONTINUOUS, BOUNDED
COEFFICIENTS DEFINED FOR T LARGER THAN 0, AND IF THE SYSTEM X EQUALS PX
PLUS QU (1) FOR THE CONTROL U EQUALS M(T) TIMES X HAS A UNIFORMLY
ASYMPTOTIC STABLE EQUILIBRIUM POSITION X EQUALS 0 OF THE EXPONENTIAL
TYPE. THE FOLLOWING THEOREM IS STATED: FOR AN OPTIMAL CONTROL U SUBO
TO EXIST, IT IS NECESSARY AND SUFFICIENT THAT A REAL, CONTINUOUS,
BOUNDED MARTRIX THETA EXIST FOR T LARGER THAN 0, SATISFYING THE EQUATION
THETA PLUS THETA QC PRIME NEGATIVE1 C THETA PLUS THETA (P MINUS QC PRIME
NEGATIVE1 B) PLUS (P MINUS CC PRIME NEGAITVE1 B) THETA MINUS A PLUS BC
PRIME NEGATIVE1 B EQUALS 0 (2) AND SUCH THAT THE EQUATION C PRIME
NEGATIVE1 (Q THETA MINUS B) TIMES X BE ADMISSIBLE. THEN U SUBO EQUALS C
PRIME NEGATIVE1 (Q THEATA-B) TIMES X.   IT IS SHOWN THAT UNDER CERTAIN
CONDITIONS THE SYSTEM OF EQUATIONS (SH N ON MICROFICHE) HAS A UNIQUE
SOLUTION IN THE FORM OF A SERIES (SHOWN ON MICROFICHE) CONVERGING
UNIFORMLY WITH RESPECT TO T LARGER THAN OR EQUAL TO 0, SO THAT THE
SERIES (5) GIVES THE REQUIRED OPTIMAL CONTROL.

USSR

ZUBOV, V. I.

"A Problem in Optimal Stabilization"

Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 4, 1 Feb 70, pp 760-762

Abstract: The problem of optimal stabilization is considered in the form of a differential game, and existence conditions and a method for constructing the optimal controls in analytical form are given. The following definition of "admissible" is given: a control $U(t, X)$ is called admissible if $U(t, X) = M(t) \cdot X$, where $M(t)$ is a matrix with real, continuous, bounded coefficients defined for $t > 0$, and if the system

$$\dot{X} = PX + QU \qquad (1)$$

for the control $U = M(t) \cdot X$ has a uniformly asymptotic stable equilibrium position $X = 0$ of the exponential type. The following theorem is stated: for an optimal control U_0 to exist, it is necessary and sufficient that a real, continuous, bounded matrix θ exist for $t > 0$, satisfying the equation

$$\dot{\theta} + \theta Q C^{-1} Q^* \theta + \theta(P - Q C^{-1} B^*) + (P - Q C^{-1} B^*)^* \theta - A + B C^{-1} B^* = 0 \qquad (2)$$

and such that the equation $C^{-1}(Q^* \theta - B^*) \cdot X$ be admissible. Then $U_0 = C^{-1}(Q^* \theta - B^*) \cdot X$.

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It is shown that under certain conditions the system of equations

$$\partial \lambda / \partial t + \partial \lambda / \partial x \cdot G(t, X, U) = -\partial G^* / \partial x \cdot \lambda + \partial W / \partial x, \qquad (3)$$

$$\partial W / \partial U = \lambda^* \, \partial G / \partial U \qquad (4)$$

has a unique solution in the form of a series

$$\lambda = \sum \lambda(m), \qquad U = \sum U(m) \qquad (5)$$

converging uniformly with respect to $t \geqslant 0$, so that the series (5) gives the required optimal control.

2/2

USSR

ZUBOV, V. V., KRIVANDIN, V. A., MASTRYUKOV, B. S.

"Study of Spectral Radiation Characteristics of Heat-resistant Materials"

Abstract: Calculation of spectral characteristics is hindered by the absence
of sufficiently reliable data on the degree of blackness for most materials
used at high temperatures, particularly alloys used to manufacture electric
resistance furnace heaters. In this work, alloys Kh20N80, OKh27Yu5A and
Kh18N25S2 were studied, using specimens 8 × 30 × 2 mm preliminarily ground,
then oxidized in air at 1,000°C for 6 hours. The spectral degree of black-
ness was measured using the direct radiation method. Analysis of the results
produced shows that the spectral degree of blackness and function $\varepsilon_\lambda = f(\lambda)$
differ significantly for the three alloys, due to the differences in chemical
composition and thickness of oxide films formed. The work indicates that
the radiation properties of oxidized heat-resistant alloys are determined to
a significant extent by the chemical composition and thickness of oxide
films formed on their surfaces. The influence of these factors on the spec-
tral function will be studied in later works.
1/1

UDC   538

USSR

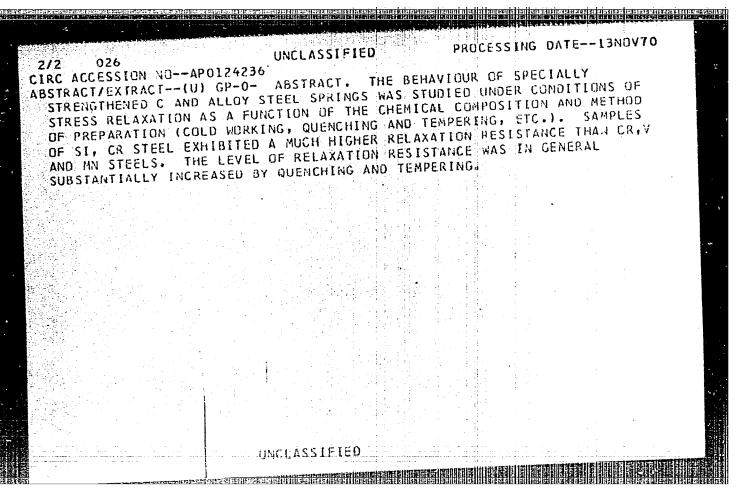ZUBOV, V. V.

"Thermomagnetic Effect of Fe"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 2, February 1971,
pp 159-160

Abstract: This paper supplements results obtained earlier by H. Breili (Ann.
d. Physik, B. 14, 1932, page 259) and F. E. Lowance and F. W. Constant (Phys.
Rev., Vol 48, No 3, 1935, page 257). It considers the behavior of the thermo-
magnetic effect of iron ε^0 when the cold junction temperature remains constant
($T_1 = 18°C$) and the hot junction temperature varies from 51 to 808°. The ef-
fect of transfer of the cold junction temperature to the region where the
thermal emf reaches a minimum ($\partial\varepsilon_T/\partial T_2 = 0$) on the behavior of the isotherm
$\varepsilon^0(H)$ is explained. The form of the dependence of ε^0 on the magnetization J
in the displacement zone is established. It is pointed out that the behavior
of the isotherm $\varepsilon^0(H)$ permits judgement of the variation of the contact po-
tential difference ΔV_k at a Fe-Cu junction during magnetization of it: the
displacement processes cause a positive change in it; and rotation and the
para-process, a negative change.
1/1

- 103 -

UNCLASSIFIED   PROCESSING DATE--13NOV70

1/2   026
TITLE--STABILITY OF THE STRUCTURE AND STRESS RELAXATION IN CYLINDRICAL
STEEL SPRINGS -U-
AUTHOR-(02)-BARAZ, V.R., ZUBOV, V.YA.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. V.U.Z., CHERNAYA MET., 1970, (2), 126-128

DATE PUBLISHED-------70

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

TOPIC TAGS--SPRING STEEL, TEMPERING, STRESS RELAXATION, STEEL QUENCHING,
SILICON STEEL, CHROMIUM STEEL, VANADIUM STEEL, MANGANESE STEEL, COLD
WORKING, METAL HEAT TREATMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0541   STEP NO--UR/0148/70/000/002/0126/0128

CIRC ACCESSION NO--AP0124236
                         UNCLASSIFIED

2/2 026
CIRC ACCESSION NO--AP0124236
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BEHAVIOUR OF SPECIALLY STRENGTHENED C AND ALLOY STEEL SPRINGS WAS STUDIED UNDER CONDITIONS OF STRESS RELAXATION AS A FUNCTION OF THE CHEMICAL COMPOSITION AND METHOD OF PREPARATION (COLD WORKING, QUENCHING AND TEMPERING, ETC.). SAMPLES OF SI, CR STEEL EXHIBITED A MUCH HIGHER RELAXATION RESISTANCE THAN CR,V AND MN STEELS. THE LEVEL OF RELAXATION RESISTANCE WAS IN GENERAL SUBSTANTIALLY INCREASED BY QUENCHING AND TEMPERING.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--27NOV70

1/2   023
TITLE--STRUCTURE OF POLYMERS WITH LONG SIDE BRANCHES -U-

AUTHOR-(03)-ZUBOV, YU.A., PETRUKHIN, B.S., SHIBAYEV, V.P.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(4), 290-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--X RAY ANALYSIS, MOLECULAR STRUCTURE, MODEL, CRYSTAL STRUCTURE,
METHYL METHACRYLATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1247   STEP NO--UR/0460/70/012/004/0290/0294

CIRC ACCESSION NO--AP0134921
              UNCLASSIFIED

2/2   023
CIRC ACCESSION NO--AP0134921
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   A STRUCTURAL MODEL WAS PROPOSED
FOR POLY(ALKYL ACRYLATES) (I) AND POLY(ALKYL METHACRYLATES) (II) FROM
RESULTS OF X RAY ANAL. OF POLY(HEXADECYL ACRYLATE) (III) AND
POLY(HEXADECYL METHACRYLATE) (IV).   THE MODEL ACCOUNTED FOR THE 1 LAYER
OR 2 LAYER HEXAGONAL PACKING OF SIDE CHAINS AND FOR THE FORMATION OF
EVEN AND ODD REFLECTIONS AT SMALL ANGLES. A FORMULA WAS DERIVED FOR THE
AZIMUTHAL DISTRIBUTION OF INTENSITY SCATTERING,   X RAY PATTERNS OF III,
IV AND HEXADECYL ACRYLATE ISO-PR ACRYLATE COPOLYMERS SUGGESTED THAT I
AND II HAD A GAS CRYST. STRUCTURE.   FACILITY: FIZ.-KHIM. INST.
IM. KARPOVA, MOSCOW, USSR.

UDC 632.95

USSR

ALIMOV, P. I., VASHKOV, V. I., VOLKOVA, A. P., ZAKOLODKINA, V. I., ZUBOVA, G. M., IRANDOVA, I. I., KERBABYEV, E. B., NEKLESOVA, I. L., STREL'NIKOVA, G. N., and FROLOVA, A. I.

"Insecticidal Properties of O-Methyl-O-Dichlorovinyl-N-Dimethyl Amidophosphate"

Translation: The substance of formula $(MeO)Me_2NP(O)OCH=CCl_2$ (I) has strong contact, fumigation and intestinal action at the instant of application on houseflies, bedbugs and red cockroaches; the agent is not as strong as other organophosphorus insecticides with respect to mosquitoes. The most active form for application to a glass surface is a water emulsion prepared from compound I with OP-7 (1:1) and a solution in acetone. An alcohol solution is considerably less active. An investigation is made of the larvicidal activity of compound I. The insecticide has no residual effect. T. A. Belyayeva.
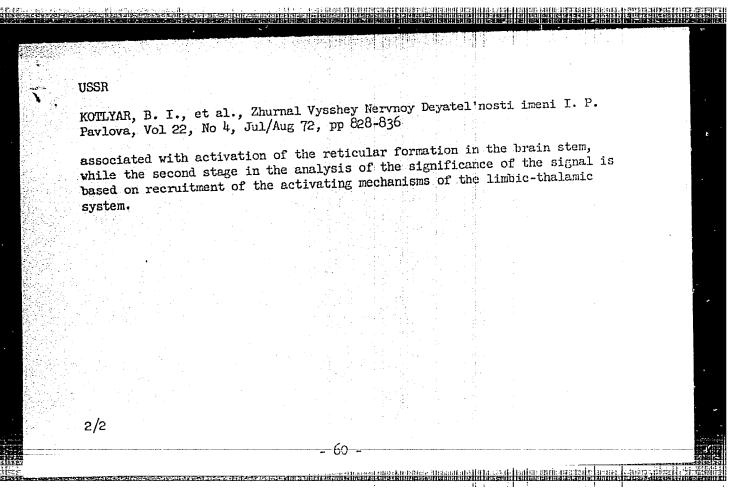
1/1

USSR

KOTLYAR, B. I., ZUBOVA, O. B., TIMOFEYEVA, N. O., and KRYUCHKOVA, N. A.,
Chair of the Physiology of Higher Nervous Activity, Moscow State University
imeni M. V. Lomonosov

"Electrophysiological Analysis of Limbic-Reticular Interaction in the Orienting
Reflex"

Abstract: Changes in the frequency of synchronized oscillations during extinc-
tion of the EEG component of the orienting reaction to acoustic stimuli were
studied in rabbits with electrodes implanted in various areas of the brain.
The most common development in the reticular formation of the brain stem (73%
of all cases) was an immediate fall in the frequency of these oscillations,
followed by an undulating extinction of the changes (type II reaction). The
simultaneous changes in nonspecific thalamic and limbic nuclei and in the dorsal
hippocampus were more variable. However, the most characteristic development
(43.5%) was an initial gradual rise with a subsequent diminution in the fre-
quency of the synchronized rhythm (type I reaction). Intramuscular chlorpro-
mazine blocked primarily the type II reaction in the brain stem reticular forma-
tion. It is inferred that the first stage of the orienting reaction is
1/2

USSR

KOTLYAR, B. I., et al., Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlova, Vol 22, No 4, Jul/Aug 72, pp 828-836

associated with activation of the reticular formation in the brain stem, while the second stage in the analysis of the significance of the signal is based on recruitment of the activating mechanisms of the limbic-thalamic system.

2/2

1/2   030   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--ELECTRICAL ACTIVITY OF THE RETICULAR SYSTEM IN THE PROCESS OF FOOD
  PROCURING CONDITIONING IN RABBITS -U-
AUTHOR-(02)-KOTYLAR, B.I., ZUBOVA, O.B.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL VYSSHEY NERVNOY DEYATEL'NOSTI, 1970, VOL 20, NR 3, PP
  485-490
DATE PUBLISHED------70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, BIOLOGICAL AND MEDICAL
  SCIENCES
TOPIC TAGS--CONDITIONED REFLEX, ELECTROPHYSIOLOGY, BRAIN, EXPERIMENTAL
  PSYCHOLOGY, ELECTROENCEPHALOGRAPHY
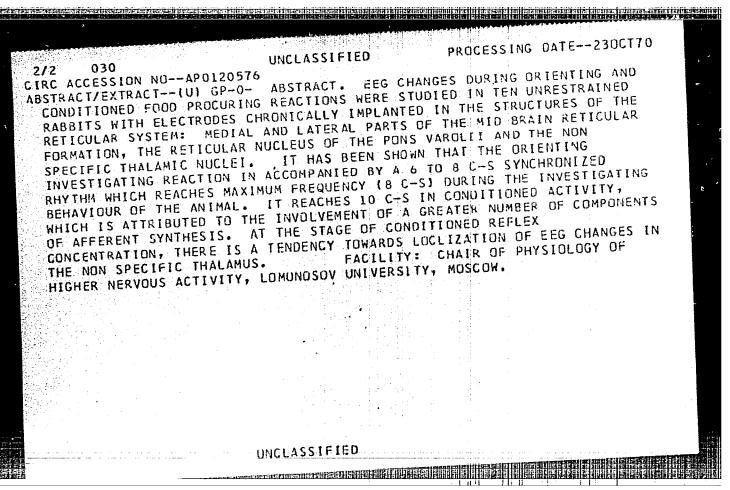
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1930   STEP NO--UR/0247/70/020/003/0485/0490

CIRC ACCESSION NO--AP0120576
                         UNCLASSIFIED

2/2   030
CIRC ACCESSION NO--AP0120576
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EEG CHANGES DURING ORIENTING AND
CONDITIONED FOOD PROCURING REACTIONS WERE STUDIED IN TEN UNRESTRAINED
RABBITS WITH ELECTRODES CHRONICALLY IMPLANTED IN THE STRUCTURES OF THE
RETICULAR SYSTEM: MEDIAL AND LATERAL PARTS OF THE MID BRAIN RETICULAR
FORMATION, THE RETICULAR NUCLEUS OF THE PONS VAROLII AND THE NON
SPECIFIC THALAMIC NUCLEI. IT HAS BEEN SHOWN THAT THE ORIENTING
INVESTIGATING REACTION IN ACCOMPANIED BY A 6 TO 8 C-S SYNCHRONIZED
RHYTHM WHICH REACHES MAXIMUM FREQUENCY (8 C-S) DURING THE INVESTIGATING
BEHAVIOUR OF THE ANIMAL. IT REACHES 10 C-S IN CONDITIONED ACTIVITY,
WHICH IS ATTRIBUTED TO THE INVOLVEMENT OF A GREATER NUMBER OF COMPONENTS
OF AFFERENT SYNTHESIS. AT THE STAGE OF CONDITIONED REFLEX
CONCENTRATION, THERE IS A TENDENCY TOWARDS LOCLIZATION OF EEG CHANGES IN
THE NON SPECIFIC THALAMUS.   FACILITY: CHAIR OF PHYSIOLOGY OF
HIGHER NERVOUS ACTIVITY, LOMUNOSOV UNIVERSITY, MOSCOW.
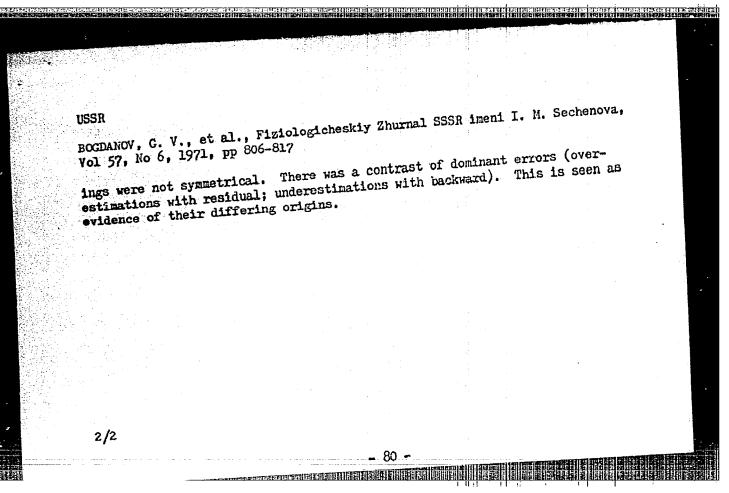
USSR

UDC 612.014.42+612.825.55

BOGDANOV, G. V., GOL'DBURT, S. N., ZUBOVA, T. S., SOKOLOVA, M. L.

"Comparison of Residual and Backward Microinterval Maskings by Means of Measuring Absolute Judgement of Loudness"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 57, No 6, 1971, pp 806-817

Abstract: For clarification of both kinds of masking, the research objective described was to study changes in loudness within the same intervals. This is research not on relative, but absolute, loudness estimation; that is in comparison with a memory-retained standard. Micro-interval and information theory methods were combined for this purpose. Two experimental tasks were set: 1) determination of the amount of transmitted information (ATI) on pure tone loudness which followed, after a 30 to 980 m sec interval a stronger tone of the same frequency (residual masking) or preceded it by the same interval (backward masking); 2) an error comparison was made, i.e., the number of over- and underestimations of loudness on both maskings. Results showed that the ATI on loudness in six categories of pure tone, under the described conditions of interference, showed a sharp ATI decrease not corresponding to concomitant threshold changes. ATI displacements in residual and backward mask-

1/2

USSR

ings were not symmetrical. There was a contrast of dominant errors (over-
estimations with residual; underestimations with backward). This is seen as
evidence of their differing origins.

USSR

UDC 546.791

TSVIGUNOV, A. N., KOVBA, L. M., SAVRANSKIY, V. V., and ZUBOVA, YE. V.,

"Study of the High Pressure Phase of α-U_2O_5"

Leningrad, Radiokhimiya, Vol 13, No 5, 1971, p 790

Abstract: Monocrystalline α-U_2O_5 was synthesized at high pressure and temperature. Using the method of Laue it was shown that these crystals belong to monoclinic syngony with basocentric nucleus. Systematic extinctions correspond to two Fedorov groups: C_{2h}^5 and C_S^4. The parameters of elementary nucleus were determined to be: $a = 12.40 \pm 0.01$ $\overset{\circ}{A}$, $b = 5.074 \pm 0.005$ $\overset{\circ}{A}$, $c = 5.675 \pm 0.005$ $\overset{\circ}{A}$, and $\beta = 99°12' \pm 6'$. Assuming four units of U_2O_5 to comprise an elementary nucleus, the density was calculated to be 10.41 g/cm^3, agreeing well with the experimentally determined $\rho = 10.50$ g/cm^3.

1/1

1/2   022   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--MULTIPLICATION OF COXSACKIE GROUP A VIRUSES IN HUMAN EMBRYO LUNG
DIPLOID CELLS -U-
AUTHOR-(03)-FOKINA, G.I., ZUBOVA, Z.F., RAPOPORT, R.I.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 3, PP 346-350

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--COXSACKIE VIRUS, LUNG, TISSUE CULTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0582   STEP NO--UR/0402/70/000/003/0346/0350

CIRC ACCESSION NO--AP0126321
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0126321

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PATTERN OF MULTIPLICATION AND
THE DYNAMICS OF ACCUMULATION IN CELLS AND CULTURE FLUID OF COXSACKIE
GROUP A VIRUSES (TYPES 13, 18, 20, 21) WERE STUDIED IN HUMAN EMBRYO LUNG
DIPLOID CELLS. THE DYNAMICS OF ACCUMULATION OF DIFFERENT TYPES OF
COXSACKE A VIRUSES WAS FOUND TO BE NO DIFFERENT. THE INCREASE OF VIRUS
IN CELLS AND THE CULTURE FLUID WAS PARALLEL UP TO THE MOMENT OF
DEGENERATION OF OVER 50PERCENT OF CELLS AFTER WHICH TIME THE TITER OF
THE CELLULAR VIRUS DROPPED AND THAT OF THE CULTURE FLUID PERSISTED. THE
LATTER APPEARED TO BE DUE TO TRANSITION OF INTRACELLULAR VIRUS INTO THE
MEDIUM WHEN THE MAJORITY OF THE CELLS WERE DESTROYED. THE TIME OF
MAXIMUM INCREASE OF VIRUS IN CELLS AND THE TIME OF DEGENERATION WERE
INVERSELY RELATED TO THE SIZE OF THE INFECTING DOSE AND DID NOT DEPEND
UPON THE VIRUS TYPE. COXSACKE A 21 VIRUS, KUYKENDALL STRAIN AT A HIGH
MULTIPLICITY OF INFECTION WAS FOUND TO PENETRATE INTO THE CELL IN 15
MIN. BUT COULD NOT BE DETECTED IN 2 HOURS. NEWLY SYNTHESIZED VIRUS
APPEARED IN THE CELLS IN 3-4 HOURS. THE VIRUS REACHED MAXIMUM TITER IN
THE CELLS 6 HOURS AFTER INOCULATION, AND IN THE CULTURE FLUID 3 HOURS
LATER. BY 11 HOURS AFTER INOCULATION THE TOTAL MAMOUNT OF VIRUS REACHED
MAXIMUM TITER. THE AMOUNT OF INTRACELLULAR VIRUS THROUGHOUT THE
OBSERVATION PERIOD EXCEEDED THAT IN THE CULTURE FLUID.   FACILITY:
MOSKOVSKIY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT IVRUSNYKH PREPARATOV.

UNCLASSIFIED

1/2   030   UNCLASSIFIED   PROCESSING DATE—20NOV70

TITLE--THE INFLUENCE OF THE FACTOR OF DYNAMIC NONSHARPNESS ON THE
  SCANNOGRAPHIC INFORMATION -U-
AUTHOR-(04)-ZUBOVSKIY, G.A., PAVLOV, V.G., FOKIIT, A.S., KASATKIN, YU.N.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 6, PP 41-49

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIOGRAPHY, LIVER, LUNG, HEART, IMAGE CONTRAST
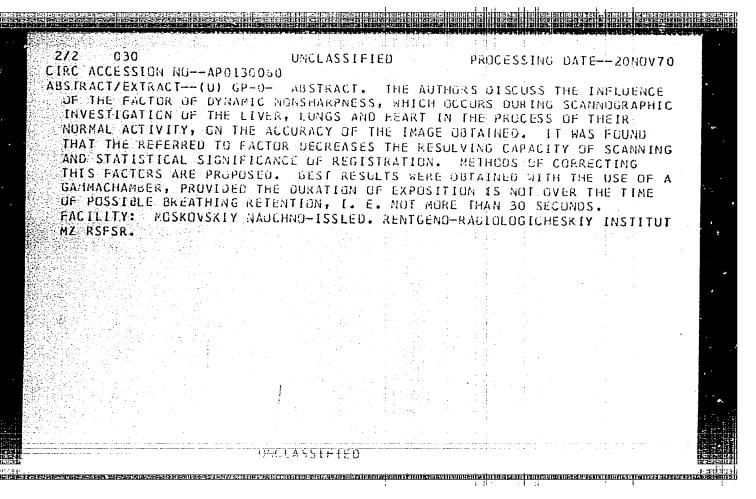
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1025   STEP NO--UR/0241/70/015/006/0041/0049

CIRC ACCESSION NO--AP0130060
                              UNCLASSIFIED

2/2   030   UNCLASSIFIED   PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0130050
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE AUTHORS DISCUSS THE INFLUENCE
OF THE FACTOR OF DYNAMIC NONSHARPNESS, WHICH OCCURS DURING SCANNOGRAPHIC
INVESTIGATION OF THE LIVER, LUNGS AND HEART IN THE PROCESS OF THEIR
NORMAL ACTIVITY, ON THE ACCURACY OF THE IMAGE OBTAINED. IT WAS FOUND
THAT THE REFERRED TO FACTOR DECREASES THE RESOLVING CAPACITY OF SCANNING
AND STATISTICAL SIGNIFICANCE OF REGISTRATION. METHODS OF CORRECTING
THIS FACTORS ARE PROPOSED. BEST RESULTS WERE OBTAINED WITH THE USE OF A
GAMMACHAMBER, PROVIDED THE DURATION OF EXPOSITION IS NOT OVER THE TIME
OF POSSIBLE BREATHING RETENTION, I. E. NOT MORE THAN 30 SECONDS.
FACILITY: MOSKOVSKIY NAUCHNO-ISSLED. RENTGENO-RADIOLOGICHESKIY INSTITUT
MZ RSFSR.

UNCLASSIFIED

TITLE--CALCULATION AND EVALUATION OF THE PROPERTIES OF FOCUSING
   COLLIMATORS -U-
AUTHOR-(03)-PAVLOV, V.G., FOKHT, A.S., ZUBOVSKIY, G.A.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 6, PP 78-82

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--COLLIMATOR, DIAGNOSTIC EQUIPMENT, RADIOACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1513   STEP NO--UR/0241/70/015/006/0078/0082

CIRC ACCESSION NO--AP0128908
                           UNCLASSIFIED

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CIRC ACCESSION NO--AP0128908
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS PROPOSE A METHOD OF
CALCULATION AND QUANTITATIVE EVALUATION OF FOCUSING COLLIMATORS.
CALCULATIONS OF THE REALATION BETWEEN FOCUS CONTRASTNESS AND ITS DEPTH
ARE GIVEN. THE CALCULATION DATA WERE COMPARED WITH EXPERIMENTAL ONES.
THE ERROR IN CALCULATION OF THE FOCUS CONTRASTNESS MAY REACH 15PERCENT.
THE REFERRED TO TECHNIQUE IS PROPOSED FOR RADIODIAGNOSTIC
INVESTIGATIONS.   FACILITY: MOSKOVSKIY NAUCHNO-ISSLED.
RENTGENO-RADIOLOGICHESKIY INSTITUT MZ RSFSR.

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USSR

UDC 669.046.5

KUDRIN, V. A., SIDORENKO, M. F., SMIRNOV, N. A., ZUBREV, A. S., MOROZOV, A. S.,
KHASIN, G. A., CHUVATIN, N. S., and FILATOV, S. K.

"Metal Blowing by Powderlike Materials"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of
Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys)
Izd-vo "Metallurgiya," No 61, 1970, pp 183-188

Translation of Abstract: The results of an investigation on dephosphorization
and desulfurization. alloying, and deoxidation of metal by powder-like material
blowing are presented. Data are presented on the effect of basic technological
parameters on the rate and amplitude of the dephosphorization process of steel
by blowing with an oxygen jet containing a powder-like mixture of optimal com-
position, consisting of lime, iron ore, and fluorspar. 4 figures.

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USSR   UDC: 621.373:530.145.6

BELOKRINITSKIY, N. S., ZUBRILIN, N. G., SHPAK, M. T.

"Investigation of the Transfer of Excitation Energy Between Impurity Centers
in Neodymium Under Forced Emission Conditions"

V sb. Peredacha energii v kondensirovan. sredakh (Energy Transmission in
Condensed Media--collection of works), Yerevan, 1970, pp 73-82 (from RZh-
-Radiotekhnika, No 5, May 71, Abstract No 5D228)

Translation: The authors studied the spectral composition of forced emission
of trivalent neodymium cation on the transition $^4F_{3/2} \rightarrow {}^4I_{11/2}$ in phosphate
glasses and inorganic liquid $POCl_3$-$SnCl_4$ as a function of the shape of the
curve for effective laser amplification for the case of dispersion cavities
based on Fabry-Perot interferometers. When the cavity is tuned to a region
close to the maximum of the luminescence band, a frequency shift was observed
in the minimum of curves for the frequency dependence of threshold pumping
energy, as well as a flattening of the peak in the vicinity of the minimum,
leading to broad-band emission ($\sim$100 cm^{-1} for triple the pumping energy
above the threshold value). As the tuning frequency moves away from the
luminescence maximum toward longer waves, two extrema may be produced. In
the short-wave arm of the luminescence band, there is no retuning of the
working frequency or broadening of the forced emission spectrum. The nature

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BELOKRINITSKIY, N. S., et al., <u>Peredacha energii v kondensirovan. sredakh,</u>
Yerevan, 1970, pp 73-82

of broadening of the transition $^4F_{3/2} \to {}^4I_{11/2}$ and the way in which the spatial
nonhomogeneity of the field of modes generated and the transfer of excitation
energy affect the spectral composition of forced emission are analyzed. It
is assumed that in the media under study, exchange of excitation energy
between optical centers takes place over time intervals no shorter than
the times which are typical for peak emission ($\sim 10^{-6}$ s). A. K.

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Analysis and Testing

USSR   UDC 669.018.44

CHERNYAK, G. S., VORONIN, N. L., D'YAKONOVA, V. A., MIRONOVA, V. P., and
ZUBRILOVA, V. A.

"Estimating the Quality of Heat-Resisting Vacuum-Melted Alloys by the Method
of Mathematical Statistics"

Sb. tr. TsNII chern. metallurgii (Collection of Works of Central Scientific
Research Institute of Ferrous Metallurgy), 1970, vyp. 77, pp 55-63 (from RZh-
Metallurgiya, No 3, Mar 71, Abstract No 31749 by authors)

Translation: The article describes results of a "Minsk-22" computer-aided
statistical analysis of control determinations of the principal chemical ele-
ments, the testing of mechanical properties, and estimates of grain size in
the macrostructure of EI437BU and EP109 alloys after vacuum arc refining. It
is shown that the distribution of most of the criteria selected for estimating
the quality of EI437BU alloy is governed by the normal distribution law and
that the strength and ductility characteristics of the alloy are most affected
by the macrograin size of upset billets, which in turn depends on the C and Al
content of the alloy. It was found that an inverse relation exists in alloy
EP109 between the grain size observed in the macrostructure of bars and strength
characteristics. Two illustrations. Four tables.
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USSR

UDC 669.245:519.28

CHERNYAK, G. S., VORONIN, N. I., D'YAKONOVA, V. A., MIRONOVA, V. P., and
ZUBRILOVA, V. A.

"Mathematical Statistics Estimation of Quality of Vacuum-Produced Heat-Resistant
Alloys"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],
No 77, Metallurgiya Press, 1970, pp 55-63

Translation: Results are presented from computerized statistical processing of
the results of test determinations of the main chemical elements, tests of
mechanical properties, and estimates of grain size in the macrostructure of the
alloys EI437BU and EP109 following vacuum arc remelting.
     It is demonstrated that the distribution of most criteria selected for
evaluation of the quality of EI437BU alloy follows the normal distribution and
that the greatest influence on the characteristics of strength and plasticity of
the alloy is that of the grain size of billets, which in turn depends on the con-
tent of carbon and aluminum in the alloy.
     It is established that EP109 alloy shows an inverse dependence between grain
size observed in the macrostructure of bars and strength characteristics. 2
figures; 4 tables.

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USSR

ZUBRITSKIY, E. V.

UDC 621.371.1

"Some Characteristics of Fluctuations of Microwave Signals on Closed Mountain Routes"

Tr. Buryatsk. in-ta estestv. nauk. Buryatsk. fil. Sib. otd. AN SSSR (Works of Buryatsk Institute of Natural Sciences. Buryatsk Branch of the Siberian Division of the USSR Academy of Sciences), 1970, vyp. 6, pp 61-72 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A275)

Translation: This article contains the results of experimental statistical data on the depth and duration of fading during propagation of a meter wave signal on mountainous routes of medium extent. The fading of the instantaneous values of the signal level with respect to length is separated into fast and slow fading. The median value of the quasiperiod of fast fading varies within the limits of 2-10 seconds as a function of the route profile and the radio signal frequency, and the median value of the slow fading is 30-100 seconds. The depth of fading depends on the type of profile of the route and the propagation mechanism of microwave signals on it. The greatest depth of fading was observed on many-peaked routes where the diffraction field is of the same order with the
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USSR

ZUBRITSKIY, E. V., Tr. Buryatsk. in-ta estestv. nauk. Buryatsk. fil. Sib. otd. AN SSSR (Works of Buryatsk Institute of Natural Sciences. Buryatsk Branch of the Siberian Division of the USSR Academy of Sciences), 1970, vyp. 6, pp 61-72 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A275)

troposphere. The diurnal variation of the depth and duration of fading is discovered. There are four illustrations, three tables and a seven-entry bibliography.

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USSR

UDC 621.373.826:550.3

AYUREAHAYN, A. A, BORONOYEV, V. V., and ZUBRITSKIY, E. V.

"Experimental Investigation of the Dispersion of Intensity Fluctuations in Laser Radiation Under the Condition of Inclined Range Length"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses—collection of works) "Nauka," 1972, pp 211-215 (from RZh—Radiotekhnika, No 10, 1972, Abstract No 10D443)

Translation: Results are given of measurements of the dependence of experimental dispersion values of the fluctuation in the light intensity logarithm σ_e on the dispersion value d computed for a given inclination of the range. The region of maximum values of σ_e lies in the limits of $\sigma_1 = 1-3$, and saturation is reached at $\sigma_e \approx 1.2$. Two illustrations, bibliography of four. A. L.

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USSR

UDC 621.371.1

ZUBRITSKIY, E. V., KHOMYAK, Ye. M.

"Oscillations of the Mean Level of a Microwave Signal on Closed Mountain Routes"

Tr. Buryatsk. in-ta estestv. nauk. Buryatsk. fil. Sib. otd. AN SSSR (Works of Buryatsk Institute of Natural Sciences. Buryatsk Branch of the Siberian Division of the USSR Academy of Sciences), 1970, vyp. 6, pp 73-83 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A272)

Translation: This article contains the results of an experimental study of the mean signal level on frequencies of 49, 75, 77, 25, 100 and 209 megahertz and its oscillations on mountain routes extending from 60 to 160 km which differ with respect to profile. The routes were classified as a function of the micro-wave propagation mechanism: diffraction, intermediate and tropospheric. On the diffraction routes the mean signal level compares well with that calculated by the diffraction formulas, and it greatly exceeds (by more than 10 decibels) the calculated field as a result of tropospheric propagation. On the transi-tional routes, the diffraction and tropospheric fields are of the same order, and on the tropospheric routes, the tropospheric field, prevails over the diffraction field. The depth of the oscillations of the mean signal level
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USSR

ZUBRITSKIY, E. V., KHOMYAK, Ye, M., Tr. Buryatsk. in-ta estestv. nauk. Buryatsk. fil. Sib. otd. AN SSSR (Works of Buryatsk Institute of Natural Sciences. Buryatsk Branch of the Siberian Division of the USSR Academy of Sciences), 1970, vyp. 6, pp 73-83 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A272)

depends on the type of route. The oscillations of the mean level on the routes of the first group are the least: with respect to a difference in levels of 1 and 99%, the observation times do not exceed 5 decibels; the second group (maximum) reaches 33 decibels on a frequency of 209 megahertz. The experimental curves are approximated well by a normal law. There are three illustrations, one table and a nine-entry bibliography.

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