USSR

VLADIMIRTSEV, I. F., KARABANOV, Yu. V., KHRIPKO, S. S., BOLDYREV, I. V.

"Biological Activity of Benzanilines"

Translation: The results are presented from testing compounds with the formula
$RC_6H_4CH = NC_6H_4R'$ (I) (R = H, halide, NO_2, aminogroup, alkoxyl; R' = H, halide,
NO_2). The selectivity of the effect of I and the relation of the phytotoxicity
to the nature of the substitution in the benzene rings are demonstrated. The
0.01% I compounds stimulate the root growth of oats, but they inhibit the
growth of lettuce. The derivatives of salycilanaline have high phytotoxicity
for dicotyledons, and they are of greatest interest from the point of view
of finding new herbicides. $3-MeO-4-NOC_6H_4CH = NPh$ has high stimulating
activity.

1/1

USSR

ALFEROV, V.N., VLADIMIRTSEV, M.B., VISHNEVSKAYA, A.M., KOTOV, V.I., PROSIN, B.V.,
SHCHELKUNOV, G.P., YAMPOL'SKIY, I.R.

UDC 621.385.623.4

"Concerning Phase Stability Of Power Klystron"

Translation: Data are presented characteristic of the dependence of the phase of
the output signal on the magnitude of the anode voltage, the exciting power, the
focusing regime, the filament voltage, and the temperature of the cooling water.
The apparatus for phase measurements is described. The experiments were conducted
on Type KIU-12AM klystrons. 2 ref. Summary.

1/1

VLADIMIRTSEVA, K.D.

STPRS 5938
G. 73

VII-10. GROWTH OF PURE LAYERS OF GALLIUM ARSENIDE.

[Article by K. V. Malyutin, V. A. Yudina, K. D. Vladimirtseva, Novosibirsk;
Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh
Kristallov i Plenok, Russian, 12-17 June 1972, p 98]

The gas-transport reaction method was used in the gallium-arsenic-
trichloride-hydrogen system to grow pure epitaxial layers of gallium arsenide
10-20 microns thick with a mobility at 77° K to 1.5×10^5 cm²/v-sec and an elec-
tron concentration of 5.4×10^{13} cm⁻³. Highly pure gallium and arsenic trichloride
were used to synthesize the films. The films were grown on substrates of semi-
insulated gallium arsenide with disorientation of 5 to 10 degrees from the
(100) plane to the (111) plane, and they had a mirror smooth surface. From
measurements of the Hall EMF and the mobility by the Van der Pauw method in the
temperature range of 20° K to 300° K, the donor and acceptor concentrations
were defined equal to 1.69×10^{14} cm⁻³ and 1.05×10^{14} cm⁻³, respectively. The close
correspondence to the experimental curve of the electron mobility as a function
temperature and the temperature curve of the mobility. In the tempera-
ture range of 150° K to 300° K indicates the purity of the layers and the low
level of structural disturbances in the grown layers of gallium arsenide.

- 102 -

USSR

UDC 576.858.75.098.396.332

VLADIMIRTSEVA, Ye. A., BUKRINSKAYA, A. G., and ZHDANOV, V. M., Institute of
Virology imeni D. I. Ivanovskiy, USSR Academy of Sciences, Moscow

"Replicative Complexes of Sendai Virus"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, pp 402-406

Abstract: This study was performed to verify the hypothesis that Sendai virus
has two replicative complexes: one operating in the nucleolus and synthesizing
viral RNA, and the other operating in cytoplasm and synthesizing complementary
RNA threads. The tests were performed with Sendai virus strain No 960, which
was incubated with Erlich ascites carcinoma cells to which radioactive pre-
cursors of RNA were added. Subsequent analysis revealed that the nuclear frac-
tion as well as the cytoplasmic fraction contained both types of RNA, suggest-
ing that the replicative complexes were located in both parts of the cell. It
was concluded that additional tests must be performed by different methods in
order to resolve this problem conclusively.

1/1

USSR

VLADISLAVLEV, L. A.

"New Type of Vertical Hydrounit for Hydroelectric Power Plants"

Translation: A new type of straight axial shaftless turbine with the runner inside the generator rotor is proposed. The blades of the runner are attached to an outer rim and the central small-diameter bushing $(0.15-0.20 \, D_1)$. The distributor is either radial or conical. The discharge tube is straight axial or bent. The turbine is recommended for heads from 30-40 to 100 meters (when H = 100, there are 14 working blades). A schematic cross section of the unit, versions of its utilization in a dam-type hydroelectric power plant and some structural details are presented. The expected characteristics of the shaftless turbine are constructed on the basis of calculated formulas and experimental data with respect to existing turbines: the dependence of the calculated flow rates on the relative height of the distributor, the dependence of the efficiency and cavitation factor on the relative diameter of the central bushing.

1/2

VLADISLAVLEV, L. A., Sb. tr. Vses. zaochn. politekhn. in-t, 1970, vyp. 55,
pp 5-15

The possibility of using a turbine of this type with unit powers of 600 mega-
watts and higher is proposed. The basic advantages of the turbine (in the
author's opinion) are the following: high-efficiency (up to 95%), good cavita-
tion properties ($\delta = 0.05-0.10$), increased calculated flow rates (up to 1,300-
1,500 liters/second), rotation speed increased by 12-15%, reduced overall dimen-
sions, low metal consumption, and the possibility of using prefabricated re-
inforced concrete. There are 8 illustrations.

2/2

USSR

UDC 678.743.41:541.515.701:53

VILENSKIY, A. I., VIRLICH, E. E., STEFANOVICH, N. N., RADTSIG, V. A.,
VLADYKINA, T. N., and KROTOVA, N. A.

"The Effect of Peroxide Radicals on the Adhesive Properties of Fluoroplast-4"

Moscow, Plasticheskiye Massy, No 10, 1971, pp 43-45

Abstract: Results are reported of the study of the adhesive activity of
polytetrafluorcethylene (PTFE) as a function of the concentration of peroxide
radicals fenerated during the treatment of PTFE in silent discharge. It
was determined that current density has no effect on the maximum concentra-
tion of free radicals; however, it does shorten the process. Thermal treat-
ment of the activated PTFE films leads to the formation of polar -CO and
-C:C-groups which lead to high adhesive strength. In such thermally treated
samples hydrogen bonds may form between the C:O groups of the films and OH
groups of the epoxy resin. The experiments have shown that the high adhesive
strength of the fluoroplast-4 activated in silent discharge is determined by
stable peroxide radicals formed during the activation, which interact
with the adhesive forming hydrogen bonds of an electrostatic character.

1/1

- 74 -

1/2   010
TITLE--PROSPECTIVE TRENDS IN THE DEVELOPMENT OF MACHINE TOOL BUILDING -U-

UNCLASSIFIED

PROCESSING DATE--04DEC70

AUTHOR--VLADZIYEVSKIY, A.P.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, VESTNIK MASHINOSTROYENIYA, NO 3, 1970, PP 11-14

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, BEHAVIORAL AND SOCIAL
   SCIENCES

TOPIC TAGS--MACHINE INDUSTRY, MACHINE TOOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1977

CIRC ACCESSION NO--AP0130752

STEP NO--UR/0122/70/000/003/0011/0014

UNCLASSIFIED

CIRC ACCESSION NO--AP0130752   UNCLASSIFIED   PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR PRESENTS THE STATE AND
DEVELOPMENT OF MACHINE TOOL BUILDING IN CONJUNCTION WITH THE ONE
HUNDREDTH ANNIVERSARY OF THE BIRTH OF V. I. LENIN.

UNCLASSIFIED

1/2   028
TITLE--THE INVARIANCE OF NONLINEAR AUTOMATIC SYSTEMS UNDER CONDITIONS OF
DEVIATION -U-
UNCLASSIFIED
PROCESSING DATE--30OCT70
AUTHOR--VLASENKO, A.A.

COUNTRY OF INFO--USSR

SOURCE--NOVOCHERKASSK, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY,
ELEKTROMEKHANIKA, NO 3, 1970, PP 299-303
DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ENERGY CONVERSION
(NON-PROPULSIVE)
TOPIC TAGS--NONLINEAR AUTOMATIC CONTROL SYSTEM, FREQUENCY CONTROL, DIESEL
ENGINE, ELECTRIC GENERATOR

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1666
CIRC ACCESSION NO--AT0123496
STEP NO--UR/0144/70/000/003/0299/0303
UNCLASSIFIED

CIRC ACCESSION NO--AT0123496   UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TECHNIQUE IS DESCRIBED FOR
ENSURING INVARIANCE OF NONLINEAR AUTOMATIC SYSTEMS OPERATING UNDER
CONDITIONS OF DEVIATION. THE SUGGESTED TECHNIQUE IS EXEMPLIFIED BY THE
EXAMINATION OF A SPECIFIC SYSTEM OF THE AUTOMATIC CONTROL OF THE
FREQUENCY OF A DIESEL GENERATOR. IT IS SHOWN THAT A CHARACTERISTIC
PECULIARITY OF NONLINEAR INVARIANT AUTOMATIC SYSTEMS IN CONTRAST TO THE
LINEAR ONES IS THE DEPENDENCE OF THE CONDITIONS OF INVARIANCE UPON
ITITIAL CONDITIONS AS WELL AS THE NECESSITY OF INTRODUCING INTO THE
SYSTEM AN ADDITIONAL COMPENSATING NONLINEARITY WHICH SHOULD BE AN
INVERSE FUNCTION PRESENT IN AUTOMATIC SYSTEM OF NONLINEARITY.

UNCLASSIFIED

USSR

UDC 621.438.001.5

KOCHUROV, V. I., Candidate of Technical Sciences, TARAKANOV, N. I., SARANTSEV,
Engineers, VLASENKO, I. V., Candidate of Technical Sciences

"Experimental Dynamic Characteristics of the GTK-10 NZL Gas Turbine"

Abstract: This article contains the results of experimental investigations to
determine the dynamic characteristics of an open cycle gas turbine engine with
a free power turbine and regeneration of the exhaust gas heat. The experimental
phase-amplitude characteristics of the GTK-10 which were obtained offer the
possibility of refining the procedure for calculating the dynamic characteristics
of the gas turbine engine and determining the effect of various factors on the
dynamic characteristics of such engines. The engine in question has a rated
power of 10,000 kilowatts and rotot rpm's of 5,350 for the high pressure turbine
axial compressor and 4,800 for the low pressure turbine blower. The experimental
tests were run with the engine operating on a closed blower loop which permitted
determination of the dynamic characteristics of the turbine engine in a broad
load range. The characteristics of the unit are both tabulated and plotted on
graphs.
    The experimental determinations of the dynamic characteristics of the gas

1/2

USSR

KOCHUROV, V. I., et al, Energomashinostroyeniye, No 2, February 1970, pp 1-3

turbine engine showed that it is not possible to determine the frequency charact-
eristics of the object of regulation jointly with the regulation system included
in connection with the fact that when the unit operates with an rpm regulator there
are aperiodic oscillations of the fuel regulation valve. The magnitude of the
amplitude of these oscillations is commensurate with the amplitude of the forced
oscillations of the valve. Therefore it is expedient to investigate the dynamic
characteristics of the regulating system and the gas turbine engine separately.
It is pointed out that the data gathered during these investigations can be used
when designing automatic regulating and control systems for new gas turbine
engines. It is also pointed out that investigation of the phase-amplitude char-
acteristics determined for various values of the input perturbation amplitude
under the same operating conditions shows that the frequency characteristics of
GTK-10 depend insignificantly on the amplitude of the perturbation in the range
of variation of the amplitude $A_n = 0.158-0.944$ mm on the given frequency.

2/2

- END -

1/2   025

UNCLASSIFIED

TITLE--THERMODYNAMIC PROPERTIES OF MIXED SOLUTIONS OF ELECTROLYTES. VII. INFLUENCE OF THE NATURE OF ION HYDRATION ON THE SIGN OF THE HEAT OF

PROCESSING DATE--02OCT70

AUTHOR-(03)-KARAPETYANTS, M.KH., VLASENKO, K.K., SOLOVYEVA, S.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2) 541

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMODYNAMIC PROPERTY, ELECTROLYTIC SOLUTION, AQUEOUS SOLUTION, SILVER NITRATE, SODIUM NITRATE, POTASSIUM NITRATE, ENDOTHERMIC EFFECT, EXOTHERMIC EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0469

CIRC ACCESSION NO--AP0107075

STEP NO--UR/0076/70/044/002/0541/0541

UNCLASSIFIED

CIRC ACCESSION NO--AP0107075   UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE HEAT OF MIXING DELTS H SUBM
WAS DETD. FOR THE SYSTEMS AQ. AGNO SUB3 PLUS AQ. NAND SUB3 (SYSTEM 1)
AND AQ. AGNO SUB3 PLUS AQ. KNO SUB3 (SYSTEM 2), AT ISOMOLAR CONDITIONS
AND 25DEGREES. SYSTEM (1) WAS EXOTHERMIC (DELTA H SUBM EQUALS NEGATIVE
11 AND NEGATIVE 27 KCAL-MOLE FOR THE CONCNS. 1.0 AND 3.5 M, RESP.),
WHILE SYSTEM (2) WAS ENDOTHERMIC (DELTA H SUBM EQUALS 9 AND 20
KCAL-MOLE, RESP., FOR THE ABOVE CONCNS.). THE DATA INDICATE THAT THE AG
PRIME POSITIVE ION EXHIBITS A STRUCTURIZING EFFECT ON THE SOLUTE IN
CUNCD. SOLNS.

UNCLASSIFIED

VLASENKO, L. G.

EXPERIMENTAL STUDY OF AN AC LIQUID-METAL CONDUCTION MACHINE

[Abstract of a paper by Yu. A. Baranov,
Zanints, V. K. Makarevich, V. Ya. Shtrikman; L. G. Pisarenko, S. Ye. Durcchin, Ya. Ya.
Given at the magnetohydrodynamic conference, I. M. Tolmach, S. R. Troitskiy
pp 140-147]

A study was made of a high-temperature single-phase machine with a G-type
magnetic excitation system, four pole-wise connected channels. Bifilar-wound
in the gap and also a Ili-type step-up transformer (Figure 1). The channels
were executed from Khl8N10T steel 0.5 m thick; they have a constant cross section
with outside dimensions of 18.6 × 4.4 mm² and an active length of 250 mm. They
are electrically connected to each other (soldering the lateral faces). The
the transformer (soldering the lateral faces). The flow of metal in each pair
of channels is opposite. The machine has electrical insulation with thermal
stability to 5.5 °C, measuring turns for determining the magnetic fluxes and
several thermocouples.

Depending on the operating mode in the experiment, various switchings of
the windings were realized:

1) In the pump mode the excitation winding and the output winding of
the transformer were fed from a constant energy source;

2) In the generator mode independently of the excitation, the exciting
winding was fed from an outside source, and the transformer winding was connected
to the useful load;

3) In the generator mode with self-excitation of the windings, the
capacitance and the useful load were included according to the scheme in Figure
1.

The studies were made on a sodium loop with a sodium temperature of 300-
500 °C.

The characteristic features of the conduction machines of this type and.
In particular, the characteristic features of the parallel hydraulic coupling
of pairs of channels leading to spurious currents through the bypass loops of
circuit from the sign-variable magnetic field were noted.

- 58 -

1/2   011
TITLE--ISOLATION, DETECTION, AND DETERMINATION OF OLEANDRIN IN CHEMICAL
   AND TOXICOLOGICAL STUDIES -U-

UNCLASSIFIED

PROCESSING DATE--27NOV70

AUTHOR--VLASENKO, L.M.

COUNTRY OF INFO--USSR

SOURCE--FARMATSIYA (MOSCOW) 1970, 19(2), 53-8

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED PLANT PRODUCT, CHEMICAL DETECTION, SOLVENT
   EXTRACTION, THIN LAYER CHROMATOGRAPHY, COLORIMETRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1158

STEP NO--UR/0466/70/019/002/0053/0058

CIRC ACCESSION NO--AP0130186

UNCLASSIFIED

CIRC ACCESSION NO--AP0130186   UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO SUBSTITUTE A FORMER INSENSITIVE BIOASSAY OF OLEANDRIN ON FROGS, A CHEM. METHOD FOR ITS DETECTION IN HUMAN AUTOPSY MATERIAL WAS DEVELOPED, INVOLVING EXTN. OF THE GLUCOSIDE BY 70PERCENT ETOH, THEN BY CHCL SUB3 ETOH (9:1). THE EXT. WAS PURIFIED BY NAOH ETOH PPTN. OF PROTEIN AND THEN THIN LAYER CHROMATOG. ON SILICA GEL. CHROMATOGRAPHIC DETECTION WAS CARRIED OUT USING EITHER 2,4-DINITRODIPHENYL SULFONE (I) OR CONCD. H SUB2 SO SUB4 CONTG. TRACES OF FE PRIME3 POSITIVE (WITH RESULTING BLUE AND PINK COLOR, RESP.). FOR THE QUANT. DETN., THE PHOTOCOLORIMETRIC METHOD USING I (TATTJE, 1958) WAS EMPLOYED. THE METHOD REVEALED 30 GAMMA OF OLEANDRIN-100 G OF THE LIVER TISSUE (10 GAMMA-100 G USING THE METHOD WITH H SUB2 SO SUB4 AND FE PRIME3 POSITIVE). QUANT. YIELD BY THE COLORIMETRIC METHOD WAS 56-59PERCENT. IN RABBITS KILLED 90 MIN AFTER AN ORAL DOSE 2-3 MG-KG, MAX. CONCN. WAS FOUND IN THE STOMACH, LESS IN OTHER ORGANS AND BLOOD; ONLY URINE WAS NEGATIVE. FACILITY: NAUCH.-ISSLED. INST. SUDENBNOI MED., MOSCOW, USSR.

UNCLASSIFIED

UDC: 621.315.592

USSR

VLASENKO, N. A., KONONETS, Ya. F., Institute of Semiconductors, Academy of
Sciences of the UkrSSR

"Investigation of the Properties of CuI Films"

Kiev, Poluprovodnikovaya Tekhnika i Mikroelektronika, Resp. Mezhved. Sb.,
No 7, 1972, pp 73-78

Abstract: The authors investigate the electrical properties (conductivity,
temperature dependence of conductivity, and coefficient of thermoelectro-
motove force) and luminescence spectra of CuI films at wavelengths of
400-2500 nm and temperatures from 100 to 300 kelvins. In addition, a study
is made of the way that electrical and luminescence properties are affected
by conditions of film deposition, deviation from stoichiometric composition
and oxygen adsorption. The films were made by vaporizing chemically pure
CuI powder onto glass substrates in a vacuum of $2 \cdot 10^{-5}$ torr ($2.66 \cdot 10^{-3}$
$N \cdot m^{-2}$). The substrate temperature was varied from 30 to $400°C$, and the
rate of vaporization from 0.05 to 0.5 $\mu m \cdot min^{-1}$ ($0.833-8.33$ $nm \cdot s^{-1}$). Films
with thicknesses of 0.5-15 μm were used in the research. The results of
electrical measurements revealed two acceptor levels in the forbidden band

1/2

- '70 -

USSR

VLASENKO, N. A., KONONETS, Ya. F., Poluprovodn. Tekh. i Mikroelektron.
Resp. Mezhved. Sb., No 7, 1972, pp 73-78

of CuI films at depths of 0.12 ± 0.02 eV and 0.38 ± 0.04 eV relative to the
valence band. An examination of the luminescence spectrum showed four
bands in the regions of 410, 417-425, 740-750 and 1200 nm. The relative
intensity of these luminescence bands depends on the conditions of va-
porization, temperature, and the amount of adsorbed oxygen. The possible
nature of the centers and the type of transitions responsible for these
bands are discussed. It is pointed out that further research is needed
to clarify the question of the nature of the luminescence centers in CuI
thin films.

2/2

USSR   UDC: 535.376

VLASENKO, N. A., GERGEL', A. N., KONONETS, Ya. F., Institute of Semicon-
ductors, Academy of Sciences of the UkrSSR

"Investigation of Electroluminescence of a p-CuI—n-ZnS—Mn Film Structure"

Kiev, Poluprovodnikovaya Tekhnika i Mikroelektronika. Resp. Mezhved. Sb.,
No 7, 1972, pp 78-85

Abstract: A single-stage method is used to synthesize low-voltage electro-
luminescent film structures having a high coefficient of rectification and
capable of light emission with excitation by voltage of both polarities.
The authors study the electroluminescence spectra, current-voltage and
brightness-voltage characteristics, capacitance, and change in brightness
and current density with operating time of the specimen. The observed
properties are explained from the standpoint of the impact mechanism of
electroluminescence in the case of reverse bias, and the injection mecha-
nism in the case of forward bias. When current flows through the film
structure in the forward direction, emission characteristic of both ZnS
and CuI is observed. This structure has a longer life than the previously

1/2

- 71 -

USSR

VLASENKO, N. A. et al., Poluprovodn. Tekh. i Mikroelektron. Resp. Mezhved. Sb., No 7, 1972, pp 78-85

known analogous p-Cu_xS —n-ZnS—Mn structure, and may find practical application in various electroluminescent devices.

2/2

USSR   UDC: 535.376

VLASENKO, N. A., GERGEL', A. N., SHKOLA, A. A., Institute of Semiconductors,
Academy of Sciences of the UkrSSR

"Long-Life Electroluminescent Thin-Film D.C. Light Sources"

Abstract: The paper describes the basic characteristics of a new type of
electroluminescent thin-film d.c. film structures. The proposed light
sources have a service life of about 2000 hours. The film structure is
made on the basis of ZnS-Mn by a single-stage method. Maximum emission
intensity is in the 585 nm region. The luminance is 20 $cd \cdot m^{-2}$ when the
applied voltage is 10-25 V and the current density is $0.4-4 \ mA \cdot mm^{-2}$. The
current-voltage and luminance-voltage curves are given for a typical speci-
men, as well as the change in luminance and current density over 2000 hours
of continuous operation of an electroluminescent cell.

1/1

USSR

VLASENKO, N. A.; KONONETS, Ya. F. (Institute of Semiconductors, Ukrainian
Academy of Sciences, Kiev)

"Optical and Electrical Properties of Copper Sulfide Films"

ABSTRACT: Optical (absorption and reflection in the region of 0.4 - 1.1 μ)
and electrical (variation of conductivity with temperature, the coefficient
of the thermoelectromotive force, and the Hall effect at room temperature)
properties of copper sulfide films and the variation of these properties when
doping the copper sulfide with excess sulfur with the transition from Cu_2S to
to CuS were investigated. It is shown that copper sulfide with hole semicon-
ductor properties, as sulfur is injected, is transformed into a strongly de-
generate semiconductor and, further, into a semimetal with all the semimetallic
properties: negative variation of conductivity with temperature, a small coef-
ficient of thermoelectromotive force, and plasma reflection in the visible

1/3

USSR

VLASENKO, N. A., et al., Ukrainskiy Fizicheskiy Zhurnal, Feb
71, pp 237-243

region of the spectrum with a hole concentration of $2.5 \cdot 10^{22} \, cm^{-3}$. A model is
proposed for the structure of Cu_2S bands to explain the observed variation $K(\ )$,
the short-wave shift of the absorption edge in the transition from Cu_2S to CuS,
and the metallic properties of the latter.

The table shows the characteristics of the copper sulfide films studied.

3/3

USSR

Vlasenko, N. A., et al., Ukrainskiy Fizicheskiy Zhurnal, Feb 71, pp 237-243

Conductivity, $ohm^{-1} \cdot cm^{-1}$	Mobility, $cm^2/vsec$	Coef. thermal emf, $\mu v/deg$	Carrier concentration, cm^{-3}	Ionization energy, ev
$8 \cdot 10^{-3}$	2,2	1080	$2,1 \cdot 10^{16}$	0,80
$2 \cdot 10^{-2}$	1,8	980	$7,0 \cdot 10^{16}$	0,42
$6,3 \cdot 10^{-2}$	1,6	840	$2,5 \cdot 10^{17}$	0,32
1,6	1,6	450	$6,2 \cdot 10^{18}$	0,13
5,0	2,4	300	$1,5 \cdot 10^{19}$	0,08
$3,3 \cdot 10^{1}$	3,2	160	$6,9 \cdot 10^{19}$	0,05
$3,1 \cdot 10^{2}$	1,8	70	$1,1 \cdot 10^{21}$	$<0,03$
$3,1 \cdot 10^{3}$	1,3	18,5	$1,5 \cdot 10^{21}$	—
$5,2 \cdot 10^{3}$	1,3	8,6	$2,5 \cdot 10^{18}$	—

3/3

USSR   UDO 539.293.C11.7?

VLASENKO, N.A., SYN'O, S.A., POKELIY, ZH. A.

"Change Of Color Of The Glow Of Film Electroluminescent Devices With Use Of Inter-
ference Radiation"

Translation: A new method is proposed for change of the color of the glow of film
electroluminescent devices, which is based on the use of interference radiation.
The method is tested on elements [yacheyka] on the base of a ZnS.Mn film with high-
ly reflecting metal electrodes (of Au, Al). In such elements it is possible to ob-
tain different colors from the green (λ_{max} = 555 nm) to the red (λ_{max} = 645 nm)
by a change of the luminophor thickness. A change of the angle of observation
(above 30°) causes an analogous effect. During this the luminance level of the
electroluminescence is sufficient for practical use of the effect. A method is pro-
posed to make it possible to obtain multicolor electroluminescent devices (mnemo
circuits, character indicators, and others) on one substrate with the aid of a
single technological process. 5 ill. 1 tab. 4 ref. Summary.

1/1

USSR

UDC 62-52

VLASENKO, V. A., Leningrad Institute of Fine Mechanics and Optics

"A Study of the Stability of Some Types of 2-Dimensional Automated Systems"

Leningrad, Priborostroyeniye, Vol 15, No. 8, 1972, pp 41-44

Abstract: Although the stability of 2-dimensional automated systems is a
complex subject in the general case, there are several special cases fre-
quently encountered in engineering practice which can be analyzed with less
difficulty. These include the following:

Antisymmetrical systems, in which the units of the primary diagonal in the
transfer matrix are identical, while the units of the secondary diagonal
differ only in sign. This concept can be applied to two such systems
connected in series, even if they do not have identical channels and anti-
symmetrical cross-links.

Symmetrical systems, having a symmetrical transfer matrix. These systems
also include a wider class than those made up of series-connected, 2-
dimensional symmetrical units.

1/2

USSR

VLASENKO, V. A., Priborostroyeniye, Vol 15, No 8, 1972, pp 41-44

Systems in which the determinant of recurring difference is of quadratic
form, so that it can be factored into roots. In this case the stability of
the system can be evaluated easily by locating the hodograph of the base
transfer function with respect to the roots of the equation on the complex
plane.

Systems with a singular transfer matrix. In this case it is sufficient for
one of the 2-dimensional units in the system to have a singular transfer
matrix.

2/2

TITLE--QUASI ELASTIC SCATTERING OF HIGH ENERGY ELECTRONS ON NUCLEONS OF
   CARBON 12 AND SILICON 28 -U-

AUTHOR-(05)-DEMENTIY, S.V., AFANASYEV, N.G., ARKATOV, I.M., VLASENKO,
   V.G., GOLDSHTEYN, V.A.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(1), 19-28

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON SCATTERING, INELASTIC SCATTERING, CARBON ISOTOPE,
   SILICON ISOTOPE, CHERENKOV SCATTERING, HIGH ENERGY PARTICLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0175   STEP NO--UR/0367/70/011/001/0019/0028

CIRC ACCESSION NO--AP0048467
                         UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0048467   PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF THE MEASUREMENTS OF THE INELASTIC SCATTERING OF 690-, 970-, AND 1115-MEV E ON PRIME12 C AND PRIME28 SI NUCLEI AT 16-40DEGREES ARE PRESENTED. THE SCATTERED E WERE DETECTED BY MEANS OF CHERENKOV COUNTER, THE CONSTRUCTION OF WHICH IS DESCRIBED. NO CORRECTION FOR THE INFLUENCE OF PRIME13 C AND PRIME29,30 SI CONTENT IN THE TARGETS OF NATURAL C (4.97 TIMES 10 PRIME22 NUCLEI-CM PRIME2) AND OF NATURAL SI (1.51 TIMES 10 PRIME12 NUCLEI-CM PRIME2) UPON THE CROSS SECTIONS VALUES WAS MADE BECAUSE OF THEIR LITTLE INFLUENCE. THE GAINED RESULTS WERE ANALYZED BY USING THE THEORY OF THE QUASI ELASTIC SCATTERING. IN ORDER TO MAKE THE PRESENT RESULTS COMPATIBLE WITH THE ELASTIC E SCATTERING ON THE SAME NUCLEI, IT IS NECESSARY TO ACCOUNT FOR INEQUALITY OF POTENTIALS IN DIFFERENT NUCLEAR SHELLS AS WELL AS THE DYNAMICAL CORRELATIONS OF N IN NUCLEI.   FACILITY: FIZ.-TEKH. INST., KHARKOV, USSR.

UNCLASSIFIED

VLASENKO, V. G.

MEDICINE

So: JPRS 55015
25 JAN 72

Medicine

UDC: 614.1(47)

SAMPLING METHOD OF MEDICAL STATISTICAL INVESTIGATIONS IN THE USSR

The sampling method of investigating the patterns of phenomena and processes in different areas of medicine and public health is gaining increasing recognition in our country because of its advantages over mass studies in many cases. V.I. Lenin indicated that "it is better to obtain a little relatively, reliable, complete and homogeneous information than much fragmentary, questionable, and wrong information"[1].

The theoretical and practical aspects of sample medical statistical investigations have been developed well and are based on the basic positions of mathematical statistics and probability theory. Scientifically planned, properly organized and performed sample studies make it possible to obtain such general indices and with the qualities that V.I. Lenin had in mind.

The use of the sampling method is widely propagandized by WHO [2]. In the tenth report of the WHO committee on medical statistics, it is stated: "The activities and effectiveness of public health services and use thereof by the people depend on complex interaction of many sociological, biological, organizational, and other factors. To study these factors, especially when funds are limited, a flexible and economic mechanism is needed that could be used as a supplement to the registration system and other permanent statistical systems. Sample studies are such a supplement, and performance thereof should become an important part of the operation of medical statistics services."

WHO specialists recommend the sample method to evaluate physical condition, to investigate factors that affect health, to investigate public health activities, to evaluate the effectiveness of measures instituted in the public health area, to pursue investigations in the area of environmental hygiene, for rapid data processing, for quality control (for example, some death certificates could be thoroughly checked out against case histories and autopsy reports in order to determine the accuracy of established cause of death).

Sample studies conducted in our country in the early years of Soviet power (i.e. much earlier than in other countries) made an inestimable contribution

- 8 -

USSR

UDC 629.78.018.3

VLASENKOV, V. M. and SHAYDENKO, A. Ya.

"Low-Frequency Dynamic Test Units for Studying the Reliability of Gyroscopic Guidance System Assemblies and Elements"

Abstract: At the present time dynamic tests under laboratory conditions are used to improve the characteristics of gyroscopic guidance systems for avia- tion and space crafts. As the method of physical modeling of the operational disturbing effects, these tests are the basic means of ensuring and increas- ing the reliability of a unit as well as an effective factor of reducing the volume of expensive and time consuming full-scale tests. Mainly, design of testing units assumes the electrohydraulic principle of vibration activation according to several independent linear and angular coordinates. As a result it was possible to model the actual disturbances of on-board guidance systems by their angular, linear and repeating constituents of acceleration in the region of the lowest frequencies with a drop in accelerations from one down

1/2

USSR

thousandths of a percent of the force of gravity. The technical characteris-
tics of the test units are given in tables and are represented by graphs.
Their dynamic capabilities were provided on the basis of analysis of actual
acceleration parameters for naval tests of a gyro-stabilized unit and in the
investigation of on-board instruments of aircraft and missile engineering.
2 figures, 2 bibliographical references.

2/2

USSR

VLASKIN, YE. F., and BARKOV, A. S.

"Utilization of Polymer Materials and the Progress in Agriculture"

Moscow, Plasticheskiye Massy, No 11, 1973, pp 3-6

Abstract: The authors analyze the developments in polymer materials and their application to various agricultural problems. The most widely used application is that of the plastic films, which in many cases was found to replace effectively glass. The second important development was in the area of plastic pipes, construction materials and even in machinery parts. The remainder of this paper is aimed at the needs for future developments, which principally revolved around greater range of applicability, by aiming at more precisely designed products adaptable to the conditions prevailing in the area of utilization.

1/1

USSR

UDC 669.018.5:620.181:538.21

DOVGALEVSKIY, Ya. M., VLASKINA, K. I., LOYKO, A. D., and POKROVSKIY, Yu. I.,
Saratov Institute of the Mechanization of Agriculture

"Study of the Influence of $\alpha\gamma'$-Phase in Magnico-type Magnetic Solid Alloys on
the Decrease of Brittleness"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 5,
1973, pp 123-127

Abstract: The increased tendency to brittle failure of magnico-type magnetic
solid cast alloys on a Fe-Ni-Al-Co base was investigated on specimens of
ANKo4 alloy. The specimens were smelted down in a high-frequency furnace with
quartzite lining and were then ground up to 10 x 10 x 55 mm. Fractures of
Magnico alloys in a highly coercive condition and with $\alpha\gamma'$-phase separations
were studied by means of fractional photography. The presence of $\alpha\gamma'$-phase
separations results primarily in the appearance of transcrystalline fracture.
Three figures, one table, five bibliographic references.

1/1

40

USSR   UDC 669.018.58:621.7.044

POVOLOTSKIY, Ye. G., VASIN, G. P., VLASKINA, K. I., and BELOLIPTSEVA, G. G.,
Saratov Polytechnic Institute

"Nature of Extremal Magnetic Property Change in Ticonal Alloys After Iso-
thermal Thermomagnetic Treatment"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 1, Jan 73,
pp 69-71

Abstract: The nature of the change in the magnetic properties of highly
coercive alloys of the ticonal type -- residual induction Br, coercive
force H_c, and maximum magnetic energy BH_{max} -- was studied since for the
extreme case these properties depend on the temperature of isothermal
thermomagnetic treatment (ITMT). The average composition of five alloys
studied was (in %): 38 Co, 13.0 Ni, 7.5 Al, 6.5 Ti, 3.0 Cu and 1.05 FeS.
It was assumed that the nature of this phenomenon should be associated with
the features of the kinetics and morphology occurring in these alloys for
dispersion $beta_2$--$beta$+$beta_2$ decomposition for different modes of ITMT.
The kinetics of dispersion decomposition of ticonal alloys during isothermal
treatment without a magnetic field or ITMT is characterized by C-shape
diagrams with a very short incubation period (15-45 minutes). The extremal
relationship of ticonal magnetic properties to temperature of isothermal
1/2

USSR

POVOLOTSKIY, Ye. G., et al., Metallovedeniye i Termicheskaya Obrabotka
Metallov, No 1, Jan 73, pp 69-71

treatment without a magnetic field or ITMT has been associated with the
formation of an intermediate form close to the barform structure of de-
composition. 3 figures, 2 tables, 3 bibliographic references.

2/2

USSR   V   UDC 669.018.58:621.789

VLASKINA, K. I., KARTASHOVA, N. F., and POVOLOTSKIY, YE. G.

"Heat Treatment of Ticonal Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1970, pp 29-32

Abstract: This article contains the results of investigating the heat treatment
and properties of crystal-isotropic ticonal alloys with 41-42% Co and a variable
content of other components (nickel, aluminum, titanium, and copper). The magnetic
properties of the alloys and their coercive force reach limiting values after iso-
thermal thermomagnetic processing.
    The thermal behavior of the permeability, coercive force, residual induction,
and maximum magnetic energy were studied. The structure of the alloys was investi-
gated by optical and electron microscopes.
    The temperatures of existence of a homogeneous β_2-phase and the optimal hard-
ening temperatures of all 22 alloys investigated are tabulated. Figures are pre-
sented showing the magnetic properties of certain alloys as a function of the
isothermal treatment temperature.
    It is concluded that in selecting the optimal hardening temperature of ticonal
alloys, it is necessary to consider obtaining a homogeneous β_2-solid solution free

1/2

USSR

VLASKINA, K. I., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1970, pp 29-32

of separations of the high-temperature α-phase and the intergrain "superheating structure" during heating. The isothermal treatment temperature (with a field or without it) must correspond to the beginning of intense development of the disperse β-decomposition. Here, the optimal temperature of isothermal treatment depends on the chemical Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1970, pp 29-32 composition of the alloy, especially on the titanium and copper content. In the investigated ticonal alloys, no Curie point was detected in the single-phase state preceding disperse $\beta_2 \rightarrow \beta + \beta_2$-decomposition; therefore, the effectiveness of heat treatment of these alloys must be considered the result of the effect of the applied magnetic field on β-decomposition, simultaneously converting the alloys to the ferromagnetic state. The alloy containing 42% Co, 14% Ni, 8% Al, 6.5% Ti, 3% Cu, and the rest iron in the crystal-isotropic state has a maximum magnetic energy of $6.24 \cdot 10^6$ gram-force·oersteds after isothermal heat treatment with a coercive force of $_I Hc = 1,810$ oersteds ($_B Hc = 1,680$ oersteds).

2/2

USSR

UDC: 621.762:669.018.95

NAZARENKO, N. D., YUGA, A. I., VLASKO, N. I., TRESVYATSKIY, S. G.,
KOLESNICHENKO, L. F., Institute of Problems of Material Sciences, Academy of
Sciences UkrSSR

"Influence of Metal Fillers on Friction Properties of Sital 3"

Kiev, Poroshkovaya Metallurgiya, No 7, Jul 73, pp 51-54.

Abstract: An earlier work showed that the material called Sital 3, consisting
of the oxides SiO_2, Al_2O_3, TiO_2, B_2O_3, MgO and fluorides, can be used for the
manufacture of parts for friction couples. The authors believe that intro-
duction of metal fillers, causing intensive heat transfer from the contact
zone into the depth of the material and formation of separating films on the
surface of the material, could significantly improve the efficiency of Sital 3.
Studies were performed in which from 10 to 90 wt. % metal powder was intro-
duced to the material. The curve of coefficient of friction as a function of
percent content of copper filler shows a minimum at 30-40%. The introduction
of about 30% copper powder allows the material to be used for vacuum opera-
tion, which is impossible with pure Sital.

1/1

- 35 -

USSR

VLASOV, A. A., Moscow State University

"Threadlike and Platelike Structures in Crystals and Liquids"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, Vol. 5, No. 3, Dec 70,
pp 388-405

Abstract: It is shown that the point-lattice structure of crystals which is close
to the classical theory and derived from the theory is only one of the states of
the crystal; there exist other equally possible solutions of the initial statistical
equation in which the atoms are located periodically in only one or two dimensions
and in the remaining direction there is a spatially homogeneous distribution. The
direction of "threads" and "plates" coincides with the direction of the crystallographic
axes and planes. In the "threads" and "plates", as distinct from the point-lattice state
of the crystal, the atoms are located with the same probability. This indicates the
existence of a new type of structure where continuity is not a consequence of averag-
ing but is caused by the priority of distribution functions in the theory. The pro-
perties of thread-like and plate-like structures such as effective thicknesses,

1/2

USSR

dimensions of elementary cells, and binding energy are shown, and conditions for their existence are given. The stability of the new states with respect to time changes in the distribution function, with respect to a change in the shape of the threads and plates, and with respect to thermodynamic variations in the average density is shown. The new states are considered as excitation states of the crystal. The crystal can thus be found in at least three states: the point-lattice, thread-lattice, and plate-lattice. The absence of restrictions on the positions and speeds of atoms in the crystal and in its excited states is ensured by the initial method of describing the particles with the aid of distribution functions.

2/2

USSR

VLASOV, A. B., SPIRIN, V. A., CHIRKIN, N. M.

UDC: 621.372.8

"Wide-Band Excitation of Hypersound by Quasistatic Decelerating Systems"

Kiev, IVUZ: Radioelektronika, Vol 15, No 3, Mar. 72, pp 315-319

Abstract: The paper analyzes the possibilities of using quasistatic de-
celerating systems for excitation of hypersound in an acoustic line made
up of a set of piezoelectric crystals, each crystal being excited by the
corresponding cell of the decelerating system. It is shown that the band
filter and low-frequency filter types of decelerating systems can be used
for excitation of hypersonic oscillations in a "discrete" acoustic line,
and that wide-band delay lines can be made on this basis.

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USSR

UDC 534.1

CHIRKIN, N. M., VLASOV, A. B., BASOV, V. G.

"Problems in the Design of Resonators for Hypersonic Excitation in Piezo-
electric Crystals"

Abstract: Papers published on the excitation of hypersonic oscillations in
piezoelectric crystals using uhf do not discuss the requirements applicable
to such resonators nor do they consider the problems of their optimization.
The purpose of the present brief communication is to develop criteria for
choosing an optimal resonator which permits an increase of the transformation
factor of one or two orders above the 10^{-3} to 10^{-4} level given in previous
papers. The authors derive a factor G, which is equal to the product of the
characteristic figure of merit of the resonator (the losses in the dielectric
equivalent of the sound conductor taken into account) and the filling factor
of the resonator, which is a function of the equivalent capacitance of the
electroacoustic converter. G is the measure of the resonator's efficiency
and should be as large as possible. The authors also consider several reso-
nator designs for providing larger values of G. Analyzing these designs,
they find that their analysis agrees with the experimental data. A few
details of the experimental equipment and method are given.

1/1

USSR

UDC 621.372.85

VLASOV, A. B., CHIRKIN, N. M.

"Analysis of the Operating Conditions of Resonating Superhigh-Frequency Ultra-sonic Delay Lines"

Translation: This article contains a comparative estimate of two operating con-ditions of superhigh-frequency ultrasonic delay lines: the conditions of re-flection of sound (a signal) and the conditions for transmission. A comparison is made from the point of view of the magnitude of the losses to conversion and the effect of the coupling of the resonators of the ultrasonic delay lines to the superhigh-frequency channel on it. The equivalent delay line circuits for both operating conditions are presented. Expressions are obtained for calculating the losses to double conversion of the superhigh-frequency ultrasonic delay line. It is demonstrated that the optimal value of the coupling coefficient in the reflection mode is $\sqrt{2}$ times less than in the transmission mode. There are three illustrations and a seven-entry bibliography.
1/1

USSR

UDC 621.372.85

VLASOV, A. B., CHIRKIN, N. M.

"Analysis of Some Electroacoustic Converters for the Superhigh-Frequency Range"

Vopr. konstruir. tekhnol. i kontrolya izgotovleniya elektron. vakuumn. priborov (Problems of Design, Technology and Control of the Manufacture of Electronic Vacuum Devices), Minsk, 1970, pp 176-185 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8B195)

Translation: By means of a parallel equivalent circuit, the parameters of super-high-frequency piezoelectric converters are investigated. The excitation of the converter by superhigh-frequency resonators is studied. Comparison of various types of converters shows that the most effective is the film converter with substrate. In addition, it can be matched directly to the superhigh-frequency channel inasmuch as its radiation resistance is relatively small. The bibliography has 11 entries.

1/1

- 79 -

USSR   UDC: 621.347.5

VLASOV, A. B., SPIRIN, V. A., and CHIRKIN, N. M.

"Hypersonic Delay Lines for Ultra-Broadband Video Signals"

Abstract: This brief communication is related to an earlier article (Vlasov, A. B., et al, O shirokopolosnom vozbuzhdenii ginerzvuko-vykh voln v p'yezokristallakh s pomoshch'yu kvazistaticheskikh za-medlyayushchikh sistem — Broadband Excitation of Hypersonic Waves in Piezoelectric Crystals Using Quasi-Statistical Delay Systems — Izv. AN BSSR, Seriya fiz.-tekhn. nauk, No 4, 1970) which described quasi-stationary delay systems on the type of a low-frequency fil-ter for uniform hypersonic excitation in $LiNbO_3$ piezoelectric crys-tals. The present communication describes experiments to check the possibility of passing broadband pulses differing in shape, dura-tion and rise time through the hypersonic delay line described in the earlier article. The functional diagram of the equipment used for the experiments is given together with oscillograms of the pulses. The experimental results indicate that the delay line may be used as a solid-state delay for ultra-broadband video signals 1/2

USSR

UDC: 621.347.5

VLASOV, A. B., et al, Izvestiya VUZ SSSR--Radioelektronika, No 10,
pp 1298-1300

or as functional nodes for fast-acting computer devices.

2/2

- 121 -

USSR

VLASOV, A. D.

UDC 621.384.64.01

"Limiting Current in a Linear Accelerator With Neutral Initial Equilibrium of Bunches"

Moscow, Akademiya Nauk SSSR, Atomnaya Energiya, Vol 28, No 3, Mar 70, pp 220-224

Abstract: The limiting proton current which can be attained in a linear accelerator without particle loss is evaluated taking velocity increase into account. Bunches which appear in the accelerator in neutral equilibrium after injection are considered, and their electrical fields are determined. Expressions are derived for the limiting current for the case of bunches with neutral initial equilibrium, and also for initially stable bunches having the form of uniformly charged elipsoids. It is shown that with a neutral initial equilibrium of bunches, when they are injected with charge distribution, the proton current is 1.6 to 2.3 times higher than the maximum current in steady bunches. When denser, longer or continuous bunches are injected, the currents may substantially increase, but this phenomenon is accompanied by particle loss. It is shown that calculation of the neutral initial equilibrium of bunches, which acquire

1/2

USSR

VLASOV, A. D., Atomnaya Energiya, Vol 28, No 3, Mar 70, pp 220-224

stability in the course of subsequent acceleration, yields a sufficiently ac-
curate evaluation of the limiting current which can be attained in a proton
linear accelerator without particle loss. The case of infinitely large charge
densities is considered in the appendix. Orig. art. has: 1 figure, 1 table,
18 formulas, and 4 references.

2/2

UDC 621.382.2

USSR

VLASOV, A. F., VORONKOV, E. N.

"Some Properties of the Heterojunctions Si--CdTe"

Dokl. Nauchno-tekhn. konferentsii po itogam nauchno-issled, rabot za 1968-1969 gg. (Apr. 1970 g). Sekts. Elektron. tekhniki. Podsekts. Poluprovodnikovykh priborov. (Report of the Scientific-Technical Conference on the Results of Scientific-Research Work During 1968-1969. (Apr. 1970). Electronic Technology Section. Semiconductor Devices Subsection), Moscow, 1969, pp 105-109 (from RZh--Elektronika i yeye primeneniye, No 3, Mar 70, Abstract No 3B171

Translation: The paper describes in detail the technology of the preparation and the properties of heterojunctions of Si(n)--CdTe type, prepared both on the base of hole-type cadmium telluride and on the base of electron CdTe which can have a large concentration and mobility of carriers. For both types of junctions the voltage-current characteristics, both in darkness and with an illumination of 2500 lux (white light), and the volt-farad characteristics at audio frequencies are plotted, and the spectral response is investigated. It is found that the forward branch of the voltage-current characteristics conforms with the function $I = I_0(qU/\Omega KT$ conventional for heterojunctions,

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USSR

VLASOV, A. F., et al., Dokl. Nauchno-tekhn. konferentsii po itogam nauchno-issled. rabot za 1968-1969 gg. (Apr. 1970 g). Sekts. Elektron. tekhniki. Podsekts. Poluprovodnikovykh priborov. (Report of the Scientific-Technical Conference on the Results of Scientific-Research Work During 1968-1969. (Apr. 1970). Electronic Technology Section. Semiconductor Devices Subsection), Moscow, 1969, pp 105-109 (from RZh--Elektronika i yeye primeneniye, No 3, Mar 70, Abstract No 3B171)

during which n for various samples changes from 2 to 8; the breakdown voltage amounts to 60--100 v; the rectification factor equals about 10^2 for junctions with hole-type CdTe and approximately 10^3 for junctions with electron CdTe. The spectral response of the junctions Si(n)--CdTe(n) lies in the range 0.5 $\div$ 1.1 micron with a maximum photocurrent at approximately 0.95 micron, which is shifted roughly to 0.15 micron with reference to the maximum photosensitivity of CdTe. On the basis of the data obtained, an energy diagram is constructed for an idealized pronounced heterojunction Si(n)--CdTe(n), and the contact potential differences (0.35--0.5 e.v.) and the width of the space charge region (3.0 micron in Si and 0.3 micron in CdTe) are determined. Yu. P.

2/2

UNCLASSIFIED

TITLE--STOCHASTIC OPTIMAL CONTROL SYSTEM OF REENTRY AT SUPERCIRCULAR VELOCITY -U-

PROCESSING DATE--16OCT70

AUTHOR-(04)-PETROV, B.N., VLASOV, A.G., MITROSHIN, E.I., UKOLOV, I.S.

COUNTRY OF INFO--USSR, FRANCE

SOURCE--INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, SYMPOSIUM ON AUTOMATIC CONTROL, 3RD, TOULOUSE, FRANCE, MAR. 2-6, 1970, PAPER. 17

DATE PUBLISHED--------70

SUBJECT AREAS--SPACE TECHNOLOGY, NAVIGATION

TOPIC TAGS--REENTRY TRAJECTORY, SPACECRAFT REENTRY, SPACECRAFT CONTROL, TRAJECTORY OPTIMIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0002

STEP NO--FR/0000/70/000/000/0017/0017

CIRC ACCESSION NO--AT0117302

UNCLASSIFIED

CIRC ACCESSION NO--AT0117302   UNCLASSIFIED   PROCESSING DATE--16OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL ANALYSIS OF SPACECRAFT
REENTRY TRAJECTORY CONTROL WITH THE AID OF ACCELERATORS MOUNTED ON A
GYROSTABILIZED PLATFORM AS FLIGHT INFORMATION SOURCES. REENTRY
TRAJECTORIES WITH LATERAL VELOCITIES BEING ONLY SMALL FRACTIONS OF
LINEAR VELOCITIES ARE CONSIDERED. EQUATIONS ARE DERIVED TO DESCRIBE A
STOCHASTIC OPTIMAL REENTRY CONTROL SYSTEM. ALSO ESTIMATED IS THE
ACCURACY AND COMPLETENESS OF REENTRY TRAJECTORY DATA OBTAINED WITH THE
AID OF A KALMAN FILTER. A COMPUTER ALGORITHM IS DEVELOPED FOR
SPACECRAFT REENTRY TRAJECTORY OPTIMIZATION.

UNCLASSIFIED

USSR

PETROV, B. N., VLASOV, A. G., MITROSHIN, E. I., UKOLOV, I. S.

UDC 629.76/.78.015:533.6

"Stochastic Optimal Control System Under Entry Into the Atmosphere With Second Cosmic Velocity"

V sb. Upravleniye v kosmose. T. 1 (Control in Space. Vol 1 -- Collection of Works), Moscow, "Nauka", 1972, pp 32-40 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B345)

Translation: The problem of the optimal control of the perturbed motion of a descending space ship is discussed in the stochastic approximation. 6 ref. Authors' abstract.

1/1

USSR

VLASOV, A. G., PLOTNIKOV, Yu. P.

UDC 519.217

"One Stochastic Problem of Optimal Control"

Metody Upr. Bol'shimi Sistemi. T. 2, [Methods of Control of Large Systems, Vol. 2--Collection of Works], Irkutsk, 1970, pp 128-140, (Translated from Referativnyy Zhurnal Kibernetika, No. 5, 1971, Abstract No. 5V88 by R. Liptser).

Translation: The statements of problems of stochastic optimal control of process y_t, which follows the differential equation

$$\frac{dy_t}{dt} = f(t, y_t, v_t, \xi_t),$$

are discussed, where v_t is the controlling function, ξ_t is the realization of a certain random process. It is assumed here that y_t and v_t should satisfy certain limitations. The controlling action v_s, $t_H \leq s \leq t_K$, as a function of the observations, should be selected so as to minimize a certain probabilistic criterion. Inparticular, the case of motion along a reference trajectory is studied in detail, so that perturbed motion of stochastic differential equations and observations satisfy a linear system of differential equations. In this case, the Kalman-Busy filtration equations can be used to estimate y_t and the Krotov optimality conditions can be used to solve the variational problem.

1/1

Instruments and Equipment

USSR

UDC 615.471:612.886-088.7

VLASOV, A. I., LEBEDEV, I. G., STRELETSKAYA, R. A., and MOSEYEV, S. N., Clinic of Ear, Nose and Throat Diseases, Izhevsk Medical Institute

"An Electrically Powered Rotating Chair for Recording Some Motor and Automatic Responses of the Vestibular Analysor"

Moscow, Vestnik Otorinolaringologii, No 6, 1972, pp 75-77

Abstract: A Baranyi chair is connected to a 3-phase 2-speed a.c. electric motor (120 v, 3000 and 1500 rpm) with a reducer to permit the chair to rotate at 30 and 15 rpm and correspondingly slower acceleration and deceleration. Four switches are used to change the direction and rate of rotation. A set of silvered rotating contact rings is used as a collector ring along with silvered contact clips to reduce the distortion of the signals. On the back of the chair is a terminal block with cells for the electrodes and a graduated arc to determine the deviation. The apparatus can be used for continuous, simultaneous recording of up to 20 different somatic and autonomic reactions, including spontaneous and induced nystagmus in the vertical and horizontal planes, position and optokinetic nystagmus along with the pulse, EEG, EKG, and respiration. Schematics and a photograph of the chair are included.

1/1

USSR   UDC 621.373.039.7

KURBATOV, L.N., KOZINA, G.S., FAVORIN, V.N., BATALINA, BIBIKOV, YE.V.,
VLASOV, A.N., DEMIDOV, S.S.

"Some Characteristics Of Small-Sized Pulsed Laser With Electron Excitation"

Abstract: The principal characteristics are presented of a small-sized electron-
beam pulsed laser with a high radiated power. Feasible types of laser targets are
discussed. The construction is shown of a complex multielement target with
passive regions. Graphs are shown of 1) The dependence of the radiated power
of a single-layer target on the power of the exciting electron beam; 2) The de-
pendence of the radiated power of a multilayer target ("cake") on the power of
the electron beam; and 3) The dependence of the radiated power on the pulse
recurrence frequency of the exciting electrons for a "cake" target. A graph is
also shown of the angular distribution of the emission of single-layer and
multilayer targets in a vertical plane coincident from the direction of the elec-
trons and in a horizontal plane coincident from the bombarded surface of the
crystal. The authors thank N.A.Iofis, Ye.D. Naumenko, A.I.Soloveychik, I.Yu.
Gol'dshteyn, and S.S. Shakhidzhanov for valuable consultations and aid in the
work. 8 fig. 9 ref. Received by editors, 30 May 1971.

1/1

1/2 020
UNCLASSIFIED
TITLE--APPARATUS FOR MEASURING THE LIFETIMES OF MINORITY CARRIERS IN
SEMICONDUCTORS -U-
PROCESSING DATE--27NOV70

AUTHOR-(05)-VLASOV, A.N., KABANOV, A.N., KURBATOV, L.N., PETROVA, I.YU.,
SOROKONOVITSKIY, N.V.

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, 1, 222-3

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CADMIUM SULFIDE, ZINC TELLURIDE, MINORITY CARRIER,
SEMICONDUCTOR MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1008
STEP NO--UR/0120/70/001/000/0222/0223

CIRC ACCESSION NO--AP0115029
UNCLASSIFIED

CIRC ACCESSION NO--AP0115029   UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. IS DESCRIBED FOR MEASURING
THE LIFETIMES OF MINORITY CARRIERS ACCORDING TO THE DROP IN
CATHODOLUMINESCENCE OF SEMICONDUCTORS IN THE VISIBLE AND NEAR IR
REGIONS.   VALUES ARE GIVEN FOR CDS AND ZNTE.

UNCLASSIFIED

1/2   023   UNCLASSIFIED
TITLE--HARDENING OF ORGANOSILICON RESINS -U-   PROCESSING DATE--13NOV70

AUTHOR-(05)-OSIPCHIK, V.S., AKUTIN, M.S., VLASOV, A.S., MNATSAKANYAN,
    V.G., KOROLKOV, K.S.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,446
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970
DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, SILICON COMPOUND, PLASTIC MECHANICAL
    PROPERTY, SCILICONE RESIN, ORGANOSILICON COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1419
                                STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0128818
                        UNCLASSIFIED

2/2   023
CIRC ACCESSION NO--AA0128818   UNCLASSIFIED   PROCESSING DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SILICON COMPDS. WERE USED TO
HARDEN ORGANOSILICON RESINS. TO IMPROVE THE PHYSICOMECH. PROPERTIES OF
THE HARDENED PRODUCTS, 0.25-10 WT. PERCENT SIO WAS USED.
FACILITY: MENDELEEV, D. I., CHEMICAL TECHNOLOGICAL INSTITUTE, MOSCOW.

UNCLASSIFIED

USSR

VLASOV, A. V., KOMAROVA, L. I., Corresponding Member of the Academy of Sciences USSR KORSHAK, V. V., MALAKHOVA, L. I., MIKHELEVA, G. A., TSETLIN, B. L., SHABLYGIN, M. V., Institute of Organo Elemental Compounds, Moscow, Academy of Sciences USSR; All-Union Scientific-Research Institute of Synthetic Fibers, Kalinin, State Committee for Chemistry USSR

"Production of Multilayer Graft-Polymerized Materials ("Pemosors") by Radiation Polymerization in the Gas Phase"

Abstract: Multiple graft polymerization should lead to the formation of multilayered materials, in the opinion of the authors. A synthesis was developed for doubly grafted materials by gas-phase polymerization of various monomers to stretched polyethylene and polypropylene films and fibers. The graft polymerization was carried out by irradiating with X-rays substrates (of fibers and films and singly grafted materials) in the presence of unsaturated

1/3

USSR

VLASOV, A. V., et al, <u>Doklady Akademii Nauk SSR</u>, Vol 193, No 3,
21 Jul 70, pp 615-617

monomer vapors. The following monomer pairs were so polymerized:
acrylonitrile/vinylidene chloride, vinylidene chloride/acryloni-
trile, vinylidene chloride/acrylic acid, acrylic acid/vinylidene
chloride, vinyl chloride/vinylidene chloride, styrene/vinylidene
chloride, methyl methacrylate/vinylidene chloride, vinylidene chlo-
ride/methyl methacrylate, acrylic acid/acrylonitrile. Films and
fibers of a three-layer structure with minute particles between the
layers were obtained. The orientation of the grafted layers was
studied by IR spectroscopy. It was found that a singly grafted
material will add a third layer whenever its first layer has a high-
ly ordered structure (for instance, polyvinylidene chloride, poly-
acrylonitrile). The orienting effect of the grafted layer is re-
tained even when it is quite thick. Formation of the new (third)
layer begins in the interfibrillar channels of the intermediate
(second) layer and the process follows the same scheme as the one
in the gas-phase polymerization on the initial stretched substrate.

2/3

USSR

VLASOV, A. V., et al, Doklady Akademii Nauk SSR, Vol 193, No 3, 21 Jul 70, pp 615-617

The passage of the orienting effect of the substrate on the formation of the third graft layer through a nonoriented intermediate layer may possibly be due to a repetition of the microrelief of the surface of the orienting original substrate or there may be a long-range effect of charged point defects.

3/3

1/2   026
UNCLASSIFIED
TITLE--ELECTRON MICROSCOPIC STUDY OF TWO LAYER FIBERS USING AN ION ETCHING
  METHOD TO CONTRAST THE SAMPLES -U-
AUTHOR-(02)-MIKHELEVA, G.A., VLASOV, A.V.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(5), 363-6

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELECTRON MICROSCOPY, SYNTHETIC FIBER, POLYPROPYLENE FIBER,
  ACRYLIC ACID, VINYLIDINE RESIN, ACRYLONITRILE, GRAFT POLYMERIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1331
                                STEP NO--UR/0460/70/012/005/0363/0366
CIRC ACCESSION NO--AP0138341
                        UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2   026

CIRC ACCESSION NO--AP0138341   UNCLASSIFIED   PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYPROPYLENE FIBERS WERE GRAFTED
IN THE GAS PHASE WITH ACRYLIC ACID, VINYLIDENE CHLORIDE, OR
ACRYLONITRILE. MICROTOME SLICES OF THE FIBERS WERE ETCHED IN VACUO BY
THE ION ETCHING METHOD (B. J. SPIT, 1963) AND VACUUM COATED WITH CR.
ELECTRON MICROSCOPY AT 10,000-20,000 MAGNIFICATIN SHOWED THAT THE
GRAFTED FIBERS CONSISTED OF 2 LAYERS AND THAT THE THICKNESS OF THE OUTER
LAYER INCREASED WITH DEGREE OF GRAFTING.   FACILITY: VSES.
NAUCH.-ISSLED. INST. ISKUSSTV. VOLOKNA, MYTISHCHI, USSR.

UNCLASSIFIED

1/2   025
UNCLASSIFIED
TITLE--THERMAL CONVERSION OF DELTA-FEOOH TO ALPHA-FE SUB2 O SUB3 STUDIED
BY MOESSBAUER SPECTROSCOPY AND X RAY DIFFRACTION METHODS -U-
PROCESSING DATE--04DEC70
AUTHOR-(05)-VLASOV, A.YA., LOSEVA, G.V., MAKAROV, YE.F., MURASHKO, N.V.,
PETUKHOV, E.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1499-503

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--MOSSBAUER EFFECT, SPECTROSCOPY, CRYSTAL STRUCTURE, X RAY
DIFFRACTION, IRON OXIDE, HEMATITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0953
CIRC ACCESSION NO--AP0133039

STEP NO--UR/0181/70/012/005/1499/1503

UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0133039   PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CRYSTAL STRUCTURE OF
SYNTHESIZED DELTA-FEOOH AT THE TEMP. OF TRANSFORMATION INTO ALPHA-FE
SUB2 O SUB3 HAS STUDIED BY MOESSBAUER SPECTROSCOPY AND X RAY
DIFFRACTION. INVESTIGATIONS WERE CARRIED OUT AT ROOM TEMP. USING
SPECIMENS PREVIOUSLY HEATED FOR 30 MIN AT 23-650DEGREES. AT
23-155DEGREES DELTA-FEOOH EXISTS IN THE SUPERPARAMAGNETIC STATE. THE
MOESSBAUER PARAMETERS ARE: ISOMER SHIFT DELTA EQUALS 064 PLUS OR MINUS
0.06 MM-SEC RELATIVE TO NA NITROPRUSSIDE AND QUADRUPOLE SPLITTING 2
EPSILON EQUALS 0.48 PLUS OR MINUS 0.06 MM-SEC. THE LATTICE CONSTS. ARE
A EQUALS 2.546 PLUS OR MINUS 0.005 AND C EQUALS 4.57 PLUS OR MINUS 0.05
ANGSTROM. THE TRANSFORMATION OF DELTA-FEOOH INTO HEMATITE OCCURS AT
155-225DEGREES WITH A SHARP DECREASE IN THE MAGNITUDE OF THE EFFECT, A
JUMP IN THE ISOMER SHIFT, AN INCREASE IN THE WIDTH OF THE MOESSBAUER
LINES, AND MAX. BROADENING OF THE X RAY POWDER DIAGRAM. HEMATITE FORMED
AT 225-650DEGREES HAS A EQUALS 5.032 PLUS OR MINUS 0.005 AND C EQUALS 13
PLUS OR MINUS 0.1 ANGSTROM. THE EFFECTIVE FIELD ON THE NUCLEUS IN
HEMATITE VARIES FROM H SUBEFF EQUALS 409 PLUS OR MINUS 30 TO 515 PLUS OR
MINUS 10 KOE AT CONST. DELTA EQUALS 0.61 PLUS OR MINUS 0.06 MM-SEC AND 2
EPSILON EQUALS 0.34 PLUS OR MINUS 0.06 MM-SEC.   FACILITY: INST.
FIZ., KRASNOYARSK, USSR.

UNCLASSIFIED

TITLE--DOMAINS AND ORIENTATION OF A FERROMAGNETIC MOMENT NEAR THE SURFACE
    IN A HEMATITE CRYSTAL -U-

UNCLASSIFIED

PROCESSING DATE--18SEP70

AUTHOR-(02)-BOGDANOV, A.A., VLASOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(1) 164-9

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--IRON OXIDE, MAGNETOSTRICTION, SINGLE CRYSTAL, FERROMAGNETIC
    DOMAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0244

STEP NO--UR/0181/70/012/001/0164/0169

CIRC ACCESSION NO--AP0048523

UNCLASSIFIED

CIRC ACCESSION NO--AP0048523   UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DOMAINS ON THE SURFACE OF SINGLE CRYSTALS OF HEMATITE WERE OBSD. BY THE POWDER METHOD AND WITH THE AID OF THE MAGNETOOPTICAL KERR EFFECT. CONDITIONS FOR OBSERVATION OF THE DOMAINS AND THEIR BEHAVIOR IN REMAGNETIZATION OF THE CRYSTAL SHOW THAT ON SURFACES DIFFERENT FROM THE BASIS PLANE, THE NORMAL COMPONENT OF THE FERROMAGNETIC MOMENT IS LARGE. THE INVESTIGATED CRYSTALS EXHIBIT QUITE SMALL MAGNETOCRYST. ANISOTROPY IN THE BASIS PLANE. THE OBSD. ORIENTATION IS DETD. BY THE PRESENCE OF SURFACE MAGNETIC ANISOTROPY, THE EFFECTIVE FIELD OF WHICH IS OF THE ORDER OF SEVERAL KOE.

USSR

UDC: 538.56:621.372.8

VLASOV, B. I., KOTOSONOV, N. V., DRONOVA, V. S., P'YANYKH, Yu. M., Voronezh State University

"Using Metal-Semiconductor Film Structures to Study the Diffraction Fields of Plane Nonhomogeneities in a Waveguide"

Abstract: The authors solve the problem of type $H_{0\,1}$ wave diffraction in a rectangular waveguide by a central inductive strip and a metal-semiconductor thin film. It is shown that the diffraction field of the inductive strip is not significantly distorted by introducing a matched multilayered structure. Deviation of the temperature relief patterns from the law of distribution of the induced currents in the absorbing film because of spreading of the thermal field decreases with an increase in the parameter $k = 2\pi/\lambda$ and in the modulation frequency F. A theoretical and experimental basis is given for the possibility of utilizing the distributed matched load method (N. V. Kotosonov, B. I. Vlasov, IVUZ Radiofizika, Vol 11, No 2, p 311 [1968]) with metal-semiconductor thin films for studying diffraction fields in a waveguide.

1/1

VLASOV, B.V.

ECON

PROBLEM OF SPARE-PARTS PRODUCTION, PRICING AND

Article by B. V. Vlasov, doctor of economic sciences, and Ye. D. Sosenko, candidate of economic sciences: "Specialization of Spare-Parts Production"; Novosibirsk, EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA, Russian, No 5, 1971, pp signed

PROBLEM OF SPARE-PARTS PRODUCTION, PRICING AIMED

[Article by B. V. Vlasov, Doctor of Economic Sciences, and ...
Spare-Parts Production"; Novosibirsk, EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA, Russian, No 5, 1971, pp ...]

USSR

POLYAYEV, V. M., BASHMAKOV, I. V., GERASIMOV, I. M., and VLASOV,
D. I.   UDC 532.526.4

"Spectral Measurements in a Turbulent Boundary Layer of a Permeable
Plate in Blasting"

Minsk, Inzhenerno-fizicheskiy zhurnal, No 6, 1973, pp 1109-1113

Abstract: Investigation of the turbulence structure in a boundary
layer under blasting is important in connection with developing
efficient methods of thermal protection. This paper describes de-
tailed experiments in thermoanemometric measurements of the aver-
aged and pulsation characteristics of a boundary layer in a flat
model 2.5 m long and 400 mm wide with a blast flow velocity of 10
m/s. Instruments included an A-10 aerodynamic tube of the Moscow
State University Institute of Mechanics, a constant-temperature
thermoanemometer of the "DISA" type, and a spectrum analyzer. Re-
sults of the measurements and a description of the experimental
apparatus and method are given in earlier papers by most of the
authors named above (e. g., Polyayev, V. M., et al, Termoanemomet-
richeskiye issledovaniya turbulentnogo pogranichnogo sloya na pro-
nitsayemoy plastine pri vduve -- Thermoanemometric Investigation of
1/2

USSR

POLYAYEV, V. M., et al, Inzhenerno-fizicheskiy zhurnal, No 6, 1973,
pp 1109-1113

of a Turbulent Boundary Layer in a Permeable Plate Under Blasting --
in the collection Trudy IV Vsesoyuznogo soveshchaniya po teplo- i
massoperenosu, vol 1, Minsk, 1972). In these experiments, data was
obtained on the intensity distribution of longitudinal, transverse,
and sidewise velocity pulsations under the blasting, and of turbu-
lent tangential stresses on the layer. The latter indicate vorti-
cal distortions in the layer.

2/2

POLYAYEV, V. M., BASHMAKOV, L. V., and VLASOV, D. I., Moscow
Higher Technical School imeni N. E. Bauman

"The Measuring of Velocity Profiles in the Turbulent Boundary
Layer on a Permeable Plate"

Abstract: The results of the investigation of velocity profiles
in the turbulent boundary layer on a permeable plate in a subso-
nic wind tunnel by 10 m/sec flow velocity and relative blast ve-
locities from 0.0038 to 0.0538 are discussed. A constant tempera-
ture hot-wire anemometer ("DISA") in a set with single-thread-type
pick-ups was used for measuring the velocity profiles. The tung-
sten thread with platinum coating was 5μ thick and 1 mm long.
The measuring method and the processing of experimental data are
described. The velocity profile by transverse blast can be cha-
racterized with the help of a known logarithmic rule, if an in-
terpolation dependence discounting for the blast effect on the
outer region of the vortex wake is considered. The measurements
confirm the structural conservatism of the forced back turbulent
kernel and, at the same time, also the notable deformation of the
velocity profile in the outer region of the boundary layer. Six
illustr., four formulas, two biblio. refs.
1/1

USSR '   UDC 681.32:31

ANILOV, V. M., BORISOV, M. S., VLASOV, F. S., YEREMIN, A. T., MONAKHOV, G. D.,
and RUMYANTSEV, V. I.

"Computer Complex"

USSR Authors' Certificate No 308430, Cl. G 06 f 15/16, filed 20 Apr 70,
published 12 Aug 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya
Tekhnika, No 5, May 72, Abstract No 5B98P)

Translation: Special-purpose computer complexes are known which contain a set
of digital computers with interlinking units, with synchronization of synchro-
series of machines and coupling lines between the digital computers of the
complex, which assure correction of data errors occurring as a result of
machine malfunctions. However, the amount of time and hardware redundancy used
for increasing reliability and for organization of input data averagings in
these complexes is considerable. In addition, parallel operation of the
machines of the set is impossible in the event that it is necessary to raise
the productivity of the computer complex by lowering its reliability. The
unique feature of the proposed special-purpose complex is that the output data,
address, and control lines of each section into which each computer of the com-
plex is divided are assembled in each machine via assembly circuits into data,
address, and control mainlines, which are connected to the inputs of the
1/2

USSR

ANILOV, V. M., et al., USSR Authors' Certificate No 308430

intersectional coupling units of all machines of the set; the output data,
address, and control lines of the intersectional coupling unit of each machine
of the complex are connected to the data, address, and control inputs of the
functional sections of the corresponding computer of the complex. Another
unique feature of the special-purpose computer complex is the fact that the
intersectional coupling unit of each machine of the complex contains "m" out of
"n" (where $n > m$) majority circuits, majorizing inhibit gates, by-pass gates,
assembly circuits, and a control register with a control signal generating cir-
cuit: the mainline of each machine of the complex being connected to the
majority circuit input, through the majorizing inhibit gate to the first
assembly input, and through the by-pass gate to the additional assembly input,
the control inputs of the gates coupled by control lines to the corresponding
outputs of the control circuit, which is connected to the control register out-
put. This makes it possible to reduce the time and hardware redundancy for
increasing reliability, provide averaging of input data, and organize parallel
operation of the machines of the complex.

2/2

24

USSR

VLASOV, C. I.

UDC 621.385:535.14-8.6.623

"On the Problem of Experimental Investigation of Fluctuations in a Light Signal Propagated in the Sea"

Vopr. radioelektroniki. Nauchno-tekhn. sb. Tekhn. televideniya (Problems of Radio Electronics. Scientific and Technical Collection. Television Technology), 1970, vyp. 1, pp 87-92 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10B47)

Translation: The author considers a method of experimentally studying the fluctuations in a light signal. The method is based on recording these fluctuations by means of an electrical oscillation chart recorder. The regions of applicability of this method are determined on the basis of specific measurements of light signal fluctuations in the sea. Resumé.

1/1

VLASOV G T

- 408 -

TECHNICAL TRANSLATION

FTD FSTC-HT-23-2015-72

29 Nov 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHOR: I. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
IMENI T.G. SHEVCHENKO

Translated for FSTC by ACSI

NOTICE

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— Title Page —

USSR

VLASOV, G. K.; MASHKEVICH, V. S.; TIMONINA, Ye. A. (Institute of Physics, Ukrain-
ian Academy of Sciences, Kiev)

"Light Absorption by Free Carriers Caused by Interaction Among Them"

ABSTRACT: The intrazonal absorption of light in a semiconductor, in which the
scattering is caused by electron-electron or electron-hole interaction, is
studied. The absence of light absorption due to the interaction of any number
of carriers of one sign in all orders of the theory of perturbation under a
parabolic law of dispersion is proved. In the second order of the theory of
perturbation expressions are obtained for the absorption coefficient: (1) due
to the interaction of carriers of one sign under a nonparabolic law of disper-
sion; (2) due to electron-hole interaction.
    In actual cases the spectral absorption coefficient resulting from the
above mechanisms has a value of 2.5 to 3.5.

1/1

USSR   UDC: 621.315.592

VLASOV, G.K. and MASHKEVICH, V.S.

"Theory of Laser Oscillation With Indirect Magnetooptical Transitions in
Which Free Carriers Participate"

Abstract: Laser oscillation in a quantizing magnetic field has already been
investigated for direct and indirect zone-zone transitions with the partici-
pation of phonons, where the effect of the magnetic field is marked. An even
greater effect can be expected for indirect transitions in which free carriers
take part. Beginning with the kinetic theory of lasers, this article inves-
tigates this latter situation by considering a uniform semiconductor with
thermodynamic equilibrium in each of its zones. The authors limit themselves
to the case of simple spherical zones with parabolic dispersion, and do not
take into account spin splitting in the magnetic field. They assume that the
majority carrier concentration is sufficiently large even without pumping,
which permits them to neglect the connection between the concentration and
the pumping. They investigate the Boltzmann distribution of carriers in a
doped semiconductor, and determine the oscillation frequencies and the Fermi
quasi-level of minority carriers during laser oscillation. A curve showing
the oscillation frequency as a function of the magnetic field for n and p
is given.

USSR

SHELYKH, G. I., VLASOV, G. P., and MITIN, Yu. V., Institute of High Molecular
Compounds, Acad. Sc. USSR, Protein Institute Pushchino

UDC 547.964.3

"Synthesis of Peptides by Means of Derivatives of Arenesulfenic Acids and
Trivalent Phosphorus Compounds. IV. Synthesis Using Water-Soluble Reagents"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 2, Feb 73, pp 369-372

Abstract: A series of trivalent phosphorus derivatives with P-N, P-C, and
P-O bonds, containing a labile amino group was synthesized. It was shown
that they could be used with bis-(p-dimethylaminophenyl) disulfide in the
synthesis of peptides. The use of tris-(p-dimethylaminophenyl)phosphine
leads to chromatographically pure peptides in good yields, requiring no
special purification steps. The synthesis of peptides by this method may
be carried out with derivatives of serine, thyrosin, aspargine, and
glutamine without the preliminary protection of functional groups. The
degree of racemization was determined by the Anderson test.

1/1

TITLE--SURFACE MAGNETO ACOUSTIC PHENOMENA IN METALS AND FERRO DIELECTRICS
  -U-
AUTHOR-(02)-VLASOV, K.V., KULEYEV, V.G.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA TVERDOGO TELA, APR. 1970, 12, (4), 1099-1108

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--MAGNETOACOUSTIC EFFECT, ULTRASONIC WAVE PROPAGATION, MAGNETIC
  POLARIZATION, RARE EARTH METAL, FERROELECTRIC MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1807   STEP NO--UR/0181/70/012/004/1099/1108

CIRC ACCESSION NO--AP0129175
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0129175   UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   SURFACE MAGNETO ACOUSTIC EFFECTS (EFFECT OF A MAGNETIC FIELD ON THE ANGLE OF POLARIZATION OF ULTRASONIC WAVES PASSING THROUGH THE LATTICE) LIKELY TO BE ENCOUNTERED IN MAGNETICALLY POLARIZED METALS AND FERRODIELECTRICS ARE DISCUSSED THEORETICALLY. FOR MAGNETICALLY POLARIZED METALS THESE EFFECTS SHOULD HAVE A NON RESONANT CHARACTER AND THEIR MAGNITUDE MAY BE OF THE SAME ORDER AS THE CONSTANT OF INTERACTION BETWEEN ELASTIC AND SPIRAL ELECTROMAGNETIC WAVES IN THE MATERIAL.   SPECIAL EFFECTS ARE TO BE EXPECTED IN THE CASE OF RARE EARTH ALLOYS WITH HIGH MAGNETOSTRICTION CONSTANTS.

UNCLASSIFIED

USSR   UDC: 621.315.5

SOKOLOV, B. P., BONDARENKO, E. A., YUSOV, Yu. P., VLASOV, L. G., Moscow
Institute of Aviation Technology

"A Resistive Material"

Translation: This Author's Certificate introduces a resistive material
based on valence semiconductors made from salts of alkali-earth metals
and ortho acids activated by a dopant in the form of metallic compounds.
The material is distinguished by the fact that the range of ratings is
extended and the stability of parameters is improved by using zinc ortho-
silicate as the base material and adding 2-4 percent by weight of manganese
chloride as the dopant.

1/1

USSR

VLASOV, L. G. and ZAYTSEV, Yu. V.

UDC: 621.316.8

"Metallic Film Trimmer Resistors"

Kiev, Izvestiya VUZ--Radioelektronika, Vol. 14, No. 1, 1971,
pp 103-104

Abstract: This brief communication describes the manufacture of
trimmer resistors in which the resistance material consists of a
metallic film of cadmium depositied on an insulating substrate,
electrotechnical pertinax, by cathode sputtering. Such a proce-
dure is preferable to the current mode of manufacturing these low-
ohm resistors in the Soviet Union, in which the conducting mate-
rial is graphite and lampblack, because of the difficulties en-
countered. Cadmium was chosen for the new process because it is
highly immune to moisture, corrosive media; it also has a low
temperature coefficient of resistance. The substrate is stamped
out in the shape of a horseshoe from a pertinax strip 0.8 mm
thick. The terminals are covered with silver to provide solid
contact with low resistance between the resistance element and
the leads. Elements of various resistance values can be produced
by varying the duration of the sputtering procedure. The results
of experiments for finding the basic parameters are given.
1/1

Materials

USSR

UDC: 621.396.69:621.316.8

VLASOV, L. G.; KRASIL'NIKOV, B. G., LUK'YANOV, V. B., MOLOTOVA, A. Yu.

"An Investigation of Stability in Production of Ceramic Bases for Type SPO Resistors by the Method of Mathematical Statistics"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1 (18), pp 57-65 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V336)

Translation: Information is given on the use of mathematical statistics for studying conditions of making ceramic bases for SPO resistors. A description is given of the scheme for planning the experiment in the initial stages of the investigation using the methods of a priori ranging of factors and random balance. Bibliography of nine titles. Ye. M.

1/1

1/2   011
TITLE--SEPARATION OF AN ISOBUTANE ISOBUTYLENE MIXTURE -U-   UNCLASSIFIED   PROCESSING DATE--04DEC70

AUTHOR-(04)-GALATA, L.A., VLASOV, L.V., KOFMAN, L.S., CHIRIKOVA, Z.P.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 202,909
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--09MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DISTILLATION, BUTANE, BUTENE, CHEMICAL PATENT, CHEMICAL
   SEPARATION, ALIPHATIC AMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1777   STEP NO--UR/0482/70/000/000/0000/0000

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CIRC ACCESSION NO--AA0137017   UNCLASSIFIED   PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MIXT. OF ISOBUTANE AND
ISOBUTYLENE IS SEPD. BY RECTIFICATION IN THE PRESENCE OF MONO OR
DIMETHYLAMINE AS A SEPG. AGENT.

UNCLASSIFIED

USSR   UDC 615.857-032:611.31]-092.9

VLASOV, L. Ye., Belorussian Scientific Research Institute of Blood Transfusion.

"Increasing the Effectiveness of Parenteral Nutrition with the Protein Hydrolyzate
TSOLIPK with Polysaccharide Preparation from Pig Stomach Mucosa (Fruglumin) in
Experiments"

Minsk, Zdravookhraneniye Belorussii, No 6, 1970, pp 44-47

Abstract: Fruglumin, a polysaccharide was obtained from the mucous membrane of a
hog's stomach, combined with protein TSOLIPK hydrolysate, and used in experiments
on dogs. For two weeks before the experiment, the ten dogs were fed a protein-free
diet resulting in protein deficiency in blood and urine. The dogs were fed the
fruglumin preparation subcutaneously at the rate 60-80 drops a minute for periods
of six days (with an interval of one day). As a result, all deficiencies in blood
and urine were compensated, and there was a complete normalization of the protein
constituents of blood plasma and urine. A positive nitrogen conserving effect was
accomplished by parenteral introduction of fruglumin and TSOLIPK.

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1/2   021
TITLE--AN INCREASE OF THE EFFECTIVENESS OF PARENTERAL NUTRITION WITH THE
PROTEIN HYDROLYZATE TSOLIPK WITH THE HELP OF POLYSACCHARIDE PREPARATION
AUTHOR--VLASOV, L.YE.

UNCLASSIFIED

PROCESSING DATE--13NOV70

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SOURCE--ZDRAVOOKHRANENIYE BELORUSSII, 1970, NR 6, PP 44-47

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SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

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PROXY REEL/FRAME--3005/1026

STEP NO--UR/0477/70/000/006/0044/0047

CIRC ACCESSION NO--AP0133093

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CIRC ACCESSION NO--AP0133093   UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE ACTION OF THE POLYSACCHARIDE
PREPARATION (FRUGLUMIN) HAS BEEN INVESTIGATED ON 10 DOGS CONCERNING THE
EFFECTIVENESS OF PARENTERAL NUTRITION BY THE PROTEIN HYDROLYZATE
"TSOLIPK" UNDER CONDITIONS OF KEEPING THE ANIMALS ON A SPECIAL
NONPROTEIN DIET, USING THE METHODS OF THE NITROGEN BALANCE, WITH THE
DETERMINATION OF CHANGES OF THE PROTEINS AND PROTEINIC FRACTIONS OF THE
BLOOD SERUM, NOTROGEN URINE COMPONENTS IN THE DYNAMICS OF PRELIMINARY
PROTEIN STARVATION AND THE FOLLOWING PERIODS OF PARENTERAL NUTRITION BY
THE HYDROLYZATE WITH THE USE OF FRUGLUMIN AND WITHOUT IT (FOR THE SAKE
OF CONTROL). AN EXPRESSIVE NITROGEN SAVING EFFECT HAS BEEN DETECTED OF
FRUGLUMIN WITH NORMILIZATION OF URINE COMPOSITION AND SERUMAL PROTEINS
AS A RESULT OF PARENTERAL HYDROLYZATE INTRODUCTION.   FACILITY:
BELORUSSKIY N-I INSTITUTA PERELIVANIYA KROVI.

PROCESSING DATE--13NOV70

UNCLASSIFIED

USSR

VLASOV, N. A., Department of Nervous Diseases, Moscow Institute of Medicine imeni Sechenov

UDC 612.821.7+616.8-009.836.14-021.6/(047)

"Sleep Deprivation (Literature Survey)"

Abstract: The author begins with a description of the phases and stages of sleep. Subsequently the effects of partial, selective or total deprivation of sleep on animal and human behavior and psychological or physical condition are reviewed, including development of psychotic symptoms, changes in sub-sequent sleep patterns and in neurological function and EEG pattern, and decrease in attention span and problem-solving ability. Among the physical changes discussed are changes in urine and blood content, organ weight, brain amino and nucleic acids and glycogen, lipid metabolism, potassium and adrenalin levels, serotonin synthesis in response to tryptophan or alone and decrease in acetylcholine in the cerebral cortex. The effect of temperature, ethyl alcohol and various drugs on sleep patterns and new surgical, instrumental and pharmacological methods of partial or total sleep deprivation are described.

1/1

- 53 -

USSR

VLASOV, N. L., LAZAREVA, I. A., and SIGAL, I. Kh.

UDC: 681.3.06:51

"Approximating Tabular Functions of Two Variables"

Kiev, V sb. Mashiny dlya inzh. raschetov (Machines for Engineering Calculations--collection of works) No 7, 1973, pp 45-56 (from RZh-- Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1973, Abstract No 12B97)

Translation: Most of the algorithms for approximating tabular functions of two variables developed at the present time are limited to the construction of a polynomial of fixed degree in two variables: problems of approximation with a specified accuracy remain practically untouched. It is shown that in the construction of these algorithms, it is best to use two-dimensional orthogonal polynomials. Use of such polynomials permits construction of an effective computational algorithm, the meaning of which is that in each last step all the results of the preceding computation are preserved. This last statement is especially important in view of the low operation speed and limited memory of the MIR type of computer.

1/2

USSR

VLASOV, N. L., et al., V sb. Mashiny dlya inzh. raschetov, No 7, 1973, pp 45-56

A description is given of the program "Approximation of a function of two variables by the method of least squares through orthogonal polynomials of a specified accuracy." Its program and operational order are given. A control example of the computations on the MIR-2 type of computer is presented. Bibliography of three. N. V.

2/2

UDC 669-154.42+62-404.1:293

USSR

VLASOV, N. N., KHUSNOYAROV, K. B., and BIGEYEV, A. M., Ural Institute of Ferrous Metals

"Effect of Purging a Metal With Argon on Its Flowability"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniyy--Chernaya Metallurgiya, No 6, Jun 73, pp 33-36

Abstract: The effect of argon purging on the flowability of a molten metal was examined. In all- 342 measurements were taken from 57 heats, from which it was established that the flowability of a metal after an argon blow is increased on the average of 11.9% with variation limits of 8.3-17.7%. The increased flowability occurs in the first five minutes of the blow, then it stabilizes and becomes almost independent of the type and amount of added deoxidizing agent. The increased flowability can be explained by the reduced content of nonmetallic inclusions and some rearrangement of the molten melt structure. 3 figures, 7 bibliographic references.

1/1