USSR   UDC 621.377.622.25(088.8)(47):621.382.23.011.222

YEGOROV, O. M.

"An Immediate-Access Memory Unit"

USSR Author's Certificate, No 273285, Filed 25 Apr 69, Published 18 Nov 70
(from Referativnyy Zh:rnal -- Avtomatika, Telemekhanika, i Vychislitel'naya
Tekhnika, No 8, 1971, Abstract No 8B258 P)

Translation: There is a well-known immediate-access memory unit which con--
tains memory elements made from tunnel diodes. They are directly coupled
with pairs of number buses and connected via nonlinear elements to bit
lines. The memory unit also contains a read-out decoder and a read-in
decoder. Its shortcomings are that it has a small capacity and, in
addition, is critical with respect to the divergence of the parameters
of its parts and to changes in temperature. The memory unit described
here differs in that it contains an additional read-out decoder, a gener-
ator of bipolar voltage pulses, and a generator of bipolar, two-stage
voltage pulses. The outputs of the indicated generators, which are made,
for example, in the form of diode-transformer multiplication matrices, are
directly connected to the corresponding number buses. The output of the
additional read-out decoder is connected to one of the inputs of the

1/2

USSR

YEGOROV, O. M., USSR Author's Certificate, No 273285, Filed 25 Apr 69,
Published 18 Nov 70 (from Referativnyy Zhurnal -- Avtomatika, Telemekhanika,
i Vychislitel'naya Tekhnika, No 8, 1971, Abstract No 8B258 P)

generator of bipolar, two-stage voltage pulses. This makes it possible to
increase the capacity of the memory unit and to increase its reliability
in a wide range of temperatures.

2/2

USSR

YEGOROV, O. M., MACHARASHVILI, Z. V., OBLUKOV, E. A.

UDC: 681.327.2/.7

"Ready-Access Tunnel Diode Memory"

Translation: This article contains an investigation of a tunnel diode, ready-access memory; a circuit in which the decoupling element is a point-contact germanium diode is used as the memory cell. One functional assembly in the form of flat micromodules 17.5 X 17.5 X 6.5 mm contains 8 memory cells. By corresponding commutation of the output terminals of the flat micromodules it is possible to organize words (registers) with any number of bits. The structural features of the memory cube, consisting of identical plate-arrays, are described. Sixteen words of 32 bits each and the last decoding step are arranged in each 200 X 300 mm array. For convenience of assembly and disassembly of the cube, the plate-arrays are combined structurally by pairs into submodules. The basic assemblies of the entire device are described, and the general characteristics are given.
1/1

Publications

Translation: In the textbook information is given on the tasks, measures, and organization of civil defense, the effect of weapons of mass destruction on humans, buildings, and structures, means of protecting the population from weapons of mass destruction, the planning of civil defense, fulfillment of emergency restoration work, and the organization of public training on the problems of civil defense.

The book is intended for students of higher educational institutions. Foreword: Taking into account the aggressive policy carried out by imperialist states and the arms race, the Communist Party and the Soviet Government show unflagging concern for strengthening the nations defensive might and improving civil defense.

Civil defense is a system of statewide defense measures aimed at protection of the population, creation of the conditions necessary for stable operation of national economic projects in time of war, and, in case of the use of weapons of mass destruction by the enemy, at the carrying out of rescue and immediate emergency restoration work.

Based on this premise, the basic tasks of instruction in higher educa-

1/ 7

USSR

YEGOROV, P. T., et al., Civil Defense, Moscow, "Vysshaya Shkola," 1970, 544 pp

tional institutions in the "Civil Defense" course consist of teaching the students -- future specialists -- methods of protection from nuclear weapons, and of teaching them how practically to implement civil defense measures both in peacetime and wartime, and to fulfill the duties of commanders of formations for their instructional profile.

The present textbook was written in accordance with the training program for students of higher educational institutions in the "Civil Defense" course and is intended for students of the nation's technical engineering and humanities educational institutions. Besides this, it can also be used by students of the other higher educational institutions if the general course of this program is studied.

Participating in the compilation of the textbook were teachers of the civil defense course at the Moscow State All-Union Institute, Candidate of Military Sciences Docent P. T. Yegorov (chapters 1, 2 / sections 1 and 2/, 6, 8, and 11) and I. A. Shyyakhov (chapters 2 /sections 3 and 4/, 3, 4, 5, 9, and 10, and Docent N. I. Alabin, teacher at the Moscow Technological Institute of Light Industry and Candidate of Military Sciences (chapters 7 and 12). Division Director of the USSR Ministry of Higher and Secondary Special Education G. A. Karpov, provided general supervision.

2/7

- 102 -

USSR

YEGOROV, P. T., et al., Civil Defense, Moscow, "Vysshaya Shkola," 1970, 544 pp

Table of Contents

3/7

USSR

YEGOROV, P. T., et al., Civil Defense, Moscow, "Vysshaya Shkola," 1970, 544 pp

USSR

YEGOROV, P. T., et al., Civil Defense, Moscow, "Vysshaya Shkola," 1970, 544 pp

5/7

USSR

YEGOROV, P. T., et al., Civil Defense, Moscow "Vysshaya Shkola," 1970, 544 pp

6/7

- 104 -

USSR

YEGOROV, P. T., et al., Civil Defense, Moscow "Vysshaya Shkola," 1970, 544 pp

7/7

USSR

YEGOROV, P. V., NIRENBURG, R. K.

"Determination of the Tensor of Total Stresses in the Field of Action of Gravitational and Tectonic Forces"

Translation: Rock is treated as an ideally elastic medium. The natural weight of the rock generates vertical ($\sigma_z^{\gamma H} = \gamma H$) and horizontal ($\sigma_x^{\gamma H}$, $\sigma_y^{\gamma H}$) principal stresses which satisfy the well known formula of A. N. Dinnik:

$$\sigma_x^{\gamma H} = \sigma_y^{\gamma H} = \gamma H \mu / (1 - \mu)$$

where μ is the Poisson ratio, γ is the specific weight of the rock, and H is depth. The principal tectonic stresses in the corresponding $x'y'z'$ system satisfy the analogous relationship:

$$\sigma_{y'}^{T} = \sigma_{z'}^{T} = T \mu / (1 - \mu)$$

1/2

YEGOROV, P. V., NIRENBURG, R. K., <u>Sb. nauchn. tr. Kuzbas. politekhn. in-ta</u>, 1970, No <u>28</u>, pp 32-37

where T is the component in direction x'. Superposition of these stresses in the xyz system gives relationships presented in the article which define the magnitude and direction of T from the overall stress components σ_x, σ_y, σ_z measured in the rock. Yu. M. Liberman.

2/2

TITLE--COMPARISON BETWEEN THE AUGMENTED WAVE AND GREEN'S FUNCTION METHODS
  IN THE ZONE THEORY OF SOLIDS -U-
AUTHOR-(04)-DYAKIN, V.V., YEGOROV, R.F., ZVEZDIN, V.K., SHIROKOVSKY, V.P.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, MAR. 1970, 29, (3), 579-483

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--ELECTRON SPECTRUM, WAVE FUNCTION, ENERGY BAND STRUCTURE,
  METAL CRYSTAL, CALCULATION, GREEN FUNCTION, VARIATIONAL METHOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1819   STEP NO--UR/0126/70/029/003/0479/0483

CIRC ACCESSION NO--AP0129187
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0129187   UNCLASSIFIED   PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE MATHEMATICAL PROBLEM OF
FINDING THE ELECTRON ENERGY SPECTRUM AND WAVE FUNCTIONS OF METAL
CRYSTALS AND DERIVING THE ELECTRICAL AND OTHER PROPERTIES FROM THESE IS
CONSIDERED THEORETICALLY IN TWO FORMS BASED ON THE AUGMENTED PLANE WAVE
AND GREEN'S FUNCTION METHODS, RESP. IT IS PROVED THAT IN BOTH THE
RELATIVISTIC AND NONRELATIVISTIC CASES BOTH METHODS MAY BE DERIVED FROM
A SINGLE BASIC VARIATIONAL PRINCIPLE. SOME OF THE SIMILARITIES AND
DIFFERENCES BETWEEN THE TWO METHODS ARE DISCUSSED.

UNCLASSIFIED

USSR

UDC 659.295.5'27

HOYKOV, S. G., REZNICHENKO, V. A., SOLONINA, O. P., UTKAROVA, N. M., and
YEGOROV, S. — Moscow

"Production of Ti-W Alloys by Coreduction of Chlorides, and Some of Their
Mechanical Properties"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan-Feb 1970, pp 26-32

Abstract: Results are presented of investigations on the development of a
direct metal-thermal method of producing binary Ti-W alloys. The method in-
volves diffusion of hexachloride tungsten in tetrachloride titanium and reduc-
tion of the solution by metallic magnesium. The quantity of tungsten chloride
introduced into the solution is determined by the composition of the obtained
alloy. As a result of coreduction of chlorides and subsequent vacuum separa-
tion of the products of reduction, a tungsten-doped titanium sponge is produced
from which it is possible to obtain ingots with a uniform distribution of alloy
component. Increase of tungsten content in the alloy up to 10 percent raises
the tensile strength of titanium with insignificant reduction of ductility in
the hot-forging state. A considerable effect of work hardening at room tempera-
ture can be obtained by means of heat treatment of Ti-W alloys. A considerable

1/2

USSR

MOYNOV, S. G., et al, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan-Feb 1970, pp 26-32

softening of the Ti-W alloys was observed in the 300-550° C temperature interval. In alloys with 6 and 10% tungsten at temperatures above 400°C an anomalous change in the magnitude of transverse reduction was observed, a fact which points to increased creep resistance of the alloys.

1/2   030   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--PREPARATION OF TITANIUM TUNGSTEN ALLOYS BY COREDUCTION OF THEIR
  CHLORIDES, AND SOME MECHANICAL PROPERTIES OF THE ALLOYS -U-
AUTHOR--MOYNOV, S.G., REZNICHENKO, V.A., SOLONINA, O.P., ULYAKOVA, N.M.,
  YEGOROV, S.I.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 26-32

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TITANIUM ALLOY, TUNGSTEN ALLOY, MECHANICAL PROPERTY, CHLORIDE,
  BINARY ALLOY, METAL HEAT TREATMENT, MAGNESIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0539   STEP NO--UR/0370/70/000/001/0026/0032

CIRC ACCESSION NO--AP0105524
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0105524   UNCLASSIFIED   PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW METALLOTHERMIC METHOD OF
OBTAINING BINARY TI-W ALLOYS AND SOME OF THE MECH. PROPERTIES OF THESE
ALLOYS ARE DESCRIBED. THE METHOD FUNDAMENTALLY CONSISTS IN DISSOLVING
THE WCL SUB6 IN TICL SUB4 AND IN REDUCING THE SOLN. BY METALLIC MG. THE
AMT. OF WCL SUB6 DISSOLVED DEPENDS ON THE DESIRED QUALITIES OF THE
ALLOY. AFTER COREDN. OF THE CHLORIDES AND AFTER VACUUM SEPN. OF THESE
REACTION PRODUCTS, A TI TUBE ALLOYED WITH W IS FORMED, FROM WHICH
CASINGS CONTG. AN EVENLY DISTRIBUTED ALLOYING ELEMENT CAN BE OBTAINED.
BY INCREASING THE W CONTENT TO 10PERCENT, THE BREAKING STRENGTH OF THE
TI ALLOY IS INCREASED. BY HEAT TREATMENT OF THE TI-W ALLOYS, AN
IMPORTANT IMPROVEMENT OF MECH. PROPERTIES AT ROOM TEMP. CAN BE OBTAINED.

UNCLASSIFIED

1/2   019   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--STABILITY LOSS OF CYLINDRICAL SHELLS UNDER THE ACTION OF EXTERNAL
   PRESSURE -U-
AUTHOR--YEGOROV, S.N.

COUNTRY OF INFO--USSR

SOURCE--PRIKLADNAIA MEKHANIKA, VOL. 6, MAR. 1970, P. 114-117

DATE PUBLISHED----MAR70

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

TOPIC TAGS--CYLINDRIC SHELL STRUCTURE, REINFORCED SHELL STRUCTURE, SHELL
   STRUCTURE STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0862   STEP NO--UR/0198/70/006/000/0114/0117

CIRC ACCESSION NO--AP0116372
                      UNCLASSIFIED

CIRC ACCESSION NO--AP0116372   UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF AN EQUIPMENT AND
PROCEDURE DEVISED FOR STUDYING THE STABILITY LOSS OF NONREINFORCED AND
REINFORCED CYLINDRICAL SHELLS UNDER THE ACTION OF EXTERNAL PRESSURE.
THE CRITICAL PRESSURES OBTAINED FOR NONREINFORCED STEEL SHELLS FREELY
SUPPORTED AT THE ENDS ARE COMPARED WITH THE THEORETICAL VALUES OBTAINED
FROM PAPKOVICH'S (1929) FORMULA.   FACILITY: VOENNO-VOZDUSHNAIA
INZHENERNAIA AKADEMIIA, MOSCOW, USSR.

UNCLASSIFIED

USSR

VERNOV, S. N., Y'EGOROV, T. A., Y'EFIMOV, N. N., KOLOSOV, V. A., KORYAKIN,
V. D., KRASIL'NIKOV, D. D., KUZ'MIN, A. I., KULAKOVSKAYA, V. P., MAKSIMOV,
S. V., NESTEROVA, N. M., NIKOL'SKIY, S. I., ORLOV, V. A., SLEPTSOV, I.YE.,
SIZOV, V. V., KHRISTIANSEN, G. B., and SHAMSUTDINOVA, F. K.

UDC 537.591.15

"Preliminary Results of Recording Extensive Showers on a Recording Array in Yakutsk"

Abstract: Experiments are described in which attempts were made at determin-
ing the energy spectrum, composition, and anisotropy of cosmic rays within the
range of energy 10^{17} to 10^{18} ev. It is desired to extend the range to cover
10^{19} ev and above. Of a particular interest are the following problems: do
the rays originate within the Galaxy or in metagalactic regions, what is the
direction from which they arrive, and how Cerenkov radiation produced by
them is distributed within the atmosphere. The test equipment consists of 13
recording points distributed over an area of 3 km², with a central time con-
trol point. The output spectrum was measured over a period of 29.5 hours.
82 showers were noted during that period, with the axes falling within the
1/3

USSR

VERNOV, S. N., et al.; Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
Vol 35, No 10, Oct 71, pp 2098-2101

array area. The orientation of the axis was found by the "triangulation"
method, comparing the time of arrival of the showers at different recording
points. An analytic expression is given in the paper for the integral output
spectrum of extensive showers at sea level for the interval of N between
2×10^7 and 2×10^8. The intensity, determined with this formula, appears to
be 2 to 3 times as great as recorded elsewhere. Distribution of Čerenkov light
with respect to the shower axis was determined by observations conducted on
clear, moonless nights. It was found to be similar to that of the primary
gamma quanta, but it decayed with the distance from the axis more slowly than
the amount of charged particles ($R^{-2.5}$ as against $R^{-3.2}$ for charged particles).
    Examination of the energy spectrum of primary particles lead to the con-
clusion that the electromagnetic component is responsible for 80% of it.
Dependence of primary energy on the output N was established, and on the basis
of this relation the integral spectrum was computed. The coefficient connect-
ing these two magnitudes was found to be twice as high as the one previously
accepted elsewhere.

2/3

- 122 -

USSR

VERNOV, S. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,
Vol 35, No 10, Oct 71, pp 2098-2101

In the final analysis, variation of Čerenkov light at the primary par-
ticle energy of 3.6 x 10^{16} ev and the output (intensity) of 1.5 x 10^{7} par-
ticles at sea level is given, as well as the expected distribution of the
nuclear components of primary rays.

3/3

USSR

YEGOROV, V. A., LOMAYEV, Yu. I.

"A Modulometer"

Translation: This Author's Certificate introduces a modulometer which
contains a precision voltage divider and a commutator which alternately
switches in the complete and divided signals. To reduce modulometer error
due to limited resolution of the tube, the gain of the amplifier following
the commutator is increased to a value determined by the required precision
of the oscilloscopic indicator. To prevent overloading of the device which
leads to additional error, a tracking bilateral amplitude clipper is con-
nected in the amplifier circuit between the commutator and the oscillo-
scopic indicator. E. L.

1/1

USSR

YEGOROV, V. A.

"Certain Sufficient Conditions for the Repeated Logarithm Rule"

Translation: Let X_1, X_2,...be a sequence of independent random quantities with distribution functions $V_1(x)$, $V_2(x)$,...respectively. Let $EX_n = 0$, $EX_n^2 < \infty$ $(n=1,2,...)$. $B_n = \sum_{j=1}^{n} EX_j^2$, $L_n(y) = \int_{|x|>y} x^2 dV_x(x)$, $\chi_n^2 =$ $= B_n / \ln \ln B_n$.

It is proven that the conditions

$$\sum_n P(|X_n| > \varepsilon \sqrt{B_n \ln \ln B_n}) < \infty,$$

$$\frac{(\ln B_n)^\delta}{B_n} \sum_{j=1}^{n} L_j(\varepsilon \chi_n) \to 0 \ (n \to \infty)$$

1/2

for $\delta > 0$ and any $\varepsilon > 0$ are sufficient that the sequence $\{X_n\}$ follows the repeated logarithm rule. It is also demonstrated that this result will be incorrect if δ is replaced by δ_n, where δ_n approaches 0 sufficiently regularly.

2/2

1/3 - 035
                                    UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--A NEEDED BIBLIOGRAPHY -U-

AUTHOR-(02)-GURVICH, G.I., YEGOROV, V.A.

COUNTRY OF INFO--USSR

SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, NO 3, 1970, P 95

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL
  SCIENCES
TOPIC TAGS--AEROMEDICINE, SPACE MEDICINE, BIBLIOGRAPHY, PERSONNEL
  SELECTION, PILOT TRAINING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0359   STEP NO--UR/0177/70/000/003/0095/0095

CIRC ACCESSION NO--AP0134148
                            UNCLASSIFIED

2/3   035
CIRC ACCESSION NO--AP0134148   UNCLASSIFIED   PROCESSING DATE--20NOV70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. AVIATION AND SPACE MEDICINE, BASED
   ON DIALECTICAL MATERIALISM AND MAKING USE OF THE ACHIEVEMENTS OF
   PHYSIOLOGY, PHYCHOLOGY, CLINICAL MEDICINE, HYGIENE, BIOLOGY,
   BIOCHEMISTRY AND CYBERNETICS, HAS GROWN INTO AN INDEPENDENT SCIENTIFIC
   DISCIPLINE. AS IN EVERY AREA OF KNOWLEDGE, IT NEEDS ITS OWN GUIDE BOOK.
   THE FLOW OF INFORMATION IS GROWING WITH EACH DAY. AT THE PRESENT TIME
   EVEN THE SPECIALIST STUDYING A RELATIVELY NARROW CIRCLE OF QUESTIONS
   DOES NOT ALWAYS HAVE THE POSSIBILITY OF FOLLOWING ALL THE PUBLICATIONS.
   THEREFORE THE PUBLICATION OF A BIBLIOGRAPHY COMPILED BY ONE OF THE MOST
   SENIOR AVIATION PHYSICIANS, PROFESSOR A. A. SERGEYEV, SHOULD BE
   WELCOMED. WHEREAS AT THE DAWN OF THE DEVELOPMENT OF AVIATION
   INDIVIDUALS STUDIED QUESTIONS OF THE INFLUENCE OF VARIOUS FACTORS OF
   FLIGHTS ON THE ORGANISM, OF SELECTION AND TRAINING, OF ASSURING THE
   VITAL ACTIVITY OF FLIGHT PERSONNEL OF MEDICAL OBSERVATION, OF ASSURING
   THE SAFETY OF FLIGHTS, TODAY THOSE PROBLEMS ARE BEING SOLVED BY A LARGE
   DETACHMENT OF SCIENTIFIC CO WORKERS AND PHYSICIANS. AN EVER GROWING
   NUMBER OF MONOGRAPHS, COLLECTIONS, JOURNAL ARTICLES, MATERIALS OF
   CONGRESSES, CONFERENCES AND SYMPOSIA ARE BEING PUBLISHED ON AVIATION AND
   SPACE MEDICINE. A GOOD HELP TO THE SPECIALISTS IS THE BIBLIOGRAPHY
   UNDER REVIEW, WHICH INCLUDES WORKS PUBLISHED IN THE RUSSIAN LANGUAGE
   FROM 1865 TO 1967, A TOTAL OF 5253 ITEMS. IN IT HAVE GONE WORKS DONE BY
   THE CLASSICISTS (I. M. SECHENOV, V. V. PASHUTIN, V. I. VOLCHEK, L. A.
   ORBELI, AND I. P. PETROV) AND NUMEROUS INVESTIGATIONS OF RECENT YEARS.

                         UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134148

ABSTRACT/EXTRACT--IN ESSENCE ALL QUESTIONS HAVING A RELATION TO THE GIVEN SCIENCE HAVE FOUND THEIR PLACE IN THE BIBLIOGRAPHY.

UNCLASSIFIED

USSR

YEGOROV, V. A., FRANKE, M., KRISHTANOVSKAYA, V. V.

UDC 621.314.57

"Output Voltage Regulation of An Autonomous Voltage Inverter with Pulse--Duration Modulation"

Dokl. nauchno-tekhn. konferentsii po itogam nauchno--issled. rabot. za 1968-1969 gg. Mosk. energ. in-t, 1970 g. Sekts. Elektron. tekhniki. Podsekts. Prom. elektroniki (Report of the Scientific--Technical Conference On the Results of Scientific--Research Work during 1968-1969. Moscow Power Institute, 1970. Electronic Technology Section. Industrial Electronics Subsection), Moscow, 1969, pp 62-68 (from RZh--Elektronika i yeye primeneniye, No 5, May 70, Abstract No 5B600)

Translation: It is shown that a static version of an output voltage regulator of an inverter with pulse-duration modulation is non-efficient. An astatic automatic control system is faster acting and with the appropriate computation it is possible to assure that operation of output conversion, integration, and dropping be completed during a time not longer than the period of the setting pulses for each. The control time with the presence of filters is considerably above the period of the fundamental frequency of the output voltage. Consequently, if the load tolerates the presence of higher harmonics, and with a rejection of the filters, it is permissible to accomplish regulation with the use of an astatic controller. 3 ill. I. R.
1/1

USSR

BONDAREV, Z. V., YEGOROV, V. A., and KOLOSOV, V. A.

UDC 613, 693

"Cardiovascular Function in Airplane Crews During Long Flights"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 8, 1972, pp 65-67

Abstract: Study of cardiovascular changes in airplane crews during long flights and short flights involving refueling in the air revealed a direct correlation between the degree of stress present at a given stage of the flight and the cardiovascular response. For example, the heart rate before the engines were started was within normal limits (68 to 80 beats a minute) but higher than on nonflying days. At takeoff and landing the heartbeats of the pilots increased to 120 to 150 compared to 70 to 100 during the flight and 60 to 83 after the flight. As the plane approached general area of the tanker, the pilots' heart rate averaged 72 beats a minute, rising to 111 as the two planes neared and to 140 during the actual refueling (the tensest part of the flight). Analysis of the P-Q and Q-T intervals on the electrocardiogram also revealed changes directly related to the degree of stress present during the different situations encountered in flight.
1/1

- 1 -

Ecology

USSR

UDC 551.482.2:551.311.21

POLIKARPOV, G. G., YEGOROV, V. N., IVANOV, V. N., TOKAREVA, A. V., and FILIPPOV, I. A., Institute of Biology of the Southern Seas, Academy of Sciences UkSSR

"Oil Fields as an Ecological Niche"

Moscow, Priroda, No 11, 1971, pp 75-78

Abstract: Observations are made on the formation, behavior, distribution and composition of oil "aggregates" collected from the surface and near-surface layers of the Central Atlantic during the 1970 cruise of the research vessel Akademik Vernadskiy. Five size groups were distinguished, ranging from those under 1 mm to 8 mm in diameter, the latter being the most numerous. Many are overgrown with periphyton, blue-green algae, diatoms, and crustaceans. By moving freely over the water in response to wave and wind, these oil aggregates can serve as indicators of currents and processes of horizontal mixing of the surface layers. Experiments on the capacity of the aggregates to concentrate cerium, ruthenium, and zinc from seawater showed them to be excellent adsorbents of these elements. This fact plus the presence of biogenous elements on the surface of the aggregates and maximum exposure to light and oxygen create favorable conditions for the development of periphyton.

1/2

USSR

POLIKARPOV, G. G., et al., Priroda, No 11, 1971, pp 75-78

Hence, there will be an increase in the abundance of those hydrobionts which require a floating substrate. The results is likely to intensify the cycle of matter in the pleuston-neuston complex and ultimately determine the fate of the oil aggregates. themselves.

2/2

- 2 -

USSR

UDC 539.257:669.24

ZMIYEVSKIY, V. I., YEGOROV, V. N., PYATYSHEV, L. I., ZAMILATSKIY, Ye. P.
KONARDI, G. G. (Kaliningrad, Moskovskaya Oblast)

"Methods of Evaluating the Mechanical Properties and Structural Strength of
Metal Materials at Low Temperatures"

Kiev, Problemy Prochnosti, No 12, December 1971, pp 26-29

Abstract: In the present article is briefly considered the state of the
question with respect to each test category, previously conducted projects are
described, and problems concerning further developments are presented on the
basis of discussion. An analysis is given of the procedures for determining
the mechanical characteristics of materials at temperatures down to 20° K
(tests for elongation, and tests for impact viscosity with a previously created
fatigue crack). Diagrams are presented for installations used in hydraulic
and pneumatic tests of containers at a temperature of 20° K. 6 figures.
3 references.

1/1

- 167 -

Acc. Nr.: __AP0046498__

Y

Ref. Code: __UR 0094__

USSR

UDC 537.2:62-403

YEGOROV, V. N., Candidate of Technical Sciences, Moscow Institute of the Petro-
~~chemical and Gas Industry imeni I. M. Gubkin~~

"Formation of Electrostatic Charges in a Steam Jet"

Moscow, Promyshlennaya Energetika (Industrial Power Engineering), No 1, 1970,
pp 34-37

Translation: The quantity and polarity of electrostatic charges which form in a
steam jet and the dependence of their amounts on vapor pressure were determined
by experiments. Measures for decreasing the degree of electrification were
presented. (2 illustrations, 5 biblio. ref.)

1/1

REEL/FRAME
19781751

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USSR

YEGOROV, V.S., Candidate Of Technical Sciences; ZAYTSEVA, A.K., Candidate Of
Technical Sciences; HURKINA, M.V., Engineer; SHUL'MEYSTER, L.F., Candidate Of
Technical Sciences

UDC 621.383.5.001.5

"Device For Determination Of The Current-Voltage Characteristic Of A Photoelectric
Converter"

Elektrotekhnika, No 2, Feb 1972, pp 44-46

Abstract: Methods are considered for determining the reverse saturation current
I_0 and the parameter A in the working region of the current-voltage characteris-
tic of silicon photoelectric energy converters. The principles of operation and
the units of a functional scheme are described. The scheme contains a logarith-
mic amplifier, storage devices, division unit, selective cells, converter of log
I_0 into I_0, digital presentation unit, and a commutator. The device developed
makes it possible to determine the parameters A and I_0 of photoelectric convert-
ers with an area from 1 to 4 cm^2 in the intervals $A = 1 - 5$, $I_0 = 1 . 10^{-8} \div$
$1 . 10^{-4}$ a. The measurement error is not more than 5 percent and the measurement
time does not exceed 10 sec. 4 fig. 4 ref.

1/1

1/2   020

TITLE--"UNIVERSAL KEYED INSTRUMENT KUU ALGOL" -U-

UNCLASSIFIED

PROCESSING DATE--18SEP70

AUTHOR-(02)-KARPUKHIN, G.P., YEGOROV, V.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, MEKHANIZATISIYA I AVTOMATIZATSIYA PROIZVODSTVA, NO 1, 1970, PP 35-36

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--DIGITAL COMPUTER, PUNCHED CARD, AUTOMATIC COMPUTER PROGRAMMING, ALGORITHMIC LANGUAGE, BINARY CODE, ELECTROMAGNETIC PULSE/(U)KUU ALGOL DIGITAL COMPUTER, (U)ALGOL60 LANGUAGE, (U)URAL DIGITAL COMPUTER, (U)M20 DIGITAL COMPUTER, (U)BESM2 DIGITAL COMPUTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0243

CIRC ACCESSION NO--AP0100764

STEP NO--UR/0118/70/000/001/0035/0036

UNCLASSIFIED

CIRC ACCESSION NO--AP0100764

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FUNCTION OF THE KUU ALGOL IS THE ACCUMULATION AND AUTOMATIC CODING OF INPUT LANGUAGE SYMBOLS ON THE BASIS OF THE ALGORITHMIC LANGUAGE ALGOL 60 SUPPLEMENTED BY THE RUSSIAN AND GREEK ALPHABETS AS WELL AS BY IDENTIFIERS OF STANDARD FUNCTIONS AND THE NINE DIGIT BINARY CODE. IT ALSO PUTS THEM, IN THE FORM OF ELECTRICAL PULSES, INTO THE INPUT PERFORATOR AND THEN ON PERFORATED CARDS. THESE LATTER ARE THE CARDS IN THE INPUT PERFORATOR OF THE ELECTRONIC DIGITAL COMPUTER WITH WHICH THE KUU ALGOL WORKS. THE BLOCK DIAGRAM OF THE KUU ALGOL IS GIVEN AND IS ACCOMPANIED BY A VERBAL EXPLANATION OF THE FUNCTIONS OF EACH BLOCK. THE INFOMATION TO BE TRANSFERRED TO THE PERFORATED CARD IS ACQUIRED BY PRESSING KEYS ON THE FRONT PANEL SWITCHBOARD, SHOWN IN A PHOTOGRAPH, BEARING THE ENGRAVED SYMBOLS OF THE ALGOL 60 LANGUAGE. WEIGHING 30 KG AND MEASURING 590 TIMES 430 TIMES 235 MM, THE INSTRUMENT IS CAPABLE OF WORKING WITH UNIVERSAL DIGITAL COMPUTERS OF THE "URALQ" M-20, AND BESM 2 TYPES.

UNCLASSIFIED

USSR   UDC: 621.396.96:621.371

CHIZHOV, V. I., NUZHDIN, V. M., YEGOROV, V. V., OVCHINNIKOV, Ya. Yu.

"Energy Characteristics of a Signal Reflected from an Extended Rough Surface"

Tr. Mosk. aviats. in-ta (Works of the Moscow Aviation Institute), 1970,
vyp. 208, pp 48-62 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G28)

Translation: The authors consider the energy characteristics of a reflected
signal as a function of the statistical properties of the reflecting surface,
the velocity vector of the aircraft, radiation patterns of the transmitting
and receiving antennas, and parameters of the probing signal. The spectrum
of Doppler fluctuations at the receiver output is calculated. The indeter-
minacy function is found for the reflected signal. It is shown that the
energy spectrum of the signal at the receiver output is a convolution of the
indeterminacy function of the probing signal and the transition-spectral
characteristic of the surface. Six illustrations, bibliography of three
titles. N. S.

1/1

Radar

CHIZHOV, V. I., YEGOROV, V. V.

"Characteristics of Discriminators in the Case of Reflection of Radio
Signals From Extended Rough Surfaces"

Translation: The authors consider operation of a discriminator in radar
range finders with coherent and noncoherent signal processing. Circuits
are analyzed for a two-channel discriminator with range-detuned channels,
and a discriminator with switching of reference signals. Three illustrations,
bibliography of one title. N. S.

1/1

Navigation Aids

USSR   UDC: 621.396.96:527.623.08:527.61

YEGOROV, V. V., ONOPRIYENKO, Ye. I.

"Analysis of Self-Contained Phase Type Radio Range Finders"

Tr. Mosk. aviats. in-ta (Works of the Moscow Aviation Institute), 1970, vyp. 201, pp 124-142 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12G90)

Translation: The paper deals with theoretical analysis of airborne phase measurement devices used for determining the distance or inclined range to an extended rough surface. The instruments operate on the two-clock principle of range measurement. Two types of instruments are considered, the difference being in choice of the type of modulation and the method of signal processing in the reception and measurement channels. The statistical characteristics of the signal at the phase discriminator input are analyzed. The relationship of the average voltage and the spectral density of fluctuations at the discriminator output are discussed. Five illustrations, bibliography of six titles. N. S.

1/1

USSR

YEGOROV, YE. A., YUKELIS, YU. I.

UDC 577.4

"Algorithms of an Automated Operative-Calendar Planning System"

Tr. N.-i. i proyekt. in-ta po vnedreniyu vychisl. tekhn. v nar. kh-vo (Works of the Scientific Research and Planning and Design Institute for the Introduction of Computer Engineering into the National Economy), 1971, vyp. 8, pp 12-21 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V545)

No abstract

1/2   014   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--EXPERIMENTAL ADOPTION OF A HYDROGEN PRODUCTION PLANT -U-

AUTHOR-(03)-VARFOLOMEYEV, D.F., YEGOROV, YE.A., TYURIN, V.V.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (5), 28-30

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROGEN PRODUCTION, CHEMICAL PLANT, CATALYST, CARBON
  MONOXIDE, CHEMICAL PURIFICATION, HYDROGEN SULFIDE, ORGANIC SULFUR
  COMPOUND, METHANE, ETHANE, PROPANE/(U)GIAP3 CATALYST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/B09 STEP NO--UR/0318/70/000/005/0028/0030

CIRC ACCESSION NO--AP0140250
------------------------------ UNCLASSIFIED

2/2   014
CIRC ACCESSION NO--AP0140250
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   DRY PLATFORMING GAS, CONTG. H 53.3
AND CH SUB4, C SUB2 H SUB6, AND C SUB3 H SUB8 46.7 VOL. PERCENT WAS
HEATED TO 400DEGREES AND ITS S CONTENT (60 MG PER M PRIME3 AS H SUB2 S
AND ORG. S) WAS REMOVED AT 5 ATM ON A CU-ZN CATALYST, THEN MIXED WITH
1:3.5 STEAM AT 400DEGREES, PASSED THROUGH A CONVERSION FURNACE AND THEN
THROUGH TUBES CONTG. CATALYST GIAP-3.   THE GAS CONVERTED AT 750DEGREES
WAS COOLED TO 412DEGREES AND ENTERED THE CO CONVERTER, WHERE THE
REACTION, CO PLUS H SUB2 O FORMS AND IS FORMED FROM CO SUB2 PLUS H SUB2,
OCCURS IN 2 STAGES AT 430DEGREES.   THE CONVERTER GAS WAS COOLED TO
210DEGREES BY MEANS OF A WASTE HEAT BOILER.   CO SUB2 WAS REMOVED BY
MONOETHANOLAMINE PURIFICATION.   FACILITY: UFIM. NPZ, USSR.

USSR

UDC: 621.396.670.951

IVANOVA, N. S., BOGDANOV, A. A., MESROPOV, G. M., OGANOVA, L. A., ZUYEV,
F. K., YEGOROV, Ye. M.

"A Fiberglass-Reinforced Polarization Material"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 30, Oct 71, Author's Certificate No 317137, Division II, filed 30 Sep 64,
published 7 Oct 71, p 193

Translation: This Author's Certificate introduces a fiberglass-reinforced
polarization material based on textolite for antenna reflectors. As a
distinguishing feature of the patent, the weight of the reflector is
reduced by adding to the glass-textolite reinforcement a layer of metal-
lized glass fabric which contains metallized glass filaments in one of the
directions of its structure (warp or weft). The glass filaments consist
of elementary glass fibers coated with a layer of metal (aluminum or
zinc) securely bonded to the glass fiber surface.

1/1

USSR

KOLESNIK, Ye. S., MAKAROVA, S. B., PAKHOMOVA, E. M., YEGOROV, Ye. V.

"Anomalies in Sorption in Phosphoric Acid Ionites"

Anomalii pri Sorbtsii na Fosfornokislykh Ionitakh [English Version Above], Moscow, 1971, 13 pages (Translated from Referativnyy Zhurnal, Khimiya, No 2, 1972, Abstract No 2 B1415 Dep. by the author's).

Translation: It is demonstrated that ordinary styrene bivinylbenzene phosphate resins (I) have low Th capacity; their ion-exchange equilibrium is established very slowly; the Th diffusion factor in I is very low, 10^{-11} cm^2/sec. The Th distribution factor increases with increasing concentration of nitric acid and dispersion of I. After contact with Th solutions, I reduces its capacity for many multiply charged ions. As swelling ability increases, the rate of Th exchange and capacity of I for this ion increase sharply. Assumptions are made explaining the anomalous behavior of I for Th.

1/1

USSR

/ 3

UDC 669.245.018.44(088.8)

PANASYUK, I. O., BRUSILOVSKIY, B. S., VILKOV, V. I., VORONIN, G. M., YEGOROV, YE. YE., YELKIN, I. S., KLIMOV, L. YA., KOVROVA, YE. A., KONTSEVAYA, YE. M., LYUBINSKAYA, M. A., MILENINA, YE. C., MIKHAYLOV, I. A., RAZUVAYEV, YE. I., SIROTKIN, A. I., SOLDATCHENKO, V. A., SPILITSIN, R. I., SHAPIRO, S. M.

"Nickel-Chromium Base Alloy"

Translation: The heat-resistant alloy has the following composition (in %): C 0.03-0.1, Cr 30-40, W 3-5.5, Mo 2-4, Ti 0.5-1.5, Al 0.5-1.5, Nb 0.5-1.5, Ce 0.01-0.3, B 0.003-0.008, Ni, the rest. The alloy has increased heat resistance and also the following mechanical and physical-chemical properties at 1,100°: σ_B 8 kg/mm², δ 65%, σ stress-rupture 1 kg/mm², coefficient of linear expansion 15·10⁻⁶ deg⁻¹, increase in weight after 100 hours of heating at 1,200° in the air 0.6 g/m². It is corrosion-resistant in a moist atmosphere under tropical conditions, in sea water, and in the products of combustion of highly sulfurous fuel.
1/1

USSR   UDC 621.039.538

BOLDYREV, G. N., VESELKIN, A. P., YEGOROV, Yu. A., YEMEL'YANOV, I. Ya.,
ZHIRNOV, A. D., ORLOV, Yu. V., KONSTANTINOV, L. V.

"Study of the Shielding Problems on Water Cooled - Water Moderated Research
Reactors"

V sb. Vopr. fiz. zashchity reaktorov (Problems in Reactor Safety Physics --
Collection of Works), No. 5, Moscow, Atomizdat, 1972, pp 235-250 (from
RZh-50. Yadernyye reaktory, No 5, May 72, Abstract No 5.50.62)

Translation: Several special installations were constructed to study shield-
ing. The BSF and GTR installations were swimming pool reactors employing
1 and 3 Mw neutrons, respectively, placed on moving bridges in large water
pools. The B-2 device on the BR-5 reactor was developed to study the laws
of the attenuation of γ-quanta and reactor neutrons in the geometry of a
unidirectional beam; the materials to be studied or models of the shielding
were placed in a niche in the reactor shielding. A zero-power reactor was
intended for studying processes in the shield directly adjacent to the
reactor core. The reactor was equipped with filters in one of the directions
making it possible to obtain an optimal relationship between the neutron and

USSR

BOLDYREV, G. N., et al, Vopr. fiz. zashchity reaktorov, No. 5, Moscow, Atomizdat, 1972, pp 235-250

Y-quanta fluxes. The OR-M experimental device is also intended for studying problems in reactor shielding. The 50-kw water cooled - water moderated research reactor is also equipped with devices for conducting experiments on shielding. Various studies associated with the radiation problems of shielding are carried out on this reactor. A description of the reactors, experimental devices, and characteristics of the devices and methods used in the research are given.

USSR

UDC ·621.039.538:539.125.5

VASIL'YEV, G. A., VESELKIN, A. P., YEGOROV, Yu. A., ORLOV, Yu. V.,
PANKRAT'YEV, Yu. V., PISKUNOV, V. I.

"Space-Energy Distribution of Reactor Neutrons in Metal Hydrides"

V sb. Vopr. fiz. zashchity reaktorov (Problems in Reactor Safety Physics --
Collection of Works), No. 5, Moscow, Atomizdat, 1972, pp 91-105 (from
RZh-50. Yadernyye reaktory, No 5, May 72, Abstract No 5.50.58)

Translation: Current designs of the shielding of nuclear reactors include
hydrogen-containing materials, the presence of which in the shield makes it
possible to shorten the size of the shielding and reduce the contribution
to the power of the dose from neutrons of intermediate energies. Various
hydrogen-containing materials are used in the shield: water, polyethylene,
paraffin, concretes with an increased concentration of hydrogen such as
Serpentinite concrete, etc. Metal hydrides may also be included in such
materials. Metal hydrides have a high nuclear density of hydrogen, in some
cases exceeding the nuclear density of hydrogen water. In studying the
passage of neutrons through metal hydrides, one can show the perturbing

1/2

USSR

VASIL'YEV, G. A., et al, Vopr. fiz. zashchity reaktorov, No. 5, Moscow,
Atomizdat, 1972, pp 91-105

effect of the metal nuclei on the form of the attenuation function or the
form of the energy distribution of neutrons, and he can also show the role of the
metal in the accumulation of moderating neutrons. The problem of the pas-
sage of neutrons through lithium, magnesium, titanium, and zirconium hydrides
was investigated. The experiments were conducted on a water cooled - water
moderated research reactor. 8 ill., 8 tables, 37 ref.

2/2

- 44 -

1/2   022
TITLE--STARTUP OF AN AZIMUTHAL MOON TELESCOPE --U--   UNCLASSIFIED   PROCESSING DATE--11DEC70

AUTHOR--YEGOROV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--IN: MORPHOLOGY OF THE QUIET AND PERTURBED IONOSPHERE (MORFOLOGIIA
  SPOKOINOI I VOZMUSHCHENNOI IONOSFERY): (A70-36084 18-13) ALMA-ATA,
DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, NAVIGATION

TOPIC TAGS--AZIMUTH, MOON, TELESCOPE, ELECTRONIC EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605029/811 STEP NO--UR/0000/70/001/000/0154/0158

CIRC ACCESSION NO--AT0141686
                              UNCLASSIFIED

CIRC ACCESSION NO--AT0141686

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE CONSTRUCTION AND OPERATION OF AN AZIMUTHAL MUON TELESCOPE SET UP AT A COSMIC RAY STATION. THE TELESCOPE ARRANGEMENT CONSISTS OF AN AZIMUTH SENSOR, A STANDARD TELESCOPE, THE ELECTRONIC EQUIPMENT OF THE TELESCOPE, AND A PHOTORECORDER. THE ELECTRICAL CIRCUITRY OF THIS PHOTORECORDER IS ILLUSTRATED, AND ITS OPERATION IN CONJUNCTION WITH THE TELESCOPE IS DESCRIBED.

UNCLASSIFIED

TITLE--A DEVICE FOR INTRODUCING SOLAR IMAGES INTO A COMPUTER -U-

AUTHOR--YEGLAKOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--MORPHOLOGY OF THE QUIET AND PERTURBED IONOSPHERE (MORFOLOGIIA
SPOKOINOI I VOZMUSHCHENNOI IONOSFERY). (A70-36084 18-13) EDITED BY S. E.

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., ASTRONOMY, ASTROPHYSICS,
PHYSICS

TOPIC TAGS--SOLAR ACTIVITY, LUMINESCENCE, SPECTRUM, SOLAR TELESCOPE,
SPECTROGRAPH, COMPUTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605029/811 STEP NO--UR/0000/70/001/000/0149/0153

CIRC ACCESSION NO--AT0141687

UNCLASSIFIED

CIRC ACCESSION NO--AT0141687   UNCLASSIFIED   PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A PROPOSED DEVICE
WHICH MAKES IT POSSIBLE TO RECORD SOLAR ACTIVITY SYNCHRONOUSLY WITH
OTHER VARIABLES BEING MEASURED IN A SOLAR SECTOR IN A FORM CONVENIENT
FOR INTRODUCTION INTO A COMPUTER. THE DEVICE DESCRIBED GIVES THE
SPECTRUM OF EACH POINT OF A SOLAR IMAGE IN SUCCESSION, MEASURES THE
INTENSITY OF THE LUMINESCENCE IN EACH SECTION OF THE SPECTRUM, RECORDS
THE MEASURED INTENSITY VALUES ON MAGNETIC TAPE, AND INTRODUCES THESE
VALUES INTO A COMPUTER. IT IS SUGGESTED THAT THE DEVICE EMPLOY
MECHANICAL SCANNING OF AN IMAGE OBTAINED FROM A SOLAR TELESCOPE IN
COMBINATION WITH A SPECTROGRAPH. IT IS RECOMMENDED THAT THE INTENSITY
OF THE INDIVIDUAL SECTIONS OF THE SPECTRUM BE MEASURED BY
PHOTOMULTIPLIERS WITH CODING DEVICES, THE OUTPUT SIGNALS OF WHICH ARE
RECORDED ON MAGNETIC TAPE.

UNCLASSIFIED

UDC 577.4

YEGOROV, YU. I., and KRYUCHKOV, V. N.

"Formalization of Logical Conditions in Sectorial Planning Production Models"

V sb. Optimal'n. planir. razvitiya i razmeshch. otrasley prom-sti (Optimal
Planning of Industrial Sector Development and Siting -- Collection of Works),
Part 1, Novosibirsk, 1972, pp 174-186 (from RZh-Matematika, No 6, Jun 73,
Abstract No 6V583 by YU. FINKEL'SHTEYN)

Translation: In the formulation of optimization production problems in long-
term sectorial planning the need often arises for a formal description of
various logical conditions. The article considers a number of cases where
the above-mentioned logical conditions are to be included in the set of con-
straints of a mixed-integer problem in linear programming; i.e., they have to
be written by means of linear constraints, in which all or some of the vari-
ables must be whole numbers. A production sectorial model in a variant
statement is taken as the base model. Different variants are given for
writing a logical condition which reflects the deriving of an economic effect
from the creation of a group of enterprises. Some other logical conditions

1/2

USSR

MIRZOYEV, A. T., RADZIYEVSKIY, V. S., Modelirovaniye protsessov vospriyatiya i raspoznavaniya svoystv ob"yektov pri dvushagovoy bazisnoy iyerarkhii, 1972, No 5562-73 Dep.

stage, introduction of the concept of congruent recognition relaxes the requirement for the trajectory to the level of coincidence of only $(k - \sigma)$ features, where σ is the maximum coefficient of distortion of similarity, [and k] is the maximum permissible number of variable features which are last in the series of abstract ordering. It is readily apparent that the concept formulated in this way permits an artificial intelligence to recognize a considerably greater number of objects (events, conditions) than is afforded by a limited amount of instructional material.

2/2   - 43 -

USSR

YEGOROV, Yu. I., KRYUCHKOV, V. N.

"Formalization of Logical Conditions in Production Models of Branch Planning"

Optimal'n. Planir. Razvitiya i Razmeshch. Otrasley Prom-sti Ch. 1 [Optimal Planning of Development and Placement of Branches of Industry, Part] -- Collection of Works], Novosibirsk, 1972, pp 174-186 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V583, by Yu. Finkel'shteyn).

Translation: In the statement of optimization production problems for future branch planning, it is frequently necessary to describe various logical conditions formally. A number of cases are studied when these logical conditions are to be included in the set of limitations of a partially integer problem of linear programming, i.e., should be written using linear limitations in which all or part of the variables must be integers. A production branch model in the multiple version statement is taken as the basic model. Various versions of writing of logical conditions reflecting the achievement of an economic savings by the creation of a group of enterprises are presented. Certain other logical conditions of more general form are studied, in particular, those which are a natural generalization of fixed payments; a specific example of formalization of a logical condition for a problem of optimization of construction

1/2

USSR

Yegorov, Yu. I., Kryuchkov, V. N., Optimal'n. Planir. Razvitiya i Razmeshch.
Otrasley Prom-sti Ch. 1, Novosibirsk, 1972, pp 174-186.

and functioning of a new mine is studied.

2/2

USSR

UDC 539.374

BOGOYAVLENSKIY, K. N., YEGOROV, YU. I., YEFIMOV, I. A., KHOROSHAYLOV, V. G.

"On the Possibility of Cold Rolling of EI437BU Alloy"

Translation: The results of a study to determine the resistance to deformation under conditions close to cold rolling are presented. The maximum possible degree of deformation before destruction of the samples under various load conditions, contact friction, and various heat treatments was determined. High plasticity is ensured after appropriate heat treatment, making it possible to recommend the cold rolling method for obtaining a feather profile from the EI437BU alloy. Authors' Abstract.

1/1

UDC: 621.396.6-181.5

USSR

YEGOROV, Yu. L.

"On Certain Procedural Problems in Microelectronics"

Sb. nauch. tr. po probl. mikroelektron. Mosk. in-t elektron. tekhn. (Col-
lected Scientific Works on Problems of Microelectronics. Moscow Institute
of Electronic Technology), 1970, vyp. 5, pp 218-228 (from RZh-Radiotekh-
nika, No 6, Jun 71, Abstract No 6V179)

Translation: The paper raises topical and interesting philosophical prob-
lems which may be solved on the basis of an investigation of the methods
of microelectronics. Considering microelectronics from general (philo-
sophical) viewpoints, the author comes to purely practical conclusions.
For instance, of considerable interest are conclusions on the advisability
of a systems approach to microcircuits, treating them as an object with
incomplete information. In this regard, it is recommended that methods
be used which have been developed for analogous situations in science and
technology. Resumé.

1/1

USSR

UDC 541.62+543.422+546.18

KATOLICHENKO, V. I., YEGOROV, Yu. P., BOROVIKOV, Yu. Ya., and GOLIK, G. A.,
Institute of Organic Chemistry, Academy of Sciences UkrSSR

"Study of the Conformation of Alkylphosphonic and Phosphoric Acid Esters"

Abstract: In a study conducted on dialkyl alkylphosphonates and trialkyl phos-
phates, the conformation was determined on the basis of dipole moments and the
ratio of conformation isomers on the basis of IR spectra. It was established
that the simplest dialkyl alkylphosphonates were present in a liquid phase
(solutions or melt) in the form of an equilibrium mixture of trans-gauche and
gauche-gauche conformation isomers, while trialkyl phosphates were present in
the form of a mixture of trans-trans-gauche and gauche-gauche-gauche isomers.
The energy difference of the isomers in the equilibrium mixtures was less than
0.5 kcal/mole. In the case of esters with long alkyl chains, more than two
conformation isomers were apparently present.

1/1

Acc. Nr.: AP0029509

YEGOROV Yu.L.

Ref. Code: UR 0391

PRIMARY SOURCE: Gigiyena Truda i Professional'nyye Zabolevaniya, 1970, Nr 1, pp 7-10

EFFECTIVENESS OF HEALTH MEASURES IN THE PRODUCTION OF SYNTHETIC FATTY ACIDS AND ALCOHOLS

Yu. L. Yegorov

Summary

The effectiveness of health measures implemented in the production of synthetic fatty acids and alcohols and recommended as the result of a study into working condition in previous years is assessed. Relatively simple steps enabled the concentrations of noxious substances in the atmosphere to reduce scores and hundred times, the noise factor having also been normalized to a considerable extent. Some reduction of the sick-rate involving temporary disability was registered among workers. Microclimatic conditions still continue to be unfavourable and demand further normalization.

REEL/FRAME

19681110

USSR

UDC 539.194 + 547.558.1

PEN'KOVSKIY, V. V., YEGOROV, Yu. P., and KHOMENKO, D. P., Institute of
Organic Chemistry, Acad. Sc. Ukrainian SSR, Kiyev

"Electronic Structure of Cyclotriphosphazenes and Phosphadiazines"

Abstract: The Hofmann's method was used to calculate energy properties and
the distribution of electron density of cyclotriphosphazenes and phospha-
diazines with various substituents. Phosphonitrile chloride trimer is not
an aromatic system; furthermore, no intracyclic P-P bonds have been observed.
The phosphodiazine molecules may be viewed as π-systems based on the pyrimi-
dine group with participation of the phosphorus atom; in this compound the
σ- and π-electron density is shifted towards the pyrimidine fragment. The
effect of substituents on the distribution of electronic density in phosphorus
containing cycles has been discussed.

1/1

USSR   UDC 535.34:543.42:541.8

BOLDESKUL, I. YE., YEGOROV, YU. P., MAKOVETSKIY, YU. P., RYL'TSEV, YE. V.,
and FESHCHENKO, N. G., Institute of Organic Chemistry, Academy of Sciences
USSR, Kiev

"Spectroscopical Investigation of the Reaction Mechanism of Phosphonium
Salts with Carboxylic Acids in Solutions"

Abstract: Intermolecular reactions of quaternary phosphonium salts

$(C_8H_{17})_4P^+Hal^-$ (Hal^- = I^-, Br^-, Cl^-) with proton donors stronger than alcohols
-- the carboxylic acids ($RCOOH$, R = CH_3, CCl_3, CF_3) were investigated in

CCl_4 solutions by means of IR spectroscopy. It has been shown that the

reaction occurs through the formation of a complex with the H-bond, and that
it is irreversible. A mechanism for this reaction has been proposed,
according to which a halide anion of the salt is exchanged for a carboxylate
anion. Since the rate of this process is symbatic with the proton donating
1/2

USSR

BOLDESKUL, I. YE., et al., Teoreticheskaya i Eksperimental'naya Khimiya,
Vol 9, No 3, May-Jun 73, pp 350-356

properties of these acids and with the proton accepting properties of the
salt H-bonds, it seems reasonable that the H-bond formation is the first
stage of this reaction.

2/2

- 26 -

YEGOROV, Yu. P.

- 488 -

TECHNICAL TRANSLATION

ARG | FSTC-HT-23-2015-72

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

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attempt has been made to verify the accuracy of any statement contained herein. This
translation is published with a minimum of copy editing and graphics preparation in order
to expedite the dissemination of information.

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Title Page -

YEGOROV, YU. P., KISILENKO, A. A., and SHOKOL, V. A., Institute of Organic Chemistry, Acad. Sc. UkrSSR, Kiyev

"IR-Spectra and Structure of Phosphorus Isocyanates"

Abstract: Continuing the studies of the Characteristics of chemical structure of phosphorus isocyanates, calculations have been carried out of the frequencies and forms of normal vibrations and the force field has been analyzed of a model molecule $Cl_2P(O)NCO$, the results being correlated with the IR spectral shifts of the assymetric valence vibration frequency of the NCO group. An increase in the force constant of the P-N bond and the characteristics of the changes in the IR spectra of phosphorus isocyanates can be interpreted on the basis of the participation of higher orbitals of the phosphorus atom in bond formations.

1/1

USSR

UDC 546.185

SHOKOL, V. A., GOLIK, G. A., LEVCHUK, Yu. N., YEGOROV, Yu. P., and DERKACH, G. I. (deceased), Institute of Organic Chemistry, Academy of Sciences, UkrainianSSR

"Acidolysis of Reaction Products of Amidoesters of Alkylphosphonic Acids With Phosphorus Pentachloride"

Abstract: Alkyldichlorophosphazo- and alkylaroxychlorophosphazodichloro-phosphonyls react with anhydrous formic acid yielding alkyldichlorophos-phazo- and alkylaroxychlorophosphazochloroxyphosphonyls. Acidolysis of trichlorophosphazotrichloromethylchlorophosphonyl yields the chloroanhydride of N-dichlorophosphonylamidotrichloromethylphosphonic acid. The structures of the products were proposed on the basis of NMR^{31}P and IR spectroscopic data. All of these products are dense liquids soluble in benzene, dioxane, and acetone, insoluble in petroleum ether.

1/1

USSR

UDC 541.67 + 547.558.1

PEN'KOVSKIY, V. V., YEGOROV, YU P., ZHMUROVA, I. N., MARTYNYUK, A. P., and SHURUBURA, A. K., Institute of Organic Chemistry, Acad. Sc. UkrSSR, Kiyev

"Distribution of Electronic Density in Anion Radicals Containing Triarylphosphazo Groups"

Abstract: Eight anion radicals of the type $(p\text{-}RC_6H_4)_2(p\text{-}R'C_6H_4)P{:}N\text{-}C_6H_4NO_2\text{-}p$ generated by the electrochemical method in acetonitrile have been studied by means of EPR. In all cases a split was noted on the p^{31} nucleus indicating π-electronic interaction of the P:N group with p-nitrophenyl residue of the anion radical. This effect can be explained only on the basis of $d\pi\text{-}p_\pi$ interaction. The effects of various electron donor and electron acceptor R and R' on the distribution of spin density has been compared. Qualitative explanation of this effect has been proposed based on the mobility of π-electrons of the imino nitrogen and a direct polar conjugation of the phosphazo group with the nitro group. The values of the splitting constants at the p^{31} nucleus are not correlated with the σ-constants of R and R'.
1/1

- 58 -

USSR

PEN'KOVSKIY, V. V., YEGOROV, Yu. P., YURCHENKO, R. I., and MARTYNYUK, A. P., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Electron Transfer From Phosphazoarenes to Acceptor Molecules"

Abstract: In the reactions of phosphazoarenes with tetracyanoethylene and chloranil an electron transfer takes place from the phosphazoarene molecule to the electron accepting one. The stable anion radicals formed have been observed by means of EPR. The concentration of paramagnetic centers in the systems studied increases with growing alkalinity of the phosphazo compounds.

1/1

USSR   UDC 541.67

ROMANENKO, E. A., EGOROV, Yu. P., KORNUTA, P. P. (Institute of Organic
Chemistry, USSR Academy of Sciences, Kiev)

"Nuclear Quadrupole Resonance and Characteristics of Structure of Substi-
tuted Phosphapyrimidines"

Abstract: The electron structure of a new class of organophosphorus com-
pounds -- phosphapyrimidines -- was studied. Data on the nuclear quadrupole
resonance of the ^{35}Cl nuclei showed a cyclic structure of the molecules and
the additive nature of the transmission of the effect of the substituent
on the electron density distribution on the atoms of the chlorine group,
$> PCl_5$. In accordance with the theory of Townes and Daily (J. Chem. Phys.
23: 118 (1955)), the degree of the multiplicity factor and ion formation
at the C-Cl bond was evaluated, and the significant effect of the ring
N atom on the degree of the multiplicity factor at this bond was found.
Analysis of ^{31}P nuclear quadrupole resonance data indicated that the P=N
bond of the ring is somewhat weaker than in triphosphonitrile chloride.
1/1

USSR   UDC 535.34:543.42:541.8

BOLDESKUL, I. E., EGOROV, Yu. P., MAKOVETSKII, Yu. P., RYL'TSEV, E. V.,
FESHCHENKO, N. G. (Institute of Organic Chemistry, UkrSSR Academy of
Sciences, Kiev)

"Inter-ion Oscillations in Phosphonium Salts Studied With Long-Wave IR
Absorption Spectra"

Abstract: Long-wave IR spectroscopy was used to study the properties of
the inter-ion bond of tri- and tetra-alkyl phosphonium halides. Dipole-
dipole association of ion pairs -- phosphonium salts caused a decrease in
the elasticity of the cation-anion bond. In tertiary phosphonium salts
this bond was less strong than in the corresponding ammonium salts,
probably because the P-H group is a weaker proton donor to the H bond
than is the N-H. The frequencies of the γ_σ cation-anion oscillation
in the quaternary phosphonium and ammonium salts were the same within
the limits of error of the determination.

1/1

- 32 -

USSR

SHOKOL, V. A., GOLIK, G. A., LEVCHUK, Yu. N., YEGOROV, Yu. P., and
DERKACH, G. I. (Deceased), Institute of Organic Chemistry, Academy of
Sciences, UkrSSR

"Structure of the Reaction Products of Amidoesters of Alkylphosphonic
Acids With Phosphorus Pentachloride"

Abstract: Reactions of phosphorus pentachloride with the amides of ethyl
and aryl esters of methyl-, chloromethyl-, dichloromethyl-, and trichloro-
methyl phosphoric acid were studied in an attempt to determine under what
conditions isometic products could be obtained. Analyzing the products
by the IR, NMR^{31}P, and NMR ^{1}H spectroscopical methods, it was shown that
depending on the alkyl radical attached to the phosphorus atom, the
reaction products could either be trichlorophosphazoalkylchloro- and
alkylaroxyphosphonyls, or their isomers -- alkyldichloro- and alkyl-
aroxychlorophosphazodichlorophosphonyls or their mixture.

1/1

USSR

UDC 541.579

YEGOROV, Yu. P., KATOLICHENKO, V. I., BOROVIKOV, Yu. Ya., FESHCHENKO, N. G., and SEMENIY, V. Ya., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR, Kiev

"Dipole Moments of Phosphorus Acids Derivatives"

Abstract: The dipole moments (μ) of trialkylphosphines, trialkylphosphine oxides, and esters of phosphorus acids were measured. The electron density and stereochemistry are examined. The precise value of μ for these molecules permitted a new value for the moments of the P-X bonds ($X=C_{sp}2^{+}$, $C_{sp}3^{+}$, O^{-}, Alk^{+}, $=O^{-}$, Cl^{+}, F^{+}) to be calculated. The data are given in two tables which show the interrelationships among the measured parameters and the literature values.

1/1

USSR

UDC 541.67

TARASEVICH, A. S., YEGOROV, Yu. P.

"The Problem of Estimating the p_π-d_π Contribution of the Phosphorus Atom in Symmetrically Substituted Phosphines"

Abstract: The literature contains contradictory estimates of the number of π electrons per P atom in phosphines. An earlier work which compared the suitability of various atoms for p_π - d_π interactions by means of IR spectroscopy showed that the reactivity decreases in the sequence F > Cl > Br > I. This article demonstrates that this same sequence can be produced by the calculation method of Letcher and Van Wazer, which has produced the opposite result, by means of a slight modification. The authors feel that their corrections produced a more realistic relationship of the values of π contributions of phosphorus for symmetrically placed phosphines.

1/1

YEGOROV, Yu. P., RYL'TSEV, Ye. V., TARASEVICH, A. S.

"Electron-Acceptor Properties of Four-Coordination Phosphorus in Intermolecular Reactions"

Abstract: Organic compounds containing four-coordination phosphorus with phosphoryl, thiophosphoryl and imine bonds with the general form $P = X$ have exceptionally high tendencies toward the formation of molecular complexes and associates. This tendency of these compounds has been related to the uneven distribution of the charge in the $P = X$ bond, to the significant transfer of electron density to the $X:P^+ - X^-$ group. Although it has been presumed in the literature that intermolecular bonds are formed in which the P atom acts as an electron acceptor, no direct confirmation has ever been presented. The purpose of the present work is to confirm this assumption by studying the mechanisms of intermolecular interaction -- the first stage in the process of chemical conversion -- using a number of oxides ($R_3P = 0$) as examples. The studies were performed by IR-spectroscopy of the compounds dissolved in cyclohexane with the electron donor compounds added to the solution. The studies confirmed that organophosphorus compounds with the four-coordination phosphorus atom can participate in the formation of molecular aggregates by accepting electrons at this atom. If this interaction is the
1/2

first stage in an elementary chemical conversion, in the limiting case the electrophilicity of these compounds is determined by the freedom of the phosphorus atom to accept electrons.

2/2

— 45 —

USSR

NUZHDINA, Yu. A., and YEGOROV, Yu. P., Institute of Organic Chemistry Acad. Sc. UkrSSR

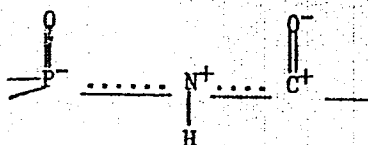"Structure and Spectra of the Phosphorylated Amides and Urethanes"

Abstract: Earlier studies have shown a shift in the IR spectra of the -NHCO-- group of phosphorylated amides and urethanes as compared to corresponding alkyl compounds. The P-N valence vibration also appeared at a higher frequency. An assumption was made that this was due to the conjugation of an unshared pair of electrons of the nitrogen atom with the vacant 3d-orbital of the phosphorus atom or by $d_\pi-p_\pi$-conjugation. The frequencies and forms of the normal vibrations of fragments $Cl_2P(O)NHCOC'$ and $Cl_2P(O)NHCOO'$ (C' = CCl_3, and O' = OCH_3) were calculated as well as the distribution of the potential energy along the actual vibrational coordinates in an attempt to find out whether the shifts in the vibrational frequencies are due to electron shifts leading to a change in the field of a molecule, or to a change of kinematic parameters. It has been shown that the electron density is delocalized within the skeleton of the phosphorylated amides, shifting

1/2

USSR

partially towards the carbonyl oxygen. The following model is proposed for
the electronic structure of these molecules:

2/2

USSR

UDC 541.67

TARASEVICH, A. S., and YEGOROV, YU. P., Institute of Organic Chemistry,
Academy of Sciences Ukr. SSR, Kiev

"Determination   by the ^{31}P Nuclear Magnetic Resonance Method of the Order of
the P=N Bond of Phosphazo Derivatives"

Abstract: The method proposed by J. H. Letcher and J. R. Van Wazer (J. Chem.
Phys., Vol 44, 815, 1966; vol 45, 2916, 2926, 1966) was applied to the mole-
cules of 18 compounds R'R"R"'P=NR for which values of the chemical shift
δ ^{31}P that followed from nuclear magnetic resonance determinations were
available (cf. ^{31}P Nuclear Magnetic Resonance, Chapter 2, Vol 5, Topics in
Phosphorus Chemistry, New York - London - Sydney, 1967). On the basis of the
experimental values of δ ^{31}P, the p π - d π contributions of the
substituents R', R", R"' at P as well as of NR and the order P_{NR} of the π bond
P=N were determined for the compounds in question (table). The electronega-
tivities χ_{NR} that were calculated satisfied the rule $\chi_s \angle \chi_{NR} \angle \chi_0$.
The authors thank V. V. Mank for assistance in experimental work in connection
with determinations of δ ^{31}P.   1/1

- 26 -

USSR

TARASEVICH, A. S., and YEGOROV, YU. P., Institute of Organic Chemistry
Academy of Sciences Ukr. SSR, Kiev

"A Theoretical Estimation of the Dipole Moments of Some Phosphines with Condieration of the p_π - d_π - Contribution"

Abstract: The dipole moments μ (s,p) of compounds PZ_3 (Z = H, Me, F, Cl) were calculated by a procedure based on R. Hoffman's method (J. Chem. Phys. Vol 39, 1397, 1963). The values obtained were in good agreement with experimental values of the dipole moment for PH_3 and PMe_3, but much too high for PF_3 and PCl_3. On considering the contribution of the p_π - d_π conjugation, values of μ (s,p,d) were obtained that were in satisfactory agreement with experimental values of the dipole moment for all four compounds (table).

1/1

Photographic

USSR

YEGOROV, YU. P., PAN'SHIN, I. A., STEPANOV, B. M., FABRIKOV, V. A.

UDC 778.39:778.534.425

"Photography on Magnetic Films of Large Size"

Abstract: An experimental study to test the possibility of recording an optical image of dimensions 50×50 mm^2 by low intensity light pulses (10^{-7} sec) on a magnetic film with a band domain structure are described. The possibility of applying thin ferromagnetic films with a band domain structure to photograph objects in a pulsed irradiation regime was shown in 1969. Radiant energy scattered from the surface of the object to be photographed is recorded by the magnetic film in the form of the distribution of angles of rotation of the domains in segments of the film with a different degree of irradiation. Nonselectivity of the magnetic films to the radiation wavelength in the thermal recording method makes it possible to record images over a wide spectral range, including the infrared, and the sensitivity over this whole range is comparable

1/2

USSR

YEGOROV, YU. P., et al, Zhurnal nauchnoy i prikladnoy fotografii i kinema-
tografii, No. 6, Nov/Dec 71, pp 443-445

to the sensitivity of photographic films. In the 1969 study recordings were
made on an iron-nickel film of dimensions 15 × 15 mm². The light source was
a neodymium glass laser in the free generation regime with a pulse length of
1 msec and the image was visualized by a magnetic colloid. For practical
purposes it was of great interest to increase the dimensions of the recorded
image and to decrease the exposure time. A special technique to keep the
composition of the iron-nickel alloy constant over the entire surface of the
glass substrate was developed that kept the deviation of the composition in
the magnetic film from the composition of the initial alloy less than 0.2%.
To reduce exposure time a method of sequential recording of individual sec-
tions of the image was applied, the boundaries of which overlapped. The
rated heat diffusion from the exposed segments was large in comparison with
the repetition rate of the pulses and therefore the cumulative effect on the
overlapping sections of the film was eliminated. A photograph is given show-
ing the image on a 50 × 50 mm² film.

2/2

USSR

UDC 543.253+541.138.3

PEN'KOVSKIY, V. V., YEGOROV, Yu. P., and SHAPOVAL, G. S., Institute of
Organic Chemistry, Acad. Sc. Ukrainian SSR

"Electrochemical Reduction of Phosphazoarenes in Dimethylformamide"

Abstract: Electrochemical reduction of phosphazo compounds is a stepwise
process, characterized by several polarographic waves. The first stage of
the electrochemical reduction of triphenylphosphazoarenes in dimethylforma-
mide consists of the formation of anion free radicals. The first functional
group to be reduced, when it is present in the molecule, is the nitro group;
next the P:N bond is reduced, the reaction occurring irreversibly. When
phosphazosulfinyl compounds are studied, the first to be reduced after the
nitro group is the S:O bond. The electron effect of the triphenylphosphazo
or the sulfinyl groups may be affecting the behavior of the nitro group in
ortho- or meta- position with respect to the second substituent during the
electrochemical reduction.

1/1

USSR

UDC 547.26'127

BOROVIKOV, YU. YA., RYL'TSEV, YE. V., BOLDESKUL, I. YE., FESHCHENKO,
N. G., MAKOVETSKIY, YU. P., YEGOROV, YU. P., Institute of Organic
Chemistry, Kiev, Academy of Sciences Ukrainian SSR

"Dielkometric Study of Trialkylphosphine Derivatives"

Abstract: A study of the interaction between the molecules of tri-
alkylphosphine oxides and their analogues in solutions by the
method of dielectric permeability is reported. Trialkylphosphine
oxides, trioctylphosphine sulfide, -selenide, -telluride and
tetraalkylphosphine iodide were investigated. It was determined
that the dipole moments and atomic polarizations of the trialkyl-
phosphine oxides depend on the length of the hydrocarbon chain.
The dipole moments of trioctylphosphine oxide, -sulfide, -selenide,
and -telluride were identical within experimental error. Tri-
octylphosphine oxide and tetraoctylphosphine iodide are associated
according to the antiparallel type in solvents of low dielectric
1/2

USSR

permeability. The degree of association of trioctylphosphine
oxide is higher in carbon tetrachloride than in benzene, and in
chlorobenzene, trifluorobenzene, and acetone it is monomeric. The
association of tetraoctylphosphine iodide persists even in solvents
with high ϵ; their dipole moments are close to values corresponding
to complete charge transfer from P to I.

2/2

- 80 -

USSR   UDC 547.26·118

SHOKOL, V. A., GOLIK, G. A., TSYBA, V. T., YEGOROV, YU. P.,
DERKACH, G. I. (DECEASED), Institute of Organic Chemistry, Kiev,
Academy of Sciences Ukrainian SSR

"Phosphoazoalkylphosphonic Acid Esters"

Abstract: Reaction of trialkylphosphites, triamidophosphites,
dialkyl- and diamidophosphonites, and triphenylphosphine with the
azides of alkylphosphonic acid esters yields esters of phosphazo-
alkylphosphonic acids -- compounds with pesticidal activity. The
reaction is exothermic and occurs easily at room temperature either
in ether or in benzene. After evaporation of the solvent, liquid
phosphazophosphinyls are obtained. Depending on heating conditions,
the esters of trialkyl- and methyldialkylphosphazoalkylphosphonic
acids rearrange into diesters of the alkyldialkoxyphosphazo-
phosphoric acid or into esters of N-alkyl-N-dialkylphosphonoamido-
alkylphosphonic acid. In all cases the side products consist of the
1/2

USSR

SHOKOL, V. A., et al, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70, pp 1680-1691

diethyl ester of methylphosphonic acid and a yellow, viscous fluid, probably polyphosphorene formed by condensation. Detailed analysis of the IR and NMR spectra of the above compounds is reported and characteristic bands and shifts are listed. Physical properties of the products obtained are tabulated, but no biological data are reported.

2/2

1/2   029   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--CHEMICAL STRUCTURE OF ALPHA,BETA,DIFLUOROSTILBENES -U-

AUTHOR-(03)-YEGOROV, YU.P., KHRANOVSKIY, V.A., YAGUPOLSKIY, L.M.

COUNTRY OF INFO--USSR

SOURCE--TEOR. EKSP. KHIM. 1970, 6(1), 90-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FLUORINATED ORGANIC COMPOUND, STILBENE, CONJUGATE BOND SYSTEM,
   MOLECULAR STRUCTURE, BENZENE DERIVATIVE, UV SPECTRUM, IR SPECTRUM, RAMAN
   SPECTRUM, CYCLIC GROUP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1070   STEP NO--UR/0379/70/006/001/0090/0094

CIRC ACCESSION NO--AP0128497
                         UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0128497
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UV, IR, AND RAMAN SPECTRA OF
  ALPHA,BETA,DIFLUOROSTILBENE (I) AND ITS 4,4',DI,ME DERIV. (II) ARE
  COMPARED TO THOSE OF 1,2,DIPHENYLETHYLENE.   FLUORO SUBSTITUTION CAUSES
  A SUPERIOR CONJUGATION ON THE CENTRAL DOUBLE BOND, BUT WEAKENS THE
  EXOCYCLIC C-C BONDS.   WITH BOTH I AND II, TRANS CONFIGURATIONS AND
  TWISTED PHENYL GROUPS (BY 25DEGREES FROM THE MOL. PLANE) WERE FOUND.
    FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

1/2   019   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--ANION RADICALS OF PHOSPHAZO COMPOUNDS. CONDUCTIVITY OF S AND SO
   BRIDGE GROUPS -U-
AUTHOR-(05)-PENKOVSKIY, V.V., KUZMINSKIY, B.N., YEGOROV, YU.P., ZHMROVA,
   I.N., MARTYNYUK, A.P.
COUNTRY OF INFO--USSR

SOURCE--TOER. EKSP. KHIM. 1970, 6(1), 94-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON DENSITY, EPR SPECTRUM, ORGANIC PHOSPHORUS COMPOUND,
   AZO COMPOUND, SULFUR OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0910   STEP NO--UR/0379/70/006/001/0094/0097

CIRC ACCESSION NO--AP0137938
                  UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NO--AP0137938   PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRON D. DISTRIBUTION WAS
STUDIED, BY EPR SPECTROSCOPY, IN COMPDS. TREATED ELECTROCHEM. TO PRODUCE
ANION RADICALS. THUS TREATED WERE I (R PRIME1, R PRIME2, R PRIME3, AND
R PRIME4 GIVEN): N:PPH SUB3, H, H, NO SUB2; SN:PPH SUB3, H, H, NO SUB2;
SN:PPH SUB3, NO SUB2, H, H; SN:PPH SUB3, NO SUB2 H, NO SUB2; S(O)N:PPH
SUB3, H, H, NO SUB2; SN:PPH SUB3, H, NO SUB2, H; S(O)N:PPH SUB3, NO
SUB2, H, H; SNH SUB2, H, H, NO SUB2; SNME SUB2, H, H, NO SUB2. THE
COND. OF THE SO BRIDGE IS MUCH LOWER THAN THAT OF THE S BRIDGE. THE
FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

USSR

YEGOROV, YU. P.

"Influence Of Atmospheric Fluctuations On Heterodyne Reception Of Two-Frequency Signals In Optical Wave Band"

Abstract: The paper considers the effect of atmospheric fluctuations on the operation of a heterodyne receiver of two-frequency optical signals. The block diagram of such a receiver is discussed. The signal-to-noise ratio is calculated at the output of the receiver during passage of the signal beam through the atmosphere and the dependence of this ratio on the area of the input aperture of the receiver is found. 3 fig. 7 ref. Received by editors, 25 June 1971.

1/1

USSR   UDC 546.821'.185:66.074.7

DRANITSINA, N. V., YEGOROV, YU. V., and FOMINYKH, V. YA., Ural
Polytechnical Institute imeni S. M. Kirov

"Application Synthesis of Ionites Based on Titanium Phosphate"

Abstract: Inorganic ion exchangers are synthesized on the basis
of titanium phosphate using the method of application with ions of
trivalent Ce, Fe, and Cr. Their composition is studied as a
function of the conditions of their synthesis (pH of precipita-
tion, P_2O_5:TiO_2 ratio in initial solutions, influence of third

component). An increase in specificity of the applied titanium
phosphate to ions of trivalent elements is established. It is
demonstrated that the titanium phosphate is resistant to the
effects of corrosive media.

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USSR

UDC 546.834'185-386

SUKHAREV, Yu. I., YEGOROV, Yu. V., and PUSTOVALOV, N. N.

"Synthesis and Composition of Niobium Phosphate Ion Exchange Resins"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 4, Apr 71, pp 1026-1030

Abstract: The material was synthesized by a rapid mixing of an acid solu--
tion of sodium phosphate and basic solution of potassium niobate. The
amount of concentrated HCl added to the solution of disubstituted sodium
phosphate was governed by the optimal pH required at the equilibrium point.
In the applicational synthesis the applicator was added in the amount needed
to reach equilibrium in respect to the agent being applied. To prevent
precipitation of $Ce^{'''}$, $Fe^{'''}$ and $Cr^{'''}$ phosphates, the coprecipitation
was carried out in a medium in which these phosphates could not precipi--
tate. To prevent coprecipitation of the applicator phosphate with niobium
phosphate, the third component was added after precipitation of niobium
phosphate. The gel obtained was left overnight for completion of the
process. Then the material was decanted, filtered, dried and milled, the
0.1-0.2 mm fraction being collected. The applicator was then washed out
with 0.5 N HCl until a negative test was obtained for the applicator ions.
1/2

USSR

SUKHAREV, Yu. I., et al., Zhurnal Neorganicheskoy Khimii, Vol 16, No. 4,
Apr 71, pp 1026-1030

Finally the exchange resin was washed with acid for a period of 6-8 weeks.
The applicational synthesis gave material with considerably higher phos--
phorus content in the solid phase of hydrated niobium phosphate.   Structures
for the material obtained by the two methods have been proposed.

2/2

UDC 621.375.8

USSR

VOLKOV, V. G., YEGOROV, YU. V.

"A Parametric Amplifier of Biopotentials With Input Capacitance Compensation"

Moscow, V sb. Elektron. pribory dlya neyrofiziol. issled. (Electronic Equipment for Neurophysiological Research -- collection of articles), "Nauka," 1969, pp 22-26 (from RZh-Radiotekhnika, No 4, 1970, Abstract No 4D290)

Translation: A portable transistor amplifier of biopotentials is developed with signal conversion at a carrier frequency of 1.9 MHz. Varicaps are used as the controlled elements. The radio frequency output of the amplifier made it possible to obtain a high degree of symmetry in the biopotential drain-off circuits with respect to ground and the coefficient of rejection of synphasic disturbance on the order of 60 db. In the case of signal frequency (0.2 -- 10,000 Hz), the amplifier shows high input resistance (at a frequency of 20 Hz $R_{bx} \approx 400$ Mohm) which makes it possible to use it for intracellular drain-off. The amplifier is

1/2

USSR

VOLKOV, V. G., et al, Elektron. pribory dlya neyrofiziol. issled., "Nauka," 1969, pp 22-26.

spanned by negative feedback with respect to direct current and at signal frequency. In addition, the amplifier is spanned by a frequency-dependent controlled positive coupling which evokes an input capacitance compensation effect, decreasing capacitance from 40 to 3 pf. Compensation of input capacitance and high input resistance make it possible to use glass microelectrodes for drain-off with a resistance down to 40 -- 50 Mohm. Original article: 2 illustrations. Resume.

2/2

- 3 -