

2/2 023

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125601

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE ROTATION STRENGTH (RI), THE TRANSITION, THE DICHROISM (D), AND THE DEGREE OF CIRCULAR POLARIZATION (C) WERE STUDIED IN THE SERIES MEUD SUB2, (C SUB2 H SUB5 CD SUB2) SUB3 (HE EQUALS K, 7H SUB4, RB, CS, AND NA). LINEAR RELATIONS WERE FOUND BETWEEN RI AND THE CATION DIMENSION AND BETWEEN RI AND C AND D. THE DEPOSITION OF ENERGY LEVELS IN UD SUB2 IS DISCUSSED. FACILITY: MOSK. FIZ. TEKH. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

BURKOV, V. N., KARTASHOVA, O. Ye., KATSNEL'SON, M. G., NURKHAYDAROV, B. Kh.

"Problem of Control of Consumption of Finished Products and Algorithm for its Solution"

Izv. AN KazSSR. Ser. fiz.-mat. [News of Academy of Sciences, KazSSR, Physics-Mathematics Series], 1973, No 1, pp 7-13 (Translated from Referativnyy Zhurnal - Kibernetika, No 8 V568 by the authors)

Translation: The problem is studied of operative planning of consumption of finished products at enterprises with limited intermediate capacities. The problem is reduced to the transport problem with limitations on throughput capacity of communications lines. An algorithm is suggested for its solution, considering the greatly extended nature of the matrix of expenditures.

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USSR

BURKOV, V. N., IVANOVSKIY, A. G., GORGIDZE, I. A.

"Some Problems of Control of Active Systems"

Aktual'n. Vopr. Tekhn. Kibernetiki [Pressing Problems of Engineering Cybernetics -- Collection of Works], Moscow, Nauka Press, 1972, pp173-175 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V592, by the authors).

Translation: The application of the principles of "open control" to the solution of problems in control of active systems is studied. n active elements are given, the capabilities of which are defined by plans with priorities S_{ij} ($i = 1, 2, \dots, n, j = 1, 2, \dots, m$). Conditions of full agreement of the active system (agreement factor equal to unity) are defined. For the case $C_{ij} = C_j$, the possibility is proven of full agreement, and an algorithm for solution of the problem is presented.

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USSR

BURKOV, V. N. and OPOYTSEV, V. I., Moscow

UDC 65.012.1:519.2

"A Metagame Approach to the Control of Hierarchical Systems"
Moscow, Avtomatika i Telemekhanika, No 1, Jan 74, pp 103 - 114

Abstract: The real economic situation of a central administration and a number of subunits can be considered a game in which one player sets the rules. To the extent that economic subunits have their own goals, they cannot be relied upon to conform completely to the purposes of the central administration or to supply completely accurate information. Although the classical games theory does not enable us to select the type of solution in this type of situation which is most satisfactory from the viewpoint of the controlling player, various external considerations indicate that the Nash point equilibrium is an appropriate goal. The controlling player thus attempts to set the rules such that his payoff at the Nash point will be maximized, with the provision that the equilibrium at that point should be globally stable. This is illustrated using a fairly simple model of the distribution of a one-dimensional resource; in the general case the problem is extremely complex.

Under stable or relatively stable conditions in which the central administration invests its resource where the best return can be obtained, it can be shown that competition will lead the subordinate units to provide increasingly accurate

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"APPROVED FOR RELEASE: 08/09/2001

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APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002200510018-2

USSR

BURKOV, V. N. and BURKOV, V. N.

"Control of Operation Combinations With Supply Taken into Account"
Moscow, Tr. 4-y Zimm. shkoly po mat. programmir. i smezhn. vopr.
Drogobych, 1971. Vyp. 3 (Transactions of the Fourth Winter School
on Mathematical Programming and Related Problems, Drogobych, 1971,
No 3) 1972, pp 134-145 (from RZh--Matematika, No 1, 1974, Abstract
No 1V554)

UDC: 51

Translation: A complex of operations is specified by the network
 $G = G(V, U)$, where V is a set of vertices corresponding to the
operations of the complex and U is a set of arcs corresponding to
the technical limitations of some of the operations; the supply of mate-
rials (spare parts and the like) is necessary; operations, more-
over, cannot begin until the deliveries are made. Intensity of de-
mand for the performance of the operations at each moment in time
the rate of performance of the operations are introduced
time for performance of the complex are introduced
to determine the volume of the operations and

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BURKOV V. N. and GORGIDZE, I. A.

UDC: 62-506

"The Adaptive Planning Principle in Active Systems"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, vol 64, No 3,
December 1971, pp 553-556

Abstract: A formal description of the active element as a model of the man-machine system is considered in which the state x of the active element is a scalar random quantity, and the limiting possibilities of the element are described by the limiting distribution $F(x)$. A characteristic of the man-machine system is the capability of operating below the limiting possibilities in the absence of interestedness. This characteristic can then be taken into account by determining the distribution function $F(\omega, x)$; where ω is a parameter of the selected active element; and $F(\omega, x)$ has the value of $F(x)$ if $x < \omega$, and 1 if $x \geq \omega$. The active element may be a business enterprise or a sovkhos, while x corresponds to the production output or the quantity of the harvest. The formal description thus developed serves as the starting point for analyzing the system in the adaptive planning mode. The authors express their gratitude to S. V. Yemel'yanov, Corresponding Member of the USSR Academy of Sciences, for his advice. They are

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USSR

UDC: 62-506

BURKOV, V. N., et al, Soobshcheniya Akademii nauk Gruzinskoy SSR
vol 64, No 3, Dec 71, pp 553-556

affiliated with the Institute of Control Problems (Automation and
Telemechanics), USSR Academy of Sciences, and the Computer Center,
Georgian SSR Academy of Sciences.

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CSO: 1863-W

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BURKOV, V. N.

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OPEN CONTROL, MULTIPLE

11-11-11

1. Active Systems

1. ACETIVE SYMPTOMS

The basic feature of complex multilevel management systems is the property of activity which operates in two following:

- a) The system acts in its own interest, that is, it strives to achieve defined goals (both present and future).
- b) The system uses the capability to predict.
- c) The system knows its internal capabilities more precisely than the control system of the upper levels (from which, in particular, comes the need to develop new capabilities to achieve the goals of the upper level systems, to realize for the upper level systems a coordinate lower level system).
- d) The system is informed about the technological principles at the upper levels and uses this information in all operating steps (we shall distinguish three steps of functioning of the system -- the data gathering step, the planning step and the plan execution step).

b) The system was the computer to produce

c) The system knows its internal capabilities more precisely than the control system of the upper levels (from which, in particular, comes the necessity for the upper level systems to rather data on the capabilities of subordinate lower level system).

d) The system is informed about the development of the plant along all layers, levels and water film information in all operating steps (see shall distinguish three steps of functioning of the system – the data gathering step, the planning step and the plan execution step).

U.S. GOVERNMENT PRINTING OFFICE: 1964

[illegible]

1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CORRELATION OF THE LUMINESCENT AND GYOTROPIC PROPERTIES OF URANYL
COMPOUNDS WITH THEIR STRUCTURES -U-
AUTHOR--(05)-BURKOV, V.I., KIZEL, V.A., KRASILOV, YU.I., MADIY, V.A.,
AKIKHANOVA, Z.M. *B*
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 572-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--LUMINESCENCE, URANIUM COMPOUND, MOLECULAR STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/2013 STEP NO--UR/0048/70/034/003/0572/0575
CIRC ACCESSION NO--AP0125601
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125001

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ROTATION STRENGTH (RI), THE TRANSITION, THE DICHROISM (D), AND THE DEGREE OF CIRCULAR POLARIZATION (C) WERE STUDIED IN THE SERIES MEUD SUB2, (C SUB2 H SUB5 C3 SUB2) SUB3 (ME EQUALS K, NH SUB4, RB, CS, AND NA). LINEAR RELATIONS WERE FOUND BETWEEN RI AND THE CATION DIMENSION AND BETWEEN RI AND C AND D. THE DEPOSITION OF ENERGY LEVELS IN UD SUB2 IS DISCUSSED. FACILITY: MOSK. FIZ. TEKH. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

BURKOV, V. N., KARTASHOVA, O. Ye., KATSNEL'SON, M. G., NURKHAYDAROV, B. Kh.

"Problem of Control of Consumption of Finished Products and Algorithm for its Solution"

Izv. AN KazSSR. Ser. fiz.-mat. [News of Academy of Sciences, KazSSR, Physics-Mathematics Series], 1975, No 1, pp 7-13 (Translated from Referativnyy Zhurnal - Kibernetika, No 8 V568 by the authors)

Translation: The problem is studied of operative planning of consumption of finished products at enterprises with limited intermediate capacities. The problem is reduced to the transport problem with limitations on throughput capacity of communications lines. An algorithm is suggested for its solution, considering the greatly extended nature of the matrix of expenditures.

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USSR

UDC 65.012.1:519.2

BURKOV, V. N. and OPOYTSEV, V. I., Moscow

"A Metagame Approach to the Control of Hierarchical Systems"

Moscow, Avtomatika i Telemekhanika, No 1, Jan 74, pp 103 - 114

Abstract: The real economic situation of a central administration and a number of subunits can be considered a game in which one player sets the rules. To the extent that economic subunits have their own goals, they cannot be relied upon to conform completely to the purposes of the central administration or to supply completely accurate information. Although the classical games theory does not enable us to select the type of solution in this type of situation which is most satisfactory from the viewpoint of the controlling player, various external considerations indicate that the Nash point equilibrium is an appropriate goal. The controlling player thus attempts to set the rules such that his payoff at the Nash point will be maximized, with the provision that the equilibrium at that point should be globally stable. This is illustrated using a fairly simple model of the distribution of a one-dimensional resource; in the general case the problem is extremely complex.

Under stable or relatively stable conditions in which the central administration invests its resource where the best return can be obtained, it can be shown that competition will lead the subordinate units to provide increasingly accurate
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BURKOV, V. N. et al., Moscow, Avtomatika i Telemekhanika, No 1, Jan 74, pp 104-114

information about their capacities. If the central administration adopts what is called a "minimum reasonable management" strategy, the equilibrium point will ultimately tend to be the maximum return point. Improving the strategy beyond the minimum does not lead to a significantly better ultimate result.

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USSR

UDC: 51

BURKOV, V. N. and IRIKOV, V. A.

"Control of Operation Combinations With Supply Taken into Account"

Moscow, Tr. 4-y Zimn. shkoly po mat. programmir. i smezhn. vopr. Drogobych, 1971. Vyp. 3 (Transactions of the Fourth Winter School on Mathematical Programming and Related Problems, Drogobych, 1971, No 3) 1972, pp 134-145 (from RZh--Matematika, No 1, 1974, Abstract No 1V554)

Translation: A complex of operations is specified by the network $G = G(V, U)$, where V is a set of vertices corresponding to the operations of the complex and U is a set of arcs corresponding to the technical limitations on the order of the operations performed. For the performance of some of the operations, the supply of materials (spare parts and the like) is necessary; operations, moreover, cannot begin until the deliveries are made. Intensity of demand for the resources by the operations at each moment in time, the rate of performance of the operations, their duration, and the time for performance of the complex are introduced. It is required to determine the volume of the operations and construct a calendar

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BURKOV, V. N. and IRIKOV, V. A., Tr. 4-y Zimm. shkoly po mat. programir. i s
smezhn. vopr. Drogobych, 1971. Vyp. 3, 1972, pp 134-145

plan for completing the complex, in which limitations on the resources are
filled and some special function of expenses is minimized. The methods and
algorithms of an exact solution for a number of particular cases of this prob-
lem are considered. A detailed discussion is given of the practical applica-
tions in the example of the repair of silver-casting plants on the scale of
a mine. Ye. Levner.

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USSR
BURKOV, V. N. and GORGIDZE, I. A.

UDC: 62-506

"The Adaptive Planning Principle in Active Systems"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, vol 64, No 3,
December 1971, pp 553-556

Abstract: A formal description of the active element as a model of the man-machine system is considered in which the state x of the active element is a scalar random quantity, and the limiting possibilities of the element are described by the limiting distribution $F(x)$. A characteristic of the man-machine system is the capability of operating below the limiting possibilities in the absence of interestedness. This characteristic can then be taken into account by determining the distribution function $F(\omega, x)$; where ω is a parameter of the selected active element; and $F(\omega, x)$ has the value of $F(x)$ if $x < \omega$, and 1 if $x \geq \omega$. The active element may be a business enterprise or a sovkhos, while x corresponds to the production output or the quantity of the harvest. The formal description thus developed serves as the starting point for analyzing the system in the adaptive planning mode. The authors express their gratitude to S. V. Yemel'yanov, Corresponding Member of the USSR Academy of Sciences, for his advice. They are

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USSR

UDC: 62-506

BURKOV, V. N., et al, Sootshcheniya Akademii nauk Gruzinskoy SSR
vol 64, No 3, Dec 71, pp 553-556

affiliated with the Institute of Control Problems (Automation and
Telemechanics), USSR Academy of Sciences, and the Computer Center,
Georgian SSR Academy of Sciences.

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CSO: 1863-W

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BURKOV, V. N.

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50 JPRS 55352
6 MAR 1972

PAGE 1

OPEN CONTROL PRINCIPLE (OPEN-LOOP SYSTEM)

(Article by V. N. Burkov, A. Ya. Lerner, Moscow, Vsesoyuznyy nauchno-issledovatskiy tsentr, 1971, pp 6-7)

1. Active Systems

The basic feature of complex multilevel management systems is the property of activity which consists in the following:

- a) The system acts in its own interest, that is, it strives to achieve defined goals (both present and future).
- b) The system has the capacity to predict.
- c) The system knows its internal capabilities more precisely than the control systems of the upper levels (from which, in particular, comes the necessity for the upper level systems to transmit data on the capabilities of subordinate lower level systems).
- d) The system is informed about the distinctive principles at the upper levels and uses this information in all operating steps (we shall distinguish three steps of functioning of the system -- the data gathering step, the planning step and the plan execution step).

2. Open Control Principle

The open control principle was proposed to control active systems in 1967-1971. The idea of this principle consists in the following: a) The system requires a set of possible plans and the preference function of how to use corresponding upper level controlling subcenter. It is solving the planning problem, each subcenter has the authority to develop own control plans to the lower level. Subcenter proposes that the plans forming the pattern of its preference function for the established conditions. In this basis is provided for the open control principle for lower level systems.

USSR

BURKOV, V. N., IVANOVSKIY, A. G., GORGIDZE, I. A.

"Optimization of Models of Economics Based on the Principle of Open Control"

Vopr. Ekon.-mat. Modelir. [Problems of Economic and Mathematical Modeling -- Collection of Works], Moscow University Press, Moscow, 1971, pp 5-16, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V616).

NO ABSTRACT.

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USSR

UDC 512.25/.26+519.3:350.115

SALIKHOV, Z. M., PAYZIYEV, E., BURKOV, V. N., KANTSEL'SON, M. B.

"Combined Algorithm for Solution of the Transport Problem"

Vopr. Kibernet. i Vychisl. Mat. [Problems of Cybernetics and Computer Mathematics
-- Collection of Works], No 40, Tashkent, 1970, pp 23-29, (Translated from
Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V507).

NO ABSTRACT.

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- 36 -

Acc. Nr: AP0040922

B

Ref. Code:

UR 0103

PRIMARY SOURCE: Avtomatika i Telemekhanika, 1970, Nr 1, pp 148-158

OPERATIVE CONTROL OF SUPPLY OF METAL PRODUCTION

V. N. BURKOY, M. B. KATSNELSON

There is considered the problem of re-distributing the production between consumers and suppliers at the appearance of disturbances in the system without taking into account the productivity of the units in grades and dimensions. The problem is reduced to a transport one. An aggregated algorithm of its solution under various methods of setting the function of purpose is suggested.

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19750661

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BURKOVSKAYA, T. Ye.

Radiation Medicine

SO: JPRS 53448
24 JUNE 71

UDC 617-001.20-092.9-085.849.1.015.25-07:
616.155-007.1-076.5

EFFECT OF AMYTETRAVITE AND ATP ON HEMOPOIESIS IN DOGS DURING REPEATED EXPOSURES
AGAINST A BACKGROUND OF CHRONIC GAMMA IRRADIATION

Article by V. D. Rogozhin, N. I. Goudere, N. P. Galtukova, N. A. Mankalov,
P. V. Zubatyga and T. Ye. Burkovskaya, Moscow, Komichenskaya Biologiya i
Meditsina, Runaia, Vol 5, no 2, 1971, pp 42-46, submitted for publication
10 January 1970

Abstract: This paper summarizes the results of two-year experiments with three groups of dogs. Two groups received a dose of 180.5 rad/year, whereas the third served as a control. The 30 irradiated dogs were administered radio-protective drugs: amytetravite and ATP. Hemopoietic parameters exhibited higher stability in response to the drugs.

We studied the effectiveness of therapeutic-prophylactic measures under irradiation conditions simulating the radiation associated with a prolonged space flight. This study constitutes part of a complex experiment carried out with 240 dogs which were exposed to chronic low-level radiation (Yu. G. Grigor'ev, et al.; T. Ye. Burkovskaya, et al.).

This article gives the results of two years of observations of three groups of animals. The dogs in the first and second groups (30 dogs shielded and 24 controls) were exposed to constant (24 hours daily) gamma-irradiation in a dose of 180.5 rad/year with additional acute prolonged exposures simulating solar flares with a 40-rad dose three times a year. The total radiation dose during the two years was 377 rad. The third group was a biological control.

As antiradiation drugs we used amytetravite and adenosine triphosphate (ATP). These are drugs capable of increasing the natural body radioresistance and intensifying processes of postirradiation recovery (O. I. Belousova and M. N. Trushina; V. D. Rogozhin, et al.; V. D. Rogozhin and Ye. I. Marinenko; V. I. Karogodin). Amytetravite, consisting of vitamins C, P, B1 and B6 and the amino acids triptophan and histidine, was administered to all 30 shielded dogs in two-week series each 1.5-3.5 mg/kg. ATP was injected intramuscularly

BURKOVSKAYA, T. Ye.

Radiation Medicine

HEMATOLOGICAL EFFECTS IN DOGS EXPOSED TO CHRONIC AND REPEATED GAMMA IRRADIATIONS

(Article by T. Ye. Burkovskaya, Moscow, Kosmicheskaya Biologiya i Medicina, Moscow, Vol. 5, No. 2, 1971, pp. 25-28, submitted for publication 23 March 1970)

AC (Medicine, Medicine)

UDC 617.001.28-036.12-02:9-07:616.15-07

SO: JPRS 53449

24 JUNE 71

Abstract: Studies of the morphological structure of the peripheral blood and bone marrow in dogs exposed to one-year chronic irradiation in doses of 42 and 8 rad at four-month intervals are analyzed. The data presented here indicate that the exposure induces no serious hemopoietic disturbances and the detected changes remain at the lower physiological level. The response to acute exposures with a dose of 42 rad involves myelopoiesis only, becoming less clearly expressed with an increase in the total dose. These data suggest that the formation of myelocytes is more sensitive than that of other blood corpuscles.

This communication presents the results of a study of the hematological effects in animals subjected during the course of a year to continuous γ -irradiation in a dose of 0.17 rad per day, combined with repeated (three times a year) irradiations stimulating radiation exposures from solar flares.

The experiment was conducted on 54 male dogs in the age range one-three years weighing 10-15 kg. The doses, irradiation regime, and number of investigated animals are given in Table 1.

Once each two months a detailed clinical analysis of the peripheral blood of all animals was made and once each four months a bone marrow study. After single irradiations in a dose of 42 rad an additional blood study was made on the 3d, 7th, 14th, 21st, 28th and 60th days after exposure.

During the entire observation period the peripheral blood content of erythrocytes, reticulocytes and hemoglobin in the irradiated dogs was within the limits of scatter of the control or initial values. The number of leukocytes in the peripheral blood of dogs in the second group (189 rad per year)

BURKOV, N.S.

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12-1. EFFECT OF GROWTH CONDITIONS ON THE STRUCTURE AND MORPHOLOGY OF FILAMENTARY CRYSTALS OF SILICON CARBIDE

Article by A. V. Sandulova, N. S. Burkov, S. N. Gorin, I'vovi Kereshtinskii, I. I. Simoniuk, Po Pirovskan, Romia I. Slonova, Poluprovodnikov Khim. Kriсталlov i Pirovskan, Russian, 12-1 June 1972, p 122

A study was made of the dependence of the structure and morphology of filamentary silicon carbide crystals on the growth conditions when growing them by the method of thermal reduction of methyl trichlorosilane on graphite and polycrystalline substrates.

For optimal values of the concentration of the initial substance in the gas phase, the temperature intervals of obtaining crystals in the cubic and hexagonal versions were defined, and it was established that the introduction of deflected impurities stimulates the growth of acicular crystals of silicon carbide of the 2H polytype with the hexagonal structure of wurtzite at temperatures of 1,400-1,550°C.

The variation in the faceting of the crystals with variation of the structural version is discussed. By using the studies in polarized light of plane-parallel sections corresponding to longitudinal and transverse cross sections of the crystals of different forms, the internal structure is demonstrated both for the crystals themselves and for the characteristic fibrous outgrowths on crystals of the 2H polytype with which the growth by the vapor-liquid-solid mechanism is connected in a number of published papers on filamentary crystals of silicon carbide. On the basis of the research, the conclusion was drawn that the fibrous occur apparently as a result of destruction of the growth conditions, and they are, therefore, only the consequence of these phenomena and not a direct proof of the growth of crystals by the vapor-liquid-solid state mechanism.

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--REPLICATIVE FORMS OF SENDAI VIRUS RNA -U-
AUTHOR--(02)-ZHDANOV, V.M., BURKRINSKAYA, A.G. **B**
COUNTRY OF INFO--USSR
SOURCE--ARCH. GESAMTE VIRUSFORSCH. 1970, 29(2-3), 241-52
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--VIRUS DISEASE, RNA, SEDIMENTATION, CELL PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/2019 STEP NO--AU/0000/70/029/02-/0241/0252
CIRC ACCESSION NO--AP0137194
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137194

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FORMATION OF REPLICATIVE FORMS (RF) OF SENDAI VIRUS RNA IN VIRUS INFECTED CELLS WAS STUDIED. SEVERAL RNA SPECIES WITH SEDIMENTATION COEFF. OF 7 S TO 48 S WERE REVEALED IN THE COURSE OF INFECTION, AND A CERTAIN SEQUENCE IN THEIR APPEARANCE WAS OBSO. RF OF SENDAI VIRUS RNA WERE FOUND AS MULTISTRANDED REPLICATIVE INTERMEDIATES (RI) WITH SEDIMENTATION COEFF. RANGING FROM 20 S TO 30 S, AND AS DOUBLE STRANDED RF WITH A SEDIMENTATION COEFF. OF ABOUT 22-23 S. PARENTAL RNA WAS FOUND IN THE INTRANUCLEAR STRUCTURES AND IN THE CYTOPLASM. PARTICIPATION OF PARENTAL RNA IN THE FORMATION OF DOUBLE STRANDED RF WAS EVIDENCED. FACILITY: D. I. IVANOVSKII INST. VIROL., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--REARRANGEMENT OF AMIDES OF TRIALKYLGERMYLACETIC ACID TO
N, TRIALKYLGERMYLACETAMIDES -U-
AUTHOR--(04)-BAUKOV, YU.I., BURLACHENKO, G.S., KOSTYUK, A.S., LUTSENKO,
I.F.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 707
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANOGERMANIUM COMPOUND, ACETIC ACID, ACETAMIDE,
ISOMERIZATION, NMR SPECTRUM, ORGANOSODIUM COMPOUND, ORGANOSILICON
COMPOUND, INTERMOLECULAR MECHANICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--2000/0868 STEP NO--UR/0079/70/040/003/0707/0707
CIRC ACCESSION NO--AP0124531
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124531

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING ET SUB3 GECH SUB2 CONHME TO 140-50DEGREES RESULTS IN ITS ISOMERIZATION INTO ACNMEGEET SUB3, WHICH WAS CHARACTERIZED BY ITS NMR SPECTRUM, ALSO USED TO FOLLOW THE REACTION.

CL SUB3 GECH SUB2 CL AND RMGX GAVE R SUB3 GE CH SUB2 CL, WHICH WITH MG AND CO SUB2 GAVE R SUB3 GECH SUB2 CO SUB2 H, WHICH WITH CH SUB2:CO GAVE R SUB3 GECH SUB2 CO SUB2 AC, WHICH BY LOSS OF AC SUB2 O GAVE (R SUB3 GECH SUB2 CO) SUB2 O, WHICH PYROLYZED TO R SUB3 GECH:CO AND R SUB3 GECH SUB2 CO SUB2 H; THE YIELD OF THE KETENE, B SUB15 69-71DEGREES, N PRIME20 SUBD 1.4600, REACHED 40PERCENT, AND INTERMEDIATE STEPS GAVE 60-80PERCENT YIELDS. ALTERNATIVELY, PHCH SUB2 CO SUB2 ME TREATED WITH NAN(SIME SUB3) SUB2, THEN ME SUB3 SICL, GAVE PHCH:(OME)OSIME SUB3; WITH GECL SUB4 AT 30DEGREES THIS GAVE PHC(GECL SUB3):(OME)OSIME SUB3, WHICH PYROLYZED TO ME SUB3 SIME AND PHC(GECL SUB3):CO IN 54PERCENT YIELD, B SUB1 71-3DEGREES, N PRIME20 SUBD 1.5524. TRIETHYLGERMYLKETENE AND MENH SUB2 GAVE ET SUB3 GECH SUB2 CONHME, 40PERCENT, B SUBO.05 98-9DEGREES, N PRIME20 SUBD 1.4821. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112728

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. REACTION OF O,SILYLATED KETENE
ACETALS WITH KETENES OPENS THE SI-O BOND AND FORMS ESTERS OF
SILOXYVINYLACETIC ACID, WHICH ARE EASILY ISOMERIZED INTO ESTERS OF
SILOXYCROTONIC ACID. SHOWN ON MICROFICHE. FACILITY: MOSK. GOS.
UNIV. IM. LOMONOSOVA. MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 911.3:616.981.452(575.4)

BURLACHENKO, T. A., PUNSKIY, Ye. Ye., ZHERNOVOV, I. V., and ZAGNIBORODOVA, Ye. N.

"Characteristics of the Plague Epizootic Among Rodents in Turkmenia (1964-1969)"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of Works), Saratov, No 4(14), 1970, pp 110-123 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.118) by B. Dobrokhotov.

Translation: The plague epizootic among rodents in various natural regions of Turkmenia was recorded annually for the last six years: in the western and northwestern part in 1964-1966, in the southwestern part in 1966-1968, in the northeastern part in 1965-1969, in the southeastern part in 1966-1968, in the northern part in 1966-1969, and in the eastern part in 1969. Territorial and biocenotic characteristics of the foci and the development of the epizootic in each natural region are described. Included are tables of isolation of plague cultures from mammalian and arthropod vectors. The main species of rodents participating in the epizootic is the great gerbil, involvement of redtailed midday gerbils and the yellow suslik led to an increase in the

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- USSR

FURLACHENKO, T. A., et al., RZh-Meditsinskaya Geograpiya, No 3, Mar 71,
Abstract No 3.36.118)

intensity of the epizootic and to its further spread. Practically all territorial regions of the southern deserts at the borders of Turkmenia are sections of continuous natural focal activity of plague and are not temporary foci. Sites of prolonged retention of plague bacteria in both epizootic and nonepizootic years are stations of rodent survival in which elementary plague foci may be found. Four maps of sites at which plague cultures have been isolated in Turkmenia from 1964 to 1969 are included.

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1/2 005 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--IMMUNOGENETIC STUDY OF HETEROSIS DURING USE OF BOARS WITH VARIOUS
INBREEDING COEFFICIENTS -U-
AUTHOR-(03)-TIKHONOV, V.M., BURLAK, Z.K., SRUGA, A.A.
COUNTRY OF INFO--USSR
SOURCE--SEL'SKOKHOZ BIZL 5(1): 64-73. 1970
DATE PUBLISHED-----70
SUBJECT AREAS--AGRICULTURE
TOPIC TAGS--ANIMAL HUSBANDRY, ANIMAL GENETICS, HOG, ANIMAL REPRODUCTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3C07/0297 STEP NO--UR/9062/70/005/001/0064/0073
CIRC ACCESSION NO--AP0135792
UNCLASSIFIED

2/2 005

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135792

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY OF THE DEVELOPMENT AND USE OF INBRED SIRES TO OBTAIN THE HETEROSIS EFFECT UNDER THE IMMUNOGENETIC CONTROL WAS STUDIED BY THE METHOD OF THE REPEATED FERTILIZATION OF INBRED AND OUTBRED SOWS WITH THE MIXTURE OF SEMEN FROM BOARS WITH DIFFERENT HOMOZYGOCITY COEFFICIENTS. THE DECIPHERING OF THE ORIGIN BASED ON BLOOD GROUPS SHOWED THAT THE USE OF INBRED BOARS WHICH WERE OR WERE NOT RELATIVES FOR SOWS TO INSEMINATE BOTH OUTBRED AND INBRED FEMALES RESULTED IN THE HIGHER PERCENTAGE OF DEAD PIGS FROM RELATIVE BOARS. THE DEGREE OF INBREEDING GREATLY AFFECTS THE EMBRYONAL MORTALITY AND LOSS OF PIGS AT THE EARLY POSTNATAL PERIOD. THE INCREASE OF THE COEFFICIENT OF THE HOMOZYGOCITY OF SWINES IN THE PROCESS OF THE DEVELOPMENT OF INBRED LINES SHOULD NOT EXCEED 50PERCENT (AFTER RIGHT). IN CONTRAST TO CORSES OF INBRED LINES TOPCROSSING CAN BE USED IN SWINE BREEDING TO OBTAIN THE HETEROSIS EFFECT. FACILITY: INST. CYTOL. GENET., SIB. BR. ACADE. SCI. USSR, NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC: 621.372.826

USIK, V. Ya., ROZHKO, A. V., MIKHAYLOVSKIY, S. A., MARCHENKO, P. I.,
BURLAKOV, O. V., POLISHCHUK, Ya. L.

"A Single-Conductor Transmission Line"

USSR Author's Certificate No 259195, filed 19 Aug 68, published 28 Apr 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B151 P)

Translation: The proposed single-conductor transmission line consists of a section of metal wire with a dielectric coating, two coaxial-horn surface-wave exciters and a tension device of the winch type. To simplify connection of reception and transmitting equipment to the transmission line and ensure tightening of the wire, this wire is seated loosely in a cylindrical hole made through one of the exciters in the central conductor of the branch of the angle connector which is coaxial with the horn. In the tension device, the winding drum is connected to a hand crank through a slip clutch. Five illustrations.

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USSR

B
UDC: 621.326.6-181.5

PROLIN, M. I., TLOSTANOV, Yu. K., BUPLAKOV, V. D.

"Errors in Measuring the Parameters of Thin-Film Microcircuits"

Tr. Ryazansk. radiotekhn. in-ta (Works of the Ryazan Radio Engineering Institute),
1970, vyp. 23, pp 85-89 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No TV260)

Translation: The paper contains an analysis of errors in indirect determination of the parameters of thin-film microcircuits. Relationships are derived which can be used to determine the optimum conditions for measurements and minimize measurement error. Resumé.

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USSR

UDC: 621.372.6-161.5

PROLIN, M. I., TLOSTANOV, Yu. K., BURLAKOV, V. D.

"Indirect Method of Measuring the Parameters of Thin-Film Microcircuits"

Tr. Ryazansk. radiotekhn. in-ta (Works of the Ryazan Radio Engineering Institute), 1976, vyp. 23, pp 76-85 (From RZh-Radiotekhnika, No 7, Jul 76, Abstract No 7V260)

Translation: The paper considers the possibilities of using the theory of linear two-terminal pair networks for measuring the parameters of thin-film micromodules. The method is substantiated and the necessary relationships are given as well as the results of an experimental check. It is pointed out that this checking method may be used to determine the parameters of thin-film micromodules with inaccessible points. Resumé.

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USSR

UDC 577.391

BURLAKOVA, YE. B., and GAINITSEVA, V. D., Institute of Chemical Physics,
Academy of Sciences USSR

"Effects of Irradiation and of Free-Radical Inhibitors on Mice with Trans-
planted Leukosis La"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 5, Sep/
Oct 71, pp 764-767

Abstract: To investigate the combined protective effect of irradiation and of a free-radical inhibitor called ionol (4-methyl-2,6-di-tert-butylphenol) against leukosis, tests were performed on 1,713 mice into which 10^5 Leukosis La cells were transplanted and which received 20-130 mg of ionol per kilogram body weight 30 minutes prior to irradiation with 100-700 r (performed 24 hours after transplantation). The survival period of intact irradiated mice represented control data. Mice with leukosis survived for the longest period after treatment with 450 r. A stronger dose made radiation sickness more severe. Ionol magnified the protective effect of irradiation against leukosis and prolonged the mean survival time. The best effects were obtained by combining a large dose of ionol (100-130 mg/kg) with a small irradiation dose (up to 400 r) or a small dose of ionol (40-90 mg/kg) with a large irradiation dose (above 400 r). In these cases, ionol exerts both radio-protective and anticarcinogenic effects.

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USSR

UDC 577.3+612.816

SMIRNOV, A. V., BURLAKOVA, Ye. V., KOL'S, O. R., SVERDLOVA, Ye. A., and
FEDOROV, G. Ye., Moscow State University

"Changes in Nerve Fiber Mitochondria of the Crab During Conduction Blocked by
Different Agents"

Moscow, Doklady Akademii Nauk SSSR, No 1, 1972, pp 214-125

Abstract: Isolated nerve from an extremity of the green crab *Carcinus maenas* was stimulated after the conduction of excitation was blocked by (a) a constant current (2 to 3 v), (b) elevation of temperature to 37 to 40°C, (c) 10^{-3} M dinitrophenol solution. Examination of mitochondria from the control (resting) nerve showed them to be elongated with distinct external and internal membranes. The cristae were close together. The same picture was observed after 5 minutes of electrical stimulation of the nerve except that the cristae were somewhat farther apart. However, stimulation of the nerve after conduction was blocked by high temperature or by treatment with dinitrophenol caused the mitochondria to swell and become rounded. The cristae shortened considerably and in places became fragmented. In some cases the changes were so pronounced that the mitochondria resembled vacuoles.

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BURLITSKIY, R. F.

atmosphere were constructed for the tropical zone of the Indian Ocean. The and troposphere of the equatorial latitudes (the zones of effect of the quasi-biannual cycle) in practice along the entire extent of the Indian Ocean. This

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On trip 20 of the scientific research ship A. I. Vovchikov and trip 24 of the scientific research ship Yu. N. Shokalskiy, the routes passed along the equator from the Straits of Malacca to 0° latitude, 65° east longitude, and then to 65° east longitude in the Southern Hemisphere. On trip 19 of the scientific research ship Yu. N. Shokalskiy and trip 25 of the scientific research ship Akademik Shishov, meridional sections were made along 85° east longitude.

In order to study the characteristic features of the quasiannual cycle in the Indian Ocean, aerological sounding data from ten marine expeditions from 1967 to 1971 were used. The routes followed by the expeditions are presented in Figure 1. In the 17-19 trips of the scientific research ship A. I. Vovchikov and the 17 trips of the scientific research ship Yu. N. Shokalskiy, the tropical zone of the Indian Ocean was crossed in the latitudinal direction from the Straits of Malacca to the point at 20° south latitude, 65° east longitude.

According to the data of ten (1967-1971) marine scientific research expeditions, the temperature and wind conditions in the stratosphere and troposphere of the equatorial latitudes of the Indian Ocean were analyzed in detail. The characteristic features of the development of the quasiannual cycle in this region were discovered.

Article by Candidate of Geographic Sciences R. F. Burlitskiy, N. S. Selizman, USSR hydrometeorological scientific research center, Novosibirsk, 27-36] *meteorology*

UDC 531.513(102.3)(257)

CHARACTERISTIC FEATURES OF THE DEVELOPMENT OF THE QUASI-ANNUAL CYCLE IN THE INDIAN OCEAN

M. G. Gerasimov
Senior Researcher
Hydro-Meteorology

USSR

UDC 547.785.5+541.49+288.4

KOGAN, V. A., OSIPOV, O. A., CHUB, N. K., CARNOVSKIY, A. D., BURLOV, A. S.,
TSUPAK, Ye. B., and POLUNIN, A. A., Rostov-na-Donu State University

"Complex Compounds of Copper With Heterocyclic Aldoximes"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 581-584

Abstract: A series of new polynuclear compounds of copper with heterocyclic aldoximes synthesized from benzimidazole were produced for the first time. Ultimate analysis and magnetochemical measurements are used to determine the composition of the compounds and the presence of an exchange interaction with perchlorate anions. Differences in the composition and properties of the complexes are determined as they are related to the nature of the anion. The IR spectra of the compounds are studied and a hypothesis is proposed for the point of coordination of the ligand with copper.

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Acc. Nr: APC054287

Ref. Code: UR 0357

PRIMARY SOURCE: Meditsinskaya Parazitologiya i Parazitarnyye
Bolezni, 1970, Vol 39, Nr 1, pp 94-96

Burmak, S. A. Interaction of *H. nana*
and Microflora in the Intestinal Para-
sitocenosis of White Mice. Communica-
tion I: Quantitative Ratio of Individual
Representatives of Intestinal Microflora
in Uninfected and *H. nana*-infected
White Mice

Microflora of the gut (the large and the upper third and lower two thirds of the small intestine) of white mice with and without *H. nana* infestation was studied, and in both groups of the animals 5 species of bacteria were found: *Escherichia coli*, *Proteus vulgaris*, *Staphylococcus albus*, lactosonegative *Escherichia* and sporogenic Gram-positive rod. In infested mice, sporogenic Gram-positive rods, *Proteus vulgaris* and *Staphylococcus* were most prevalent. In mice without infestation, most frequent finding was *E. coli* while the other species were found only in small numbers.

With increasing intensity of the infestation rate, the rate of finding of *E. coli* decreased, while the sporogenic Gram-positive rod was found more frequently.

REEL/FRA
ME
19831425

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UDC 632.95

GAR, K. A., KOGAN, L. M., POKROVSKIY, YE. A., KHOMENYAKOVA, V. S., and
BURMAKIN, K. M.

"Hexachlorobutadiene as an Antiphylloxera Vineyard Soil Fumigation Agent"

V sb. Khim. sredstva zashchita rast. (Chemical Plant Protectants -- collection
of works, Typ 1, Moscow, 1970, pp 42-56 (from RZh-Khimiya, No 13, 10 Jul 72,
Abstract No 13N452 by T. A. Belyayeva)

Translation: In a zone of total and partial phylloxera infection the use of
hexachlorobutadiene (I) should retain its importance for many years to come.
The article recommends consumption rates for I and a technique for using it,
and shows the effect of I on the grape plant, soil microflora and microfauna
and the effectiveness of a granulated preparation of I against phylloxera.
An estimate is given of the toxicity of I for warm-blooded animals.

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USSR

SIMONOV, V. D., NEDEL'CHENKO, B. M., KOGAN, L. M., ANTONOV, L. T., ~~BURNAKIN~~
~~M. M.~~

"The Problem of Industrial Production of Mucochloric Acid"

Dokl. Neftikhim. Seksii. Bashkir. Resp. Pravl. Vses. Khim. O-va im. D. I. Mendeleyeva, [Works of Petrochemical Section, Bashkir Republic Administration of All-Union Chemical Society imeni D. I. Mendeleyev], Vol 6, 1971, pp 354-358. (Translated from Referativnyy Zhurnal Khimii, No 4, Moscow, 1972, Abstract No 4N683 by T. A. Belyeva).

Translation: A continuous technological process has been developed for the production of mucochloric acid by the reaction of oxidative chlorination of furfural (I) with the optimal parameters: molar $\text{Cl}_2:\text{I}=5.6:1$, specific productivity of reactor $80 \text{ kg/m}^3\cdot\text{hr}$, volumetric ratio of I to circulating solution: $0.1-0.15$, temperature $95-100^\circ$ (maintained by heat of reaction), yield $80-82\%$. For fine dispersion, the Cl_2 is passed through teflon bubblers with 1 mm diameter apertures. A diagram of the process is presented.

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173 007 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--OXIDATIVE CHLORINATION OF BUTYNE-1
AUTHOR--(03)--KOGAN, L.M., BOBROVA, T.I., BURMAKIN, N.M.
COUNTRY OF INFO--USSR
SOURCE--Zh. Prikl. Khim. (Leningrad) 1970, 43(4), 926-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHLORINATION, ALKENE, CHLORINATED ORGANIC COMPOUND, ALKENE,
SOLVENT ACTION, COMPLEX COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/1939 STEP NO--UR/0080/70/043/004/0926/0928
CIRC ACCESSION NO--AP0132201
UNCLASSIFIED

2/3 007

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132201

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. THE EFFECT OF TEMP., 2, BUTYNE, 1,4, DICL (I) TO SOLVENT AND CL-I MOLAR RATIOS ON THE COURSE OF THE OXIDATIVE CHLORINATION OF I WAS STUDIED. THE REACTIONS WERE CARRIED OUT BY INTRODUCING CL FOR 3-5.5 HR AT 20-110DEGREES INTO THE REACTOR CONTG. 300-400 ML 35PERCENT HCL TO WHICH 30-40PERCENT H SUB2 O SOLN. OF I WAS GRADUALLY ADDED. THE RESULTING REACTION MIXT. WAS EVAPD. TO 200 ML AND COOLED TO GIVE 2,2,3,3,TETRACHLORO,1,4,BUTANEDIOL (II), M. 256DEGREES (H SUB2 O), AND MUCOCHLORIC ACID (III), M. 127DEGREES (H SUB2 O) AS THE MAIN PRODUCTS. THE COURSE OF THE CHLORINATION WAS AFFECTED BY THE TEMP. AT 20-30DEGREES II WAS OBTAINED IN 29-52PERCENT YIELD AND LITTLE OR NO III RESULTED. AT 72DEGREES A MIXT. OF BOTH PRODUCTS WAS OBTAINED IN WHICH III (25-55PERCENT) PREDOMINATED OVER II (8-19PERCENT). AT 110DEGREES AN OIL CONTG. TRICHLOROBUTANETRIOL AND SIMILAR COMPS. WAS OBTAINED. INCREASING CL-I MOLAR RATIO (6-18) AT 72DEGREES CAUSED AN INCREASE IN THE YIELDS BUT DID NOT AFFECT THE II-III RATIO WHICH ALSO WAS NOT MUCH CHANGED EITHER BY VARYING THE RATIO OF I TO SOLVENT (6-29 G-KG SOLVENT PER HR) OR EXTENDING THE REACTION TIME TO 20 HR DEMONSTRATING THE STABILITY OF BOTH PRODUCTS UNDER REACTION CONDITIONS. INCREASED YIELDS OF III AT ELEVATED TEMP. INDICATED THAT THE EQUIL. REACTION OF CL WITH H SUB2 O TO HCL AND HCL REPRESENTED THE STEP WHICH CONTROLLED THE COURSE OF CHLORINATION. THE COMPLEX FORMATION BETWEEN I OR 2,3,DICHLORO,2,BUTENE,1,4,DIOL AND CL IN H SUB2 O SIMILARLY TO THE REACTION OF CLEFINS WITH CL IN H SUB2 O WAS EITHER NOT OBSD. OR REPRESENTED A SECONDARY PROCESS.

UNCLASSIFIED

3/3 007

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132201

ABSTRACT/EXTRACT--THE REACTION SCHEME FOR THE OXIDATIVE CHLORINATION OF I
WAS PROPOSED. FACILITY: VSES, NAUCH.-ISSLED. INST. KHIM.
SREDSTV ZASHCH. RAST., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: **AP0044024** **BURMAKINA LI** Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i
Immunobiologii, 1970, Nr 2, pp 59-61

THE EFFECT OF COBALT ON FORMATION OF PRECIPITINS
AND ON DEVELOPMENT OF ARTHUS' PHENOMENON

V.V. Derkach, L. I. Burmakina

The influence of cobalt chloride on the formation of precipitins and on the development of Arthus' phenomenon was studied. Rabbits were sensitized by subcutaneous injection of normal horse serum. Cobalt chloride was solution injected intravenously in doses of 14, 28 and 42 γ per kg of body weight.

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REEL / FRAME
19770461

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USSR

UDC 547.241

NURTDINOV, S. KH., KHAYRULLIN, R. S., BURMAKINA, T. V., ZYKOVA, T. V.,
SALAKHUTDINOV, R. A., TSIVUNIN, V. S., and KANAY, G. KH. (DECEASED), Kazan'
Institute of Chemical Technology

"Reaction of Aryldichlorophosphines with Ketones"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1685-1688

Abstract: Continuing their study of the condensation of primary chloro-phosphines with ketones, the authors investigated the reaction of phenyl- and tolyldichlorophosphine with saturated ketones. It was found that these components react on heating for 10-20 hours at 90-130° to give cyclic oxaphospholenes, which react with alcohols to give corresponding esters of aryl- β -ketophosphinic acids. IR, NMR, and PMR spectroscopy methods were used to study the mechanism of the interaction of aryldichlorophosphines with ketones. The results confirm that at one of the stages of the reaction β -ketophosphinic acid chlorides are formed.

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BURMAKOV AIAcc. Nr. **AP0041689**

Abstracting Service:

CHEMICAL ABST.

4/70

Ref. Code

ULR0366

89975d Fluorination of aromatic polycarboxylic acids by sulfur tetrafluoride. III. Fluorination of benzenetetracarboxylic acids. Burmakov, A. I.; Alekseeva, L. A.; Yagupol'skii, L.M. (Inst. Org. Khim., Kiev, USSR). *Zh. Org. Khim.* 1970, 6(1), 144-8 (Russ). Heating $\text{HO}_2\text{CC}_6\text{H}_2(\text{CO}_2\text{H})_{3,5}$ with SF_6 in an autoclave $\leq 200^\circ$ gave 2,4,6-(F_3C) $_3\text{C}_6\text{H}_2\text{COF}$ (I). However, the fluorination of $\text{HO}_2\text{CC}_6\text{H}_2(\text{CO}_2\text{H})_{2,3,4}$ gave 4,7-bis(trifluoromethyl)-1,1,3,3-tetrafluorophthalan (II). The structure of I was proven by its stepwise conversion to 2,4,6-(F_3C) $_3\text{C}_6\text{H}_2\text{CONH}_2$ (III), 2,4,6-(F_3C) $_3\text{C}_6\text{H}_2\text{NH}_2$ (IV), 3,5-(F_3C) $_2\text{C}_6\text{H}_3\text{CF}_3$, and $\text{HO}_2\text{C}-\text{C}_6\text{H}_2(\text{CO}_2\text{H})_{3,5}$. Heating III with P_2O_5 gave 2,4,6-(CF_3) $_3\text{C}_6\text{H}_2\text{CN}$. The diazotization of IV followed by coupling with 3-Me $\text{C}_6\text{H}_4\text{N}(\text{CH}_2\text{CH}_2\text{OH})_2$ gave 2,4-Me[(HOCH_2CH_2) $_2\text{N}$]- $\text{C}_6\text{H}_2\text{N}:\text{NC}_6\text{H}_4(\text{CF}_3)_3$ -1,3,5. The structure of II was proved by its hydrolysis to 2,3,6-HO $_2\text{C}(\text{F}_3\text{C})_2\text{C}_6\text{H}_2\text{CO}_2\text{H}$, which was converted to 4,7-bis(trifluoromethyl)phthalide (V). The treatment of V with PCl_5 gave 4,7-bis(trifluoromethyl)-1,1,3,3-tetrachlorophthalan, which reacted with SbF_5 to give II. CPJR

REEL/FRAME
19751566

1/2 049 UNCLASSIFIED PROCESSING DATE--2010V70
TITLE--INTERFERENTIAL HOLOGRAPHIC INVESTIGATION OF A PLASMA JET USING THE
FUNDAMENTAL FREQUENCY AND THE SECOND HARMONIC OF A RUBY LASER -U-
AUTHOR--(02)--BURMAKOV, A.P., OSTROVSKAYA, G.V.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL TEKHNIKHEKOI FIZIKI, VOL. 40, MAR. 1970, P. 660, 661-
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--RUBY LASER, LASER EMISSION, HELIUM NEON LASER, HOLOGRAM,
PLASMA JET
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1254 STEP NO--UR/0057/70/040/000/0660/0661
CIRC ACCESSION NO--AP0115271
UNCLASSIFIED

2/2 049

UNCLASSIFIED

PROCESSING DATE—20NOV70

CIRC ACCESSION NO—AP0115271

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF THE USE OF THE
FUNDAMENTAL AND SECOND HARMONIC EMISSIONS OF A SINGLE RUBY LASER SOURCE
TO OBTAIN INTERFERENCE HOLOGRAMS OF A LOW TEMPERATURE NITROGEN PLASMA
FORMED IN A CC PLASMATRON. HOLOGRAMS CORRESPONDING TO TWO DIFFERENT
WAVELENGTHS WERE SIMULTANEOUSLY RECORDED ON THE SAME PHOTOGRAPHIC PLATE.
RECONSTRUCTION WITH THE AID OF A HE-NE LASER RESULTED IN SPATIALLY
RESOLVED INTERFEROGRAMS OF THE PLASMA JET, CORRESPONDING TO THE TWO
WAVELENGTHS. FACILITY: AKADEMIJA NAUK SSSR,
FIZIK-TEKHNICHESKII INSTITUT, LENINGRAD, USSR.

UNCLASSIFIED

BURMAN, E.A.

HIGHER HYDROMETEOROLOGICAL EDUCATION SYSTEM IN THE USSR

UDC 511.5:378.547.056.044.3

[Article by Professor E. A. Burman, Higher Hydrometeorological Institute, Moscow, Meteorological Institute, Moscow, No 13, 1972, translation of 1972, pp 3-33]

The history of the growth and development of the Soviet higher school of hydrometeorology is discussed.

Pre-revolutionary Russia did not have an organized system of higher hydrometeorological education.

During the first years after the victory of the Great October Socialist Revolution, the training of highly qualified specialists in the field of hydrometeorology, hydrology and oceanography was realized by individual academies, primarily within the framework of the training programs for the power and railway departments of the state universities, hydrological and scientific departments of the railway institutes. The demand for hydrometeorological personnel which became obvious after V. I. Lenin signed the historical decision creating the hydrometeorological service became more obvious after the creation of the integrated hydrometeorological service of the Soviet Union in 1924.

The course of the party aimed at industrializing the national economy of the Soviet Union and collectivizing agriculture demanded broad utilization of the natural resources of the country, including the climatological and water resources. It required economic and transportation mastery of new territories and waterways.

One of the first problems the solution of which had to be attended by the USSR hydrometeorological service was the training of meteorologists, hydrologists, aerometeorologists and oceanologists with high qualifications. For this purpose, the first hydrometeorological institute in the world was created in Moscow (1930) and Kharkov (1931). Thus, a basis was provided for the Soviet system of higher hydrometeorological education.

The creation of a new higher institution of learning was an extraordinarily difficult problem. However, it was doubly difficult when it was necessary to create the institute for training specialists of a new profile since it was with the ordinary problems of an economic and technical nature (the training

JRS 58133

274473

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Burn Studies

USSR

UDC 617-001.17-07:616.155.36-076.5

BURMAN, L. M. and SAKHNOVSKAYA, G. K., L'vov Institute of Hematology and Blood Transfusion

"Morphological and Functional Changes in Mast Cells and Their Role in Mobilizing the Defense Processes at the Site of a Thermal Burn"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 4, 1971, pp 30-34

Abstract: Mast cells, a morphological indicator of stress, were the first to react to a burn inflicted on rats. Within one hour of the trauma they increased in number and size and began to degranulate. Neutrophil infiltration increased after 12 hours mainly in the deep, intact layers of muscle. After 24 hours the neutrophil barrier also embraced the subcutaneous tissue. The neutrophils and other blood elements reacted actively to alkaline phosphatase. This reaction and increased phagocytosis resulted from the release of highly sulfated mucopolysaccharides by the mast cells. Thus mast cells play an important role in the body's defenses against burns and other pathological factors.

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USSR

UDC: 539.4:629.7.02

BURMAN, Z. I. and LUKASHENKO, V. I.

"Some Results From Calculating a Fuselage by the Finite Elements Method Using an Electronic Digital Computer"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 1, 1973, pp 18-24

Abstract: The authors present the results from the realization of the theory for calculating a fuselage by the finite elements method. An example of the calculation is given. Some algorithmic formulas are also presented. Computation control processes are demonstrated. The problem of identification is partially treated and the successful and unsuccessful instances of these processes are indicated. Some stress diagrams are given along with a pattern of stress changes in conjunction with the elimination of a large number of fuselage elements.

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USSR

UDC 547.772.2'388:541.634:543.544:542.953.4

IOFFE, B. V., BURMANOVA, N. B., Leningrad State University imeni
A. A. Zhdanov

"Isomer Composition of Pyrazolines Obtained From Unsaturated
Carbonyl Compounds and Hydrazine"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 71,
pp 1225-1229

Abstract: The authors studied the isomer composition of pyrazo-
lines which form in the cold from hydrazine hydrate and unsaturated
carbonyl compounds C_4H_6O - $C_6H_{10}O$ (crotonaldehyde and tiglaldehyde,
 α -methyl-, α -ethyl- and α -methyl- β -ethylacroleins, methyl
vinyl ketone, methyl isopropenyl ketone and mesityl oxide). It
was found that only 3-alkyl-substituted pyrazolines obtained from
unsaturated ketones are structurally homogeneous, containing no
 Δ^1 -pyrazolines or Δ^2 -pyrazolines with a different position of
side chains with respect to the C=N bond which might have been
formed as a result of migration of the latter. On the other hand,
in reaction mixtures during condensation of some unsaturated
1/3

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USSR

IOFFE, B. V., et al, Khimiya Geterotsiklicheskikh Soedineniy,
No 9, Sep 71, pp 1225-1229

aldehydes with hydrazine hydrate, along with the principal product (Δ^2 -pyrazoline of the corresponding structure) there appear appreciable quantities of Δ^1 -pyrazoline, as well as isomeric 3-substituted Δ^2 -pyrazolines. Since the initial unsaturated aldehydes did not contain impurities, the presence of isomers can be explained by the comparatively easy isomerization of Δ^2 -pyrazoline into the Δ^1 -isomer with subsequent conversion to 3-alkyl- Δ^2 -pyrazoline. This isomerization is catalyzed by bases, therefore the quantity of isomers depends on the time and mode of reaction mixture treatment. The rate of isomerization of pyrazolines apparently depends on their structure and the absence of isomeric impurities in the 3-alkyl- Δ^2 -pyrazolines obtained from the ketones is probably due to their much higher thermodynamic stability and very low isomerization rate. As a result, Δ^2 -pyrazolines with a side chain in position 3 are readily obtained in pure form from the corresponding unsaturated ketones. Stereoisomeric pyrazolines can form in two of the above reactions. Results of gas-chromatographic analysis and NMR spectra of the condensation products of

2/3

USSR

IOFFE, B. V., et al, Khimiya Geterotsiklicheskikh Soyedineniy,
No 9, Sep 71, pp 1225-1229

hydrazine with tiglaldehyde and α -methyl- β -ethylacrolein show
that they contain mixtures of cis and trans isomers.

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Foundry

USSR

UDC 669.163.4.046.58

BURMASOV, S. P., KUROCHKIN, K. T., and UNRIKHIN, P. V.; Ural Polytechnical
~~Institute~~

"Nitrogen-Resistant Properties of Basic Martin Slags"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 9,
1970, pp 45-48

Abstract: An experimental investigation of the nitrogen permeability of slags extracted from a Martin furnace at different times in medium-carbon steel production was conducted at the laboratory of the Ural Polytechnical Institute at 1600, 1650, and 1700°C. The characteristics of the tested slags are given in a table. It was experimentally established, by evaluating the variations in nitrogen concentration in metal and slag during the liquid phase in a nitrogen atmosphere that the basic Martin slags in their entire range of compositions possess high nitrogen-resistant properties in the absence of appreciable convection. Tests were also conducted on the nitrogen solubility in slags with the purpose of considering the degree of divergence between the concentration values obtained and the equilibrium values for partial nitrogen furnace pressure in the atmosphere. The low nitrogen solubility level (0.0015%) in slags is explained

1/2

USSR

BURMASOV, S. P., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 9, 1970, pp 45-48

by low thermodynamic stability of nitrides under oxidizing conditions. The increase in nitrogen concentration in metal due to its transfer by slag from the furnace atmosphere can attain thousandths of a percent per hour under conditions of intense mixing of contact phases in the boiling process.

2/2

USSR

UDC: 621.372.632

AL'BATS, M. Ye., BURMISTROV, I. N., ORLIK, I. Ya., SHERSTNEV, I. N.

"A Non-Hunting Device for Automatic Frequency Control"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 28, 1970, Soviet Patent No 280564, Class 21, filed 23 Jan 68, p 45

Abstract: This Author's Certificate introduces a non-hunting device for automatic frequency control which contains a mixer whose output is connected to the input of a narrow-band channel consisting of a narrow-band amplifier, discriminator and frequency control unit. The device also includes a wide-band channel which contains a wide-band amplifier, discriminator, frequency control unit and oscillator. As a distinguishing feature of the patent, tracking precision is improved by connecting the output of the narrow-band channel to the frequency control unit in the wide-band channel.

1/1

USSR

UDC 547.438.1+547.26*118+543.226 (1)

PUDOVIK, A. N., KONOVALOVA, I. V., ROMANOV, G. V., FIRSEVA, R. G., and
BURMISTROVA, N. P.

"Study of Phosphonate-phosphate Regrouping and the Processes accompanying It by the Differential Thermal Analysis Method with Simultaneous Recording of the Electrical Conductivity"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 41-45

Abstract: The study of phosphonate-phosphate regrouping and the processes accompanying it by the thermographic method with simultaneous recording of the electrical conductivity is continued. The thermal behavior of a series of α -oxyalkyl phosphonates and substituted α -oxyethylphenyl phosphonic acids was studied. The thermal conversion of α -oxyalkylphosphonates and their analogs was preceded by ionization of the hydroxyl group on the α -carbon atom. The study was made of the mechanism of thermal phosphonate-phosphate regrouping.

1/1

- 45 -

USSR

UDC: None

KUZNETSOV, A. Ya., CHERNYAVSKAYA, N. A., OKATOV, M. A., BURMISTROV, A. N.

"A Method of Preparing Band-Pass Filters for the Long-Wave Infrared Region of the Spectrum"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 31, 1973, p 144, 391520

Abstract: The filter is designed as a sharp cutoff device and is filled with hygroscopic, powdered materials such as KBr, NaCl, NaF, and CsBr heated to temperatures of 120°C and above for at least two hours before and after pulverization. The filling is then processed by a water-proofing solution. Some examples of the latter are named.

- END -

CSO: 1862-W

1/1

USSR

UDC 691.327.002.612

BURMISTROY, N. P., Candidate of Technical Sciences

"Microfractures in Spun Concrete"

Moscow, Beton i Zhelezobeton, No 8, August 1972, pp 34-35

Abstract: Results are presented of experimental research conducted at the All-Union Scientific Research Institute of Transportation Construction under O. Ya. Berg on microfractures in spun concrete in the process of the short-term loading of prism-shaped specimens $10 \times 10 \times 30$ cm. The use of ultrasound in the experiments in combination with electric strain gauges makes it possible, at each stage of specimen loading, to establish values of the threshold of microfracture formation R_f^0 and the upper relative microcrack boundary R_T .

On the basis of analysis of change of the relative velocity of ultrasound within the limits of the microcrack boundaries, it was ascertained that in distinction from vibrated concrete, spun concrete is characterized by more intensive microcrack development in a direction perpendicular to the layers of concrete placement. Empirical relationships were also found for determining the average values of microcrack boundaries in spun concrete with R_{pr} from 370 to 650 kilogram course/cm². 1 table. 2 figures. 4 references.

1/1

Acc. Nr:

AP0053446

Abstracting Service:

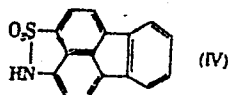
CHEMICAL ABST.

Ref. Code:

B 5/90

4R0366

111152g Synthesis of 4-nitro and 4-aminofluoranthene-3-sulfonic acids and their derivatives. Burmistrov, S. I.; Zinchenko, V. M. (Dneprovsk. Khim.-Tekhnol. Inst., USSR). Zh. Org. Khim. 1970, 6(2), 375-9 (Russ). The nitration of Na fluoranthene-3-sulfonate (I) gave 1 4-nitro deriv. (II). Mg, Zn, K, PhNH₂, and urea salts of II were also prepd. The hydrolysis of II K salt gave 3-nitrofluoranthene. The redn. of II gave 4-amino deriv. (III) of II. The diazotization of III followed by the treatment with KOH soln. gave K 4-hydroxyfluoranthene-3-sulfonate. The treatment of K salt of III with POCl₃ gave



fluoranthene-3,4-sultam (IV). Na and K salts of IV were also prepd. CPJR

REEL/FRAME
19830471

7

1/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--SYNTHESIS AND REACTIONS OF 11,12,CHLORO,5,NITRO
GLUORANTHENE,4,SULFONIC ACID -U-
AUTHOR-(02)-BURMISTROV, S.I., ZINCHENKO, V.M. **B**
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(5), 1082-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--MOLECULAR STRUCTURE, CHEMICAL SYNTHESIS, HYDROGENATION,
SULFONIC ACID, CHLORINATED ORGANIC COMPOUND, AROMATIC NITRO COMPOUND,
AROMATIC CARBOXYLIC ACID, HYDROLYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1274 STEP NO--UR/0366/70/006/005/1082/1086
CIRC ACCESSION NO--AP0134948
UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0134948
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHLORINATION OF
5,NITROFLUORANTHENE,4,SULFONIC ACID (I) AT 30DEGREES GAVE ITS
11,12,DICHLORO DERIV. ABOVE 60DEGREES I WAS CHLORINATED TO
4,NITRO,5,11,12,TRICHLOROFLUORANTHENE (II). I WAS OXIDIZED WITH K SUB2
CR SUB2 O SUB7 IN H SUB2 SO SUB4 TO
2,NITRO,6,7,DICHLOROFLUORENONE,1,CARBOXYLIC ACID, WHICH WAS HYDROGENATED
TO THE 2,AMINO ANALOG. HYDROGENATION OF II GAVE THE 4,AMINO ANALOG
(III). THE SANDMEYER REACTION APPLIED TO III GAVE THE
4,5,11,12,TETRACHLORO ANALOG. ALSO, 5,11,12,TRICHLOROFLUORANTHENE WAS
PREPD. FROM III. HYDROLYSIS OF I WITH 65-70PERCENT H SUB2 SO SUB4 GAVE
11,12,DICHLORO,4,NITROFLUORANTHENE. I WAS ALSO REDUCED TO ITS 5,AMINO
ANALOG. FACILITY: DNEPROPETROVSK. KHIM.-TEKHNOL. INST. IM.
OZERZHINSKOGO, DNEPROPETROVSK, USSR.

UNCLASSIFIED

Acc. Nr.

AP0053460

Abstracting Service:
CHEMICAL ABST.

Ref. Code:

5/70

4R0366

110715f Synthesis of 2-nitroisopropyl hemiformals. Fak-
hrutdinov, R. Z.; Burmistrov, V. I. (Kazan. Khim.-Tekhnol.
Inst. im. Kirova, Kazan, USSR). Zh. Org. Khim. 1970, 6(2),
265-9 (Russ). The reaction of O_2NCH_2CHMe (I) with aq.
HCHO [contg. $HO(CH_2O)_nH$] gave $O_2NCH_2CHMeO(CH_2O)_nH$
(II) (n is 1, 2, or 3). Similarly, the reaction of O_2NCH_2CHMe-
OH with aq. HCHO gave II. At higher temps. in the presence
of $p-MeC_6H_4SO_3H$ I reacted with HCHO to give $H_2C(OCHMe-$
 $CH_2NO_2)_n$.
CPJR 4

REEL/FRAME
19830485

7

1/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EFFECT OF REACTION CONDITIONS ON THE PREPARATION OF NITRO ALCOHOLS.
VI. HYDRATION OF CHLORO SUBSTITUTED NITRO OLEFINS -U-
AUTHOR-(03)-BLUMISTROV, V.I., FAKHRUTDINOV, R.Z., SAKHIBGARAYEVA, A.KH.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 915-17
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--HYDRATION, CHLORINATED ALIPHATIC COMPOUND, ORGANIC NITRO
COMPOUND, BUTENE, BUTANOL, PROPYLENE, PROPANOL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1942 STEP NO--UR/0080/70/043/004/0915/0917
CIRC ACCESSION NO--AP0132203
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132203

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE EFFECT OF TIME, TEMP., MOLAR RATIO OF THE REAGENTS, SOLVENTS, BASE AND ACID ADDNS. ON THE HYDRATION OF 1,1,1,TRICHLORO,3,NITRO,2,PROPENE (I) AND 1,1,1,TRICHLORO,3,NITRO,2,BUTENE (II) TO 1,1,1,TRICHLORO,3,NITRO,2,PROPANOL (III) AND 1,1,1,TRICHLORO,3,NITRO,2,BUTANOL (IV), RESP., WAS STUDIED. COMPARISON OF THE HYDRATION OF I AND II, NITROPROPYLENE SHOWED THAT THE REACTION EQUIL. WERE MORE FAVORABLE FOR THE HYDRATION OF I AT THE SAME TEMP. HOWEVER, THE RATE OF HYDRATION OF I WAS LOWER. THE USE OF DIOXANE OR ME SUB2 CO SOLVENTS GAVE A LOWER TEMP. HOMOGENEOUS PHASE REACTION. HOWEVER, THE HYDRATION OF I IN DIOXANE GAVE III SOLVENT ADDUCT, M. 98DEGREES, WHICH WAS STABLE UNDER REACTION CONDITIONS AND DECOMPD. ONLY AT 130DEGREES IN VACUO TO GIVE PURE III. THE ACIDS HAD LITTLE EFFECT ON THE HYDRATION OF I, EXCEPT AT HIGH CONCNS. OF THE STRONG ACIDS WHERE INHIBITION OCCURRED, A SLIGHT CATALYTIC EFFECT OF THE BASES WAS OBSD. IT WAS FOUND THAT THE HYDRATION OF I WAS BEST CARRIED OUT IN THE ABSENCE OF BOTH SOLVENT AND OTHER ADDITIVES. IN THE BEST RUN, VIGOROUS STIRRING OF 0.1 MOLE I WITH 1 MOLE II SUB2 O 10 HR AT 100DEGREES, FOLLOWED BY WORK UP GAVE 90PERCENT III, 8 SUB25 102DEGREES, M. 45DEGREES. ATTEMPTS TO HYDRATE II WERE GENERALLY UNSUCCESSFUL, ONLY THE HYDRATION IN DIOXANE GAVE 5PERCENT IV, 8 SUB1 97DEGREES, N PRIME20 SUBD 1.5020, D PRIME20 1.5520. FACILITY: KAZAN. KHIM.-TEKHNOL. INST. IM. KIROVA, KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 539.67

POSTNIKOV, V. S., ZOLOTUKHIN, I. V., BURMISTROV, V. N., and SHARSHAKOV, I. M.

"Internal Friction Governed by Relaxation on Twinning Boundaries in Indium + 10% Tallium Alloy"

Sb. "Vnutrenneye treniye v metallicheskih materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 152-156

Abstract: It is shown that single crystal samples of In-Tl alloys with a face-centered tetragonal lattice have high damping properties. Single crystals in which the twinning direction is normal to the sample axis have the highest damping value. The observed peaks on internal friction temperature dependence characteristics near the liquid nitrogen temperature are governed by a relaxation along the twinning boundaries. The internal friction peaks at higher temperatures are related to Zener relaxation and diffusion of excessive tallium atoms from packing imperfections into the matrix. The magnitudes of peaks depends substantially on single crystal orientation. 4 figures, 8 references.

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USSR

UDC 621.9.01.669.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., ZHARKOV, I. G., ZYKIN, A. S., KRAVCHENKO, B. A., LENILIN, V. I., MEDVEDEV, L. P., MITRYAYEV, K. F., URYVSKIY, F. P.

"Cutting of Heat-Resistant, High-Strength Titanium Alloys"

Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov
[English Version Above], Moscow, Mashinostroyeniye Press, 1972, 198 pages.

Translation of Foreword: The Twenty-Fourth CPSU Congress defined the main trends in further development of the socialist economy and indicated the necessity of comprehensive acceleration of scientific and technical progress.

One primary trend in the development of the economy is increasing the effectiveness of production. This means that under today's conditions, ever greater significance is being given to increasing the output of products, improving their quality and technical and economic indicators.

Over the past years, the tool industry has solved important problems related to the creation of new tool designs, the development of the production and improvement of tools, as well as mass production of tools of ever stronger high-speed steels. Broad utilization of automated machine tools, continuous and automatic production lines in large-series and mass production requires an increase in the output of cutting tools of long life and

USSR

UDC 621.9.01.669.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., et. al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniye Press, 1972, 198 pages.

high accuracy, capable of operating under severe cutting conditions for long periods of time without replacement. Tool life can be increased if the tool industry is provided with high quality steels and alloys. Soviet scientists have created alloys with high strength characteristics and high heat resistance. The workability of alloys and steels can be improved by the use of various methods based on ultrasonics, electric contact and induction heating, application of small electric currents to the cutting zone, etc. These methods allow the life of a cutting tool to be increased by 2 to 5 times, increasing the cutting speed and productivity of processing. Part quality can be improved by using tools of natural and synthetic diamonds, as well as elbor.

The present work familiarizes the reader with research conducted into the physics of the cutting process, materials for cutting tools, optimal cutting modes and methods of improving the quality and workability of parts.

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USSR

UDC 621.9.01.669.018.25

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USSR

UDC 621.9.01.660.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., et al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniya Press, 1972, 198 pages.

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USSR

UDC 621.9.01.660.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., et al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniya Press, 1972, 198 pages.

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USSR

UDC 612.014.424:591.18+591.881

SHURANOVA, Zh. P., BURMISTROV, Yu. M., GVOZDIKOVA, Z. M., EL'KINA, G. A.,
Institute of Higher Nervous Activity and Neurophysiology of the USSR Academy
of Sciences, Moscow

"Circulation of Nerve Impulses in the Cerebral Cortex"

Moscow, Uspekhi Fiziologicheskikh Nauk, Vol 4, No 2, 1973, pp 42-54

Abstract: The basic laws characteristic of multiple pulse discharges arising as a result of the circulation of excitation in the system of so-called lateral giant axons of the river crayfish which is a closed chain of a limited number (4-12) of neurons. In the effort to extend these laws to the neuron activity of the brain of a rabbit it turned out that 1) there are still no reliable data either for or against the proposition of the participation of reverberation processes in the genesis of the background activity of the cortical neurons; 2) the contribution of these processes to the organization of the neuron response to direct electrical stimulation under the conditions of the intact cortex has very low probability; 3) on the contrary, the proposition is made of the presence of the excitation circulation processes in the organization of the reaction to an analogous stimulation in a neuronally isolated strip of the cortex. The conclusion with respect to the possibility of circulation of an excitation in an isolated strip is based entirely on recording; the

USSR

SHURANOVA, Zh. P., et al., Uspekhi Fiziologicheskikh Nauk, Vol 4, No 2, 1973, pp 42-54

activity of individual neurons. It was shown that this mechanism probably begins during the recovery period after the inhibition interval. There is no absolute proof that the post-inhibition activation in the strip takes place by the reverberation mechanism, but the similarity of the group discharges of the neurons of the strip to the well investigated activity of the reverberation nature makes the proposition probable. An additional stimulation administered against the background of trace discharge of a neuron immediately stopped the pulsation. Three possible interpretations of this fact are presented.

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USSR

UDC 669.01:539.43

KUDRYAVTSEV, I. V., KOLODEZNYI, L. A., TOPOROV, G. V., BURMISTROVA, I. N.,
Central Scientific Research Institute of Technology and Machinery Manufacture,
and TMSI (expansion unknown)

"Effectiveness of the Cold Hardening of Steel with Impact-Cyclic Loading Under
Low-Temperature Conditions"

Kiev, Problemy Prochnosti, No 1, Jan 72, pp 84-89

Abstract: Here are presented the results of an investigation of three kinds of steel, with and without hardening by surface plastic deformation, for resistance against impact-fatigue failure at temperatures of +20 and -50° C. The spread of fatigue cracks was studied in order to provide information on the mechanism of fatigue-impact failure. It is shown that the effect imparted by cold hardening becomes more pronounced as the stress level decreases. Decreasing the test temperature increases the resistance to fatigue failure, but the incrementation of longevity is considerably greater for hardened specimens. Tests of the same steels for impact viscosity at various temperatures showed that the presence of hardening had an adverse affect only if the cold-hardened layer is quite deep. Two tables, 3 figures, 22 references.

1/1

1/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--FATIGUE TEST FOR BOILER STEEL IN AN ASYMMETRIC LOADING CYCLE -U-
AUTHOR--(04)-KUDRYAVTSEV, I.V., BURMISTROVA, L.N., MAMINOV, A.S., SHKANOV,
I.N.
COUNTRY OF INFO--USSR
SOURCE--PROBL. PROCH. 1970, (2), 77-80
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, METHODS AND EQUIPMENT
TOPIC TAGS--CRACK PROPAGATION, FATIGUE STRENGTH, TEST METHOD, STEAM
BOILER/(U)166NM STEEL, (U)22K STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1444, STEP NO--UR/3663/70/000/002/0077/0080
CIRC ACCESSION NO--AP0135115
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135115

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FATIGUE LIMIT OF STEELS 16GNM WITH A RISE IN THE MEAN LOADING CYCLE FALLS TO A GREATER EXTENT THAN THAT OF STEEL 22K. THE ESTABLISHED HIGH SENSITIVITY OF THE FORMER STEEL IS APPARENTLY DUE TO A GREATER TENDENCY TO CRACK FORMATION DURING OPERATION OF THE BOILERS. WITH A FALL IN THE YIELD POINT AND STRENGTH LIMIT IN CERTAIN STEEL MELTS OF THE TYPE 22K THERE IS A FALL IN THEIR FATIGUE STRENGTH OVER THE ENTIRE RANGE OF MEAN LOADING CYCLES. AN INCREASE IN THE STRENGTH AND YIELD LIMITS OF STEEL 16GNM DOES NOT INCREASE THE FATIGUE LIMIT DURING ASYM. LOADING IN BOILING WATER. THE USE IN FACTORY AND LAB. PRACTICE OF A DEVELOPED TEST METHOD FOR RAPIDLY CHECKING BOILER STEELS UNDER THESE CONDITIONS APPROXS. THE TEST TO REAL CONDITIONS. IT FACILITATES COMPARISON OF DIFFERENT BOILER STEELS FROM THEIR SENSITIVITY TO A SYM. LOADING. SUCH TESTS CAN BE RECOMMENDED FOR MAKING COMPONENTS FROM MATERIALS THAT ARE LESS SENSITIVE TO A SYM. LOADING IN BOILING WATER, WHICH IMPROVES BOILER OPERATION.
FACILITY: KAZAN. AVIATS. INST., KAZAN, USSR.

UNCLASSIFIED

Titanium

USSR

UDC 669.295.3

REZNICHENKO, V. A., and BURMISTROVA, T. M., Moscow

"Hydrometallurgical Processing of Cathode Products of Electrolysis of Titanium"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 45-47

Abstract: Titanium can be extracted from the products of electrolysis by hydrometallurgical processing, including water leaching and acid processing for final removal of fluorotitanate salts. Their removal involves the formation of secondary hydrofluoric acid, which dissolves the electrolytic titanium. The fluorine ion is bonded by adding aluminum chloride to the solution. This work presents a study of the specifics of the hydrometallurgical processing of cathode products when sodium fluorotitanate is used as one of the components of the electrolyte. It is concluded that these processes are approximately similar in nature and completeness for both sodium and potassium

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USSR

, REZNICHENKO, V. A., and BURMISTROVA, T. M., Izvestiya Akademii Nauk SSSR, Metally, No 1, Jan 71, pp 45-47

fluorotitanate, although the solubility of the salt products of electrolysis is somewhat higher when sodium fluorotitanate is used. This indicates that this electrolyte is preferable for electrolysis of oxide compounds of titanium.

2/2

USSR

UDC: 621.787

BURNAKOV, K. K., SMIRNOV, M. A., BRAZGIN, I. A., BYPRYAZHKIN, V. P., NABIULLIN, N. M., TOLSTOV, A. M., Kurgan

"High Temperature Thermomechanical Treatment of EI 811 Stainless Steel"

Izvestiya Akademii Nauk SSSR, Metally, No 4, Jul-Aug 73, pp 129-131.

Abstract: This work studied the possibility of increasing the strength of EI 811 steel by high temperature heat and mechanical treatment. The studies were performed using a steel of the following composition: 0.13% C, 0.33% Mn, 0.37% Si, 0.023% P, 0.077% S, 5.7% Ni, 21.1% Cr, 0.43% Ti, Fe -- remainder. The material was plastically deformed by rolling at 1100-900° C, 30% compression, velocity 4.3 m/min. Specimens 20 mm in diameter and 150 mm long were heated to 1000 or 1100° C, held 30 minutes, then deformed at these temperatures with subsequent immediate quenching in water. Specimens heated to 1000° C were allowed to cool in air to 900° C, then rolled at that temperature and held 5 minutes at that temperature before quenching. It was found that the selection of the temperature mode for plastic deformation must be based on consideration of the different tendencies of the ferritic and austenitic components toward softening. The strength characteristics of this steel were increased significantly only after deformation at 900° C, which causes

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USSR

Burnakov, K. K., Smirnov, M. A., Brazgin, I. A., Bypryazhkin, V. P.,
Nabiullin, N. M., Tolstov, A. M., Izvestiya Akademii Nauk SSSR, Metally,
No 4, Jul-Aug 73, pp 129-131.

hardening of both the γ and α phases. The $\gamma \rightarrow \alpha$ conversion occurring during
aging at 650-700° C has no significant influence on the hardening effect
achieved by high temperature heat and mechanical treatment.

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USSR

UDC 51:621.391

BURNASHEV, M. V.

"Block Method of Weak Signal Transmission Over a Memoryless Channel"

Probl. peredachi inform. (Problems in Information Transmission), 1973, 9, No 1, pp 11-21 (from RZh-Matematika, No 6, Jun 73, Abstract No 6V457 from Author's summary)

Translation: Works by SCHALKWIJK and KAILATH, SCHALKWIJK, ZIGANGIROV develop a block transmission method for a Gaussian additive noise channel with feedback in which a transmission speed equal to the channel capacity is reached. The transmission of weak signals over a memoryless channel with the use of feedback was studied in works by KHAS'MINSKIY, IBRAGIMOV, and KHAS'MINSKIY. The symbol-by-symbol transmission method developed in them permits the capacity to be reached asymptotically. The present article, using the assumptions of the aforementioned works, develops a block transmission method analogous to the one suggested for a Gaussian channel. Sections 2-3 consider the use of the transmission method for the cases of "smooth" and "almost smooth" noise. Section 4 studies the information characteristics of a channel with "almost smooth" noise.

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B. Information Theory

USSR

BURNASHEV, M. V.

"Block Method of Transmission of a Weak Signal Through a Channel without Memory"

Probl. Peredachi Inform. [Problems of Information Transmission], 1973, Vol 9, No 1, pp 11-21 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V457, by the author).

Translation: The works of Shalkviyk and Kaylat, Shalkviyk and Zingangirov include construction of a block method of transmission for a channel with Gaussian additive noise and full feedback, achieving a transmission rate equal to the throughput capacity of the channel. The transmission of weak signals through a channel without memory using feedback was studied in the works of Khas'minskiy, Ibragimov and Khas'minskiy. The symbol-by-symbol method of transmission constructed allows asymptotic achievement of the throughput capacity. This article, using the assumptions of the works mentioned above, constructs a block method of transmission similar to the method suggested for a Gaussian channel. Sections 2-3 study the application of the transmission method for the cases of "smooth" and "almost smooth" noise. Section 4 studies the information characteristics of a channel with "almost smooth" noise.

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Pathology

USSR

BURNASHOV, V. S., and GRUDEV, F. I., Chair of Psychiatry, Semipalatinsk Medical Institute

"Subpsychotic and Psychic Disorders in Brucellosis"

Alma-Ata, Zdravookhraneniye Kazakhstana, No 8, 1972, pp 35-36

Abstract: In brucellosis, as in many other infectious diseases, psychic disorders often develop along with somatic pathology. Among such manifestations as torpidity, apathy, adynamia, and indifference, the most prominent are melancholy and anxiety. Subpsychoses and abortive psychoses are suddenly, spontaneously discontinued developments of grand psychoses. The most characteristic syndromes are asthenic (25% of 282 brucellosis patients observed), dysthymic (18%), hypochondric (14%), and diencephalic (13%). Grand psychoses may develop acutely, subacutely, and gradually and may be classified as delirious and amental-delirious syndromes, amental state, hallucinosis, asthenic-dysthymic state, and hallucinatory-paranoid syndrome. They take a periodic course and last for 3 to 8 and more months, and the various phases are brief and blend into each other at a random sequence. The sooner the psychosis develops after the onset of brucellosis, the greater are its severity and duration.

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USSR

UDC 669.296'26'3'71.018.1

MARKIV, V. Ya., and ~~BURNASHOVA, V. V.~~, Institute of Problems of Material Science, Academy of Sciences, UkrSSR, L'vov State University imeni I. Franko

"Study of the Zr-Cr-Al and Zr-Cu-Al Systems"

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 70, pp 53-58

Abstract: The systems Zr-Cr-Al and Zr-Cu-Al were studied by X-ray diffraction and microstructural analysis. These systems differ from each other significantly in the nature of their interactions. In the system Zr-Cr-Al, the initial components interact without formation of ternary compounds. An isothermal cross section of the system Zr-Cr-Al at 800°C shows the formation of a solid solution of chromium in $ZrAl_2$ (up to about 54 at.%). In the system Zr-Cu-Al at 800°C, eight ternary phases take part in the phase equilibrium. In aluminum-rich alloys at 500°C, one more ternary phase is formed. The structure of the γ -phase was determined. This phase was determined to have tetragonal symmetry ($ThMn_{12}$ structure: $a = 8.50 \text{ \AA}$; $c = 5.11 \text{ \AA}$; $c/a = 0.60$). The crystal structure of the other phases was not determined.

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CHEMICAL ABST. 5-30

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UR0441

BURNASHOVA

J.V.

93846e Aluminum-rich phase of a phase diagram of the molybdenum-iron-aluminum system. Markiv, V. Ya.; Burnashova, V. V.; Ryabov, V. R. (Inst. Probl. Materialoznavstva, Kiev, USSR). *Dopov. Akad. Nauk Ukr. RSR. Ser. A* 1970, 1, 68-72 (Ukrain). Microscopic and x-ray methods were used for the study of aluminum-rich phase of the Mo-Fe-Al system. The Mo-Fe-Al phase diagram was obtained from the investigation on 15 binary and 75 ternary systems. Isothermal sections of the Mo-Fe-Al diagram at 800 and 1050° are presented. Two ternary phases, N and S, were ascertained in the isothermal section at 1050°. $\text{MoFe}_{0.8}\text{Al}_{1.2}$ (N phase) is tetragonal with a 3.76 and c 8.43 Å and seems to be isotypic with TiAl_2 . The S phase with a compn. of 5 at. % Mo, 35 at. % Fe, and 60 at. % Al was not studied in detail. The N and S phases were stable at >900° and >1000-1050°, resp. Binary compils. of FeAl and FeAl₃ exist in equil. with Mo₂Al₃ in the isothermal section at 800°.

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USSR

UDC 547.26'118

PUDOVIK, A. N., KONOVALOVA, I. V., and BURNAYEVA, Kazan' State University
imeni V. I. Ul'yanov-Lenin

"Reactions of Phosphite Esters With Phenylglyoxal and the Ethyl Ester of
 α , β -Diketobutyric Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,413-2,417

Abstract: This study is a continuation of earlier work on the reactions of tri- and pentavalent phosphorus acids with carbonyl compounds; here the reactions of dialkylphosphorous acids with phenylglyoxal and the ethyl ester of α , β -diketobutyric acid are studied. It was shown that the dialkylphosphorous acids add to phenylglyoxal and to the ethyl ester of α , β -diketobutyric acid, with formation of benzoyl- and acetocarbethoxyhydroxymethyldialkylphosphonates. The latter, on heating, were isomerized into benzoyl- and acetocarbethoxymethyldialkylphosphates. In the reaction of phenylglyoxal and the ethyl ester of α , β -diketobutyric acid with triethyl phosphite in acetic acid, the same phosphates were formed. Finally, the reaction between phenylglyoxal and the ethyl ester of α , β -diketobutyric acid, with phosphites in a solution of methylene chloride produced 1,3,2-dioxaphospholenes.

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USSR

UDC 547.26'118

PUDOVIK, A. N., KONOVALOVA, I. V., KAKURINA, V. P., and BURNAYEVA, L. A.,
Kazan' State University Imeni V. I. Ul'yanov-Lenin

"Reactions of Monoisocyanates of Alkyleneglycolphosphorous Acids With the
Esters of α -Ketocarboxylic Acids and Phenylglyoxal"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 553-556

Abstract: Isocyanates of ethylene- and 1,3-butyleneglycolphosphorous acids form 1:1 addition products with esters of pyrrolidonic, benzoylformic, α,β -diketobutyric acids and phenylglyoxal. On the basis of spectral data and sharp melting points bicyclic structures were assigned to these compounds. The reactions were carried out at -5 to 0° in methylene chloride, adding the carbonyl compounds dropwise to the isocyanate; the products crystallized on overnight standing. Esters of pyrrolidonic and benzoylformic acids form crystalline products with ethyleneglyoxalphosphorous acids, phenylglyoxal yields a dense liquid and the ester of α,β -diketobutyric acid -- a glassy material.

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USSR

UDC 547.26'118

PUDOVIK, A. N., GUR'YANOVA, I. V., BURNAYEVA, L. A., and KARIMULLINA, E. Kh.

"Reaction of Glycolophosphate Esters and Glycolophosphoramides With α -Ketocarboxylate Esters"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1978-1980

Abstract: It is shown that pyruvate esters and glyoxylates treated with glycolophosphorates and glycolophosphamides form spiro-1,3,2-dioxaphospholanes. The relatively low yield of the new product (50-65%) is attributed to the formation of oxidation products, i.e. cyclic phosphates. Spiro-1,3,2-dioxaphospholanes are dense liquids which are soluble in organic solvents. Yields, boiling and melting points and formulas of the new compounds are given.

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USSR

UDC 547.26'118

PUDOVIK, A. N., KONOVALOVA, I. V., KAKURINA, V. P., BURNAYEVA, L. A.,
and KOMISSAROVA, T. A.

"Reactions of Dialkylphosphorous Acid Monoisocyanates With Esters of
Benzoylformic and α , β -Diketobutyric Acids and Phenylglyoxal"

Leningrad, Zhurnal Obshchey Khimii, Vol 43(105), No 2, Feb 73, pp 256-260

Abstract: Monoisocyanates of dialkylphosphorous acids react with esters of pyruvic, benzoylformic, and α , β -diketobutyric acids and phenylglyoxal in methylene chloride at -5° to 0° yielding 2-alkoxy-2-oxo-3-alkyl-5-substitute 2-phosphaoxazolidin-4-ones, dense liquids soluble in organic solvents, insoluble in water, and isocyanates of dialkylphosphoric acids in 15% yield. The reaction mechanism was studied by IR and NMR spectroscopic methods.

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Publications

USSR

UDC 61:355.58(02)

BURNAZYAN, A. I. (Editor)

Rukovodstvo po Organizatsii Meditsinskogo Obespecheniya pri Massovykh Porazheniyakh Naseleniya (Handbook on Organizing Medical Care During Massive Injuries to the Civilian Population), Moscow, "Meditsina," Vol 2, 1971, 432 pp

Translation: Annotation: This handbook on organizing medical care during massive injuries to the civilian population will be a practical aid to health organizers and all medical personnel who participate in formations of the civil defense medical service.

The book consists of six chapters, well illustrated with pictures and diagrams.

In Chapter One, the special features of combined radiation injury due to nuclear weapons are described and the missions and surgical activity in first aid detachments and specialized establishments in the rural zone are treated.

In Chapter Two, the principles of care for radiation injuries are presented, along with the clinical picture of severe and chronic radiation sickness and the basic principles of treating it.

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USSR

BURNAZYAN, A. I., Rukovodstvo po Organizatsii Meditsinskogo Obespecheniye pri Massovykh Porazheniyakh Naseleniya (Handbook on Organizing Medical Care During Massive Injuries to the Civilian Population), Moscow, "Meditsina," Vol 2, 1971, 432 pp

In Chapter Three, the theoretical structure for organizing medical care to victims of various agents in the center of chemical contamination, first aid detachments, and specialized hospitals in the rural zone are presented.

In Chapter Four, the basic principles and methods of organizing treatment for infectious patients under conditions where weapons of mass destruction have been used are presented.

In Chapter Five, modern transfusion media are presented: whole blood, blood components, blood preparations, gamma-globulin, and blood substitutes, and their application in stages of treatment and in specialized treatment institutions is discussed.

In Chapter Six, the special features of treating terminal patients in a zone hit by weapons of mass destruction and in medical service treatment establishments are explained.

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USSR

BURNAZYAN, A. I., Rukovodstvo po Organizatsii Meditsinskogo Obespecheniye pri Massovykh Porazheniyakh Naseleniya (Handbook on Organizing Medical Care During Massive Injuries to the Civilian Population), Moscow, "Meditsina," Vol 2, 1971, 432 pp

The handbook is intended for health organizers and medical personnel of all specialties.

Table of Contents:

Chapter One: Polyakov, V. A., "Basic Principles of Surgical Care and the Volume of Surgical Care During Stages of Evacuating the Civil Defense Medical Service."

Chapter Two: Gus'kova, A. K., and Baysogolov, G. D., "Setting Up Medical Care and Treatment of Radiation Injuries."

Chapter Three: Golikov, S. N., and Stroykov, Yu. N., "Setting Up Medical Care and Treatment for Victims of Chemical Substances."

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USSR

BURNAZYAN, A. I., Rukovodstvo po Organizatsii Meditsinskogo Obespecheniye pri Massovykh Porazheniyakh Naseleniya (Handbook on Organizing Medical Care During Massive Injuries to the Civilian Population), Moscow, "Meditsina," Vol 2, 1971, 432 pp

Chapter Four: Medynskiy, G. M., and Myasnenko, A. M., "Setting Up Treatment and Preventive Care for Victims of Bacteriological (Biological) Weapons."

Chapter Five: Kiselev, A. Ye., and From, A. A., "Transfusions of Blood, Its Components, Preparations, and Blood Substitutes."

Chapter Six: Negovskiy, V. A., and Semenov, V. N., "Basic Principles and Methods of Resuscitation."

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USSR

UDC: 621.385.623.4

BURNEYKA, K. P., KANAVETS, V. I., MOZGOVOY, Yu. D., SANDALOV, A. N.

"On the Optimum Parameters of Multicavity Klystron Bunchers"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1971, vyp. 2, pp 29-37 (from RZh-Elektronika i yeye Primeneniye, No 6, Jun 71, Abstract No 6A155)

Translation: The parameters of bunchers in klystrons with 2-6 cavities are optimized for quality. Numerical methods of solving equations are used, employing a disc model of the beam. It is shown that Coulomb forces can be used to improve electron bunching. Optimum bunching is achieved under conditions where nonlinear processes take place in the space-charge waves. Optimum phase shifts between the cavity fields and the current correspond to energy transfer from the beam to the fields of the cavities. The quality index increases with an increase in the total number of klystron cavities. As the number of the drift region increases, the optimum value of the length of the drift region gradually decreases, while the alternating voltages of the gaps increase. Bibliography of 1 title. Resumé.
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USSR

UDC 621.385.624.001.5

~~BERNEVKA, K. P.~~, GOLOVANOV, V. V., VASIL'YEV, YE. I., KANAVETS, V. I.,
LOPUKHIN, V. M.

"Bunching Quality Index and Electronic Efficiency of a Quadrupole-Resonator
Klystron"

Moscow, Radiotekhnika i Elektronika, Vol XVI, No 4, 1971, pp 561-564

Abstract: The processes in a quadrupole-resonator klystron with a beam of given
perveance are calculated considering the effect of coulomb forces and the return
movement of electrons in the output resonator. Approximation of the given field
and the one-dimensional disc model of the beam were used. The correspondence
between the magnitude of the bunching quality index and the electron efficiency
is investigated. When studying the relations between the bunching quality index
and the electron efficiency it is necessary to consider the optimizing effect
of the space charge on the processes of formation of the cluster and power take-
off. In the example of a four-resonator klystron it is demonstrated that when
selecting the optimal parameters of the buncher and output resonator the value
of the bunching quality index and the electron efficiency approximately coincide.
For nonoptimal parameters of the buncher the electron efficiency can be larger
than the bunching quality index. The two variables are plotted according to
1/2