

2/2 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104060

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLETE X RAY ANAL. OF THE STRUCTURE OF THE TITLE BI NUCLEAR COMPLEX IS CONDUCTED. THE STRUCTURE IS INTERPRETED BY THE HEAVY ATOM METHOD AND MADE MORE PRECISE BY THE METHOD OF LEAST SQUARES IN ISOTROPIC APPROXN., R EQUALS 11.3PERCENT. THE GEOMETRY OF THE MOL. AND THE CHARACTER OF THE COORDINATION OF THE BRIDGE ACETYLENE LIGANDS IS PRACTICALLY NO DIFFERENT FROM THAT FOUND EARLIER IN THE COMPLEX ((PI C SUB5 H SUB5)NB(CO)(PH SUB2 C SUB2)) SUB2. THE GEOMETRIC PARAMETERS ARE COMPARED OF THE COORDINATED TRIPLE BOND AND ITS FREQUENCIES IN PI ACETYLENE COMPLEXES OF NB. C. J. STEINBERG.

UNCLASSIFIED

172 007 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--N,ALKYL,N,CYCLOHEXYLPYPERIDINIUM IODIDES -U-
AUTHOR--(03)-TIMOFEYENKO, I.A., FOKIN, A.V., KIRILLOV, N.Y.
COUNTRY OF INFO--USSR
SOURCE--Zh. OBSHCH. KHIM. 1970, 40(4), 941. *K*
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--IODINATED ORGANIC COMPOUND, PIPERIDINE, ALKYLATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3606/1371 STEP NO--UR/0079/70/040/004/0941/0941
CIRC ACCESSION NO--AP0135045
UNCLASSIFIED

272 007 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0135045
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALKYLATION OF
N,CYCLOHEXYLPIPERIDINE WITH ALKYL IODIDES RESULTED IN MUCH TAR AND GAVE
BUT 40-7PERCENT QUATERNARY SALTS IN 15-16 HR AT 135-40DEGREES IN
AUTOCLAVE WITHOUT A SOLVENT. IN MECH, TAR FORMATION WAS REDUCED AND THE
REACTION REQUIRED ONLY 5 HR TO YIELD 85PERCENT
N,ALKYL,N,CYCLOHEXYLPIPERIDIUM IODIDES (ALKYL SHOWN): HEPTYL, M.
96-8DEGREES; DECYL, M. 104-5DEGREES.

UNCLASSIFIED

USSR

UDC 547.822.4

TIMOFEYENKO, I. A., FOKIN, A. V., and KIRILLOV, N. V.

"N-Alkyl-N-cyclohexylpiperidinium Iodides"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, p 941

Abstract: The authors attempted to obtain representatives of N-alkyl-N-cyclohexylpiperidinium iodides ($R=C_7-C_{10}$) by the usual method -- alkylation reaction of tertiary alcohols of cyclic structure with alkyl iodides. Corresponding quaternary salts were obtained, but the process proceeded with significant resinification, and the yield of quaternary salts was not over 40-47 percent. The reaction was staged in an autoclave at 135-140° without a solvent, reaction time 15-16 hours. Experiments using the synthesis of N-heptyl- and N-decyl-N-cyclohexylpiperidinium iodides as an example showed that if this reaction is staged in acetonitrile, there is a sharp decrease in the formation of resinous products and in the reaction time to five hours, with an increase in the yield of iodides to 83-85 percent.

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USSR

K
UDC 547.26.118

MAKLYAYEV, F. L., KIRILLOV, N. V., FOKIN, A. V., and RUDNITSKAYA,
L. S.

"Synthesis of Phosphonocarboxylic Acid Esters With Unlike Radicals"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 5, May 70, pp 1014-1015

Abstract: The authors synthesized previously undescribed representatives of phosphonocarboxylic acid esters with unlike alkoxy radicals at the phosphorus by the addition of dialkyl phosphites with unlike radicals to esters of α, β -unsaturated carboxylic acids in the presence of sodium methylate.

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USSR

UDC 621.394.542

BELOV, P. V., KIRILLOV, N. YE., CHERKUNOV, A. I., Active Members of the Scientific and Technical Society of Radio Engineering, Electronics and Communications imeni A. S. Popov

"Noiseproofness of Spaced Reception in the Presence of Fading Noise"

Moscow, Radiotekhnika, Vol 27, No 1, 1972, pp 77-79

Abstract: The noiseproofness of spaced reception of a signal under the simultaneous effect of fading concentrated noise and fluctuation noise is analyzed. Experimental and theoretical results are presented showing that the system for reception of a fading signal against a background of fading and fluctuation noise with spacing and in the presence of subsequent coherent addition of the signals of the spacing branches (and also self-tuning shortwave antenna arrays with the same operating principle) is an effective means of improving the noiseproofness of the reception. For standard reception conditions in the shortwave range when the ratio of the mean energies of the signal and noise is 0.1-0.05, a system with $n = 20$ insures an error probability of $P_{\text{error}} \sim 10^{-2}$. In contrast to reception of a fading signal against a background of fluctuation noise when an increase in the number of branches N above 3-5 does not lead to further improvement of the noiseproofness and, consequently, is inexpedient,

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USSR

BELOV, P. V., et al., Radiotekhnika, Vol 27, No 1, 1972, pp 77-79

in the investigated case of reception of a signal against a background of fluctuation noise and fading noise, a significant gain in noiseproofness is observed to $N = 20$. Further increase in the number of branches is expedient.

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USSR

UDC 621.762.002.5

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MITIN, I. I., KHAVSKIY, N. N., SOKOLOV, M. A., KIRILLOV, O. D., YAKUBOVICH, I. A.,
PREOBRAZHENSKIY, N. A.

"Acoustic Vortex Disperser to Obtain Finely Dispersed Metal Powders"

V sb. Primeneniye ul'trazvuka v metallurg. protsessakh (Application of Ultrasound
in Metallurgical Processes -- collection of works), Moscow Steels and Alloys
Institute, 67, Moscow, 1972, pp 171-173 (from RZh-Metallurgiya, No 4, Apr 72,
Abstract No 4G424)

Translation: A description of an acoustic eddy atomizer used to obtain finely
dispersed metal powders is presented. One illustration.

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USSR

UDC 669.71.053.4.094

PREOBRAZHENSKIY, N. A., KHAVSKIY, N. N., YAKUBOVICH, I. A., SAMOYLOVA, L. I.,
KIRILLOV, O. D., ULANOV, V. I.

"Studies of the Influence of Ultrasound on the Process of Sulfuric Acid
Leaching of Phosphorite"

Primeneniye Ul'trazvuka v Metallurg. Protsessakh [Use of Ultrasound in
Metallurgical Processes -- Collection of Works], Moscow, 1972, pp 72-74,
(Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract
No 5 G214 by the authors)

Translation: It is demonstrated that US oscillations, breaking down the film
of phosphogypsum, intensify the process of sulfuric acid leaching of phospho-
rites. 1 Table.

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USSR

UDC 621.762.2:669.5

MITIN, I. I., SOKOLOV, M. A., KHAVSKIY, N. N., PREOBRAZHENSKIY, N. A., YAKUBOVICH, I. A., ~~KIRILLOV, O. D.~~

"Obtaining Zinc Powder by an Acoustic Eddy Disperser"

V sb. Primeneniye ul'trazvuka v metallurg. protsessakh (Application of Ultrasound in Metallurgical Processes -- collection of works), Moscow Steels and Alloys Institute, 67, Moscow, 1972, pp 149-151 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G403)

Translation: A new procedure is described for obtaining finely dispersed Zn-powder from a melt using an eddy acoustic pneumatic atomizer. Two illustrations.

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USSR

UDC 621.762.01

METIN, I. I., KIRILLOV, O. D., KHAVSKIY, N. N., SOKOLOV, M. A., YAKUBOVICH, I. A.,
PREOBRAZHENSKIY, N. N.

"Problem of Using Sound Vibrations in Powder Metallurgy"

V sb. Primeneniye ul'trazvuka v metallurg. protsessakh (Application of Ultra-
sound in Metallurgical Processes -- collection of works), Moscow Steel and
Alloys Institute, 67, Moscow, 1972, pp 147-149 (from RZh--Metallurgiya, No 4,
Apr 72, Abstract No 4G387)

Translation: The prospects for using sound vibrations in powder metallurgy are
demonstrated. 4-entry bibliography.

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USSR

UDC 612.453.014.3:6-612.6-06:612.766.2

YURGENS, I. I. and KIRILLOV, O. I., Laboratory of Pharmacology and Experimental Therapy, Institute of Biologically Active Substances, Far Eastern Scientific Center of the Academy of Sciences USSR

"Mitotic Activity of the Rat Adrenal Cortex During Prolonged Hypokinesia"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 74, No 7, 1972, pp 98-101

Abstract: The effect on mitotic activity of prolonged restraint was studied by placing male rats of the Wistar strain weighing 95-100 g into small cubicles. Groups of experimental and control animals were sacrificed after 1 hr, 12 hr and after 2, 5, 9, 14 or 19 days. It was found that mitotic activity was decreased after one hour of hypokinesia. Mitotic activity in the zona glomerulosa was restored to control levels and in the external zona fasciculata greatly exceeded control activity after 12 hours to 9 days of hypokinesia. After 14 to 19 days, when the animals showed signs of exhaustion, the amount of hypertrophy had decreased and the mitotic index decreased. The results obtained here and in an earlier work of the authors suggest that hypertrophy of the adrenal cortex during stress involves increased mitotic activity as well as hypertrophy of individual cells.

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Acc. Nr:

AP0051927

Ref. Code: UR0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i
Meditsiny, 1970, Vol 69, Nr 2, pp 166-162

MITOTIC ACTIVITY OF THE ADRENAL CORTEX CELLS IN RATS SUBJECTED
TO PROLONGED EXERCISE

I. L. Yurgens, O. I. Kirillov

Institute of Biologically Active Substances of the Siberian Branch of the Academy of
Sciences of the USSR, Vladivostok

Rats were forced to swim in a bath with water temperature of 28—30° 3 hours a day for 30 consecutive days. Groups of animals were sacrificed after 2, 5, 6, 18, 24 and 30 swims. The mitotic activity of the fascicular and retinal zones of the adrenals declined by the 5th day, then rose above the ordinary level (on the 12, 18 and 24th day) and, finally, decreased again on the 30th day. In the glomerular zone an increase in the number of mitotic cells was observed only on the 18th day, being down throughout the rest of the time, except for the 2nd day. Hence, changes in the mitotic activity of the adrenal glands in rats subjected to protracted swimming were of phasic nature.

REEL/FRA
ME 19820410

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USSR

UDC 681.327.66

KIRILLOV, O. V.

"A Memory Element"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 36, Soviet Patent No 288047, class 21, filed 13 Oct 69, published 3 Dec 70, p 57

Translation: This Author's Certificate introduces: 1. A memory element for a permanent memory device of transformer type based on a core with removable magnetic circuit, the controllable section containing modulation apertures threaded with control windings. As a distinguishing feature of the patent, the signal-to-noise ratio is increased by making the controllable section of the magnetic circuit in the form of a magnetic bridge with modulation apertures in each leg and output winding on the diagonal connector of the bridge. 2. A modification of this element in which the technology of making the memory device is simplified by arranging the contact surface and diagonal connector of the bridge in the controllable section of the magnetic circuit in parallel planes, while perpendicular to these planes are the legs of the bridge containing apertures for the output line which runs parallel to the contact surface, and modulation apertures threaded by control lines perpendicular to the output line.

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USSR

UDC: 519.21

KIRILLOV, P. V.

"Existence of Solutions of One Class of Linear Stochastic Operator Equations"

V sb. Mat. issledovaniya (Mathematical Research--collection of works), Vol 5, No 3, Kishinev, Academy of Sciences of the Moldavian SSR, 1970, pp 190-191 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V127)

[No abstract]

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USSR

UDC: 519.21

KIRILLOV, P. V.

"Properties of Convexity of One Family of Random Function Spaces of
S. L. Sobolev"

V sb. Mat. issledovaniya (Mathematical Research--collection of works),
Vol. 5, No 3, Kishinev, Academy of Sciences of the Moldavian SSR, 1970,
pp 192-194 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V128)

[No abstract]

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USSR

UDC 681.34

DOROGOV, A. YE., BOLOTOV, B. V., ~~KIRILLOV, V. G.~~, OGURTSOV, K. A.,
PRYASHNIKOV, V. M., and REMIZOV, B. A.

"Analog-Digital Decision, Regulating, and Control Computer"

USSR Author's Certificate No 258744, filed 17 Nov 62, Moscow, Otkrytiya
Izobreteniya Promychnennyye Obraztsy i Tovarnyye Znaki, No 1, Jan 70,
p 132

Translation: An analog- digital decision, regulating and control com-
puter which consists of an adder and memory unit, problem inout unit,
multiplier, input device for positioning coefficients, and control
desk is presented. Its special feature is the fact that for the pur-
pose of simplification coupled with increased versatility, the adder
and memory units are connected to the outputs of the input device for
positioning coefficients and the multiplier. The output of the input
device for positioning coefficients is connected to the first input of
the multiplier, and the computer input is connected to the second input
of the multiplier through the problem input unit.
1/1

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USSR

UDC: 620.179.16

ISAYENKO, F. I., KIRILLOV, V. I.

"Nondestructive Methods of Strength Testing of Piezoceramic Elements"

Sverdlovsk, Defektoskopiya, No 5, 1972, pp 72-76.

Abstract: The influence of large, isolated defects on the strength of piezoceramic elements of TBK-3 piezoceramic and nondestructive methods of testing of piezoelements with defects are studied. There is a close correlation relationship between defect size and strength. This indicates that the guaranteed strength of piezoelectric elements can be increased if 100% ultrasonic testing of products of piezoceramics for defect dimensions is performed. Internal defects can be tested using series-produced ultrasonic test installation. The stability of the strength characteristics of "defect-free" ceramic materials should also be increased to increase the reliability of piezoelectric elements.

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USSR

UDC 621.391.8274:621.375.75

KIRILLOV, V.I.

"Noise Protection of Regenerative Parametric Amplifiers"

Elektrosvyaz', No 3, Mar 1972, pp 68-72

Abstract: The effect is considered of one or more strong noise disturbances on regenerative parametric amplifiers. Simple analytical relations are obtained connecting a change of the primary parameters (C_0 , C_1) of the amplifier with the magnitude of the voltage of the interference signal. These relations are valid for an arbitrary index of nonlinearity of the capacitance. Sufficiently simple computed relations are obtained for determination of the saturation coefficient, the amplitude cross modulation, and the 2- and 3-signal selectivity of 1- and 2-circuit [kontur] regenerative parametric amplifiers. The relations agree well with experiment. 3 fig. 2 ref. Received, 10 Sept 70.

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USSR

UDC: 538.4

KIRILLOV, V. Kh.

"The Electric Field in an MHD Channel of Rectangular Cross Section in the Presence of the Hall Effect"

V sb. Materialy Vses. konferentsii po krayev. zadacham (Materials of the All-Union Conference on Boundary Problems) Kazan', Kazan. un-t, 1970, 136-141 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2B28)

Transactions: A study is made of the electric field in a channel $|x| < \infty$, $|y| < b$, $|z| < 1$, the walls of which $y = \pm b$ are insulators, and the walls $z = \pm 1$ consist of insulators at $x < 0$ and solid electrodes at $x > 0$. It is assumed that the external magnetic field B_0 is perpendicular to the xy plane and is uniform, that the magnetic Reynolds numbers are small, that the conductivity σ and the Hall parameter $\beta = \text{const}$, and the velocity vector has the form $\vec{v} = (V_0, 0, 0)$, $V_0 = \text{const}$. The solution to the problem is written in the form of a Fourier series in terms of the coordinate y , for the coefficients of which, $\phi_n(x, z)$, the boundary prob-

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USSR

KIRILLOV, V. KH., V sb. Materialy Vses. konferentsii po krayev. zadacham, Kazan', Kazan. un-t, 1970, 136-141 (from RZh-Mekhanika, No 2, Feb 71, Abstract No. 2B28)

lems are formulated with heterogeneous boundary conditions. The latter are analyzed by the Wiener-Hopf method. No computations are made according to the obtained formulas.

Note: The formulated problem is two-dimensional ($\phi = \phi(x, z)$) and its solution is obtained by E. Podolsky and A. Sherman (J. Appl. Phys., 1962, 33, No. 4, pp 1414-1418 -- RZh-Mekh, 1966, 3B60). Hence, all coefficients ϕ_n except ϕ_0 , should be identically equal to zero (this can immediately be seen from system (6)). Under the assumptions for B_e , α and β , the electric field becomes three-dimensional only if the velocity is a function of the coordinate y . A. B. Vatazhin

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USSR

UDC: 538.4

KIRILLOV, V. Kh., SIDOROVA, I. S.

"Solving a Boundary Problem in Magnetohydrodynamics"

V sb. Materialy Vses. konferentsii po krayev. zadacham (Materials of the All-Union Conference on Boundary Problems--collection of works) Kazan', Kazan University, 1970, pp 142-145 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2B2)

Translation: The boundary problem is considered of finding the harmonic functions ψ_1 and ψ_2 , defined in the regions $-h_1 < y < y_1$ and $y_1 < 0 < h_2$, and satisfying the boundary conditions: $\psi_1 = q_1$ at $y = -h_1$; $\psi_2 = q_2$ at $y = h_2$; $\psi_1 = 0, \psi_2 = 0$; $(\nabla\psi_1)^2 + (\nabla\psi_2)^2 = 2g y_1 + \text{const}$ at y_1 (here, h_1, h_2, q_1, q_2 , and g are constants, and the functions $y_1 = y_1(x)$ should be determined from the solution of the problem). The formulated system of equations describes the propagation of nonlinear waves on the surface of an ideally conducting, incompressible, nonviscous fluid of finite depth, bounded by a region containing a magnetic field oriented along the direction of wave motion. A. B. Vatazhin

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USSR

UDC (621.362.538.4]:538.632.:537.212

KIRILLOV, V. Kh.

"Electric Field in a Magnetohydrodynamic Channel of Rectangular Cross Section in the Presence of the Hall Effect"

V sb. Materialy Vses. konferentsii po krayev. zadacham (Materials of the All-Union Conference on Boundary Value Problems), Kazan', Kazan' University, 1970, pp 136-141 (from RZh-Elektrotehnika i energetika, No 1, Jan 71, Abstract No 1A135)

Translation: The author considers flow of a nonviscous incompressible electrically conductive fluid in a channel with semi-infinite ideally conductive electrodes in the presence of a homogeneous transverse magnetic field. It is assumed that the magnetic Reynolds numbers are low, and that the Hall parameter and conductivity of the fluid are constant. The Laplace equation for the electric field potential is solved in the form of a cosine series on the interval corresponding to the dimension of the channel lengthwise of the magnetic field. The coefficients of the series which are functions of the two other coordinates are determined from the solution of boundary value problems with mixed boundary conditions by the Wiener-Hopf method, using Fourier transformation. Bibliography of three titles.
A. D. Lobanov.

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USSR

UDC 547.26*118:542.61

BELOUSOV, YE. A., and KIRILLOV, V. M., Leningrad Technological Institute
imeni Lensovet

"Relation Between Structural Criteria and Extractive Power of Neutral Organophosphorus compounds"

Leningrad, Zhurnal Obschey Khimii, Vol 41, No 8, Aug 71, pp 1876-1877

Abstract: The authors undertook to establish quantitative regularities whereby the extractive power of neutral organophosphorus compounds towards HCl and H_2CoCl_4 is related to their structure, using 1 M solutions of the extracting agents in benzene. Effective HCl extraction constants and cobalt partition coefficients, determined under strictly identical conditions, were used as the extractive power criterion. The structural criterion consisted of values of Kabachnik constants, which account for the effect of substituents at the phosphorus atom, and electronegativity values of the radicals. Analysis of the results showed that in the case of a hydrate-solvate extraction mechanism a linear relation is found between effective extraction constant logarithms, Kabachnik constant values and radical electronegativity values up to an HCl concentration of ~ 5 mol / l in the initial aqueous solution. An increase in $1/2$

USSR

BELOUSOV, YE. A., and KIRILLOV, V. M., Zhurnal Obshchey Khimii, Vol 41,
No 8, Aug 71, pp 1876-1877

the HCl concentration above 5 mol /l results in reduced hydration in the
extract. In cobalt extraction an analogous relation is found between values
of the cobalt partition coefficients and Kabachnik constants.

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USSR

UDC 546.73:542.61

BELOUSOV, YE. A., KIRILLOV, V. M., Leningrad Technological Institute imeni Lensovet, Leningrad, Ministry of Higher and Secondary Specialized Education RSFSR

"Extraction Properties of Neutral Organophosphorus Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, pp 2134-2135

Abstract: Data are reported on the effect of the structure of neutral organophosphorus compounds on the extraction of cobalt from aqueous solutions of HCl, LiCl, and CaCl₂ (MCl_x). The series phosphates-phosphonates-phosphinates-phosphine oxide with alkyl radicals ranging from butyl to octyl groups, was studied. It was determined that extraction increases from phosphates to phosphine oxides and decreases from butyl to octyl substituents. Distribution coefficients decrease in the order HCl > CaCl₂ > LiCl, other conditions being equal. Depending on the MCl_x, cobalt goes into the organic phase as H₂CoCl₄, Li₂CoCl₄, and CaCoCl₄. It is proposed that cobalt is extracted by the hydrate-solvate mechanism.

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USSR

UDC 678.06-419.8:677.521]01:586

KIRILLOV, V. N., AVRASIN, Ya. D., YEFIMOV, V. A. and DOBROKHOTOVA, R. A.

"Effect of the Conditions of Thermal Treatment of Fiberglass on Their Thermophysical Properties"

Moscow, Plasticheskiye Massy, No 2, 1973, pp 58-60

Abstract: Results are reported of the study of the effect of the conditions of thermal treatment of fiber glass on its thermophysical properties in temperature range 20-300°C. It was shown that a considerable effect is exerted by thermal treatment and thermal aging on numerical values and temperature function of thermophysical properties. The type of change of the coefficient of heat transfer can be correlated to the structural aspects of the material. Due to the direct relationship between the depth of solidification of polymer and its thermophysical properties, the latter may be used in selecting technological conditions for the manufacturing of these materials. For example, on the basis of the change in thermal capacity the temperature range may be determined in which the processes of structuralization, of the emission of low-molecular-weight volatile products, destruction processes, etc., are taking place.

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USSR

UDC 678.06-419.8:677.521.01:53

KIRILLOV, V. N., SOBOLEV, I. V., YEFIMOV, V. A., and GARANINA, S. D.

"Thermophysical Properties of Fiberglass With Silicon Filler"

Moscow, Plasticheskiye Massy, No 2, 1973, pp 54-57

Abstract: The effect of thermal treatment for silicon fiber on its properties and the thermophysical properties of the fiberglass based on a silicon filler and various binders was studied. The silicon fiber KT-11 was treated at 300, 600 and 800°C. Fiberglass materials were prepared from phenylfurfuryl, phenylformaldehyde, organosilicon, and modified epoxy binders. Experimental results show that with increased temperature of the fiber treatment the amount of moisture on the surface of fibers is sharply decreased. In fiberglass materials with large interconnected pores the moisture loss occur in all layers of the filler; in fiberglass of low porosity these processes occur only on the surface layers. Thus during the thermal treatment of silicon fiber its properties are altered in line with its structural changes. Thermophysical properties of fiberglass filled with silicon fiber KT-11 depend to a large degree on the treatment temperature of the filler.

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USSR

UDC 678.06-419.8:677.521/.01:53

KIRILLOV, V. N., YEFIMOV, V. A., KOZIN, V. I., ABLEKOVA, Z. P.,
KRASNOV, L. L., TIKHOMIROVA, R. S.

"Effect of Fillers on the Thermophysical Properties of Fiberglass
Plastics"

Moscow, Plasticheskiye Massy, No 11, Nov 70, pp 38-40

Abstract: The authors investigate the effect which chemical composition and heat treatment of the filler have on the thermophysical properties of fiberglass plastics at 50-300°C. The plastics studied were based on phenol-furfural or organosilicon binders, and fillers comprised of silica or aluminoborosilicate fabric with a paraffin lubricant. It was found that the behavior of the thermophysical characteristics of fiberglass plastics as the temperature changes depends on the processes which take place in the filler. In materials based on aluminoborosilicate fiber, oxidation of the lubricant determines the change in thermophysical properties with temperature, while the determining factor in plastics based on silica fabric is evaporation of the moisture absorbed by the fibers. Heat treatment of silica fabric is an effective measure for reducing shrinkage of plastics based on this filler.

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1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--PRINCIPLES OF THE OPERATION OF THE METALLIC ELECTRODES OF A
MAGNETOHYDRODYNAMIC GENERATOR -U-
AUTHOR--ZELIKSON, YU.M., KIRILLOV, V.V., RESHETOV, E.P., FLID, B.D.
COUNTRY OF INFO--USSR K
SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(1) 193-202
DATE PUBLISHED-----70

SUBJECT AREAS--ENERGY CONVERSION (NON-PROPULSIVE), ELECTRONICS AND
ELECTRICAL ENGR.
TOPIC TAGS--ELECTRODE DESIGN, ELECTRODE PROPERTY, MAGNETOHYDRODYNAMIC
GENERATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0603

STEP NO--UR/0294/70/008/001/0193/0202

CIRC ACCESSION NO--AP0107200

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107200

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STEEL, STAINLESS STEEL, AND CU ELECTRODES WERE EVALUATED, IN AN APP. DESCRIBED IN DETAIL, UNDER CONDITIONS APPROACHING THOSE OF ELECTRODES IN MHD GENERATORS. NONLINEAR V,A CHARACTERISTICS WERE OBSD. IN THE EXPTS.; AT CURRENT OF 0.1-0.15 A AND THRESHOLD VOLTAGES OF 70-120 V, AN ARC DISCHARGE, BASED ON FLUCTUATIONS IN GAS FLOW, WAS OBSD. AT THE CATHODE. OPERATIONS IN THE ARC DISCHARGE RANGE HAVE A SIGNIFICANT EFFECT ON THE ELECTRODE CURRENT FLUCTUATIONS; THE RANDOMLY FORMED CATHODE SPOTS FORMED VARY AS TO QUANTITY, SIZE, AND CURRENT VALUE. BASED ON THE TOTAL ELECTRODE CURRENT, A RELATION WAS DEVELOPED FOR THE CURRENT FLUX IN A SPOT.

UNCLASSIFIED

1/2 037 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--MICRO ARC TYPE OPERATION OF THE ELECTRODES OF A MAGNETOHYDRODYNAMIC
GENERATOR -U-
AUTHOR--(04)-ZALKIND, V.I., KIRILLOV, V.V., LARIONOV, YU.A., SEMENOV, N.S.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. MEKH. TEKH. FIZ.; NO. 1, 130-4(JAN-FEB 1970)
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ELECTRODE, MAGNETOHYDRODYNAMICS, ELECTRIC ARC, ARC DISCHARGE,
SILICON CARBIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0114 STEP NO--UR/0207/70/000/001/0130/0134
CIRC ACCESSION NO--AP0127740

UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127740

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPERATION OF THE ELECTRODES OF A MAGNETOHYDRODYNAMIC GENERATOR WAS INVESTIGATED AT RELATIVELY HIGH CURRENT DENSITIES, USING METALLIC AND SILICON CARBIDE ELECTRODES. IT WAS FOUND THAT, IN CASE OF OPERATION AT HIGH CURRENT DENSITIES, MICRO ARCS ARE FORMED AT THE ELECTRODE SURFACE. THE BOUNDARY BETWEEN THE ELECTRODE AND THE INSULATOR, WHERE POTASSIUM COMPOUNDS ARE DEPOSITED ON THE ELECTRODE SURFACE, WAS FOUND TO EXERT A STRONG INFLUENCE ON THE BEHAVIOR OF THE ARCS, WHICH ARE CONSIDERED AS BEING RESPONSIBLE FOR THE ELECTRO EROSION OF THE ELECTRODE. SUCH MICRO ARCS APPEARED ON METALLIC CATHODES AT CURRENTS OF 5 TO 6 A WITH AN ELECTRODE SURFACE OF 11 CM PRIME2 UNDER CONDITIONS CLOSE TO SHORT CIRCUIT. THE DAMAGING BURNING OF ARCS BETWEEN THE ELECTRODE AND INSULATOR MAY BE PREVENTED BY IMPROVED DESIGN.

UNCLASSIFIED

USSR

UDC:621.039.526:546.799.4

K
KAZACHKOVSKIY, O. D., and KIRILLOV, YE. V.

"Accumulation of Plutonium for the Development of Fast Neutron Reactors"

Moscow, Atomnaya Energiya, Vol 26, No 5, May 70, pp 418-419

Abstract: Plutonium, produced in breeder reactors, is best used in fast neutron reactors. Although there are at present no fast neutron commercial power reactors in operation, the time remaining before their massive introduction can be used to accumulate plutonium for use in these reactors. This work suggests a method for determining the maximum possible storage time for plutonium before it is used in fast reactors. The time is determined by the formula

$$F_{9F} = F_{9T} (1+P)^{T_{CR}}$$

where F_{9F} and F_{9T} are the prices of plutonium when used in fast and thermal reactors; P is the correcting norm factor. This means that plutonium produced in breeder reactors can be stored before use in fast neutron reactors for time T_{CR} after which its price F_{9T} becomes equal to F_{9F} . Depending on various factors, this time is 3.5-7 years.

1/1

USSR

K
UDC 621.791.039:62-73.69.245

KULIKOV, F. R., VAS'KIN, Yu. V., and KIRILLOV, Yu. G.

"Welding of Titanium Alloys in Local Protective Chambers"

Moscow, Svarochnoye Proizvodstvo, No 8, Aug 70, pp 16-18

Abstract: A major difficulty in welding titanium and its alloys is their high capacity with respect to harmful impurities, such as oxygen, hydrogen, nitrogen, and carbon. Saturation of the weld metal in the weld-affected zone with these impurities markedly impairs the mechanical (plastic) properties of the welds and sometimes bring about cracks and pores in them. This study deals with local protective chambers for welding circular and rectilinear welds of titanium and its alloys of more than 5 mm thick. The optimum conditions of blowing out the chambers prior to welding and before setting up the minimum oxygen content in the chamber have been determined. It was found that the content of harmful impurities (oxygen and hydrogen) in the metal of the welds performed in such a chamber was not above that in both the parent metal and filler-wire. The operational use of local protective chambers and tests of the properties of welds produced in them have shown the latter to insure high-quality protection of the weld and the weld-affected from interaction with air. It is claimed that the replacement of conventional inert gas-filled chambers and control chambers with the newly designed protective chambers is economically effective.

- 54 -

Acc. Nr. **AP0045178**

Abstracting Service:
CHEMICAL ABST. **5-70**

Ref. Code
UR0191

K

91217b Granulated copolymer of styrene with α -methylstyrene. Yartsev, I. K.; Kirillova, E. I.; Glagoleva, Yu. A.; Vasil'eva, T. A.; Yartseva, E. E.; Vinogradov, G. V. (USSR) *Plast. Massy* 1970, (1), 41-3 (Russ). The title copolymer (I) was pelletized in a ED-2M disc extruder and a BE-40 screw extruder and then subjected to irradiation in the air (from a PRK-2 lamp) at 25-30°. I films were also subjected to thermal aging at 60-200° for 3,000 hr. Light and thermal aging data revealed that I was best processed in the disc extruder. The pelletized I exhibited superior physico-mech. properties and similar (to the prepelletized I) lightfastness and thermal stability.

CKJR 1

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REEL/FRA
19780078

7

1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--MECHANISM OF THE LIGHT STABILIZATION OF POLYSTYRENE PLASTICS -U-
AUTHOR--(04)-MATVEYEVA, E.N., KIRILLOVA, E.I., LEITMAN, K.A., LUKOVNIKOV,
A.F.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (5), 60-2
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHOTOLYSIS, CHEMICAL STABILIZER, HYDROXYL RADICAL, BENZENE
DERIVATIVE, ORGANIC AZOLE COMPOUND, POLYSTYRENE RESIN, PHOTOEFFECT,
ORGANIC NITRILE COMPOUND, AROMATIC KETONE, TAUTOMERISM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/0922 STEP NO--UR/0191/70/000/005/0060/0062
CIRC ACCESSION NO--AP0134651
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134651

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS ESTABLISHED THAT THE LIGHT STABILIZER 2,(2,HYDROXY,5,METHYLPHENYL)BENZOTRIAZOLE (I) DOES NOT UNDERGO CHEM. CHANGES OR REACT WITH POLYSTYRENE (II) DURING IRRADN., AND DOES NOT REACT WITH THE PRODUCTS OF II PHOTODEGRADATION. THE ABOVE OBSERVATIONS ARE ALSO TRUE FOR THE STABILIZERS RR PRIME1 C:CR PRIME2 CN, 2,HYDROXY,4,METHOXYBENZOPHENONE, 2,2 PRIME, DIHYDROXY,4,METHOXYBENZOPHENONE, OR 2,4,DIHYDROXYBENZOPHENONE. THESE BENZOPHENONES UNDERGO KE,TO,ENOL TAUTOMERISM REQUIRING THE ABSORPTION OF LIGHT ENERGY. H-BONDING IS CONSIDERED TO PLAY A ROLE IN THE STABILIZATION MECHANISMS.

UNCLASSIFIED

Cybernetics

D-2

30 APR 55013
25 JAN 1978

NEW BOOKS OF NAWKA PUBLISHING HOUSE

List of books: Moscow, Vsesoyuznyi Nauchnyi Tsentr SSSR, Russian, No 11, November 1971, pp 131-134

Mathematical, Physical and Engineering Sciences

Avotina, M. P. and Zolotareva, A. V.: Isobratnyye voprosy s nazovym chislom Av-17 (Isobaric Nuclei with Mass Number A=17), Department of Nuclear Physics, Leningrad, 1971, 130 copies, 1200 copies, 1 r 30 k.

Avtomatizirovannaya issledovaniya dinamicheskikh protsessov elektromekhanicheskikh i mekhanicheskikh ustroystv (Automation of Investigation of Dynamic Processes of Electromechanical and Pneumatic Devices), Institute of Machine Science, Moscow, 1971, 144 pages, illustrated, 2500 copies, 52 k.

Gabasov, R. and Kirillova, F.: Kachestvennaya teoriya optimal'nykh protsessov i teoreticheskiye algoritmy (Qualitative Theory of Optimal Processes: Theoretical Principles of Cybernetics), Moscow, 1971, 508 pages, 6000 copies, 2 r.

Gal'tand, I. M.; Gerasimova, Ye. G.; Smol', E. E.; Finkhtshteyn, I. I.: Prilozheniya teorii funktsiy (Applications of the Theory of Functions and Graphs: Basic Techniques), Moscow, 1971, 96 pages, 200,000 copies, 13 k.

Grebenskiy, Ye. A. and Ryabov, Yu. A.: Novyye kachestvennyye metody resheniya kolebaniy (New Qualitative Methods in Coaxial Mechanics), Moscow, 1971, 200 pages, 2700 copies, 2 r 02 k.

Grisovyan, A. T.: Wahminta ot antichnosti do nashikh dney (Mechanics from Ancient Times to the Present Day), Moscow, 1971, 312 pages, illustrated, 13,000 copies, 1 r 34 k.

Zakharin, A. G.; Brailov, V. P.; Denisov, V. I.: Metody kachestvennogo issledovaniya kolebaniy v ustroystvakh s nelineynymi privyazkami (Methods of Qualitative Investigation of Oscillations in Nonlinear Systems), Moscow, 1971, 112 pages, 1500 copies, 66 k.

- 149 -
Ustavnik dlya VVS i KAVVS
Vol. 41, No. 11, 1971

KIRILLOVA, F.

KIRILLOVA, F. M.

MATHEMATICS

SO: JPRS 56182
06 June 1972

JPRS 56182
6 June 1972

CONTROLLABILITY OF LINEAR STABLE SYSTEMS

UIC 62-50

Article by B. Goharov, F. M. Kirillova and V. V. Sakhofov, Institute of Epidemiology and Microbiology, Institut "Pis'ma" Gamaleya, USSR Academy of Medical Sciences, Moscow, Doklady Akademi Nauk SSSR, Russian, Vol 203, No 3, 1972, Submitted 3 June 1971, pp 337-339

Mathematics

1. Let us study the control system

$$D_t \dot{x}(t) = Dx(t) + Cu(t) + \int_0^t h(t) x(t-s) ds + K_1 v(t) u(t) \quad (1)$$

x is an n vector, u is an r vector, h_1, h_2, h_3 are positive numbers, $p = d/dt$, $D_t(p) = p^2 + A_1 p^2 + \dots + A_{l-1} p + A_l$, $K_1 v(t) = K_1 p^2 + K_2 p + \dots + K_{l-1} p + K_l$, $A = \alpha, A_1, A_2, \dots, A_{l-1}, A_l, B, C$ are constant $n \times n$ matrices, K_0, K_1, \dots, K_l are constant $n \times r$ matrices,

$$h(t) = \sum_{i=1}^l h_i \int_0^t \exp(\lambda_i s) ds$$

K_{ij} are constant $n \times n$ matrices, $a_i, i = 1, \dots, l$ are constant numbers.

Let us fix the initial conditions

$$x(t) = \begin{cases} x(t) = \varphi(t), & -\max(t_0, t-1, 2, 3) \leq t \leq 0 \\ x(0) = x_0, & t = 0, 1, \dots, l-1, \end{cases} \quad (2)$$

where $\varphi(t)$ is a function continuous with $\dot{\varphi}(t)$. Each control $u(t)$, $t \geq 0$ from class $C(l)$ corresponds to a unique continuous solution $x(t)$, $t \geq 0$, of the equation (1), satisfying conditions (2).

USSR

UDC 911.3.616.988.26(575.4)

KANTOROVICH, R. A., BYKOVSKIY, A. F., KIRILLOVA, F. M., and SOKOLOVA, N. M.

"Materials of Epidemiological, Virological, and Electron-Microscope Study of Hemorrhagic Fever Foci in Tadzhik SSR"

V sb. "Virusn. bolezni s.-kh. zhivotnykh. Ch. 2 (Virus Diseases of Farm Animals. Part 2), Moscow, 1970, pp 216-217 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.66)

Translation: The study revealed a relationship between Central Asian hemorrhagic fever and the foothill and low mountain type of geographic relief. Primary disease was chiefly observed in men aged 20-40 years, whose jobs required their being outdoors for prolonged periods in fields, pastures, etc. Results are presented for virological, cytological and electron microscope study of the agent.

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USSR

UDC 62-50

GABASOV, R., and KIRILLOVA, F. M., Moscow

"The Method of Dynamic Programming in the Theory of Optimum Singular Controls"

Moscow, Avtomatika i Telemekhanika, No 8, 1970, pp 5-10

Abstract: In the optimization problem

$$\begin{aligned} \dot{x} &= f(x, u, t), \quad x(t_0) = x_0, \quad t \in T = [t_0, t_1], \\ u(t) &\in U, \quad J(u) = \varphi(x(t_1)) \rightarrow \min_u, \end{aligned} \quad (1)$$

$$x = \{x_1, \dots, x_n\}, \quad u = \{u_1, \dots, u_r\}$$

The Bellman equation takes the form

$$-\frac{\partial S(x, t)}{\partial t} = \min_{u \in U} \frac{\partial S'(x, t)}{\partial x} f(x, u, t), \quad S(x, t_1) = \varphi(x). \quad (2)$$

Assuming that $S(x, t)$ is a piecewise-smooth solution of equation (2), the optimum control $u^0(x, t)$ is found from the condition

$$\frac{\partial S'(x, t)}{\partial x} f(x, u^0(x, t), t) = \min_{u \in U} \frac{\partial S'(x, t)}{\partial x} f(x, u, t). \quad (3)$$

1/2

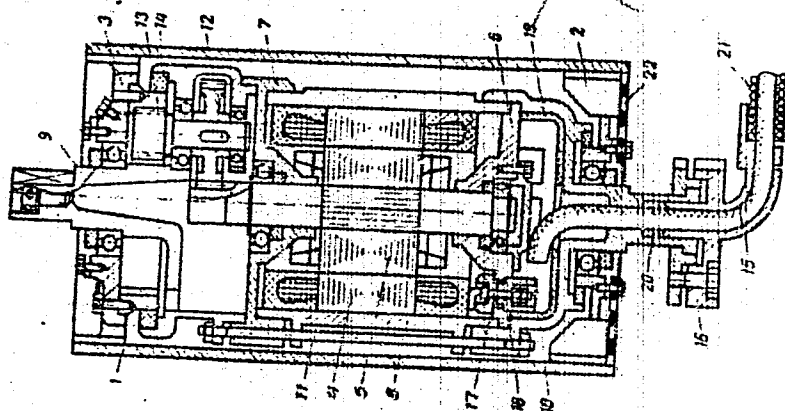
USSR

GABASOV, R., and KIRILLOVA, F. M., *Avtomatika i Telemekhanika*, No 8, 1970, pp 5-10

The authors extend the method of dynamic programming to cases in which the right member of (3) is independent of control on some set Ω of elements (x,t) . These cases are called "singular" controls. Differential equations are derived for the optimum process in a singular case, and these equations are then used to formulate sufficient conditions of optimality. Some fundamental points are studied, but no attempt is made to investigate the problem in its most general form. Two examples are given.

2/2

Acc. Nr.: AA0052693



Vol'yanko, Ye. F.; Shcherbakov, S. D.; Siinchenko, V. A.; Kirillov,
G. B.
Gosudarstvennyy Institut po Proyektirovaniyu i Konstruirovaniyu Mashin
dlya Gornorudnoy Promyshlennosti

3/2

REEL/FRAME
19821482

MP

AA 0052693

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 1-70

UR 0482

241279 EXPLOSION-PROOF MOTOR-DRUM for band conveyors, comprising a drum with a built in electric motor and reducer and a leading-in box. The distinguishing feature of the proposed motor drum is that the electric motor is fitted in a case impervious to explosion which embodies bearing housings (6) and (7) and a shell (8) connected by pins (17) with the explosion proof case of the leading-in box, the latter serving as the shank (9) of the motor-drum. In addition, one of the bearing housings has apertures for leading out the windings of the atator (4) of the electric motor. This construction increases the explosion proof quality of the motor-drum and also ensures its compactness.

28.7.66. as 1093924/27-11, VOLYNKO, E.P. et al.
Inst. for the Projection and Construction of
Machines for the Mining Ind. (20.8.69) Bul.
13/1.4.69. Class 81e, 21d¹ Int. Cl. B 65g, H 02h.

1/2

18

19821481

1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--PULMONARY EMPHYSEMA IN THE LIGHT OF FUNCTIONAL DATA -U-
AUTHOR--(02)-ZHDANOVA, N.S., KIRILLOVA, I.I. K
COUNTRY OF INFO--USSR
SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 63-66
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PULMONARY EMPHYSEMA, DIAGNOSTIC MEDICINE, ELECTROCARDIOGRAPHY,
HYPOXEMIA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FKAME--1998/0013 STEP NO--UR/0504/70/042/005/0063/0066
CIRC ACCESSION NO--AP0120713
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--APO120713

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS INVESTIGATED THE FUNCTIONAL CONDITION OF THE LUNGS AND HEART IN 92 PATIENTS WITH PULMONARY EMPHYSEMA AND DETERMINED THE INDICES OF PULMONARY VENTILATION, VITAL CAPACITY AND RESIDUAL VOLUME (HELIUM METHOD), INDICES OF BRONCHIAL PATENCY: INSPIRATION AND EXPIRATION CAPACITY (PNEUMOTACHOMETRY), MAXIMUM PULMONARY VENTILATION AND FORCED SINGLE SECOND VITAL CAPACITY AFTER TIFENO VOTCHAL. TO JUDGE UPON THE HEART CONDITION THE EEG WAS STUDIED. THERE WAS A CLOSE RELATIONSHIP BETWEEN THE VALUE OF THE RESIDUAL VOLUME AND THE INDICES OF BRONCHIAL PATENCY (EXPIRATION CAPACITY, MAXIMUM PULMONARY VENTILATION, FORCED VITAL CAPACITY OF THE LUNGS). THE USE OF BRONCHOLYTIC SUBSTANCES IMPROVED BRONCHIAL PATENCY AND DEMONSTRATED REVERSIBILITY OF EMPHYSEMA. IT WAS ESTABLISHED THAT THE EXTENT OF MARKEDNESS OF ARTERIAL HYPOXEMIA DEPENDED UPON THE IRRAGULARITY OF ALVEOLAR VENTILATION AND WAS NOT ASSOCIATED WITH THE EXTENT OF MARKEDNESS OF PULMONARY EMPHYSEMA. DISTINCT SIGNS OF THE RIGHT HEART OVERSTRAIN ACCORDING TO ECG DATA APPEAR ONLY IN EXTENSIVE EMPHYSEMA WHEN THE RESIDUAL VOLUME OF THE LUNGS IS NOT OVER THAN 50PERCENT OF THEIR TOTAL CAPACITY. FACILITY: TSENTRAL'NAYA KLINICHESKAYA BOL'NITSA 4-GO GLAVNOGO UPRAVLENIYA MINSTERSTVA ZDRAVOOKHRANENIYA SSSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 576.852.1.094.3/095.1

ASLANYAN, R. R., AGRE, N. S., KALAKUTSKIY, L. V., and KIRILLOVA, I. P.,
Institute of Microbiology, Academy of Sciences USSR

"Thermostability of Actinomycetes Spores in Water, Air, and Hydrocarbons"

Moscow, Mikrobiologiya, No 2, 1971, pp 293-296

Abstract: The thermostability of *Thermoactinomyces vulgaris* 136, *Actinomyces streptomycini* B-6, and *Actinomyces thermovulgaris* 1915 spores in air was fairly high (120 to 130°C) regardless of the type of spore or the thermophilic nature of the microorganism. The medium in which the spores were heated markedly affected their thermostability. *A. streptomycini* B-6 spores tolerated a temperature of only 50°C in water, but remained viable in air even when heated to 120°C. *A. thermovulgaris* 1915 and *T. vulgaris* 136 spores were heat resistant in all media tested - water, air, mineral oil, and undecane. A high content of intracellular moisture tended to lower thermostability in *A. streptomycini* B-6 spores. Heating in undecane (but not in octane, pentadecane, or mineral oil) sharply reduced the maximum temperature tolerated by *T. vulgaris* 136 spores. The thermostability of these spores was higher in water than in air; the content of intracellular moisture had little influence in this respect.

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USSR

UDC 547.7:546.185

KAZYMOV, A. V., SUMSKAYA, E. B., KIRILLOVA, K. M., and SHCHLKINA, Ye. P.,
Kazan' Institute of the Chemico-Photographic Industry

"Reaction of Cyanomethylenephosphonium Salts With Alkoxyvinyl(butadienyl)
Derivatives of Heterocyclic Bases"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,434-2,436

Abstract: Established methods of obtaining trimethinephosphacyanin dyes by chemical synthesis are unsatisfactory, either because of low yield or the presence of undesirable concomitants. The authors investigated the alkoxyvinyl and butadienyl salts of heterocyclic bases as possible sources of these dyes, offering at the same time greater convenience and simplicity in synthesis. Nine phosphorus-containing trimethine and pentamethinecyanin dyes were obtained through condensation of cyanomethylenephosphonium salts with β -alkoxyvinyl and δ -alkoxybutadienyl salts of heterocyclic bases. Optical properties of these, along with some physical data, were obtained. Yields and techniques of synthesis were found to be definitely advantageous in comparison with current methods of producing these dyes.

1/1

- 12 -

1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--CRYSTAL AND MOLECULAR STRUCTURE OF PI COMPLEXES OF GROUP V
TRANSITION METALS WITH ACETYLENE LIGANDS. IV. BIS (CARBONYL PI
AUTHOR--(03)-GLUSEV, A.I., KIRILOVA, N.I., STRUCHKOV, YU.T.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 62-70

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CRYSTAL STRUCTURE, MOLECULAR STRUCTURE, COMPLEX COMPOUND,
ACETYLENE, NIOBIUM COMPOUND, X RAY STUDY, PARAMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0447

STEP NO--UR/0192/70/011/001/0062/0070

CIRC ACCESSION NO--AP0104060

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AP0104060
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLETE X RAY ANAL. OF THE
STRUCTURE OF THE TITLE BI NUCLEAR COMPLEX IS CONDUCTED. THE STRUCTURE
IS INTERPRETED BY THE HEAVY ATOM METHOD AND MADE MORE PRECISE BY THE
METHOD OF LEAST SQUARES IN ISOTROPIC APPROXN., R EQUALS 11.3PERCENT.
THE GEOMETRY OF THE MOL. AND THE CHARACTER OF THE COORDINATION OF THE
BRIDGE ACETYLENE LIGANDS IS PRACTICALLY NO DIFFERENT FROM THAT FOUND
EARLIER IN THE COMPLEX ((PI C SUB5 H SUB5)NB(CO)(PH SUB2 C SUB2)) SUB2.
THE GEOMETRIC PARAMETERS ARE COMPARED OF THE COORDINATED TRIPLE BOND
AND ITS FREQUENCIES IN PI ACETYLENE COMPLEXES OF NB. C. J. STEINBERG.

UNCLASSIFIED

USSR

UDC: 621.378.325

BODRETSOVA, A. I., BAGDASAROV, Kh. S., KAMINSKIY, A. A., KIRILOVA, N. N., LEVIKOV, S. I. (deceased)

"Powerful Laser With Pyrolamp-Illuminator Based on $Y_3Al_5O_{12}-Nd^{3+}$ "
Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972,
pp 107-108

Abstract: A brief description is given of a quasicontinuous laser with pyrolamp-illuminator based on $Y_3Al_5O_{12}-Nd^{3+}$ with output emission energy of about 1 J at 300°K on a wavelength of 1.064 μ m. Lasers with pyrotechnic stimulation have the highest ratio of emission energy to weight. The authors thank A. M. Kevorkov for growing the garnet crystals, and V. N. Gardash'yan for furnishing the calorimeter. One illustration, bibliography of six titles.

1/1

USSR

UDC 621.375.82

BODRETSOVA, A. I., BAGDASAROV, Kh. S., KAMINSKIY, A. A., KIRILLOVA, N. N.,
and LEVIKOV, S. I.

"Powerful Laser With Pyrolamp Illuminator of the Material $Y_3Al_5O_{12}-Nd^{3+}$ "

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works),
No 2, Moscow, "Sov. radio," 1972, pp 107-108 (from RZh-Fizika, No 10,
Oct 72, Abstract No 10D910)

Translation: A quasi-continuous laser with a pyrolamp illuminator of the
material $Y_3Al_5O_{12}-Nd^{3+}$ with an output generation energy of about 1 joule at
300°K at the wavelength 1.064 μ is briefly described. Lasers with pyrotechnic
excitation have the highest generation energy-to-weight ratio. 6 ref.
Authors abstract.

1/1

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USSR

UDC 621.38.836.112.15c24

BERKOVSKAYA, K.F., KIRILLOVA, N.V., KONAKOVA, R.V., KRASYUK, B.A., MESKIN, S.S.,
RAVICH, V.N., SOBOLEV, V.I., SHUMAN, V.B.

"Opticoelectronic Pair, Light-Emitting Diode--Photthyristor: New Element Of
Electronic Apparatus"

V sb. Mikroelektronika (Microelectronics--Collection Of Works), Moscow, Izd-vo
"Sovetskoye Radio," No 4, 1971, pp 216-228

Abstract: The possibilities are analyzed of a new type of opticoelectronic pair, GaAs light-emitting diode--Si photthyristor. The characteristics and parameters are furnished of light-emitting diodes and photthyristors of various types. The possibilities of their optimum combination are considered. Specific regimes of operation are recommended and the parameters of the opticoelectronic pair are presented for three regimes of operation. 6 fig. 3 tab. 8 ref.

1/1

- 36 -

1/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--SPECTRAL CHARACTERISTICS OF FOUR LAYER SILICON STRUCTURES -U-
AUTHOR--(03)-BERKOVSKAYA, K.F., KIRILLOVA, N.V., KONAKOVA, R.V.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 396-8 K
DATE PUBLISHED-----70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--SPECTRAL ENERGY DISTRIBUTION, SILICON, THYRISTOR, PN JUNCTION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1995/0432 STEP NO--UR/0449/70/004/002/0396/0398
CIRC ACCESSION NO--AP0116098

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116098

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHOTOTHYRISTORS WERE STUDIED (MADE FROM N-SI, WITH RESISTIVITY 80 OHM-CM; AN N-P-N-P SWITCH WAS REALIZED BY A CONSECUTIVE DIFFUSION OF AL AND P, NAMELY THE INFLUENCE OF THE JUNCTION POSITIONS AND OF THE LIFETIME OF ELECTRONS IN P- AND N-BASES ON THE SPECTRAL SENSITIVITY. THE SPECTRAL CHARACTERISTIC OF SUCH A THYRISTOR DEPEND ON ALL PARAMETERS OF THE 4 LAYER STRUCTURE; ALSO, THE CHARACTERISTIC CAN BE INFLUENCED BY THE LIFETIME OF MINORITY CARRIERS IN THE BASES. THE MAX. OF THE SPECTRAL SENSITIVITY (λ_{SUBMAX}) CAN BE SHIFTED MAINLY BY THE POSITION OF THE 2ND JUNCTION: λ_{SUBMAX} EQUALS 9450 AND 9800 ANGSTROM FOR 10 AND 90 NU, RESP. FACILITY: FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 621.9.025:669.15'25'27-192

ISAYEV, A. I. and GELLER, Yu. A., Doctors of Technical Sciences, Professors,
and KIRILLOVA, O. M. and BROSTREM, V. A., Candidates of Technical Sciences

"Dispersion-Hardened Tool Alloys for Processing of High-Strength Structural
Materials"

Moscow, Vestnik Mashinostroyeniya, No 1, Jan 71, pages 53-57

Abstract: The properties of various types of dispersion-hardened steels have been studied, resulting in recommendation of type V18M7K25 and V18M4K25 alloys containing molybdenum for the manufacture of tools. The cutting properties of these alloys were studied under continuous and intermittent cutting conditions. The influence of heat treatment modes on the properties of the alloys were studied. The investigations showed that a change in hardening temperature between 1250 and 1300°C has no significant influence on the strength and cutting properties of the alloy. The tempering temperature is more significant in this respect. It is established that the maximum strength of cutting tools of V18M7K25 alloys for continuous turning of high strength materials is provided by hardening from 1275-1300°C with subsequent tempering

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USSR

ISAYEV, A. I., et al., Vestnik Mashinostroyeniya, No 1, Jan 71, pages 53-57

at 600°C for 2 hours. The hardness of the cutting portion of the tools in this case will be HRC 68-69. Studies have shown that the most effective area of utilization of these tool alloys is in the working of alloys of titanium, austenitic high-manganese and high-strength steels.

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1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ANISOTROPY OF TRANSVERSE MAGNETORESISTANCE OF THIN N₂SI FILMS -U-

AUTHOR--(03)-KLIMOVSKAYA, A.I., SNITKO, O.V., KIRILLOVA, S.I.

COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, NO. 2, P. 119-23, JAN. 1970

DATE PUBLISHED----JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETORESISTANCE, THIN PLATE, SILICON SINGLE CRYSTAL, LOW
TEMPERATURE EFFECT, MAGNETIC ANISOTROPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/1089

STEP NO--US/0000/70/011/002/0119/0123

CIRC ACCESSION NO--AP0136509

UNCLASSIFIED

2/2 025
CIRC ACCESSION NO--AP0136509

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANISOTROPY OF
MAGNETORESISTANCE IN THIN PLATES OF N-SI AT LOW TEMPERATURES
(20-77DEGREESK) WAS INVESTIGATED AND THE POSSIBLE EXISTENCE OF A SIZE
EFFECT OVER THE COOLING LENGTH AND THE MEAN FREE PATH WAS DEMONSTRATED.
THE SAMPLES WERE CUT FROM SINGLE CRYSTAL SILICON IN SUCH A WAY THAT THE
SURFACE WAS ORIENTED PARALLEL TO THE (100) CRYSTALLOGRAPHIC PLANE AND
THE CURRENT DIRECTION COINCIDED WITH THE MAGNITUDE OF 010. SINCE THE
PRESENCE OF MACROINHOMOGENEITIES IS IMPORTANT IN MAGNETORESISTANCE
MEASUREMENTS, THE RESULTS WERE SUBDIVIDED INTO TWO GROUPS. (1) RESULTS
OBTAINED FOR HOMOGENEOUS SYSTEMS, NAMELY, THE BENDING OF THE BANDS AT
THE SAMPLE SURFACE IS ZERO OR DEPLETING. (2) RESULTS OF INHOMOGENEOUS
SYSTEM STRONG ENRICHMENT ON THE SURFACE. FACILITY: UKRAINIAN
ACAD. SCIS., USSR.

UNCLASSIFIED

USSR

UDC 669.71.046.44

ARLYUK, B. I., KIRILLOVA, T. A., YERMOLAYEVA, E. M., SMIRNOV, M. N., FIRFAROVA, I. B.

"Analysis of the Phase Composition of Aluminate Cakes and Slurry by the Chemical Method"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrod. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 43-50 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G126)

Translation: On the basis of investigation of the solubility of compounds contained in the cakes and slurries of alumina production, a procedure is proposed for successive leaching out of them in alkaline and acid solutions for quantitative phase analysis. The correspondence of the analysis results by the given procedure and also the results from x-ray micrography and crystal-optical methods is demonstrated. The basic causes of incompleteness of extraction of the Al_2O_3 and Na_2O from the cakes is the formation of Ca-aluminates and Na-Ca-silicates during the sintering process and also the occurrence of secondary reactions when leaching out the crushed cake leading to the formation of hydrogranates and tricalcium hydroaluminate. 1 illustration and 5 tables.

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1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--THERMODYNAMIC ANALYSIS OF THE REASONS FOR ALUMINA LOSSES DURING THE
LEACHING OF A SINTERED MASS -U-
AUTHOR-(04)-ARLYUK, B.I., SMIRNOV, M.N., KOLOTUSHKINA, S.P., KIRILLOVA,
T.A.
COUNTRY OF INFO--USSR
SOURCE--TSVET. METAL. 1970, 43(3), 37-42
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
TOPIC TAGS--ALUMINA, THERMAL ANALYSIS, CALCIUM OXIDE, SILICON DIOXIDE,
SODIUM OXIDE, GARNET, SULFATE, SINTERING FURNACE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605109/805 STEP NO--UR/0136/70/043/003/0037/0042
CIRC ACCESSION NO--AP0140898

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140898

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INCREASE OF SIO SUB2 CONC. IN THE ALUMINATE LEACHING SOLN., CAUSED BY DISSOLVING BETA 2CAO.SIO SUB2, PROMOTES THE FORMATION OF THE SOLID PHASE, CONTG. AL SUB2 O SUB3. TO INVESTIGATE THE SOLY. OF 2CAO.SIO SUB2 THE FINE GROUND SINTERED MASS WAS TREATED WITH AN ALUMINATE SOLN. AT 40, 55, 65, 75, AND 90DEGREES UP TO 6 HR. THE SOLN. CONTAINED 25, 85, 140, 250, AND 300 G AL SUB2 O SUB3-L.; THE OTHER COMPONENTS WERE PRESENT IN THE RATIO AL SUB2 O SUB3:NA SUB2 O:SO SUB4 PRIME2 NEGATIVE EQUALS 80:10:5:0.2. THE SOLN. WAS ANALYZED AFTER THAT TREATMENT BY DETN. OF AL SUB2 O SUB3, NA SUB2 O, AND SIO SUB2. THE DECOMP. OF 2CAO.SIO SUB2 IS RETARDED AND THE SIO SUB2 AMT. IN THE SOLN. LIMITED BY THE FORMATION OF A FILM OF TOBERMORITE AND HYDROGARNET, WHICH COATED THE SOLID 2CAO.SIO SUB2. AFTER A COMPLETE DISSOLN. OF 2CAO.SIO SUB2, THE SIO SUB2 CONC. DEPENDS ON THE SOLY. OF NA ALUMINOSILICATE HYDRATE. IF THE SOLN. IS SATD. WITH SIO SUB2, 2CAO.SIO SUB2 IS DECOMP. VERY SLOWLY AND THE SECONDARY LOSSES OF AL SUB2 O SUB3 ARE REDUCED.

UNCLASSIFIED

KIRILLOVA T. V.

CHEMISTRY

3085 61577 27 Nov. 79

UTILIZATION OF OZONE IN TREATING INDUSTRIAL SEWAGE

[Article by B.P. Krasnov, D.L. Pokul', and T.V. Kirillova: "The Use of Ozone in Treating Industrial Sewage," *Izvestiya Akademiya Nauk SSSR Khim. Promyshl. Ekol. Tekhnol.*, No. 1, January 1979, pp. 29-30]

The ozonolysis method is lately being used more and more often in sewage treatment. The reason for this is that ozone, which is characterized by a high reduction-oxidation potential (2.07 V), readily oxidizes most toxic organic compounds to less toxic ones. The high cost of ozone, however, prevents wide-scale application of this method.

In this connection, the possibility of intensifying the process and more complete utilization of the ozone are playing a decisive role in establishing the ozonization method in industry.

Since oxidation of contaminants by ozone occurs mainly in a diffusion field at the discontinuity of the phases, work on intensifying the process has been directed toward finding ways to improve the contact between the ozone-air mixture and the solution being treated [1].

Another means of making possible a sharp acceleration in the oxidation of contaminants by ozone is the use of catalytic agents in the process. Earlier studies showed that cuprous salts [2] and silica gel [3], for example, might serve as catalysts in this process. It should be noted that the choice of catalysts is of an empirical nature. This is caused by the fact that oxidation of organic compounds by ozone in weak solutions has been insufficiently studied.

Our study was made on the oxidation by ozone of a certain class of organic compounds in weak solutions. Aliphatic alcohols were used as the test compounds, since they are quite often present in the sewage of enterprises of the chemical industry, and in addition, can be formed as intermediate products during the oxidation of certain organic compounds by ozone [4].

The experiments were carried out in glass columns, 40 and 60 cm in diameter, and 400 mm high. The ozone-air mixture, released from nitric oxides (for this purpose the mixture was passed through an absorbent with a weak alkaline solution), entered the column through a No 2 Snotl filter

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AA0038357 KIRILLOVA V.S. UR 0482

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

239707 ANABAENA VARIABILIS K-1 is a new more effective strain of blue-green algae *Anabaena variabilis* which fix atmospheric nitrogen. When cultured in a nutrient medium not containing nitrogen, the strain K-1 can fix up to 11 mg of nitrogen per litre in a day, (compared with 4.4 mg/l day of other strains of this species) the strain K-1 was found in the river Uzh in Zhitomir district. Barrel-like grainy cells have a width of 4.2 - 5 μ and a length of 2.8-6.3 μ . Oval spores are associated with heterocysts. Blue-green colours accumulate on the surface of the media. The strain can be cultivated under stationary

aerobic conditions or with forced supply of air enriched in CO₂. In the first case the pH changes from 6.5 to 9, in the second from 6.5 to 7.0. The optimum temp. is 33-35°C. A suitable liquid

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AA0038357

medium contains (in mg./ml); KH_2PO_4 20, MgSO_4 50, FeSO_4 10, triton B 16, CaCO_3 750 and minor amounts of micronutrients including $\text{Ca}(\text{NO}_3)_2$, CuSO_4 , ZnSO_4 , MnSO_4 , H_3BO_3 and ammonium molybdate. A wide range of amino acids are produced, including cystine, lysine, glutidine, arginine, etc. The cultivation can be carried out in enclosed systems or as "green fertiliser" in rice fields. 23.2.67. as 1139173/30-15, RUBENCHIK, L.I. et al. (11.8.69) Bul. 11/18.3.69. Class 45f, Int. Cl. A Olg. |

LD

AUTHORS: Rubenchik, L. I.; Kordyum, V. A.; Smirnova, R. N.;
Zharova, L. G.; Kosenko, L. V.; Ratushnaya, M. Ya.;
Kirillova, V. S.

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19731486

1/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THERMAL STABILITY OF OXYTOCIN IN AQUEOUS SOLUTIONS AND IN THE
PRESENCE OF GLUCOSE, SUCROSE, GLYCINE, AND SODIUM CHLORIDE -U-
AUTHOR-(02)-KALIS, V., KIRILLOVA, YE.A. *K*

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KIM. SER. 1970, (1), 29-32

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HORMONE, THERMAL STABILITY, GLUCOSE, SUCROSE, GLYCINE, SODIUM
CHLORIDE, ANTIBIOTIC/(U)OXYTOCIN ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0014

STEP NO--UR/0464/70/000/001/0029/0032

CIRC ACCESSION NO--AP0105114

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105114

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WHEN 5 ML ALIQUOTS OF OXYTOCIN (91.7 IU-ML) IN AQ. SOLN. ACIDIFIED WITH ACOH WAS EVAPD. TO DRYNESS IN A ROTARY EVAPORATOR AT 20 MM ON A WATER BATH AT 35DEGREES, ALONE OR WITH THE ADDN. OF 3.0 G GLUCOSE, 5.5 G SUCROSE, 1.1 G GLYCINE, OR 0.9 G NACL, THE REMAINING ACTIVITIES AS PERCENT OF THE ORIGINAL WERE, RESP.: 38, 74, 93, 100, AND 95. WHEN 1 ML ALIQUOTS WITHOUT ADDITIVES IN SEALED AMPULS WERE STERILIZED BY HEATING 45 MIN AT 100DEGREES, 30 MIN AT 110DEGREES, OR 15 MIN AT 120DEGREES, THE ACTIVITIES WERE, RESP.: 61, 99, AND 100PERCENT OF THE ORIGINAL. FACILITY: INST. ORG. SIN., RIGA, USSR.

UNCLASSIFIED

USSR

UDC 577.391:547.963.3

KIRILLOVA, Ye. N., Institute of Biophysics, Ministry of Health USSR, Moscow

"Relationship Between the Therapeutic Effect and the Method of Administering DNA in Acute Radiation Sickness"

Moscow, Radiobiologiya, Vol 11, No 4, Jul/Aug 71, pp 504-509

Abstract: On application of homologous DNA with a high degree of polymerization for the treatment of rats after their irradiation with gamma-rays in a dose of 655 r ($LD_{50/30}$), the therapeutic effect varied depending on the method of administration of DNA. The percentage of animals that survived was higher following subcutaneous or intramuscular than intraperitoneal administration of DNA. The DNA used had a molecular weight of 15×10^6 . It was obtained from the spleens of young rats. The dose of DNA administered by every method applied was 5 mg per animal.

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USSR

UDC 523.165

VOLOBUYEV, S. A., GAL'PER, A. M., ~~KIRILLOV-UGRYUMOV, V. G.~~
LUCHKOV, B. I., OZEROV, YU. V.

"Observation of Gamma-Ray Quanta With an Energy Over 100 Mev From the Region of the Crab Nebula"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 12, Dec 71, pp 2463-2465

Abstract: The Cosmos-251, Cosmos-264, and Cosmos-280 artificial earth satellites had a device to record gamma-ray quanta with energies $E_{\gamma} \geq 100$ Mev. The device was a gamma-ray telescope consisting of two scintillation counters and one directional Gerenkov counter with a lead converter. In flights 1 and 3 the viewing angle of the device took in the galactic plane. In flight 1 the device viewed the region of space where the Crab Nebula is found. A detailed analysis of the flight 1 data, consisting in a study of the initial, intermediate, and final orbit results, showed that excessive gamma radiation emanates from the region bounded by the coordinates $\delta = 0 + 13^{\circ}$, $\alpha = 3.6 + 5^h$,

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USSR

VOLOBUYEV, S. A. et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 12, Dec 71, pp 2463-2465

which includes neither the Crab Nebula nor the galactic plane. The excessive flux from this region is 2.0 ± 0.6 per interval. It is suggested that this flux is due to a point source in the region of the constellation Taurus rather than a line source in the galactic plane.

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Miscellaneous

USSR

UDC 523.164

GAL'PER, A. M., KIRILLOV-UGRYUMOV, V. G., LUCHKOV, B. I., and PRILUTSKIY, O. F.

"Cosmic Gamma-Radiation Research"

Moscow, Uspekhi Fizicheskikh Nauk, Vol 105, No 2, Oct 71, pp 209-250

Abstract: The article is a survey systematizing methods, experimental data, and theoretical work on cosmic gamma radiation. Gamma radiation is formed in the interaction of energetic particles with matter and radiation, the annihilation of matter and antimatter, and in radioactive decay. Methods for studying cosmic gamma radiation include gamma-ray telescopes with Geiger, scintillation, Cerenkov, and semiconductor detectors used as counters; "blind" gamma-ray telescopes (used on some artificial earth satellites); spark gamma-ray telescopes of G. H. FRYE et al (used in many cases on balloons); and the nuclear photoemulsion method. Areas of gamma-astronomy research include measurements of the intensity of diffuse cosmic gamma radiation (isotropic metagalactic and anisotropic galactic components), the search for discrete sources, the study of secondary gamma radiation in the upper layers of the atmosphere. A great deal of work has been devoted to the search for gamma radiation from the Crab Nebula as well as the radio sources Swan A and Virgo A and the sun. Al-

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USSR

GAL'PER, A. M., et al., Uspekhi Fizicheskikh Nauk, Vol 105, No 2, Oct 71, pp 209-250

though the results of cosmic gamma-radiation research are rather indefinite and sometimes even contradictory, important conclusions can be drawn on a number of cosmological problems (estimates of the density of metagalactic cosmic rays, the density of antimatter in the universe) and our ideas concerning processes occurring in some cosmic objects (radiogalaxies, quasars, remnants of supernovae, etc.) can be refined. The survey concludes by considering astrophysical applications of the results of cosmic gamma-radiation research, models explaining the origin of different components, and experiments important for the verification of particular models, as well as prospects for the further study of cosmic gamma radiation.

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1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--STUDY OF THE MASS SPECTRUM OF THE LAMBDA K SYSTEM IN PI PRIME
NEGATIVE P INTERACTIONS AT 4 AND 5.1 GEV-C -U-
AUTHOR--(05)--BUDAGOV, YU.A., VINOGRADOV, V.B., VOLOKHO, A.G., DZHELEPOV,
V.P., KIRILLOVUGRYUMOV, V.G.
COUNTRY OF INFO--USSR K
SOURCE--JETP LETTERS (USA), VOL. 11, NO. 1, P.31-5 (JAN. 1970)
DATE PUBLISHED----JAN70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--PROPANE BUBBLE CHAMBER, SYNCHROTRON, PROTON, MASS SPECTRUM,
PION PION INTERACTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY RECL/FAME--3005/1778 STEP NO--US/0000/70/011/001/0031/0035
CIRC ACCESSION NO--AP0133683
UNCLASSIFIED

-2/2 014

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133683

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REPORTS THE RESULTS OF THE STUDY OF THE EFFECTIVE MASS SPECTRUM OF THE LAMBDA K SYSTEM, OBTAINED IN AN INVESTIGATION OF PI PRIME NEGATIVE PI INTERACTIONS IN THE 24 LITER AND THE METER PROPANE BUBBLE CHAMBERS IRRADIATED BY 4 AND 5.1 GEV-C PION BEAMS, RESPECTIVELY, FROM THE JINR PROTON SYNCHROTRON. (10 REFS.).

UNCLASSIFIED

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USSR

BUDAGOV, YU. A., VINOGRADOV, V. B., VOLOD'KO, A. G., ~~DZHELEPOV, V. P.~~ KIRILLOV, ~~V. G.~~
~~UGRYUMOV, V. G.~~, KLDNITSKIY, V. S., KUZNETSOV, A. A., LOMAKIN, YU. F., MEL'NIKOVA,
 N. N., PONOSOV, A. K., FLYAGIN, V. B., SHLYAPNIKOV, P. V., MARTINSKA, G. (1),
 BOLDEA, V. (2), MIKHUL, A. (2), MUMUYANU, D. (2), PONTA, T. (2), FELEA, S. (2),
 and CHADRAA, B. (3), Joint Institute of Nuclear Research; (1) University imeni P.
 I. Shafarik, Koshitse, Czechoslovak SSR; (2) Institute of Atomic Physics, Bucharest,
 Romania; (3) Physics Institute of the Academy of Sciences Mongolian People's Repub-
 lic, Ulan-Bator

"Study of the Mass Spectrum of a AK-System in π^-p -Interactions at 4 and 5.1 Gev/c"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 11, No. 1,
 5 Jan 70, pp 31-35

Abstract: The results of a study of the spectrum of the effective masses of a
 AK-system are reported. The spectrum was obtained in investigating π^-p -interactions
 in a 24-liter and a 1-meter propane bubble chamber irradiated in π^- -meson beams of
 the proton synchrotron of the Joint Institute of Nuclear Research with pulses of
 4 and 5.1 Gev/c, respectively. An investigation of the structure of the effective
 mass spectrum of a AK-system was of interest from the viewpoint of observing new

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USSR

BUDAGOV, YU. A., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 11, No. 1, 5 Jan 70, pp 31-35

resonances with zero strangeness and the decays of different isobars via the channel $N^* \rightarrow \Lambda + K$, to determine the relative probabilities of these decays. Approximately 230,000 photographs were analyzed for each bubble chamber. The effective mass spectra of ΛK^0 combinations for events in which the decays of a Λ -hyperon and a K^0 -meson were simultaneously recorded in the chamber are graphed. The graphs show a considerable excess in the number of events above the background in the mass region 1.61-1.96 Gev/c^2 . It is shown that this anomaly is not associated with the reflection of known resonances Y^* (1385) and K^* (890) in the ΛK^0 -spectrum. The total excess in the number of events over the background in the mass interval 1.61-1.96 Gev/c^2 was 114 ± 13 . The experimental data verify the existence of two resonances with masses about 1685 and 1935 Mev/c^2 and widths of the order of 150 Mev/c^2 . It is concluded that the anomaly observed in the effective mass spectrum of ΛK can be explained only by the decay of the isobar S_{11} (1710), P_{11} (1750) via the channel $N^* \rightarrow \Lambda + K$ or by the existence of a new resonance with mass about 1685 Mev/c^2 , as the data of R. Erbe et al indicate.

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1/2 030 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--STUDY OF PRIMARY GAMMA RAYS OF ENERGIES HIGHER THAN 100 MEV BY
MEANS OF A SATELLITE CARRIED SPARK CHAMBER -U-
AUTHOR-(05)-VOLUBUEV, S.A., GALPER, A.M., KIRILLOVUGRIUMOV, V.G., LUCHKOV,
B.I., UZEROV, I.V.
COUNTRY OF INFO--USSR, HUNGARY K
SOURCE--INTERNATIONAL CONFERENCE ON COSMIC RAYS, 11TH, BUDAPEST, HUNGARY,
AUGUST 25-SEPTEMBER 4, 1969, PROCEEDINGS, VOLUME 1 ORIGIN AND GALACTIC
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--GAMMA RAY, SPARK CHAMBER, SPACECRAFT CARRIED EQUIPMENT,
ARTIFICIAL EARTH SATELLITE/(U)COSMOS 264 SATELLITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605061/806 STEP NO--HU/2506/70/029/000/0127/0129

CIRC ACCESSION NO--AT0144431

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AT0144431

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IDENTIFICATION OF EVENTS
CORRESPONDING TO GAMMA RAY REGISTRATION AND ASSESSMENT OF THE GAMMA RAY
FLUX USING A DEVICE WITH A MULTIPLATE WIDE GAP SPARK CHAMBER. AN ATTEMPT
HAS BEEN MADE TO ISOLATE GALACTIC GAMMA RAY FLUX. THE INSTRUMENT WAS
MOUNTED ON THE SATELLITE COSMOS 264. MORE THAN 100,000 STEREOPHOTOS
WERE TAKEN OF EVENTS IN THE SPARK CHAMBER. FACILITY: MOSKOVSKII
INZHENERNO-FIZICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

Organophosphorus Compounds

USSR

KIRILOV, M., LACHKOVA, V., Department of Organic Chemistry imeni Kliment Okhridskiy, Sofia University, Bulgaria

"Phenylation of Benzylphosphonates by Bromo-Benzene in a Sodium Amide-Liquid Ammonia System"

Moscow, Doklady Akademii Nauk SSSR, Vol 191, No 6, 1970, pp 1295-1298

Abstract: Research in the reactivity of carbanions stabilized with a phosphonium group aroused considerable interest in the arylation of carbanions of compounds such as phosphonoacetic ester, phosphonoacetonitrile and benzylphosphonic esters, and others, and in this connection their nucleophilic was evaluated. This paper presents the first results of phenylation of benzylphosphonic esters with bromo-benzene in a sodium amide-liquid ammonia system. The reaction was carried out with a 1:1:2 ratio of benzylphosphonate: bromo-benzene: sodium amide for $\frac{1}{2}$ hr and resulted in mono-phenylation products, i.e., diphenylmethane phosphonic esters with

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USSR

KIRILOV, M., et al, Doklady Akademii Nauk SSSR, Vol 191, No 6, 1970, pp 1295-1298

yields of 18-23%. The basic product was aniline (30-50%). In addition to aniline and the monophenylation product there was also an appreciable quantity of unreacted benzylphosphonate. The data indicate the lower nucleophilic capacity of benzylphosphonate carbanions (as compared to amide-anions) and their high specificity with respect to monophenylation. The above phenylation reaction is a new convenient method for preparing dimethylmethane phosphonates, and may be used for obtaining hard-to-produce esters of mixed aryl-phenylmethanophosphonic acids.

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USSR

UDC: 8.74

KIRILYUK, N. I., SIRCHENKO, A. G.

"Organizational and Technical Preparation of Enterprises for Introducing Automated Enterprise Management Systems, and Introduction of These Systems"

Kibernet. i vychisl. tekhn. Resp. mezhved. sb. (Cybernetics and Computer Technology. Republic Interdepartmental Collection), 1971, vyp. 12, pp 109-119 (from RZh-Kibernetika, No 5, May 73, abstract No 5V773 by the authors)

Translation: The paper discusses means and methods of preparing enterprises for introducing an automated enterprise management system. The questions treated in the paper are of interest to enterprise planners and managers.

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USSR

UDC: 8.74

KIRILYUK, N. I., KVASOV, V. M., ZAYTSEV, N. G., SIRCHENKO, A. G., SOKOLOV, V. K., KHRAMOV, G. V.

"Structure and Composition of the Set of Technical Facilities of a Typical Automated Control System"

Kibernet. i vychisl. tekhn. Resp. mezhved. sb. (Cybernetics and Computer Technology. Republic Interdepartmental Collection), 1971, vyp. 12, pp 41-54 (from RZh-Kibernetika, No 5, May 73, abstract No 5V772 by the authors)

Translation: The paper deals with problems of selecting the technical complex of a typical automated enterprise management system which are of interest in the development and introduction of control systems.

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USSR

KIRILYUK, N. I., SIRCHENKO, A. G.

"Some Problems of Improvement of the Structure and Changes of Functions of Administrations at Enterprises with ACS"

Kibernet. i Vychisl. Tekhn. Resp. Mezhd. Sb. [Cybernetics and Computer Technology. Republic Interdepartmental Collection], 1971, No 12, pp 124-129 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V668, by the authors).

Translation: The shortcomings of the existing administrative structure and means for its improvement are studied. Administrative functions at enterprises where ACS are in operation are described.

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USSR

PYATENKO, T. G., KIRILYUK, N. I.

"Analysis of Initial Data for an Automated Enterprise Control System"

Kibernet. i Vychisl. Tekhn. Resp. Mezhd. Sb. [Cybernetics and Computer Technology. Republic Interdepartmental Collection], 1971, No 12, pp 70-78 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V666, by the authors).

Translation: A method is suggested for classification and description of a production system; a specific list of objects is presented, making up the basis for the information to be utilized in an enterprise ACS.

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USSR

KIRILYUK, N. I., SIRCHENKO, A. G.

"Organization of an Information Computer Center for Automated Enterprise Control Systems"

Kibernet. i Vychisl. Tekhn. Resp. Mezhved. Sb. [Cybernetics and Computer Technology. Republic Interdepartmental Collection], 1971, No 12, pp 124-129 (Translated from Referativnyy Zhurnal Kibernetika No 4, 1973, Abstract No 4V667).

Translation: Means and methods for creation of information computer centers at enterprises where ACS are being introduced are studied.

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USSR

681.142.71:658.52.011.56

K
KOLIN'KO, A. I., KIRILYUK, N. I.

"Selection of Optimal Acquisition of Computer Equipment for Computer Center Processing Information for Control of an Enterprise"

Kiev, Mekhanizatsiya I Avtomatizatsiya Upravleniya, No. 2, 1970, pp 20-22.

Abstract: The principle of cost optimization is applied to problems of acquisition of computer equipment for plant data processing purposes. The problem consists of seeking a sequence of acceptable variants of computer center equipment sets involving the minimum cost, considering both capital investments and operating expenses. The method of successive analysis of variants is used, and a brief outline of the steps to be used in a program for computerized solution of the problem is presented.

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USSR

UDC 615.616.24-003.656.6

DINKELIS, S. S., KRIKUNOV, G. N., KIRILYUS, Z. YE., KONDRASHOVA, M. YA., MYAKISHEV, I. A., POLYANSKAYA, L. A.

"Significance of the Petrographic Composition and Degree of Oxidation of Coal Dust When Evaluating It In Anthracosis Danger"

Nauch. tr. Irkutsk. med. in-t (Scientific Works of the Irkutsk Medical Institute), 1972, vyp 110, pp 39-40 (from RZh--Farmakologiya. Khimioterapevticheskiye Sredstva. Toksikologiya, No 3, Mar 73, Abstract No 3.54.889)

Translation: Three specimens of coal dust of defined petrographic composition and state of oxidation comprising 98-99 percent organic material and not containing SiO_2 were obtained experimentally. After intratracheal administration of these coal dust samples to rats, by the results of the histomorphologic and biochemical studies it was established that the rats developed pulmonary fibrosis. Among the trace components of the coal dust, the more expressed fibrogenic reaction was obtained for fusinite. The biological effects caused by the unoxidized coal dust (by comparison with oxidized) appeared more quickly and were most expressed during the first ten days after poisoning.

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Abstracting Service:
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K

74210b Synthesis and some properties of yttrium and erbium diphthalocyanines. Moskalev, P. N.; Kirin, I. S. (Fiz.-Tekh. Inst. im. Ioffe, Leningrad, USSR). Zh. Neorg. Khim. 1970, 15(1), 13-15 (Russ). Ln acetate (Ln = Y or Er) reacts with o-phthalonitrile in a 1:10 mole ratio at ~300° in a sealed tube to give dark green Ln H(C₁₂H₈N₄)₂, sparingly sol. in HCONMe₂ or MeOH and insol. in H₂O. The ir spectra of the diphthalocyanine complexes prove the absence of free phthalocyanine.

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UDC 546.641-38.07+546.661-38.07

MOSKALEV, P. N., and KIRIN, I. S., Leningrad Physico Technical Institute imeni
A. F. Ioffe, Leningrad, ~~Academy~~ Academy of Sciences USSR

"Synthesis and Certain Properties of Diphtalocyanines of Yttrium and Erbium"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 15, No 1, 1970, pp 13-15

Abstract: A study was made of the reaction between acetates of yttrium, erbium, and o-phthalolonitrile, and it was found that along with the binuclear complex of composition $Pc_3Lu_2(Ln-Y^{3+}, Er^{3+})$, diphtalocyanines of composition HPC_2Ln predominantly form. The mass of the dry diphtalocyanine was 35-40% of the mass of the synthesis products. Through gravimetric analysis yttrium diphtalocyanine was found to contain 7.76% y. Calculated for $H(C_{32}H_{16}N_8)_2Y$, y = 7.98%. 14.2 Percent Er was found in erbium diphtalocyanine. Calculated for $H(C_{32}H_{16}N_8)_2Er$, Er = 14.03%. Absorption spectra of solutions of diphtalocyanines of erbium and yttrium in dimethylformamide were found to have a principal maximum and the most intense absorption band at 623 m μ for the yttrium diphtalocyanine spectrum and at 624 m μ for the erbium diphtalocyanine spectrum. The hypsochromic shift is 11-12 m μ and is doubtlessly caused by the different effect of the rare earth element ions on the ground and excited energy levels of the pi-electrons of the phthalocyanine macroring.

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USSR

UDC 620.178.3

KOGAYEV, V. P., and KIRIN, V. V., Moscow

"Statistical Characteristics of the Fatigue Strength of Heat-Resistant Steel 1Kh18N9T in Steady-State and Programmed Modes of Loading at Elevated Temperatures"

Kiev, Problemy Prochnosti, No 6, 1973, pp 8-10

Abstract: Statistical characteristics are presented for the fatigue of heat-resistant steel 1Kh18N9T at 600 and 750°C under steady-state loading modes and three- and four-step programmed tests. From the resulting data it was found that in the programmed tests the durability (long-time strength) is a function of total longevity. With increase of the latter, as in the steady-state modes, the standard deviation grows and in the programmed tests substantial deviations from the linear hypothesis of damage accumulation were observed. Consequently, in calculating the long-time strength of 1Kh18N9T steel it is necessary to introduce the corresponding corrections of the linear hypotheses taking into account the shape of the programming block in relative magnitudes. Two figures, four tables, five bibliographic references.

1/1

USSR

UDC 620.178.38

KOGAYEV, V. P., KIRIN, V. V., Scientific Research Institute of Machine Sciences, Moscow

"Technique for Studying the Effect of Load Frequency on Fatigue Resistance at High Temperatures"

Moscow, Zavodskaya laboratoriya, No. 11, 1971, pp 1369-1371

Abstract: Fatigue tests were conducted at a temperature of 700°C and at frequencies of 50, 200, and 550 Hz on samples with identical dimensions of the working part. The material was EI437B steel. Samples of three different shapes were tested. Tests at different frequencies of applying the load were conducted at the same levels of stress amplitudes on ten samples at each level to determine the effect of frequency on the spread of longevity. It is shown that the use of the Eckel relationship to determine longevity at 550 Hz on the basis of tests at 50 and 200 Hz gives results considerably different from the experimental results, especially in the region of low longevities. The following approximate power function is proposed:

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1/3 042 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--FOUR PHOTON SCATTERING IN A RESONANCE MEDIUM --U-

AUTHOR--(04)--KIRIN, YU.M., RAUTIAN, S.G., SEMENOV, A.YE., CHERNOBOROD, B.M.

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SPECTROGRAPH/(U)DFS8 SPECTROGRAPH

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124695

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VERY STRONG CHANGES OF THE ANGULAR AND SPECTRAL DISTRIBUTIONS OF AN EFFICIENT NONMONOCHROMATIC RADIATION, HAVING PASSED THROUGH A RESONANCE MEDIUM, WERE OBSD. A GIANT PULSE OF A RUBY LASER (SIMILAR TO 50 MW) EXCITED THE STIMULATED RAMAN SCATTERING IN PHNO SUB2 (OR ALPHA CHLORONAPHTHALENE (I)) AND THIS RAMAN SCATTERING, FILTERED FROM THE LASER RADIATION, PASSED THROUGH A CELL CONTG. K VAPORS AND WAS RECORDED BY A DFS,8 SPECTROGRAPH. IN THE CASE OF PHNO SUB2, THE SCATTERING SPECTRUM HAD A WIDTH OF SIMILAR TO 4 CM PRIME NEGATIVE1 AND WAS SHIFTED BY 12 CM PRIME NEGATIVE1 TO THE SHORTWAVE REGION, IN COMPARISON WITH THE RESONANCE LINE (OMEGA SUBO EQUALS 13,042.9 CM PRIME NEGATIVE1). AT VAPOR PRESSURES SMALLER THAN OR EQUAL TO 5 TIMES 10 PRIME NEGATIVE4 TORR, A SMALL FREQUENCY ANGULAR RADIATION DIFFUSION WAS OBSD.; AT SIMILAR TO 5 TIMES 10 PRIME NEGATIVE4 MINUS 5 TIMES 10 PRIME NEGATIVE2 TORR, CHARACTERISTIC WHISKERS APPEARED AT THE FREQUENCIES SMALLER THAN OMEGA SUBO, ANGULAR DISTANCE OF WHICH INCREASED WITH PRESSURE. AT LARGER THAN OR EQUAL TO 0.1 TORR, THE WHISKERS DISAPPEARED FROM THE FIELD OF VIEW AND ONLY A FURTHER BROADENING OF THE FREQUENCY ANGULAR DIAGRAM WAS OBSD. THESE EFFECTS ARE CONSIDERED A RESULT OF A 4-PHOTON SCATTERING. IN THE CASE OF I, THE L SPECTRUM OF GREAT WIDTH WAS SHIFTED BY 18 CM PRIME NEGATIVE1 FROM OMEGA SUBO TO THE LOWER FREQUENCY REGION. AT SIMILAR TO 10 PRIME NEGATIVE4 MINUS 10 PRIME NEGATIVE3 TORR, WHISKERS WERE OBSD. AS A SIMULTANEOUS PASSAGE OF THE LASER RADIATION AND L OF I THROUGH THE K VAPORS, A BAND OF 2 QUANTA ABSORPTION, RELATED TO THE 4S YIELDS 4D AT. TRANSITION, WAS OBSD. ADDNL.

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3/3 - 042

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124695

ABSTRACT/EXTRACT--PREFERENTIAL RADIATION OF THE RED LINES UNDER NONZERO ANGLES AND THEIR SHIFT TO LOWER FREQUENCIES (AS COMPARED WITH AT. TRANSITION FREQUENCIES) INDICATE A POSSIBLE ROLE OF COHERENT PROCESSES.

FACILITY: INST. FIZ. POLUPROV., NOVOSIBIRSK, USSR.

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AA 0044297

UR 0482

Soviet Inventions Illustrations

Electrical, Derwent,

243732 NUMERICAL MEASURING EQUIPMENT OF ELECTRICAL
PARAMETERS in which impulse generator is
 associated through gating circuits with two counters
 one of which is connected to a code-voltage converter.
 The gating circuits are connected to a measuring
 bridge the output from which is compared with the
 code-voltage converter. The equipment measures
 sequentially electrical parameters of a component.
 15.1.68 as 1210521/18-10.V.M.SHLIANDIN et al.
 PENZA POLYTECHNICAL (30.9.69) Bul 17/14.5.69.Class
 21e. Int.Cl.G O1r.

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AUTHORS: Shlyandin, V. M., Ryzhevskiy, A. G., Kirin, Yu. P.

Penzenskiy Politekhicheskiy Institut

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MIT

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Instruments and Measurements

UDC 621.317.791

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^K
IVANOV, G. YE., KIRIN, YU. P., RYZHEVSKIY, A. G., RYZHEVSKAYA, T. N.,
SHLYANDIN, V. M.

"Procedure for Measuring Passive Parameters of Electric Circuits"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obrabotsy, Tovarnyye Znaki,
No 17, 12 May 70, p 55, Patent No 270881, Filed 11 Feb 69

Translation: This Author's certificate introduces a procedure for measuring the passive parameters of electric circuits based on investigation of the transient process in a measuring circuit containing active and reactive elements. In order to widen the measurement limits, improve the accuracy of the beginning of the measurement range and decrease the power dissipated in the investigated element, a linearly varying voltage is fed simultaneously to the measuring circuit and the resistive voltage divider. The point at which the voltages at the midpoints of the measuring circuit and the divider are equal is determined, and the time interval proportional to the measured parameter is isolated.

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USSR

UDC 612.014.426.017.1

DRONOV, I. S., and KIRITSEVA, A. D., Central Scientific Research Laboratory,
Rostov-on-Don Medical Institute

"Immunobiological Reactivity of Animals Subjected to Long-Term Irradiation by
SHF Radio Waves"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 9, 1972, pp 15-19

Abstract: Effects of low intensity SHF radio waves were studied by subjecting rabbits to 50 microwatts/cm² for 4 hrs/day for 4 months. Group 1 was irradiated during immunization with heat-killed typhoid culture, group 2 was immunized before irradiation, and group 3 was immunized after 3 months of irradiation. Another group immunized during irradiation by 10 microwatts/cm² showed no differences from controls. The others, particularly group 3, showed decreases in immunobiological reactivity. Neutrophil phagocytic activity decreased as low as 21-12% in the 7th week in group 1 (36-22% in controls) and 15-10.6% in group 2 (25.6-16.6% in controls). Complement content dropped from 13.02 C¹H₅₀ (ml) in group 2 to 5.2 in the 5th week of irradiation and returned to normal in the 6th. Complement remained normal (14.2) in group 3 until the 8th week of irradiation (9.2), dropped to 8.9 14 days after immunization, and remained low until normal levels were restored on the 60th day. Antibody titers of macro- (19S) and microglobulins (7S) were lower than controls in groups 2 and 3. 7S antibodies disappeared completely 44 days after immunization in group 3. In conclusion,

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DRONOV, I. S. and KIRITSEVA, A. D., Gigiyena Truda i Professional'nyye Zabolevaniya, No 9, 1972, pp 15-19

animals immunized prior to irradiation 50 microwatts/cm² showed insignificant reductions of immunobiological activity, while immunization after irradiation results in sharp reduction of antibody formation and complement content.

2/2

USSR

UDC 612.017.12.014.426

DRONOV, I. S.; KIRITSEVA, A. D.; Chair of General Hygiene,
Chair of Microbiology and Virology, Central Scientific Research
Laboratory, Rostov Medical Institute

"Immunobiological Shifts in Immunized Animals Exposed to Micro-
waves"

Moscow, Gigiyene i Sanitariya, No 7, 1971, pp 51-53

Abstract: Antibody formation was studied in 20 rabbits exposed
for four hours daily for four months to microwaves ($50 \mu w/cm^2$
and $10 \mu w/cm^2$) before, during, and after immunization with
typhoid antigen. Chronic irradiation at $50 \mu w/cm^2$ simultaneously
lowered the antibody titers as shown by both the agglutination
and indirect hemagglutination tests. Irradiation after immuni-
zation slightly decreased antibody titers, while irradiation
before immunization decreased them sharply. Separate determina-
tion of the 19S- and 7S-antibodies showed that chronic irradia-
tion suppressed the synthesis of macroglobulin and especially
microglobulin antibodies. Study of antibody formation in
animals exposed to $10 \mu w/cm^2$ revealed no shifts in experimental
animals compared with the control.

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