"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--BROMO SUBSTITUTED 1, THIAINDANS -U-

AUTHOR-(03)-NUMANOV, I.U., DZHALOLOV, S.S., NASYROV, I.M.

COUNTRY OF INFO--USSR

N

SOURCE--DOKL. AKAD. NAUK TADZH. SSR 1970, 13(4), 31-4

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SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BROMINATED ORGANIC COMPOUND, HETEROCYCLIC SULFUR COMPOUND, CATALYTIC ORGANIC SYNTHESIS, PROPIONIC ACID, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BROMINATION OF 1-THIAINDAN AT 50-60DEGREES IN CCL SUB4 GAVE (FORMULAS SHOWN ON MICROFICHE).

FACILITY: INST. KHIM., DUSHANBE, USSR.

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Electricity & Magnetism

USSR UDC 537.529

BAZIROV, M. A., KURBANOV, M. A., SHKILEV, A. V., and NURALIYEV, N. E.

"Investigation of an Electrical Discharge in the Air Between Electrodes Covered With Dielectrics"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol XLI, No 6, Jun 71, pp 1287-1291

Abstract: There is very little experimental data on the basic nature and parameters of the occurrence of an electrical discharge in the air between electrodes covered with dielectrics. The present article describes a method of investigating a discharge of this type. With the aid of an electric-optical converter and an oscillograph, optical and electrical images of the discharge were recorded simultaneously at various moments of sinusoidal voltage applied to the electrodes. It was established that the electrical discharge is discrete and is generated in the form of a series of spark channels. The geometric dimensions and number of the spark channels in a particular series depend on the type of dielectric used and on the width of the air space between the electrodes. It was also established that the voltage of the extinguishing of the discharge was not constant; it depends on the number of spark channels in each series of the discharge. Finally, the magnitude and polarity of the voltage had almost no effect on the optical image of the development of the discharge.

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USSR UDC 681.2

NURDINOV, S. KH., OGANEZOV, N. P.

"Device for Alphanumeric Representation of Data in an Automated Voice Command Recognition System"

Tr. Gor'kov. politekhn. in-ta (Works of the Gor'kiy Politechnic Institute), 1971, Vol 27, No 11, pp 84-86 (from RZh-Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A463)

Translation: The display unit reproduces alphanumeric data on a cathode ray tube screen using synchronous voltages with respect to the rectangular coordinate axes. There are 2 illustrations and a 2-entry bibliography.

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USSR UDC 612.821.6

NURDMAN, S. I., Institute of Physiology imeni I. P. Pavlov, USSR Academy of Sciences, Leningrad

"Changes in the Conditioned Activity of Rats Under the Influence of Accelerations"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, Vyp 5, Sep/Oct 73, pp 953-957

Abstract: The influence of longitudinal and transverse acceleration overloads on a previously elaborated system of two conditioned reflexes to an acoustic or a light stimulus was studied in 18 rats. Centripetal acceleration of 10 g, 210 rpm, was used. Errors, latent period and time of motor reaction were tested 1 minute after overload application. Most of these showed a tendency to increase after acceleration, with temporal parameters more pronounced, and longitudinal acceleration more effective than transverse. Habituation to the conditions employed was observed in the course of the experiments, and was more rapid for transverse accelerations. Some rats were more tolerant of the overload than others, though all were 6-month-old males of the same strain.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR UDC: 517.925

NUREKENOV, T. K. and KHAMITOV, M. Kh.

"Existence of ω-Periodic Solutions of Differential Equations"

Alma-Ata, Vestnik, Akademii Nauk Kazakhskoy SSR, No. 3(311), March 1971, pp 70-71

Translation: This paper considers the system of differential equations of the form:

$$dx/dt = f(t,x) \quad - \qquad (1)$$

where the function $f(t,x)$ is continuous over the combination of variables $t \in (-\infty, +\infty)$, $x = (x_1, \ldots, x_n) \in E^n$ and is ω-periodic over variable t.

It is assumed that the Cauchy problem

$$\begin{cases} dx/dt = f(t,x), \\ x(t_0) = x_0 \end{cases} \qquad (2)$$

has a unique solution $x(t) = p(t, t_0, x_0)$ in the interval $t_0 \leqslant t < \infty$.

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USSR

NUREKENOV, T. K., et al, Vestnik, Akademii Nauk Kazakhskoy SSR, No 3(311), March 1971, pp 70-71

It is known [M. A. Krasnosel'skiy, "Operator for Displacement along Trajectories of Differential Equations", Moscow, 1966] that under these conditions there exists a shift operator $U(\omega, o)$ along the trajectories of system (1), the immovable point of which determines the ω-periodic solution; conversely, the initial datum of the ω-periodic solution is the immovable point of the shift operator.

Hence, to prove the existence of an ω-periodic solution of the system (1), it is sufficient to find the immovable point of the operator $U(\omega, o)$. To find that point, we use the conical method. The closed set K for the n-dimensional vector of space E_n is said to be a cone if:

a) It follows from $x, y \in K$ that $\alpha x + \beta y \in K$, $\alpha, \beta \geqslant 0$;

b) It follows from $x \in K$ that $-x \overline{\in} K$.

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USSR

NUREKENOV, T. K., et al, Vestnik, Akademii Nauk Kazakhskoy SSR, No. 3(311), March 1971, pp 70-71

In this paper, we are considering the cone

$$K = \{x : x_i \geqslant 0; \quad i = 1, \ldots, n\}.$$

The fundamental difficulty here is finding the sufficient conditions in the terms of the right-hand member of (1) which guarantee the existence of an immovable point of the shift operator.

Lemma. Let $U(t,0)$ be the shift operator of system (1). If the function $f(t,x)$ does not decay with respect to the outer diagonal variable i.e.,

$$f_i(t, x_1, \ldots, x_{i-1}, \bar{x}_i, x_{i+1}, \ldots, x_n) \leqslant f_i(t, y_1, \ldots, y_{i-1}, \bar{x}_i, y_{i+1}, \ldots, y_n)$$

for $x_j \leqslant y_j$, $j \neq 1$ then, from $x \leqslant y$, it follows that

$$U(t,0)x \leqslant U(t,0)y. \tag{3}$$

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NUREKENOV, T. K., et al, Vestnik, Akademii Nauk Kazakhskoy SSR, No. 3(311), March 1971, pp 70-71

Proof. If we take $x_0 \leqslant y_0$, while $x(t)$, $y(t)$ are solutions of (1) which satisfy the initial conditions $x(t_0) = x_0$, $y(t_0) = y_0$, and let $y(t) - x(t) = h(t)$, then

$$dh_i/dt = f_i(t,x(t)+h) - f_i(t,x(t)) = g_i(t,h),$$

where

$$g_i(t,h) = g_i(t,h_1,\ldots,h_{i-1}, 0, h_{i+1},\ldots,h_n) \geqslant 0$$

for $h_j \geqslant 0$, $j = 1,\ldots,i-1, \quad i+1,\ldots,n$.

$h(t_0) = y_0 - x_0 \in K$; hence, $h(t) \in K$ [M. A. Krasnosel'skiy, "Operator for Displacement along Trajectories of Differential Equations", Moscow, 1966]. From this it follows that $h(t) = y(t) - x(t) \quad 0$: i.e., the shift operator $U(t,0)$ is monotonic, which also had to be proved.

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USSR

NUREKENOV, T. K., et al, Vestnik, Akademii Nauk Kazakhskoy SSR, No 3(311), March 1971, pp 70-71

Theorem. (We obtained this result in May, 1970.) Let:

1) All conditions of the lemma be fulfilled, and let the shift operator $U(\omega,0)$ of system (1) be positive.

2) The function $f(t,x) \leqslant Ax$ outside a sphere of radius R, where A is some constant matrix.

3) The shift operator $V(\omega,0)$ of the equation $dx/dt = Ax$ be positive and have an eigenvector x_0 in cone K (x_0 is a point inside K) with the eigenvalue λ_0, $0 < \lambda_0 \leqslant 1$.

Then, system (1) has at least one nonnegative ω-periodic solution.

Proof. Let us consider the ray tx_0, where $t \geqslant 0$. Because of the continuity, operator $U(\omega,0)$ invariantly remains a conic section $0 \leqslant x \leqslant y_0$, where $y_0 = t_0 x_0$, while $\|y_0\| \geqslant R$.

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NUREKENOV, T. K., et al, Vestnik, Akademii Nauk Kazakhskoy SSR, No 3(311), March 1971, pp 70-71

Hence [M. A. Krasnosel'skiy, "Positive Solutions of Operator Equations", Moscow, 1962] shift operator $U(\omega,0)$ has an immovable point z_0 in the section $0 \leq x \leq y_0$; i.e.,

$$U(\omega,0)z_0 = z_0.$$

Obviously, z_0, as the initial datum, determines the ω-periodic solution.

The theorem is fully proved.

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USSR

UDC 541.127+542.938+546.23

BEL'SKIY, V. YE., BEZZUBOVA, N. N., YEFREMOVA, M. V., and NURETDINOV, I. A.,
Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov Acad. Sc.
USSR

"Kinetics of Alkaline Hydrolysis of Some Selenophosphorusorganic Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 6, Jun 73, pp 1255-1257

Abstract: Reaction kinetics of the investigated compounds in aqueous alkaline solutions is of the first order both in regard to the substrate as well as the OH^- ions. This appears to be analogous to alkaline hydrolysis of other phosphorusorganic compounds in which the reaction occurs via the S_N2 mechanism at the phosphorus atom. Reactivity of selenophosphorusorganic compounds appears to be the same order reaction as that of the oxygen and sulfur analogues, if the selenium is in the P=Se group.

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USSR

UDC 543.422.4+541.571.9+577.
26.118

SHAGIDULLIN, R. R., LIPATOVA, I. P., NURETDINOV, I. A., and SAMARTSEVA, S. A., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR, Kazan', and Kazan' Chemical-Technological Institute Imeni S. M. Kirov

"Hydrogen Bonding with the Participation of P=Se and P=Te Groups"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 6, Aug 73, pp 1363-1365

Abstract: The electron donating ability of the group P=X (X=Se, Te) was studied in the compounds of the type $R_1R_2R_3P{=}X$ where R_1, R_2, R_3 = Me, Et, Bu, Ph, EtO, EtS, PhO, Me_2N, Et_2N, and Cl (for X = Se), and Me, Me_2N, Et_2N (for X = Te), by determining IR spectral changes due to the formation of hydrogen bonds with the phenolic OH group. It has been established that both the seleno- and tellurophosphoryl groups participate in hydrogen bonding as proton acceptors, the strength of the H-bond depending on the electronic effects of the substituents on the phosphorus atom. The electron donating ability of the P=X groups (X = O, S, Se, Te) in identical

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USSR

SHAGIDULLIN, R. R., et al., Doklady Akademii Nauk SSSR, Vol 211, No 6, Aug 73, pp 1363-1365

media changes considerably when oxygen is replaced by sulfur, but such a change is very small when sulfur is replaced by Se or Te.

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USSR UDC 541.67

OSOKIN, D. YA., SAFIN, I. A., and NURETDINOV, I. A., Kazan' Physical-Technical Institute, Academy of Sciences USSR

"Study of the Electronic Effects of Trivalent Phosphorus Acids in Amides by the Method of NQR ^{14}N and ^{35}Cl"

Kiyev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 9, No 3, May-Jun 73, pp 404-408

Abstract: The nuclear quadrupole resonance [NQR] ^{14}N and ^{35}Cl spectra have been studied in a series of trivalent phosphorus acid amides. The results obtained were used in the study of the electronic structure of nitrogen atom in these compounds. Distribution of electronic density in the molecules of P^{III} acid amides is determined by the inductive and mesomeric interaction. In addition to the P_{π}-d_{π} interactions between the N and P atoms, in case of the halogen substituents a substantial role is also played by the P_{π} - σ-conjugation between the orbital of the unshared pair at nitrogen atom and the σ-orbital of the substituent.

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UDC 543.422.27:547.1'118

USSR

OSOKIN, D. YA., SAFIN, I. A., and NURETDINOV, I. A., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR, and Kazan' Physical Technological Institute, Acad. Sc. USSR

"Investigation of Electronic Effects in Metal Organic Compounds by the Method of Nuclear Quadrupole Resonance. i Communication. Acid Chlorides of Trivalent Phosphorus Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72, pp 1513-1517

Abstract: Nuclear quadrupole resonance spectra ^{35}Cl and ^{14}N were taken on more than 30 acid chlorides (mono- and dichlorides) of trivalent phosphorus acid. Analysis of the spectra showed that mesomeric properties of the substituents at the phosphorus atom determine the shifts in the frequencies of nuclear quadrupole resonance ^{35}Cl of trivalent phosphorus acid chlorides. On the basis of nuclear quadrupole resonance ^{35}Cl and ^{14}N data it has been shown that chlorine atoms in $(CH_3)_2NPCl_2$ and nitrogen atoms in $[(CH_3)_2N]_2PCl$ are not equivalent in the solid phase.

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USSR

NURETDINOV, O. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71, pp 2589-2591

signs of the constants $^2J_{PP}$, $^3J_{PNCH}$ were determined. The series of compounds studied display a decrease in the value of $^2J_{PP}$ with a change in its sign.

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NURETDINOV, I. A., NEGREBETSKIY, V. V., YANKELEVICH, A. Z., KESSENIKH, A. V., NIKONOROVA, L. K., and LOGINOVA, E. I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, and Institute of Organic Chemistry imeni N. D. Zelenskiy, Academy of Sciences USSR

"NMR-H^1, NMR-P^{31} and INDOR-H^1 - $\left\{ P^{31} \right\}$ Spectra of Compounds Containing =P(X) - N - P(Y)= Group"

CH_3

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, no 11, Nov 71, pp 2589-2591

Abstract: For purposes of studying the spin-spin interaction in compounds with fragments of the type $=P(X)-\underset{|}{N}-P(X)=$ and $=P(X)-\underset{|}{N}-P(Y)=$, the authors studied the NMR-H^1, NMR-P^{31} and INDOR-$H^1-\left\{P^{31}\right\}$ spectra of the following compounds: $(CH_3O)_2P_I(O)N(CH_3)P_{II}(OCH_3)_2$, $(CH_3O)_2P_I(O)N(CH_3)P_{II}(Se)(OCH_3)_2$, $(CH_3O)_2P_I(O)N(CH_3)P_{II}(Se)(OC_4H_9-i)_2$, $(CH_3O)_2P_I(S)N(CH_3)P_{II}(Se)\begin{cases} OC_3H_7-i \\ N(C_2H_5)_2 \end{cases}$. The values and

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USSR

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NURETDINOV, I. A., NIKONOROVA, L. K., LOGINOVA, E. I., and GRECHKIN, N. P., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Amidoesters of Selenophosphoric Acid"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 9, Sep 71, pp 2095-2097

Abstract: For purposes of studying the effect of the amide and ester group structure on the physical and biological properties of alkylselenophosphoric acid amides, the authors synthesized a series of new amidoesters of selenophosphoric acid by the addition of elemental selenium to corresponding tervalent phosphorus acid amides. The NMR-P^{31} and IR spectra of the resultant compounds were studied. It was found that the electron effects of the phosphorus substituents in amidoesters of selenophosphoric acid have little influence on the shielding of the phosphorus nucleus. A separate article will report the results of a study of insecticidal and fungicidal properties of the compounds.

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USSR

UDC 542.91:661.718.1

NURETDINOV, I. A., NEKLESOVA, I. D., KUDRINA, M. A., IRAIDOVA, I. S., and BUINA, N. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Synthesis and Properties of Diethylaryl Seleno- and Thiophosphates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71, pp 1266-1270

Abstract: The authors undertook to compare some properties of seleno- and thiophosphoric acid derivatives for the purpose of determining the effect of replacement of sulfur atom by selenium atom in the phosphyl group. For this purpose they synthesized a series of diethyl esters of arylthio- and selenophosphoric acids. The initial substances for the synthesis of these compounds were diethylaryl phosphites obtained by the interaction of phenol, 4-chlorophenol, 2,4-dichlorophenol and 2,4,5-trichlorophenol with diethylphosphorous acid diethylamide. The IR and NMR-P31 spectra of the resultant diethylaryl thio- and selenophosphates were studied. A study of the toxicity and insecticidal properties of these compounds showed that esters of selenophosphoric acid are more toxic for warm-blooded animals than their thio analogs and less toxic for insects. Replacement of the sulfur atom by the selenium atom in the phosphyl

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USSR

NURETDINOV, I. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 71, pp 1266-1270

group leads to systemic action. A correlation is established between the anticholinesterase action of diethylaryl selenophosphates and their toxicity for insects.

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USSR UDC 542.91 + 661.718.1

NURETDINOV, I. A., BUINA, N. A., GRECHKIN, N. P., and LOGINOVA, E. I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Diphenyl- and Phenyldiethylamidoselenophosphoric Acid Esters"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 131-136

Abstract: A series of alkyl esters of diphenyl- and phenyldiethylamido-selenophosphoric acid was synthesized. Selenium was added to ethyl diphenyl phosphite and after the initial exothermic reaction subsided, the mixture was heated for 1 hr at 100°, filtered and distilled under vacuum yielding ethyl diphenyl selenophosphate (I), b.p. 133-134°/0.02 mm, d_4^{20} 1.3709, n_D^{20} 1.5765. (I) was also obtained from the reaction of diphenyl selenochlorophosphate with $(C_2H_5)_3N$ and ethanol in benzene at 10-15°. The solid $(C_2H_5)_3N \cdot HCl$ formed was removed by filtration and (I) distilled in vacuum; both methods gave the identical product. Following compounds were obtained by the second reaction: ethyl phenyl diethylamidoselenophosphate, b. p. 109-111°/0.001 mm, d_4^{20} 1.2707, n_D^{20} 1.5389; propyl diphenyl amidoselenophosphate, b.p. 141-143°/

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NURETDINOV, I. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 131-136

/0.002mm, d_4^{20} 1.3354, n_D^{20} 1.5703; and propyl phenyl diethylamidoselenophosphate, b.p. 120-120.5°/0.001 mm, d_4^{20} 1.2423, n_D^{20} 1.5368. It was determined that methyl esters of diphenyl- and phenyldiethylamidoselenophosphoric acids obtained analogously to the ethyl esters isomerize on heating to methylselenium esters of respective phosphoric acids.

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TITLE--THIOL ESTERS OF SELENOPHOSPHORIC ACIDS -U-

AUTHOR-(04)-NURETDINOV, I.A., BUINA, N.A., GRECHKIN, N.P., LOGINOVA, E.I.

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CIRC ACCESSION NO--AP0123577

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF 3 G ETSH AND 4.9 G ET SUB3 N IN C SUB6 H SUB6 WITH 15 G PHOP (SE) (NET SUB2) CL, FINALLY 1.5 HR AT 35DEGREES, GAVE 63.4PERCENT PHOP (SE) (NET SUB2) SET, B SUB0.002 121-3DEGREES, D PRIME20 1.3011, N PRIME20 SUBD 1.5840; SIMILARLY WERE PREPD. THE ANALOGS. 65.8PERCENT BUS, B SUB0.001 140 MINUS 1PERCENT, 1.2468, 1.5710; AND 53.8PERCENT PHS, M. 32-3DEGREES. EXCESS ETSNA IN ET SUB2 O TREATED WITH (PHO) SUB2 P (SE) CL GAVE AFTER REFLUXING 5 HR 30PERCENT (PHO) SUB2 P (SE) SET, B SUB0.005 152-3DEGREES, 1.3986, 1.6223; SIMILAR REACTION WITH STOICHIOMETRIC RATIO OF REACTANTS AND RUN IN C SUB6 H SUB6 2 HR AT 13-20DEGREES GAVE 37PERCENT SIMILAR PRODUCT, B SUB0.002 146-7DEGREES, 1.3874, 1.6125. BOTH HAD SIMILAR NMR SPECTRA. REACTION OF (PHO) SUB2 P (SE) CL WITH RSH AND ET SUB3 N GAVE (PHO) SUB2 P (SE) SR (R SHOWN): 71.6PERCENT ET, B SUB0.002 144-6DEGREES, 1.3876, 1.6180; 72.3PERCENT BU, B SUB0.001 151-2DEGREES, 1.3347, 1.6050; 58.2PERCENT PH, AND B SUB0.002 166-7DEGREES, 1.3744, 1.6490. THESE HAD PHYS. CONSTS. VERY DIFFERENT FROM THOSE REPORTED PREVIOUSLY BY N. I. ZEMLYANSKII ET AL. (1965, 1967); THOSE COMPDS. MAY HAVE BEEN PRODUCTS OF REACTION OF THESE WITH EXCESS RSNA. FACILITY: INST. ORG. FIZ. KHIM. IM. ARBUZOVA, KAZAN, USSR.

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UDC: 542.91-661.718.1

USSR

NURETDINOV, I.A., BUINA, N.A., GRECHKIN, N.P., LOGINOVA, E.I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Thiol Esters of Selenophosphorus Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, Mar 70, pp 708-710

Abstract: Phenyldiethylamidoselenochlorophosphate reacts with mercaptans and thiophenol in the presence of triethylamine to produce the corresponding thiol esters.

$$(PhO)(Et_2N)P(Se)Cl + RSH + Et_3N \rightarrow (PhO)(Et_2N)P(Se)SR + Et_3N \cdot HCl$$

The ethyl- and butylthiol esters of phenyldiethylamidoselenophosphoric acid are liquids, while the phenylthiol ester of this acid is a crystalline substance. Thiol esters of diphenylselenophosphoric acid are produced by a similar reaction.

$$(PhO)_2P(Se)Cl + RSH + Et_3N \rightarrow (PhO)_2P(Se)SR + Et_3N \cdot HCl$$

The resultant products have a considerably higher boiling point than thiol esters of phenyldiethylamidoselenophosphoric acid. The properties of eight esters of selenophosphorus acids are tabulated.

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UDC 542.91 + 538.113 + 661.718.1

NURETDINOV, I. A., LOGINOVA, E. I., NIKONOROVA, L. K., and GRECHKIN, N. P., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Kazan, Academy of Sciences USSR

"Synthesis and NMR Spectra of Compounds Containing the :P(S)-N-P: Group"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 914-916

Abstract: Mixed amides of dimethylthiophosphoric acid and trivalent phosphorus acids were obtained by reacting the methylamide of dimethylphosphoric acid with trivalent phosphoric acid chloride in the presence of triethylamine or by the reaction of N-dimethylthiophosphane-N-dichlorophosphine-N-methylamine with the dimethylamine in ether solution. Since the two phosphorus atoms are not equivalent -- p^{IV}-N-P^{III} -- their respective signals were found to be split in doublets. Chemical shifts of the nuclei of tetracoordinated phosphorus are not affected by substituents on the tricoordinated P,

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NURETDINOV, I. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, Vol 4, Apr 70, pp 914-916

while the shifts of nuclei on tricoordinated P behave analogously to monophosphoric compounds. The constants of spin-spin interaction Jpp depend on the electron donating power of the substituents on tricoordinated phosphorus.

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Acc. Nr: AT0050273 Abstracting Service: CHEMICAL ABST. 5170 Ref. Code: UR 0020

95120n Nuclear quadrupole resonance in some three-membered and other nitrogen-containing heterocycles. Osokin, D. Ya.; Safin, I. N.; Nuretdinov, I. A. (Kazan. Fiz.-Tekh. Inst., Kazan, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(2), 357–60 [Chem] (Russ). The spectra were measured for ^{14}N and ^{35}Cl in ethylenimine, 1-chloroethylenimine, 2,2-dimethylethylenimine, azetidine, piperidine, morpholine, pyrrolidine, and pyrrole with the use of a pulsed nuclear quadrupole resonance spectrometer for 3 cm^3 samples at 77°K. The results are tabulated together with the calcd. populations of the orbitals of the N-H and N-C bonds. The calcns. were carried out under the assumption that the principal tensor axis z of the elec. field gradient coincides with the orbital direction of the unfilled electron pair of the N atom. The bonds in ethylenimine and 1-chloroethylenimine may be described by the Coulson-Moffitt scheme (1940) at some delocalization of the electrons of the N-C bonds. The hybridization of the orbitals of the localized N-C bonds in azetidine is close to the tetrahedral one. V. Burjan

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USSR

UDC 542.91:547.1'118

ARBUZOV, B. A., NURETDINOVA, O. N., NIKONOVA, L. Z., GOL'DFARB, E. I.,
Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov of the Academy of Sciences of the USSR

"Reaction of Phosphorous Acid Chlorides With Oxetanes"

Moscow, Izv. AN SSSR: Ser. Khimicheskaya, No 3, Mar 73, pp 627-632

Abstract: A study is made of the reaction of PCl_3 and alkylphosphorous acid dichlorides with 2-methyloxetane and 3,3-dimethyloxetane in other than 1:1 reagent ratios. The equations of 18 reactions are given together with the experimental details of eight reactions and physical constants of 23 synthesized phosphorous acid derivatives.

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UDC 542.91:547.1'118

ARBUZOV, B. A., NIKONOVA, L. Z., NURETDINOVA, O. N., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov of the Soviet Academy of Sciences

"Some Properties of Oxaphospholans"

Moscow, Izv. AN SSSR: Ser. Khimicheskaya, No 3, Mar 73, pp 648-650

Abstract: Some reactions of compounds with the oxaphospholan ring were studied. Di-(1-methyl-3-chloropropyl) ester of ethylphosphonous acid at 100-110°C was converted to two phosphorus-containing products which separate fairly readily on distillation.

Pure 2-oxo-2-phenyl-5-methyl-1,2-oxaphospholan (Ib) was synthesized by additional heating of the mixture of (Ib) and (IIb) at 200-220°C for 1.5-2 hours. Compound (Ib) reacts with PCl_5 in $CHCl_3$ with formation of the corresponding acid chloride. Reacting compounds (Ia) and (Ib) with P_2S_5 in boiling benzene produces the thiooxaphospholan compounds (IIIa) and (IIIb) which upon further heating with P_2S_5 without a solvent at 120-130°C replace the oxygen in the oxaphospholan ring by a sulfur atom. The constants of the synthesized compounds are summarized in a table.

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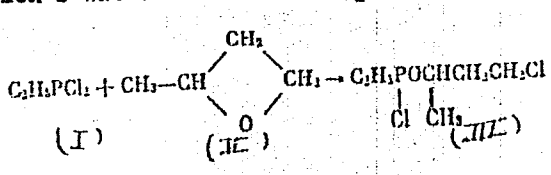
NURETDINOVA, O. N., NIKONOVA, L. Z., and ARBUZOV, B. A., Institute for Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction Between Ethyldichlorophosphine and 2-Methyloxetane"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, 1972, pp 548-550

Abstract: Reaction 1 was observed when equimolar concentrations



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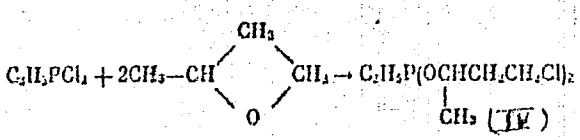
of (I) and (II) were used. A 30-40% yield was recovered. When 2 moles of (II) and 1 mole of (I) were used, compound (IV) was obtained.



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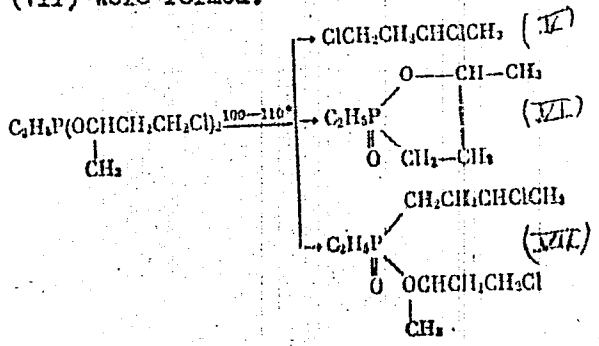
NURETDINOVA, O. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, 1972, pp 548-550

Upon heating compound (IV) at 100-110°C for 20-30 min and then distilling, compounds (V), (VI), and (VII) were formed.



Compound (VI) may have been an impurity. Reacting (VI) with PCl_5 produced a 50% yield of (VIII). Using $C_6H_5PCl_2$ instead of $C_2H_5PCl_2$, a series of reactions

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NURETDINOVA, O. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 3, 1972, pp 548-550

was carried out yielding the C_6H_5P analogs of compounds (III), (V), (VI), and (VII).

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UDC 542.91:547.1'118

NURETDINOVA, O. N., NIKONOVA, L. Z., and ARBUZOV, B. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR Academy of Sciences

"Reaction of Diethylchlorophosphine with 2-Methyloxetane"

Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72, pp 197-198

Abstract: It is concluded from an experimental study of the reaction of diethylchlorophosphine with 2-methyloxetane that isomerization of the α-methyl-γ-chloropropyl ester of diethylphosphonous acid takes place via the formation of a cyclic intermediate product.

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UDC 542.91+541.69:661.718.1

ARBUZOV, B. A., NURETDINOVA, O. N., NEKLESOVA, I. D., IRAIDOVA, I. S., KUDRINA, M. A., and YEGOROVA, N. V., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Synthesis and Biological Activity of Some Thioglycidyl and Thiethanyl Esters of Pentavalent Phosphorus Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2213-2217

Abstract: A series of thioglycidyl and thiethanyl esters of pentavalent phosphorus acid was synthesized and their biological properties were investigated. The thioglycidyl esters of dialkoxythio- and dialkoxydithiophosphoric acid exhibit no contact or systemic insecticidal activity, but they are active against pathogenic fungi. Toxicity of these compounds decreases considerably when C_2H_5O-groups are replaced with CH_3O-, when the alkoxy radical is enlarged to C_4, and when the -P(:O)-S-C group is replaced by -P(:O)-C- group. In contrast to the thioglycidyl, thioethanyl esters show distinct contact and systemic insecticidal properties coupled with higher toxicity towards the warm-blooded animals. The activity of O,O-diethylthiophosphoric ester being much less pronounced than that of O,O-diethyldithiophosphoric ester. Substitution of $-N(CH_3)_2$ for C_2H_5O- lowers the

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ARBUZOV, B. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2213-2217

toxicity towards white mice, and the insecticidal and antifungal activity. When $-N(CH_3)_2$ is substituted by $-N(C_2H_5)_2$, a further reduction in toxicity takes place, the insecticidal activity disappearing altogether.

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UDC 542.91:661.718.1

USSR

NURETDINOVA, O. N., NIKONOVA, L. Z., and POMAZANOV, V. V., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of α- and β-Oxides with Phosphorus Acid Dichlorides"

Moscow, Izvestiya Akademii Nauk, SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2225-2230

Abstract: Reactions of 3,3-dimethyloxethane (I) and 2-methyloxethane (II) and phenylphosphonic acid dichloride (III) and diethylamidophosphoric acid dichloride (IV) was carried out. (III) reacts vigorously with oxethanes forming with (I) the O-2,2-dimethyl-3-chloropropylphenylphosphonic acid. The reaction of (II) with the above acid chlorides leads to the formation of isomeric products: $C_6H_5P(Cl)OCH(CH_3)CH_2CH_2Cl$ and $C_6H_5P(Cl)OCH_2CH_2CHClCH_3$, the first compound forming predominantly. In contrast to (III), (IV) reacts with oxethanes only with heating or in the presence of a catalyst -- anhydrous $ZnCl_2$; (IV) reacted with (I) gives diethylamido-2,2-dimethyl-3-chloropropylphosphoric acid dichloride and the reaction of (II) with (IV) produces a mixture of isomers: $(C_2H_5)_2NP(Cl)OCH(CH_3)CH_2CH_2Cl$ and $(C_2H_5)_2NP(Cl)OCH_2CH_2CHClCH_3$.

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NUREIDINOVA, O. N., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2225-2230

In contrast to oxethanes, 3-chlorothiethane does not react with (III) without heating; at 150° it yields $C_6H_5P(:S)Cl_2$. The direction of the opening os epoxy ring was studied on propylene oxide, leading to formation of isomeric mixtures. With PCl_3 propylene oxide, leading to formation of isomeric mixtures. With PCl_3 propylene oxide gives primarily $Cl_2POCH(CH_3)CH_2Cl$, with (III) the same direction predominates, the product being $C_6H_5P(Cl)OCH(CH_3)CH_2Cl$, while with (IV) a 50:50 mixture of isomers is formed: $(C_6H_5)NP(Cl)OCH(CH_3)CH_2Cl$ and $(C_2H_5)_2NP(Cl)OCH_2CHClCH_3$.

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ARBUZOV, B. A., NIKONOVA, L. Z., NURETDINOVA, O. N., POMAZANOV, V. V., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Oxetanes With Phosphorus Trichloride and Dichloroanhydrides of Alkylphosphorous Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 70, pp 1426-1428

Abstract: The reaction of 3,3-dimethyloxetane with phosphorus trichloride or dichloroanhydride of alkylphosphorous acid yields the following type of compounds: $RP(Cl)OCH_2C(CH_3)_2CH_2Cl$, the R, b.p. (°C)/ mm Hg, d_4^{20}, and n_D^{20} being: Cl, 86.5/10, 1.2867, 1.4926 CH_3O, 41-41.5/0.12, 1.1949, 1.4710; C_2H_5O, 102-104/10, 1.1536, 1.4620; C_3H_7O, 113/12, 1.1253, 1.4620. Under similar reaction conditions 2-methyloxetane yields $RP(Cl)OCH(CH_3)CH_2CH_2Cl$, the R, b.p. (°C)/mm Hg, d_4^{20}, and n_D^{20} being reported: Cl, 79.5-80/10, 1.3347, 1.4951; CH_3O, 89-91/10, 1.2316, 1.4712; C_2H_5O, 96-98/10, 1.1688, 1.4620; C_3H_7O, 110.5/11, 1.1421, 1.4600.

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USSR UDC 542.952.1+661.718.1

NURETDINOVA, O. N., ARBUZOV, B. A., GUSEVA, F. F., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"The Effect of Salt Cation and the Solvent on the Isomerization of the Thiirane Cycle Into the Thiethane Cycle in the Reaction of Thioepichlorohydrine With O,O-Diethyldithiophosphates of Alkali Metals"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 70, pp 1881-1882

Abstract: Reactions of thioepichlorohydrine with potassium, sodium, and ammonium O,O-diethyldithiophosphates were carried out in propanol, ethanol, and in water by heating the reagents for 2 hours at 60-70°C. It was found that the salt cation shows no effect on that reaction course. Depending on the solvent, however, the above reaction may yield either thioepoxyderivatives -- when ethanol or propanol are used -- or a mixture of isomeric compounds with the thioepoxy and thioethane structures, the later forming predominantly when aqueous alcohol or water are used as solvents.

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USSR

NURETDINOVA, O. N., and ARBUZOV, B. A., Institute of Organic and Physical ~~Chemistry imeni~~ A. Ye. Arbuzov, Academy of Sciences USSR

"Reactions of O,O-Diethyl S-(beta-Hydroxy-gamma-chloropropyl) Dithiophosphate and beta-Hydroxy-gamma-chloropropyl Thioacetate with Bases"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 70, pp 145-147

Abstract: Reaction of the adduct of diethyldithiophosphoric acid and epichlorohydrin with Et_3N in toluene or with KOH in EtOH solution at its b.p. yielded O,O-diethyl S-2,3-thiopropyl thiophosphate (I) instead of the expected epoxy compounds. Diethyl chlorphosphite gave an adduct with thioglycidol and Et_3N in Et_2O at 0°. The adduct combined with S in boiling C_6H_6 solution to form O,O-diethyl O-2,3-thiopropyl thiophosphate (II) B.p., d^{20}, and n_d^{20} of II differ from respective constants of I. Formation of I according to proposed reaction scheme was confirmed by preparation of propylene sulfide from diethyldithiophosphoric acid and propylene oxide. Beta-hydroxy-gamma-chloropropyl thioacetate reacted with KOH in EtOH at b.p. to yield 44% 3-thiethanyl acetate which gave 60% 3-thiethanol, when hydrolysed with KOH in EtOH. B.p., d^{20} and n_d^{20} of both products were determined.

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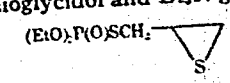
Acc. Nr: AP0100272 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR 0062

111178v Interaction of O,O-diethyl S-(β-hydroxy-γ-chloropropyl) dithiophosphate and β-hydroxy-γ-chloropropyl thioacetate with bases. Nuretdinova, O. N.; Arbuzov, B. A. (Inst. Org. Fiz. Khim. [redacted], Moscow, USSR). *Izv. Akad. Nauk SSSR, Ser. Khim.* 1970, (1), 145–7 (Russ). Heating 38.5 g adduct of $(EtO)_2PS_2H$ and epichlorohydrin with 15 g Et_3N in MePh 40 min gave $Et_3N.HCl$ and I, $b_{0.25}$ 117–19°, d^{20} 1.2213, n_D^{20} 1.5160. Reaction of 6.5 g $(EtO)_2PCl$ at −15° in Et_2O with 3.8 g thioglycidol and Et_3N gave the crude phosphite, d^{20} 1.1150, n_D^{20}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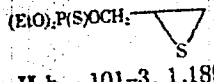
(II)

1.4700, which with S in C_6H_6 gave II $b_{0.3}$ 101–3, 1.1891, 1.4960, also formed when KOH was used as the base in this reaction, run in EtOH soln. Treating $AsSCH_2CH(OH)CH_2Cl$ with KOH in EtOH gave 44% 3-thietanyl acetate, b_9 71–2°, 1.1718, 1.4935, which with alc. KOH gave 3-thietanol, b_{10} 80–1°, 1.2140, 1.5410. Propylene oxide added with cooling to $(EtO)_2PS_2H$ and the mixt. heated briefly to 80–90° gave propylene sulfide, b. 73°. Reaction schemes are proposed. G. M. Kosolapoff

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AUTHOR-(02)-CHUVASHAYEV, R.S., NURGALEYEVA, R.N.

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2/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137172

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BLOOD WAS TREATED WITH L-12 (REDISTD. WATER, 1000 PARTS; NA CITRATE, 25; GLUCOSE, 30; SYNTHOMYCINE, 0.25) AND WITH L-6 (REDISTD. WATER, 1000 PARTS; NA CITRATE, 25; TRYPAFLAVINE, 0.25; NA SULFACYL, 5; GLUCOSE, 30). THE PSEUDOCHOLINESTERASE ACTIVITY OF THE BLOOD DECREASED DURING STORAGE AS FOLLOWS: 83.7PERCENT OF NORMAL VALUE AFTER 6 DAYS OF STORAGE, 80.9PERCENT AFTER 30 DAYS, 74.5PERCENT AFTER 2 WEEKS, AND 71.2PERCENT AFTER 3 WEEKS. FACILITY: GOROD. KLIN. BOL'NITSA, KAZAN, USSR.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR

MEL'NIKOV, N. N., et al., USSR Author's Certificate No 327204, filed 23 Feb 70, published 28 Mar 72

1.2 g III is added, the mixture is boiled for 10-15 min., kept for ~16 hrs, and the residue is separated. The reaction yields 2.69 g I (R = 4-ClC_6H_4CO, n = 0), m.p. 173-175°C (decomposes; PhMe). Another I are prepared in a similar way (R, yield in %, m.p. in °C are given in that order), n=0: Bu, 99, 39-40; Me, 94, 116-117 (benzene); PhCO, 88.6, 139-141 (decomposes); 4-ClC_6H_4, 96.8, 194-195 (PhMe); 3-ClC_6H_4, 90.2, 180-181. The structure of I was verified by infrared and NMR spectra.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR UDC 632.95

MURTDZHANYAN, K. A., BLINOVA, V. G., STONOV, L. D., BAKUMENKO, L. A., and USACHEVA, N. M.

"Concerning the Herbicidal Activity of Certain Aryl- and Alkyl-Containing Thioureides, Thioureas and Thiouracils"

V sb. Khim sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 197-200 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N445)

Translation: The following compounds were synthesized: 3-R-methyl-2-thiouracils (I) (R and the melting point in °C are cited): Me, 264-5; Et, 202-3; Pr, 172-3; Bu, 163-4; iso-Bu, 214; C_6H_{13}, 120; Ph, 256; O-ClC_6H_4, -; substances with the formula PhCONHCSNHR (II) (R and the melting point in °C are cited): Me, 150; Et, 133; Pr, 133; iso-Pr, 113-4; Bu, 51-2; tert-Bu, 127-8; C_8H_{17}, 152-3; Ph, 143; o-ClC_6H_4, 145-6; p-$O_2NC_6H_4$, 182; p-$Me_2NC_6H_4$, 166-7; and substances with the formula N_2NCSHR (III) (R and the melting point in °C are cited): Me, 108; Et, 108; iso-Pr, 157; Bu, 79; iso-Bu, 93.5; tert-Bu, 165; C_6H_{13}, 83;

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR

NURIDZHANYAN, K. A., et al., V sb. Khim. sredstva zashchity rast., Vyp 1, Moscow, 1970, pp 197-200

C_8H_{17}, 97; Ph, 154; o-ClC_6H_4, 142; p-$O_2NC_6H_4$, 190; p-$Me_2NC_6H_4$, 182-3.

Compounds I show higher herbicidal activity with respect to monocotyledons and dicotyledons than the corresponding uracils. Data are presented from tests of compounds II and III.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

1/2 008 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ACYL ISOCYANATES -U-

AUTHOR--NURIDZHANYAN, K.A.

COUNTRY OF INFO--USSR

SOURCE--USP. KHIM. 1970, 39(2), 259-75

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, PHYSICAL CHEMISTRY PROPERTY, ISOCYANATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1660 STEP NO--UR/0074/70/039/002/0259/0275

CIRC ACCESSION NO--AP0112654

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

UNCLASSIFIED PROCESSING DATE--30OCT70

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CIRC ACCESSION NO--AP0112654

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 197 REFERENCES THROUGH 1968, COVERING THE SYNTHESIS, THE PROPERTIES AND THE PRACTICAL APPLICATIONS OF ACYL ISOCYANATES.

FACILITY: VSES. NAUCH. ISSLED. INST. KHIM. SREDSTV ZASHCH. RAST., MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR UDC 539.171.017

AZIMOV, S. A., MYALKOVSKIY, V. M., NURITDINOV, Kh., RASULKULOV, M. S., ABDULLAYEV, A. M., BEYSEMBAYEV, R. U., GAVRILIN, Ye. V., TALIPOV, D. A., MULLAZHONOV, E. Zh., TILLAYEV, T., RAKHMANOV, Zh., UMEROV, R., ULIMAYEVA, F. A., KHEN, E., YULDASHBAYEV, T. S., Institute of Nuclear Physics of the Academy of Sciences Uzbek SSR

"Study of the Characteristics of High-Energy Interactions of Pions and Nucleons"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol. 36, No. 8, Aug 72, pp 1626-1631

Abstract: Experimental data obtained at the Kum-Bel' High-Altitude Station of the Physicotechnical Institute of the Academy of Sciences Uzbek SSR are reported. The station is 3200 m above sea level. The setup contains three series of wide-gap spark chambers, with effective areas of 2 m^2 placed above and below the target. The Cerenkov spectrometer with total absorption and an ionization calorimeter with an area of 10 m^2 were used to measure the primary energy E_0. Up to the present time experimental data obtained over 630 hours of operation of the device have been processed, with a high-voltage pulse being supplied to the electrodes of the spark chambers. Showers with an energy of >200 Gev generated in the target were selected for analysis. The following ratio was obtained for the number

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USSR

AZIMOV, S. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 36, No 8, Aug 72, pp 1626-1631

of primary charged N_c and neutral N_n particles: $N_c/N_n = 2.3 \pm 0.3$; this shows that the proportion of charged particles is ~34% of all nuclear active particles, thus making it possible to study pion-nuclear collisions by comparing the characteristics of the interaction of charged and neutral primary particles. A weak functional dependence between the inelasticity coefficient $\langle K_{\pi 6} \rangle$ and the atomic number of the target nucleus and a strong functional dependence between this coefficient and the nature of the primary particles were obtained for interactions of hadron with $E_0 > 200$ Gev. $\langle n_s \rangle$ is almost a logarithmic function of E_0. The average multiplicity in the interaction of pions with neutrons in paraffin is identical within the experimental limit. A considerable azimuthal effect was observed for the angular distribution of secondary particles. The azimuthal effect has its greatest value for showers with n_s = 8-15, or a multiplicity close to average.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR

NURITDINOVA, F. N., Uzbek Scientific Research Institute of Sanitation, Hygiene, and Occupational Diseases

"The Effect of Pesticides Used in Agriculture on Vision"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 6, 1972, pp 66-69

Abstract: People (683) working with pesticides (organic compounds containing chlorine and phosphorus) for 1-18 years were studied. Changes in the external part of the eye were observed in 11 percent of workers. These changes included allergic chronic conjunctivitis (33 cases), blepharitis (6 cases), and pterygium (20 cases). Atrophy of the optical nerve was found in 3 patients, retrobulbar neuritis in 2, and retinal angiopathy in 28 patients. Impairment of vision was mainly related to refraction anomalies and to losses in corneal transparency. Biomicroscopic study revealed some dilation of the perilimbal network vessels (9.8 cases), dystrophic changes of the iris (23.9 cases), and turbidity of the eye lens layers (15.1 cases). More changes in the eye structure were found among people working with pesticides up to 10 years, as compared with those who worked for longer periods. Some people experienced difficulty in adapting to darkness (42.3 cases). About 16.8 percent of people lost the ability to distinguish colors. Glaucoma developed in 4.9 percent of people studied.

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USSR

NURITDINOVA, F. N., Meditsinskiy Zhurnal Uzbekistana, No 6, 1972, pp 66-69

Disturbances in eye function in the majority of cases were of a reverse nature which might occur from 1 to 3 years.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR UDC:620.179.14

NURIYEV, F. N., ZAYTSEV, G. V., CHAROV, V. A.

"Device for Measurement of Thickness of Carbon-Free Steel"

Defektoskopiya, No. 3, 1970, pp. 80-85

Abstract: During production and heat treatment of steel products, a carbon-free layer is formed on their surface, which has considerably different physical properties from the main body of the steel. The primary difficulty in testing the thickness of this layer by electromagnetic methods is the presence of a large number of disturbing factors. The authors have developed a device to perform this task using a multiparametric vortex current method to eliminate most of the disturbing factors. Using this method, extraction of information concerning the parameter of interest is reduced to separation of the voltage increment at each of several operating frequencies and multiplication of this increment by a certain constant-factor, different for each frequency. Results of plant testing of the device are presented.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR

UDC 619:616.988.43.085.37

KALMYKOV, V. A., NURIYEV, G. G., ROMANOVICH, T. N., and KHAYERTYNOV, S. Kh., Kazan' Veterinary Institute, Kazan'

"Use of a Transplantable Line of Cattle Embryo Kidney Cells for the Preparation of a Vaccine Against Foot-and-Mouth Disease"

Moscow, Veterinariya, No 5, May 73, pp 62-64

Abstract: Foot-and-mouth disease virus of strain A_{22} 550 and of an epizootic A strain was cultured on a monolayer culture of transplantable cattle embryo kidney cells (CEKC). The virus that had been cultured on CEKC was inactivated with hydroxylamine, whereupon the virus suspension was freed of the excess hydroxylamine by dialysis. An experimental vaccine was prepared by combining 70% of the inactivated virus suspension with 25% of a 6% $Al(OH)_3$ suspension, 0.1% quinosol, and 5% glycerin. Saponin (0.05%) or vitamin B_{12} was added as an adjuvant. The activity of the vaccine was estimated on the basis of the antigenic effect on rats, the index of resistance for mice 4-5 days old, and the protective dose for adult mice. The effect of the number of passages on CEKC on the activity of the vaccine was determined. The antigenic activity of the vaccine derived from the epizootic strain was the

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR

KALMYKOV, V. A., et al., Veterinariya, No 5, May 73, pp 62-64

same as that of the vaccine prepared for the strain A_{22} 550, but the index of resistance produced by it was somewhat lower. The vaccine to which vitamin B_{12} had been added was somewhat more active than that prepared with saponin.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DURABILITY OF THE ADHESIVE BONDS OF SHOE MATERIALS DURING REPEATED COMPRESSION -U-

AUTHOR-(03)-NURIYEV, M.A., GVOZDEV, YU.M., BARAMBOYM, N.K.

COUNTRY OF INFO--USSR

SOURCE--KOZH. OBUV. PROM. 1970, 12(3), 42-4

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MILITARY SCIENCES

TOPIC TAGS--ELASTOMER, RUBBER ADHESIVE, ELASTIC MODULUS, FATIGUE STRENGTH, FOOTGEAR, BONDING PROPERTY/(U)SKB ELASTOMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0881 STEP NO--UR/0498/70/012/003/0042/0044

CIRC ACCESSION NO--AP0124544

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

2/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124544

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POROUS ELASTOMER SOLES (BRAND B), BONDED WITH NAIRIT NT-101 KRESIN BLEND AND NONPOROUS ELASTOMER SKB (CONTG. VARIABLE AMTS. OF CHANNEL BLACK), WERE SUBJECTED TO REPEATED COMPRESSIONS ON A SPECIALLY DESIGNED APP. THE FATIGUE STRENGTH OF THE ADHESIVE BOND WAS PROPORTIONAL TO THE ELASTIC MODULUS AND DEPENDED ON THE PHYSICOMECH. PROPERTIES OF THE BONDED MATERIALS.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR UDC 617.735-003.8-085.837.3

LUTSKER, L. S., and NURIYEVA, S. M., Branch for the Study of Physical Methods of Diagnosis and Medical Treatment in Ophthamology (Instructor, Professor Ye. Ye. S. Vaynshteyn) of the Moscow Scientific Research Institute of Eye diseases imeni Gel'mgol'ts (Director, Candidate of Medical Sciences K. V. Trutneva)

"Microwave and Ultrasound Therapy of Tapetoretinal Destruction"

Moscow, Vestnik Oftal'mologii, N5, 1973, pp 69-71

Abstract: A study was made of the therapeutic effect of microwaves separately and in conjunction with ultrasonics in the treatment of some forms of the degeneration of the retina. This is the first time mircowave treatments have been used in the treatment of pigment degeneration. The test group was composed of 65 patients from 7 to 60 years old. Of these, 53 had pigmented retinas, 9 had a central degeneration of the Shtargart type, and 3 had a central degeneration of the Best type. Parameters for the microwave treatments were power - 20 volts, spacing - 9 cm, diameter of the emitter - 9 cm, length of the treatment - 10 to 15 minutes and 20 treatments daily. The ultrasonic treatments were conducted using an 800 kHz frequency, intensity - 0.3 volts/cm^2,

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USSR

LUTSKER, L. S., and NURIYEVA, S. M., Vestnik Oftal'mologii, N5, 1973, pp 69-71

length of treatment - 5 minutes and 20 treatments daily. All patients treated showed an improvement in eyesight, the combined treatment of microwaves plus ultrasonics producing a greater response than either treatment used alone.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR

UDC 669.71.053.4

DZHABAGINOV, K., and NURKEYEV, S. S.

"Investigation of the Agitation Leaching of a Fine Fraction of Slurry Sinter at the Pavlodar Aluminum Plant"

Tr. Kazakhsk. politekhn. in-ta (Works of the Kazakh Polytechnical Institute), 1970, sb. 31, pp 254-255 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G212 by G. SVODTSEVA)

Translation: On the basis of experimental data on the agitation leaching of various fine fractions of slurry sinter over a wide range of duration, temperature, and caustic modulus, the following was established: 1) extraction of Al_2O_3 and alkali > 90% from sinter fines is attained under the following leaching conditions: solution α_k = 22-26 and Al_2O_3 38-50 g/l; sinter size 1.8 mm; temperature 70-75°; liquid:solid = 2:3; and duration 15 minutes; 2) individual leaching of fine sinter fractions makes possible a reduction in the solid content of the discharge from the tubular apparatus and a 10- to 12-percent rise in the chemical yield of Al_2O_3. Agitation leaching of sinter fines decreases secondary loss of Al_2O_3 and alkali.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

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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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

UDC: 539.294

USSR

AZIMOV, S. A., MUMINOV, R. A., NURKUZIYEV, G., KHAKNAZAROVA, Sh., Physico-technical Institute imeni S. V. Starodubtsev, Academy of Sciences of the UzbekSSR

"Reactance Properties of Germanium Diodes With Double Injection"

Tashkent, IAN Uzbekskoy SSR, Seriya Fiziko-Matematicheskikh Nauk, No 3, 1971, pp 40-42

Abstract: The paper presents the results of research on the reactance properties of diodes with double injection (P^+-N-N^+ structures) made on the basis of relatively pure germanium single crystals of N-type with initial impurity concentration of $5 \cdot 10^{12}$/cc. The injection contacts on these specimens were made by alloying; the area of the PN junction was determined by the cross section of the crystal -- 0.4×0.4 mm^2; the distance between opposite contacts was 0.4 mm. The reactance properties of the diodes were measured on a bridge circuit at a temperature of 77°K. The frequency of the small alternating signal varied from 1 to 45 MHz. The current-voltage characteristic as well as curves showing capacitance as a function of forward biasing current at various frequencies and curves for conductance as a function of current at various frequencies are given.

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USSR

AZIMOV, S. A., et al., IAN UzSSR, Ser. Fiz.-Mat. Nauk, No 3, 1971, pp 40-42

The results show that inductive reactance in germanium diodes with rectifying contacts under the given conditions is due to change in the lifetime of the charge carriers. An increase in carrier lifetime causes injection over a considerable length of crystal and formation of an electron-hole plasma throughout the base region. The resultant plasma has constant inductance in the 10-30 ma-current region at frequencies from 10 to 30 MHz. Three figures, bibliography of seven titles.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR

UDC: 669.7/8.051

NURLYBAYEV, A. N.

"Alkaline Rocks of Kazakhstan and Their Useful Minerals"

Shchelochnyye Porody Kazakhstana i Ikh Poleznyye Iskopayemyye [English version above], Alma-Ata, Nauka Press, 1973, 296 pp (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G148 K, from the Resume).

Translation: The latest data are presented on the geology and petrology of alkaline rocks in general and the nepheline ores of Kazakhstan in particular; the geological-structural position, petrography and genesis of alkaline rocks are studied. On the basis of geological, petrological, technical and economic studies, the effectiveness of commercial exploitation of the nepheline ores of the Kazakh SSR as an extremely valuable and complex ore mineral raw material is proven. Large commercial reserves of nepheline, feldspar, mica (vermiculite, phlogopite, liebenerite and hydromica), apatite, Fe ores and K raw materials have been found and preliminarily evaluated in many alkaline masses of Kazakhstan. They could serve as the basis for organization of an industrial complex producing over 50 different types of important products, from Al, Si, Na, K,

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USSR

Nurlybayev, A. N., Shchelochnyye Porody Kazakhstana i Ikh Poleznyye Iskopay-emyye, Alma-Ata, Nauka Press, 1973, 296 pp.

fertilizers and rare metals to glass-ceramic and structural materials (cement, mineral wool, etc.).

- END -

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

UDC: 511.84

USSR

NURMAGOMEDOV, M. S., CHIRSKIY, V. G., Department of Number Theory and the History of Mathematics, Moscow State University

"Concerning the Arithmetical Properties of the Values of Hypergeometric Functions"

Moscow, Vestnik Moskovskogo Universiteta, Ser. I: Matematika, Mekhanika, No 2, Mar/Apr 73, pp 38-45

Abstract: The authors consider the hypergeometric function

$$F(\mu, \nu, \lambda, z) = \sum_{n=0}^{\infty} \frac{\mu(\mu+1)\dots(\mu+n-1)\,\nu(\nu+1)\dots(\nu+n-1)}{\lambda(\lambda+1)\dots(\lambda+n-1)\,n!} z^n.$$

The notation

$$F_k(z) = F(\mu_k, \nu_k, \lambda_k, z), \qquad \lambda_k \neq 0, -1, \dots, \quad k = 1, \dots, m \qquad (1)$$

is introduced. The symbol I denotes the imaginary quadratic field over Q, and d denotes its discriminant. It is assumed that

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR

NURMAGOMEDOV, M. S., CHIRSKIY, V. G., Vestnik Moskovskogo Universiteta, Ser. I: Matematika, Mekhanika, No 2, Mar/Apr 73, pp 38-45

$$\mu_i = \frac{a_i}{b_i}, \quad \nu_i = \frac{v_i}{t_i},$$

$$\lambda_i = \frac{c_i}{d_i}, \quad a_0 = \max\{|a_i|, |c_i|, |v_i|, b_i, d_i, t_i\},$$

where $b_i \geqslant 1$, $t_i \geqslant 1$, $d_i \geqslant 1$, a_i, v_i, c_i, $i = 1, \ldots, m$, are whole rational numbers, $(a_i, b_i) = (c_i, d_i) = (v_i, t_i) = 1$,

$$\sigma_1 = (2m+1)\cdot(20m+1)\sqrt{5(a_0+1)(m+1)},$$

$$n_1 = \max\left\{\exp(320(2m+1)^2\cdot(m+1)^2\cdot(a_0+1)),\right.$$

$$\left.\frac{4a_0(m+2) + \ln(2m+1) + 3\ln!d!}{(2m+1)\cdot(m+1)\cdot(a_0+1)}\right\}. \qquad (2)$$

The following two theorems are proved:

Theorem 1. Let the functions $F_i(z)$, $i = 1, \ldots, m$, be defined by equalities (1); the rational numbers μ_i, ν_i, λ_i, $i = 1, \ldots, m$, are such that

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR

NURMAGOMEDOV, M. S., CHIRSKIY, V. G., Vestnik Moskovskogo Universiteta, Ser. I: Matematika, Mekhanika, No 2, Mar/Apr 73, pp 38-45

not one of the numbers $\mu_i, \nu_i, \lambda_i-\mu_i, \lambda_i-\nu_i, i=1,\ldots,m$, or $\mu_i-\mu_j, \nu_i-\nu_j, \mu_i-\nu_j, i\neq j$, is a whole number, and $\mu_i+\nu_i-(\mu_j+\nu_j), i\neq j$, is different from an even number; in addition, $H, b\in \mathrm{N}, a\neq 0, u_0, u_1, \ldots, u_{2m}$ are integers from I, $|u_i|\leqslant H, i=0,1,\ldots,2m, |u_0|+\ldots+|u_{2m}|>0$ and σ_1, n_1 are defined by equalities (2). Then when

$$b\geqslant \exp\left(\sigma_1\sqrt{\ln n_1}+(4m+2)\ln|a|+\frac{1}{n_1}\ln H\right),$$

we have the relation

$$\left|u_0+u_1F_1\left(\frac{a}{b}\right)+u_2F_1'\left(\frac{a}{b}\right)+\ldots+u_{2m-1}F_m\left(\frac{a}{b}\right)+u_{2m}F_m'\left(\frac{a}{b}\right)\right|\geqslant$$
$$\geqslant \exp(-\sigma_1 n_1\sqrt{\ln n_1})\,b^{-(4m+1)n_1}.$$

Theorem 2. Let $\lambda, \mu, \nu\in Q, \lambda, k, H, b\in \mathrm{N}, \lambda-\mu-\nu\in \mathbf{Z}, \mu, \nu\in \mathbf{Z}$, K is the algebraic field over Q, $a\neq 0$ is an integer from K. Then there exist posi-

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USSR

NURMAGOMEDOV, M. S., CHIRSKIY, V. G., Vestnik Moskovskogo Universiteta, Ser. I: Matematika, Mekhanika, No 2, Mar/Apr 73, pp 38-45

tive constants $\sigma_2, \sigma_3, \gamma_1, \gamma_2, \gamma_3, \gamma_4$, which depend on the function $F(\mu, \nu, \lambda, z)$, the number k, and the field K, such that when

$$b \geqslant \sigma_2 |a|^{\gamma_1} H^{\gamma_2}$$

we have the relation

$$\left| P\left(F\left(\mu, \nu, \lambda, \frac{a}{b}\right), F'\left(\mu, \nu, \lambda, \frac{a}{b}\right)\right)\right| \geqslant \sigma_3 b^{-\gamma_3} H^{-\gamma_4},$$

where $P(z_1, z_2) \not\equiv 0$ is a polynomial of degree k with whole-number coefficients from K no greater than H in absolute value.

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UDC 577.1:615.7/9

USSR

OKONENKO, L. N., and NURMAGAMBETOV, YE. K.

"Vitamin A and C Content of Animal Organism in Experimental Fluoride Intoxication"

Tr. Alma-At. med. in-t (Works of Alma-Ata Medical Institute), 1970, 26, pp 340-344 (from RZh-Biologicheskayay Khimiya, No 22, 25 Nov 71, Abstract No 22F2036 by M. SH.)

Translation: Data are presented on the content of vitamin A in the liver, and oxidized and reduced forms of vitamin C in the liver, adrenal glands, lungs and blood of male rats when inoculated daily (6 hours each for 3 and 6 months) with varying concentrations of HF (0.1, 0.5, 1.0 and 3 mg/cu m).

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UNCLASSIFIED PROCESSING DATE--23OCT70

1/2 025

TITLE--CONSIDERATION OF BODY HETEROGENEITIES IN ELECTRON THERAPY OF TUMORS -U-

AUTHOR-(03)-KHVAN, G.V., NURMANOV, M.SH., AZHIGALIYEV, N.A.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, 54-63

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ELECTRON RADIATION, RADIOTHERAPY, IRRADIATION DOSIMETRY, BIOLOGIC MODEL/(U)B15MEV BETATRON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0276 STEP NO--UR/0241/70/015/005/0054/0063

CIRC ACCESSION NO--AP0120965

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UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 025

CIRC ACCESSION NO--AP0120965

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BODY HETEROGENEITIES EXERT AN ESSENTIAL INFLUENCE ON THE DOSE DISTRIBUTION IN IRRADIATION WITH HIGH ENERGY ELECTRONS. THE AUTHORS PROPOSED CORRECTION COEFFICIENTS FOR BODY HETEROGENEITIES WITH THE AID OF SEMIEMPIRICAL FORMULAS. BY MEANS OF A MINIATURE IONIZATION CHAMBER THE AUTHORS GIVE DETAILED DOSIMETRIC MEASUREMENTS IN HOMOLOGOUS AND HETEROGENOUS PHANTOMS FROM ALUMINUM, SULFUR, MAGNESIUM, FOAM PLASTIC, AND POLYSTYROLE IMITATING THE MUSCULAR TISSUE, BONES AND LUNGS. CONCRETE CORRECTION COEFFICIENTS OF THE INFLUENCE OF BONE, LUNGS AND AIR LAYER ON THE DOSE DISTRIBUTION DURING IRRADIATION WITH BETATRON 8-15 MEV ARE DEPICTED. FACILITY: KAZAKHSKIY N I INSTITUT ONKOLOGII I RADIOLOGII.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

Acc. Nr: AP0038021 N Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 3-13

ANOMALOUS BROADENING OF SPECTRAL LINES IN NONLINEAR LIQUIDS AND ITS EFFECT ON STIMULATED SCATTERING PROCESSES

Bol'shov, M. A; Venkin, G. V.; Zhilkin, S. A.; Nurminskiy, I. I.

Results of an experimental investigation of the spectral structure of laser radiation passing through a self-focussing liquid are reported. For complete isolation of the generator from the scattering medium the second harmonic of a neodymium laser is employed as radiation source. The generator can operate under incoherent mode or mode-locked conditions. The spectral structure of the radiation was investigated in the direction of the incident light as well as at an angle of 180°. Broadening of a quasicontinuous nature and broadening involving a set of discrete lines, the distance between which was, as a rule, not related to the incident radiation spectrum, are recorded. An analysis of the experimental results shows that the spectral line broadening may be ascribed to interaction between space and time modulation of the beam during its self-focussing.

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AP0038021

Some data pertaining to stimulated combinational scattering under conditions of anomalous broadening of a laser pulse spectrum are reported. In particular the strong sensitivity of the scattering indicatrix to modulation of the initial radiation is noted.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR

NURMINSKIY, Ye. A.

"Properties of One Class of Functions"

Teoriya Optimal'n. Resheniy [Theory of Optimal Solutions -- Collection of Works], Kiev, 1972, pp 92-96 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V528, by S. Lebedev).

Translation: The continuous function f(x) has property (α) if for any $x \in E_n$ there is a non-empty set M(x) of vectors g such that for all $y \in E_n$

$$f(y) - f(x) \leq (g, y - x) + r(x, y),$$

where $r(x, y)||x - y||^{-1} \to 0$ as $y \to x$ evenly in each closed and limited set K. Both concave functions and minimun-type functions which are neither concave nor differentiable have property (α): if f(x, z) is continuous with respect to x and z, $z \in Z$, where Z is a compact topolotical space, and for each $z \in Z$ f(x, z) as a function of x has property (α), then $f(x) = \min_{z \in Z} f(x, z)$

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USSR

Nurminskiy, Ye. A., Teoriya Optimal'n. Resheniy, Kiev, 1972, pp 92-96.

also has property (α). Function f(x) is called quasidifferentiable if for each point x there is a non-empty set M(x) of vectors g such that

$$\frac{\partial f(x)}{\partial e} = \lim_{t \to +0} (f(x+te) - f(x))\, t^{-1} = \min_{g \in N(x)} (g, e),$$

where e is an arbitrary unit vector.

Theorem. Function f(x) has property (α) and is quasidifferentiable, where M(x) = N(x).

It is noted that for the functions, the minimum of the formula for the derivative of the direction was known earlier.

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UDC 519.2

USSR

NURMINSKIY, YE. A.

"Transition to Continuous Time in the Kiefer-Wolfowitz Method"

V sb. Mat. metody issled. i optimiz. sistem (Mathematical Methods of Investigation and Optimization of Systems -- collection of works), Kiev, 1971, pp 214-220 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V149)

No abstract

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR UDC 616-001.28-07[616.14+616.423]-091

KHUBAYBERDYEV, R. I., KULIKOV, Yu. A., and NURMUKHAMEDOV, B. N., Department of Normal Anatomy of the Tashkent Medical Institute

"State of the Venous and Lymph Network Under Conditions of Ionizing Radiation"

Moscow, Meditsinskaya Radiologiya, Vol 16, No 3, Mar 71, pp 50-53

Abstract: After a single exposure to gamma-radiation (400 r) 112 rabbits were subjected to resection of fragments of the major veins of the extremeties and to removal of the popliteal lymph nodes. The venous and lymph beds of the extremities was studied for one year. Dynamics of the restoration of blood and lymph flows were studied by venography and lymphography. The venous bed in the operated extremities underwent restoration with formation of strong myogenic collaterals within 2-3 months. Under conditions of irradiation, this restoration process is considerably altered. During the first 2-3 days the network of fine vessels and the diameter of cutaneous vessels is considerably enlarged in the operated as well as in the control extremities. Subsequently, in the period of latent radiation sickness (up to the 8-10th day), the vascular channel in the unoperated extremity is almost normalized, whereas in the operated extremity, it remains the same as during the previous days. Also the vessels in both extremities are

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KHUBAYBERDYEV, R. I., et al., Meditsinkaya Radiologiya, Vol 16, No 3, Mar 71, pp 50-53

dilated, which indicates congestive phenomena. Restoration is considerably prolonged, up to the 110-120th day. In the case of the lymph system, the lymph outflow is restored within 6 months of the operation, whereas under the conditions of radiation sickness, the lymph outflow is not completely restored even after one year.

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CAROL (2)

BIBLIOGRAPHIC DATA SHEET	1. Report No. JPRS 59624	2.	3. Recipient's Accession No.
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7. Author(s): G.M. Nurmukhamedov, G.M. Khadzhimatova			6.
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			10. Project/Task/Work Unit No.
			11. Contract/Grant No.
12. Sponsoring Organization Name and Address: As above			13. Type of Report & Period Covered
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16. Abstract: The report contains a description of a method for the measurement of demagnetizing fields in cylindrical magnetic films.

17. Key Words and Document Analysis. 17a. Descriptors: USSR, Electronics, Components, Thin Film, Metallurgy

17b. Identifiers/Open-Ended Terms:

17c. COSATI Field/Group: 09B, 11F

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NURMUKHAMEDOV, G.M.

Magnetics

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USSR

UDC: 681.32.001

NURMUKHAMEDOV, G. M., NESTEROV, P. V., SALTYKOV, V. V.

"Wire Substrate for Cylindrical Magnetic Films"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronic Technology. Scientific and Technical Collection. Microelectronics), 1971, vyp. 4(30), pp 164-175 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B137 P)

Translation: Basic requirements are formulated which must be satisfied by a wire substrate, and the influence of the substrate on the properties of cylindrical magnetic films is analyzed. A detailed investigation is made of the physical and mechanical properties of thin BrB2 copper-beryllium alloy wire, and recommendations are given on its use as a cylindrical substrate. A description is given of the technology for making a precision wire substrate, including processes of continuous tempering, mechanical treatment by rotating diamond draw plates, and thermal stabilization of properties. Seven illustrations, bibliography of nine titles. Resumé.

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UDC: 621.375.82

USSR

KULAKOV, B. P. and NURMUKHAMETOV, V. K.

"The Problem of Superregenerative Amplification of Coherent Optical Radiation from Gas Lasers"

Tr. Un-ta druzhby narodov im. Patrisa Lumumby (Transactions of the Patrice Lumumba University of Peoples' Friendship) 62, 1972, pp 93-98 (from RZh--Fizika, No 7, 1973, Abstract No 7D967)

Translation: The kinetic equations describing a gas laser with heterogeneous broadening of the amplification lines in superregenerative strengthening of an external signal are numerically solved. It is shown that the use of modulating the laser Q by pulses with a duration of 3-4 μs permits attaining a power amplification of the order of 10^9 for a weak signal. Evaluations are made for a He-Ne laser (1.15 microns, a 100-cm resonator, a mirror reflection coefficient of 0.98). The amplifier has a high transit time (of the order of microseconds) determined by the high Q of the resonator. Ye. Aleksandrov

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USSR

UDC 621.375.82

KULAKOV, B. P., and NURMUKHAMETOV, V. K.

"Amplification of Electromagnetic Radiation by Shock Excitation of Transient Phenomena in an Active Resonator"

Tr. Un-ta druzhby narodov im. Patrisa Lumumby (Transactions of the Patrice Lumumba University of Peoples' Friendship), 62, 1972, pp 84-88 (from RZh-Fizika, No 7, 1973, Abstract No 7D968)

Translation: A new type of laser amplifier, with shock excitation of the active resonator amplified by radiation, is proposed. The gain is evaluated and the shape of the amplifier output signal is calculated under the condition that at the frequencies of the spectrum of a signal different from the particular resonator frequencies, the amplification in one channel exceed unity with all losses taken into account. It is shown that through the use of the proposed amplifier there is no need for rigid stabilization of the signal frequency and the resonator length. It is suggested that this amplifier is especially effective for small amplification factors or active medium lengths. V. A. Khodovoy

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USSR UDC 621.385.032.21 (088.8)

MEYERSON, G.A., IOFIS, N.A, NURMUKHAMEDOV, V.KH., SOLOVEYCHIK, A.I.

"Material For Cathodes"

USSR Author's Certificate No 299887, filed 2 Oct 68, published 7 June 71 (from RZh:Elektronika i yeye primeneniye, No 1, Jan 72, Abstract No 1A87P)

Translation: According to the invention, the cathode material differs from well-known materials in the fact that it consists of a solid solution of borides of rare earth and alkali-earth metals in which the borides in question are taken in the ratio: boride of rare-earth metal, from 60 to 95 molar percent; boride of alkali-earth metal, from 5 to 40 molar percent. The solid solutions of rare-earth and alkali-earth metals have smaller vapor pressures than separated borides and therefore evaporate more slowly than separated borides and consequently also their mixture. With a solution of a boride of an alkali-earth metal, e.g., BaB_6 in a boride of a rare-earth metal, e.g., LaB_6, in the solid solution which is formed a metallic type of conduction remains, the emissive properties of which are better than in a boride of rare-earth metal. A reduction of the work function with LaB_6 because of the diffusion of BaB_6 into LaB_6 is accounted for by the fact that at the cathode surface a monatomic film is produced of the more active metal Ba, the work function of which is lower than with La. Tests of the emissive properties of the solid solutions showed that during operation of the cathode at 1400-1950° C the current

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MEYERSON, G. A. et al, USSR Author's Certificate No 299887

density of the emission for a composition containing 40 molar percent BaB_6 the residual LaB_6 is twice as high and for a composition with 50 molar percent BaB_6 the residual LaB_6 is 1.5 times as high as with the same conditions for pure LaB_6. A.F.

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UNCLASSIFIED PROCESSING DATE--18SEP70

1/2 017

TITLE--ELECTRON SPECTRA AND STRUCTURE OF MOLECULES OF DIKETONE VAT DYES
-U-

AUTHOR-(02)-YEFIMOV, A.A., NUKMUKHAMETOV, R.N.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(1), 58-65

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELECTRON SPECTRUM, DYE, FLUORESCENCE SPECTRUM, KETONE, POLYNUCLEAR HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0051/70/028/001/0058/0065

PROXY REEL/FRAME--1984/1911

CIRC ACCESSION NO--AP0100479

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UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 017

CIRC ACCESSION NO--AP0100479

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE QUASILINEAR FLUORESCENCE SPECTRA OF PYRANTHRONE (I), VIOLANTHRONE (II), AND FLAVANTHRONE (III) WERE OBTAINED AT 77DEGREESK BY USING THE SHPOLSKII METHOD; I AND II WERE DISSOLVED IN PHCL AND THE SOLNS. DILD. BY C SUB11 H SUB24(1:9); III WAS MEASURED IN NEAT PHCL. THE VIBRATIONAL COMPONENTS OF THE SPECTRA WERE ASSIGNED. IT IS SUGGESTED THAT THE SPECTRA CAN BE INTERPRETED BY CONSIDERING I AND III AS PYRENE DERIVS. IN THE SERIES PYRENE, 1, PHENYLPYRENE, 3, BENZOYLPYRENE, I, III, AND II AS A PERYLENE DERIV. IN THE SERIES PERYLENE, DEFECTOL (DI TERT BU 3,9, PERYLENEDICARBOXYLATE), 3, 9, DIBENZOYLPERYLENE, ISOVIOLANTHRONE, II.

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Acc. Nr. AP0049774 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code 4R0080

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105616v Electron spectra and structure of 1-indanone, tetralone, phthalide, and 1,3-indandione molecules. Belaits, I. L.; Nurmukhametov, R. N. (Nauch.-Issled. Fiz.-Khim. Inst. im. Karpova, Moscow, USSR). *Zh. Fiz. Khim.* 1970, 44(1), 29-33 (Russ). Electron absorption (20°) and luminescence (−196°) spectra of 5×10^{-4}-$5 \times 10^{-4}M$ solns. of 1-indanone (I), 1-tetralone (II), phthalide, and 1,3-indandione (III) are presented. The character of the resp. bands and the energy of $\pi\pi^*$ and $n\pi^*$ transmissions were detd. Energy of triplet $\pi\pi^*$ level of I in cyclohexane, of II in *n*-alkanes, and of III, not appearing in optic transmissions are evaluated. The origin of long- and short-lived components of phosphorescence of I, and differences in phosphorescence lifetime of II in EtOH and *n*-alkanes was explained by relative positions of $n\pi^*$ and $\pi\pi^*$ levels changing when going from nonpolar to polar solvent. No fluorescence was found with the compds. studied except for 6-aminophthalide (strong lowering of S_1^* level, owing to $\pi\pi^*$ transmission with transfer of charge, and higher position of $n\pi^*$ level prevent nonradiation deactivation $S_{\pi\pi^*}$). J. Panchartek

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR UDC 621.373.029.7.001.5

GIBADULLIN, N.S., KULAKOV, B.P., NURMUKHAMETOV, V.K.

"Analysis Of The Critical Characteristics Of Gas Laser Superregenerator Amplification"

Radiotekhnika i elektronika, Vol XVII, No 7, July 1972, pp 1439-1444

Abstract: The paper considers a superregenerative regime of amplification of a coherent optical signal in a gas laser with modulated Q. As a continuation of a previous paper of which B.P. Kulakov is a coauthor, an analysis is made of such basic characteristics as threshold sensitivity, maximum coefficient of amplification and dynamic range of a single-frequency gas laser superregenerative amplifier (LSA). The corresponding parameters are evaluated of a helium-neon LSA. At λ = 0.63 micron these amount to 10^{-8} L^{-1} watt, $5.10^{5}V^{2}$ and $5.10^{5}V^{2}$, where L and V are the length and volume of the amplifier resonator taken in cm and cm^{3}. Curves are shown of the dependence of the coefficient of amplification of the LSA at λ = 0.63 micron on the pulse duration of Q-modulation at various levels of the input signal. 1 fig. 12 ref. Received by editors, 20 May 1971.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

UDC: 621.373:530.145.6

USSR

DERYUGIN, L. N., KULAKOV, B. P., NURMUKHAMETOV, V. K.

"Investigation of Transient Processes and Superregenerative Amplification in a Q-Switched Gas Laser"

V sb. Radiofiz. i rasprostr. elektromagnitn. voln (Radio Physics and Propagation of Electromagnetic Waves--collection of works), Moscow, 1970, pp 167, 171, pp 144-151 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D336)

Translation: The authors investigate transient phenomena which may be used as the basis for laser operation in the superregenerative mode. It is assumed that Q-switching is done by a step function law; the transient phenomena are determined by the external signal. An amplification formula is derived as well as the amplitude characteristic of the amplifier in the self-excitation mode. The results of experiments with a helium-xenon laser are presented. Conditions are discussed for obtaining high amplifications, particularly pumping methods. Bibliography of fifteen titles. N. S.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

USSR UDC: 621.373:530.145.6

NURMUKHAMETOV, V. K.

"On the Problem of Evaluating the Output Power of a Continuous Laser"

V sb. Radiofiz. i rasprostr. elektromagnitn. voln (Radio Physics and Propagation of Electromagnetic Waves--collection of works), Moscow, 1970, pp 163-169 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D335)

Translation: The proposed method of determining laser power takes account of nonuniformity in distribution of the field within the cavity, which makes it possible to apply the procedure to the case of highly active media as well as to the case of low coefficients of reflection of the mirrors in the cavity. It is shown that for certain forms of the saturation curve for the medium, an expression may be derived which relates the output power of a laser with uniformly broadened spectral line to the parameters of the medium and the cavity. One illustration, bibliography of three titles. N. S.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202230006-4

UDC: 621.375:530.145.6

USSR

KULAKOV, B. P., NURMUKHAMETOV, V. K.

"Possibilities of Amplifying Optical Emission by Using a Continuous Gas Laser"

V sb. Radiofiz. i rasprostr. elektromagnitn. voln (Radio Physics and Propagation of Electromagnetic Waves--collection of works), Moscow, 1970, pp 152-162 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D334)

Translation: The authors discuss an amplification process (superregenerative state) based on the fact that the Doppler effect produces frequency regions within the limits of the amplification curve for the active medium in a laser with corresponding states of the laser beyond the emission threshold; these regions do not coincide with the emission frequency. If the frequency of a monochromatic input signal lies in such a region, then avalanche amplification of the signal takes place, particularly when the signal frequency lies outside the frequency band of the cavity. An equation is derived for the transient amplitude response of the laser. It is shown that the output emission level depends on the input signal level on the rising segment of the amplitude response curve, a fact which may be utilized as the basis for an amplifier, where the rising segment is periodically repeated (pumping by

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KULAKOV, B. P., NURMUKHAMETOV, V. K., Radiofiz. i rasprostr. elektromagnitn. voln, Moscow, 1970, pp 152-162

pulses with a duration comparable to the emission recovery time). A circuit is given for an amplifier and a device for observing amplification. The possibility of reducing amplifier noises is discussed. Four illustrations, bibliography of four titles. N. S.

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USEFUL MINERAL RECOVERY FROM SEA BOTTOMS

Excerpts from book by G. A. Nurok, V. N. Kostin, Yu. V. Bruyakin, Yu. V. Bubis, L. N. Molochnikov, K. V. Yablokov, A. D. Bogatov and V. I. Bogoyavlenskiyi, Moscow, Dobycha Poleznykh Iskopayemykh so Dna Morey i Okeanov, Russian, sent to printing 1 December 1969; 1970, pp 3-7; 133-142 and 237-239.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: INTRODUCTION 3. CHAPTER I USEFUL MINERALS OF SEAS AND OCEANS 8. CHAPTER II PROSPECTING AND SAMPLING UNDERWATER ALLUVIAL DEPOSITS 40. CHAPTER III THE TECHNOLOGY OF UNDERWATER EXPLOITATION OF DEPOSITS OF USEFUL MINERALS FROM THE BOTTOM OF SEAS AND OCEANS 71. CHAPTER IV TECHNICAL MEANS FOR THE EXTRACTION OF USEFUL MINERALS FROM THE BOTTOM OF SEAS AND OCEANS 142. CHAPTER V ENRICHMENT OF SEA SANDS OF USEFUL MINERALS 205. CHAPTER VI TASKS AND WAYS TO SOLVE THE PROBLEM OF UNDERWATER EXTRACTION OF USEFUL MINERALS IN THE USSR 233. LITERATURE 237. GIVEN ARE: A GEOLOGICAL CHARACTERISTIC OF SEA ALLUVIAL DEPOSITS, METHODS OF PROSPECTING AND SAMPLING THESE DEPOSITS; INFORMATION IS GIVEN ON THEIR PRESENCE IN SEAS AND OCEANS AND THE RECOVERABILITY AFTER CONDUCTING EXPLOITATION WORK. CITED ARE DATA ON THE TECHNOLOGY OF UNDERWATER EXTRACTION OF GOLD, TIN, TITANIUM CONTAINING AND MAGNETITE SANDS, DIAMONDS AND OTHER USEFUL MINERALS. GIVEN ARE ECONOMIC RESULTS OF UNDERWATER EXTRACTION AND METHODS TO DETERMINE THE ECONOMIC EFFECTIVENESS AND ALSO THE DIRECTION OF THE DEVELOPMENT OF THIS TECHNOLOGY.

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NUROMSKAYA, O. A., Lugansk Medical Institute

"Immunological Structure of Different Age Groups of the Population of Lugansk With Respect to Adenoviruses"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, Vol 48, No 6, Jun 71, pp 79-83

Abstract: The circulation of adenovirus types 1-7 among the adult and child population of the city of Lugansk was studied, and also seasonal fluctuations of adenovirus-induced infections, and the role of social, environmental, and meterorological factors in the spread of infection. Complement fixation and virus neutralization tests were used in the study of sera from 283 adults and 248 children, obtained monthly from September 1968 through August 1969. The virus neutralization reaction established the presence of antibodies to all of the seven types of adenoviruses, with the largest number of antibodies to adenovirus types 3, 7, and 1, and the smallest to types 2 and 4. The same ratio was true for the circulation of adenoviruses among the population. Larger numbers of antibodies to adenovirus type one were found in children than in adults, indicating a greater sensitivity of children to this type of

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NUROMSKAYA, O. A., Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, Vol 48, No 6, Jun 71, pp 79-83

adenovirus. The greatest morbidity of adenovirus infections, in many cases accompanied by respiratory complications, usually occurs during the late autumn and winter seasons. This can be explained by changes in living and social conditions, and particularly meteorological factors such as increased precipitation, sharp temperature fluctuations, gatherings of people in enclosed premises such as schools and other establishments, etc.

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