

1/1

USSR

UDC 533.697

BABENKO, V. V., and KOZLOV, L. F., Kiev

"Experimental Investigation of Hydrodynamic Stability on a Rigid and on Elastically Damping Surfaces"

Moscow, Izvestiya Akademii Nauk USSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 73, pp 122-127

Abstract: Results are presented of an experimental investigation of the hydrodynamic stability in a water flow carried out by the tellurium method on a hydrodynamic stand of low turbulence. The developed method of determining neutral curves made it possible to investigate also the hydrodynamic stability of elastically damping surfaces. The neutral curves were plotted in traditional and in new coordinates. The neutral curves in coordinates of dimensionless frequency, wave number, and phase velocity at longitudinal streamlining of the rigid plate adequately conform with experimental and theoretical results of other authors. The measurements made at 0.32 mm vibration amplitude and turbulence less than 0.04% approved the method of experimental investigation, they complied best of all with calculations of S. F. Shen (*J. Aer. Sci.*, 1954, Vol 21). Hydrodynamic stability investigations on three types of elastically damping surfaces show a form of neutral curves which is different

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USSR

BABENKO, V. V., and KOZLOV, L. F., Izvestiya Akademii Nauk USSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 73, pp 122-127

from the streamlining of a rigid surface. Four figures, twelve bibliographic references.

2/2

USSR

UDC 532.526

BABENKO, V. V. and KOZLOV, L. F., Hydromechanics Institute, Academy of Sciences USSR

"Experimental Investigation of Hydrodynamic Stability of Laminar Boundary Layer With Water Flow Along Rigid Surface"

Kiev, Gidromekhanika, Akademiya Nauk Ukrainskoy SSR, No 21, 1972, pp 70-73

Abstract: Investigation was conducted of a flow through a pipe with low initial turbulence (0.03%). The turbulence was excited by a vibrator and recorded on film by means of electronic equipment.

It has been established that exciting oscillations propagating into the unstable region increase in proportion to the exciting amplitude. The build-up starts at the neutral line and is maximum in the center of the unstable region. The neutral line obtained by varying the frequency of excitation agrees closely with the theoretical one.

The turbulence amplitude is maximum at 15-30% of the boundary layer thickness.

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USSR

UDC 532.526

ARIYE, M. Ya., KOZLOV, L. F.

"Experimental Study of Turbulent Boundary Layer with Suction"

Moscow, Gidromekhanika, No 17, 1971, p 40-44.

Abstract: A description is presented of an installation for experimental study of a turbulent boundary layer with suction and results of the investigations are presented. The influence of evenly distributed suction over a velocity profile and the characteristics of a turbulent boundary layer are shown. Based on a comparison of the characteristics of the turbulent boundary layer over an impermeable plate with analogous characteristics with suction, a formula is concluded for determination of the ratio of local surface friction coefficients on a flat plate with and without suction.

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USSR

UDC 519.2:62-50

BOYUN, V. P. and KOZLOV, L. G.

"Using Methods of Experimental Planning in Solving Optimal Control Problems of a Digital-Analog Computer Complex"

Kiev, Kibernet. tekhnika--Sbornik (Cybernetic Equipment -- Collection of Works), No 5, 1970, pp 93-102 (from Referativnyy Zhurnal -- Matematika, No 6, June 71, Abstract No 6V262, by Ya. Kogan)

Translation: The problem of optimal control of a system whose dynamics is described by an ordinary n-th-order differential equation is discussed. The numerical solution of this problem reduces to the problem of minimizing a function of a finite number of variables. It is proposed to employ methods of experimental planning in solving the latter. The main steps in realization of the numerical algorithm for solving this problem of optimal control for a digital-analog computer complex are described.

1/1

USSR

UDC 621.314.58(088.8)

BANANOV, I.V., YERMOLIN, YU.A., KOZLOV, L.G., MASLYUKOV, O.A., SAVUSHKIN, A.K.  
(Mosk. in-t inzh. zh.-d. transp., Moscow Institute Of Railroad Transportation Engineers

"Device For Control Of Frequency Converter"

USSR Author's Certificate No 251670, filed 23 May 68, published 30 Jan 70 (from  
RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 128524P)

Translation: The device proposed for control of a frequency converter contains a master unit with a multicell shift register and triggers. In order to simplify the device and to obtain optimum power, the output of one of the cells of the shift register is connected to one of the inputs of each trigger and the other input of each trigger is connected to the output of one of the next cells with respect to the performance of the shift register. 1 ill.

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USSR

UDC: 539.1.074

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GRAMMATIKATI, V. S., GRINEV, M. P., YERSHOVA, Z. F., KOZLOV, L. L.,  
LITVINOVA, T. G., MIKHAYLOV, L. M., MOLIN, A. A., PANCHENKOV, G. M.

"Color Indicators for Visual Evaluation of Dose During Radiation Sterilization"

Dozimetriya i Radiats. Protsessy v Dozimetr. Sistemakh [Dosimetry and Radiation Processes in Dosimetric Systems -- Collection of Works], Tashkent, Fan Press, 1972, pp 113-118 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 3, 1973, Abstract No 3.32.1403), from the resume.

Translation: It is suggested that a plasticized PVC film containing an acid-sensitive dye be used as a color dose indicator for the 0.1-5.0 Mrad range. The sensitivity of indicators to radiation as a function of film composition and dye used is studied. Color dose indicators are calibrated using the ferrosulfate method and calorimetry. A method is suggested for instrumental testing of changes in the color of indicators using spectrophotometry of irradiated specimens, allowing doses to be measured with errors of 10-12%. Practical recommendations are presented for the use of color dose indicators to check radiation sterilization. 2 figures, 1 biblio. ref.

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USSR

UDC 547.434.661.718.1

GUSEVA, T. A., KOZLOV, L. M., and SHERMORGON, I. M., Kazan' Veterinary  
Institute Imeni N. E. Bauman

"Nitroalkyl Esters of Phosphorus Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 2, Feb 73, pp 292-295

Abstract: In searching for new, biologically active compounds, symmetrical and mixed dialkyl phosphites containing a nitrogroup in the aliphatic radical were obtained by condensing nitroalcohols with phosphorus trichloride or with alkyl dichlorophosphites. The dialkyl phosphites were then condensed with chloral yielding esters of the  $\alpha$ -hydroxy- $\beta,\beta,\beta$ -trichloroethylphosphonic acid -- analogs of chlorophos. Biological evaluation showed that introduction of a nitrogroup into an ester radical led to a loss of insecticidal potency.

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1/2 015 UNCLASSIFIED PROCESSING DATE--020CT70  
TITLE--EXTRACTION OF AROMATIC HYDROCARBONS BY ACETATES OF NITRO ALCOHOLS  
-U-  
AUTHOR--(U)-DIYAROV, I.N., KOZLOV, L.M., BUREYEVA, R.R., SMOHEGLOVA, L.V.  
COUNTRY OF INFO--USSR *K*  
SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(3) 12-14  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY  
  
TOPIC TAGS--ACETATE, ORGANIC NITRO COMPOUND, HYDROCARBON EXTRACTION,  
AROMATIC HYDROCARBON, OCTANE, TOLUENE, NONANE, SOLVENT ACTION  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/1515 STEP NO--UR/0065/70/015/003/0012/0016  
  
CIRC ACCESSION NO--AP0112509  
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--020070

CIRC ACCESSION NO--AP0112509

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACETATES OF NITRO ACIDS. HAD A HIGH DISSOLVING CAPACITY AND GOOD SELECTIVITY FOR AROMATIC HYDROCARBONS, BUT THE EXTN. OF THE HYDROCARBONS DECREASED WITH AN INCREASE IN THEIR MOL. WT. THE MOL. WT. OF THE PARAFFINIC HYDROCARBONS IN THE MIXT. HAD THE GREATEST EFFECT ON THE AROMATIC HYDROCARBON CONCN. IN THE EXT. THIS, THE EXTN. OF ISOCTANETOLUENE (I) AND NONANE (II)-I MIXTS. WITH O SOAP NCH SUB2 CHMEDAC GAVE EXTS. CONTG. 60.2 AND 83.2PERCENT I, THE SEPN. COEFF. BEING 76.9 AND 61.1 VOL. PERCENT, RESP. IN THE CASE OF II-I AND II-O-XYLENE (III) MIXTS., THE EXTS. CONTAINED 88.2PERCENT I AND 82.2PERCENT III, THE SEPN. COEFFS. BEING 61.1 AND 60.4 VOL. PERCENT, RESP. DUE TO THEIR EXCESSIVE DISSOLVING CAPACITY, THE ACETATES WERE RECOMMENDED ONLY AS COMPONENTS OF SELECTIVE SOLVENTS. WATER DECREASED THE STABILITY OF THE ACETATES.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--PIGMENTARY AND EXCRETORY FUNCTION OF THE LIVER IN CHRONIC LEUKEMIA  
-U-  
AUTHOR-(104)-DOZORETS, YU.L., GURIN, N.G., KOZLOV, L.M., EYDEL, I.I.  
CCUNTRY OF INFO--USSR  
SOURCE--TERAPEVITICHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 32-35  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--BLOOD SERUM, LEUKEMIA, LIVER FUNCTION, EXCRETION, BILIRUBIN  
  
CCNTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1922 STEP NO--UR/0504/70/042/006/0032/0035  
CIRC ACCESSION NO--AP0129271  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129271

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS DETERMINED BILIRUBIN IN THE BLOOD SERUM AFTER HIMANS VAN DEN BERG IN 219 PATIENTS WITH CHRONIC LEUKEMIA AND ITS FRACTION, AFTER EBERLEIN IN 91 PATIENTS. QUANTITATIVE STUDY OF URINE UROBILIN WAS MADE IN 104 PERSONS AND CAPACITY OF THE LIVER TO EXCRETE ASORUBIN STAIN IN 107 PATIENTS. INCREASE OF FREE AND MONOGLUCURONID BILIRUBIN AND CHANGES OF DIGLUCURONIDBILIRUBIN IN THE BLOOD SERUM WERE FOUND. THESE CHANGES WERE MAINLY ASSOCIATED WITH A DISORDER OF THE CONJUGATING FUNCTION OF THE LIVER DUE TO A REDUCTION OF GLUCURONIL, TRANSFERASE ACTIVITY OF MICROSOMES OF HEPATOCYTES. IN THE TERMINAL PERIOD THE BILIRUBIN EXCRETORY FUNCTION OF THE LIVER WAS DISTURBED MOST OF ALL. UROBILINSORBTIVE FUNCTION OF THE LIVER WAS CONSTANTLY DISTURBED AND EXCRETORY, REMAINED UNCHANGED. FACILITY: KAFEDRA GOSPITAL'NOY TERAPII VITEBSKOGO MEDITSINSKOGO INSTITUT.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--KINETICS OF THE DECOMPOSITION OF AROMATIC NITRO ALCOHOLS IN AN  
ALKALINE MEDIUM -U-  
AUTHOR-(03)-LEYBZON, V.N., BELIKOV, V.M., KOZLOV, L.M.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 322-7  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--REACTION KINETICS, CHEMICAL DECOMPOSITION, ORGANIC NITRO  
COMPOUND, ALCOHOL, ACTIVATION ENERGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/0751 STEP NO--UR/0062/70/000/002/0322/0327  
CIRC ACCESSION NO--AP0124421  
UNCLASSIFIED

USSR

UDC 576.8.093.1:576.858.8

KOZLOV, L. P., KOLOBAYEV, V. A., and USPENSKAYA, R. S.

"Isolation and Purification of Potato Virus K for Serological Investigations"

Moscow, Biologicheskiye Nauki, No 10(94), 1971, pp 123-125

Abstract: A new method of isolating the pure potato virus K is described. Juice pressed from young leaves of the De Barao strain, which had been infected with virus K, was mixed with ether and centrifuged to separate most of the host proteins. The virus and the remaining plant proteins in the aqueous phase were precipitated with polyethylene glycol. The sediment was dissolved in a phosphate buffer, dialyzed against the same buffer, and filtered through granulated agar columns. The various fractions were collected separately and analyzed by means of ultraviolet spectrophotometry and serological tests. Fractions with an absorption peak at 2,600 angstroms contains virus K but no host proteins. This new method is recommended for...

2/2 026

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124421

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC DATA, OBTAINED BY POLAROGRAPHY, ARE REPORTED FOR DECOMPN. OF 1,PHENYL,2,NITROETHANOL (I) AND ITS P,BROMO, P,METHYL AND M,NITRO ANALOGS. THE REACTIONS, IN VERONAL BUFFER AT PH 7-9.5 WERE ACCOMPANIED BY REVERSIBLE IONIZATION OF THE C-H BOND ACTIVATED BY THE NO SUB2 GROUPS. THE RATE CONSTANTS (10 PRIME12 SEC NEGATIVE PRIME1) WERE: I, 3.15; P-BR, 4.15, P-ME, 3.9; M-NO SUB2, 4. THE ACTIVATION ENERGY WAS 19 KCAL-MOLE. THE SUBSTITUENTS HAVE LITTLE EFFECT ON THE KINETICS OF DECOMPN. FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

1/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--THE GEOCHEMISTRY, FORMATION AND PREVALENCE OF IODO-BROMINE WATER  
-U-  
AUTHOR--(02)--KUDELSKIY, A.V., KOZLOV, M.F.  
COUNTRY OF INFO--USSR  
SOURCE--(GEOKHIMIYA, FORMIROVANIYE I RASPROSTRANENIYE YODO-BROMNYKH VOD)  
MINSK. NAUKA I TEKHNIKA. 1970, 142 PP.  
DATE PUBLISHED--70

K

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOCHEMISTRY, BROMINE, MONOGRAPH, BIBLIOGRAPHY, IODINE,  
UNDERGROUND WATER, HYDROSPHERE, HYDROLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1995/0308

STEP NO--UR/0000/70/000/000/0001/0142

CIRC ACCESSION NO--AM0116002

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70  
CIRC ACCESSION NO--AM0116002  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PREFACE 3. CHAPTER I THE  
HISTORY OF THE STUDY OF IODINE BROMINE WATER 5. II SOME INFORMATION ON  
THE GEOCHEMISTRY AND PREVALENCE OF IODINE AND BROMINE IN THE EARTH'S  
CRUST AND IN THE HYDROSPHERE 8. III THE CIRCULATION OF IODINE AND  
BROMINE AND THE SOURCES OF THEIR ENTERING SUBTERRAINIAN WATERS 13. IV  
IODINE AND BROMINE IN SUBTERRAINIAN WATERS OF PETROLEUM GAS BEARING  
BASINS 19. V THE CHEMICAL COMPOSITION OF IODINE BROMINE WATERS. WATERS  
OF SPECIFIC COMPOSITION 82. VI THE INFLUENCE OF GEOLOGIC STRUCTURAL  
CONDITIONS ON THE PROPAGATION OF IODINE BROMINE WATERS 95. VII SOME  
CHARACTERISTICS OF THE FORMATION OF SITES OF IODINE BROMINE WATERS 101.  
VIII IODINE AND BROMINE IN CONNECTION WITH AN EVALUATION OF PERSPECTIVES  
FOR PETROLEUM GAS BEARING CAPACITY 127. CONCLUSION 131. LITERATURE  
134. EXAMINED IS ONE OF THE URGENT PROBLEMS IN MODERN HYDROGEOLOGY  
AND HYDROCHEMISTRY, THE FORMATION OF IODINE BROMINE WATERS. CITED IS A  
GREAT DEAL OF MATERIAL ON THE CHEMICAL COMPOSITION OF SUBTERRAINIAN  
WATERS IN THE VARIOUS REGIONS OF THE USSR; FOR THE FIRST TIME ARE  
DESCRIBED WATERS WITH A UNIQUE CONTENT OF IODINE DISCOVERED IN RECENT  
YEARS.

UNCLASSIFIED



Acc. Nr. **AF0050453** Abstracting Service:  
CHEMICAL ABST. **5/10**

Ref. Code  
**UR 0051**

**K**

105523n Absorption spectrum of strontium vapors in the vacuum ultraviolet. Kozlov, M. G.; Startsev, G. P. (USSR). *Opt. Spektrosk.* 1970, **15**, 11-17 (Russ). Oscillator strengths of spectral lines in the range 1845-2177.1 Å arising out of the autoionization of Sr (4 dnp) and converging to the limit Sr II <sup>2</sup>D<sub>3/2,5/2</sub> have been measured by the method of complete absorption by using a 3-m grating spectrograph. The dependence of photoionization cross section on wavelength has been studied. Lifetimes of energy states corresponding to simultaneous excitation of 2 electrons have been measured. Ved Prakash Gupta

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REEL/FRAME  
**19810432**

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N

USSR

UDC 576.851.42.095.38:59

TARAN, I. F. and KOZLOV, M. P., Plague Research Institute of the Caucasus and Transcaucasia"

"Confinement" of Brucellae to Particular Animal Species as a Taxonomic Criterion"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1972, pp 110-115

Abstract: It is evident from the literature that the parasitic invasion by brucellae of certain hosts is genetically caused by specific determinants of pathogenicity, which are also responsible for the pathogenetic characteristics of the disease, site of the agent in the body, and patterns of the epizootic process. Thus, the presence of the microorganisms in particular animal species should be used as a principal criterion for determining the species of brucellae under study. Even in the rough forms each bacterial variant attacks certain animal species. Brucellae invading unnatural hosts generally die. If they survive, it is at the price of undergoing major changes in the enzymatic systems, metabolism, and antigenic structure and assuming the rough form. As a result of these profound physiological changes, the microorganisms develop broader adaptive mechanisms that enable them to exist in the new host which may then become a definitive host.

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USSR

UDC 616.981.42-052.9-007.9

*R*  
KOVLOV, M. P. and KUCHEKOVA, G. G., Scientific Multiple Research Institute of the Caucasus and Transcaucasia.

"Immunity and Immunological Tolerance for Bacterial Antigen. II. Susceptibility and Immunity in White Mice Tolerant of Brucella"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 1, 1970. pp 66-70

Abstract: Immunological tolerance for Brucella was induced in new born mice by inoculating them intraperitoneally with soluble antigen. Despite the marked decrease in antibodies, the animals' susceptibility to infection with avirulent (Br. abortus 19) and virulent (Br. abortus 433) strains remained largely unchanged. Specific immunological reactivity did not diminish in tolerant mice. Despite the marked delay in formation of agglutinins, it was possible to create a level of immunity in the tolerant animals (by vaccination at 2, 4, and 8 weeks of age) equal to that in controls.

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Acc. Nr: **AP0036819**

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i  
Immunobiologii, 1970, Nr 1, pp 66-70

IMMUNITY AND IMMUNOLOGICAL TOLERANCE TO BACTERIAL ANTIGENS.  
REPORT II. STUDY OF SUSCEPTIBILITY AND IMMUNITY IN ALBINO MICE  
TOLERANT TO BRUCELLAE

M. P. Kozlov, G. G. Kulibzina

The authors present the results of studying the immunological reactivity and susceptibility to brucellosis in mice, to which a soluble antigen was injected during the neonatal period and in which a marked delay in the formation of blood antibodies was seen. The authors came to the conclusion that in mice tolerant to brucellosis, susceptibility to this species of avirulent and virulent causative agents failed to rise, and specific reactivity did not fall.

D n.

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USSR

UDC: 612.017.1.014.46: / 615.357.453-615.365-576.851  
42.097.5.095.18: / 615.357.453-615.365

K  
KOZLOV, M.P. and KULIKOVA, G.G., Scientific Research Antiplague Institute of  
the Caucasus and Transcaucasus. III. The Effect of Hydrocortisone and Cytotoxic  
Sera on the Formation of Antibodies to Brucella in Mice

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3, 1970, pp  
32-37

Abstract: Injection of newborn mice with large doses of hydrocortisone,  
antilymphocyte, antileukocyte, or normal heterologous serum reduced their  
immunity to bacterial antigens (Br. abortus 19). On the other hand, simul-  
taneous injection of newborn mice with hydrocortisone or a cytotoxic serum  
and the same antigen produced high antibody titers, i.e., the doses of  
hydrocortisone or serum that decreased immunological reactivity when injected  
alone, had a synergistic effect on antibody formation when combined with the  
antigen. Repeated injection of 3-week-old mice with the same antigen gave  
rise to antibody titers 3.5 to 5 times higher than in the control animals,  
i.e., the effect was comparable to that resulting from revaccination.

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1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--IMMUNITY AND IMMUNOLOGICAL TOLERANCE TO BACTERIAL ANTIGENS THE  
EFFECT OF HYDROCORTISONE AND OF CYTOTOXIC SERA ON THE FORMATION OF  
AUTHOR--(02)--KOZLOV, M.P., KULIKOVA, G.G.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOLOGII, 1970, NR 3,  
PP 32-37  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BRUCELLA, MOUSE, BLOOD SERUM, ANTIGEN, ANTIBODY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1990/1484

STEP NO--UR/0016/70/000/003/0032/0037

CIRC ACCESSION NO--AP0109544

UNCLASSIFIED

2/2 022  
CIRC ACCESSION NO--AP0109544

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER TREATS OF OBSERVATIONS ON THE EFFECT OF HYDROCORTISON, ANTILYMPHOCYTIC AND LEUKOCYTIC SERUM ADMINISTERED DURING THE NEONATAL PERIOD ON PRIMARY AND SECONDARY SPECIFIC IMMUNOLOGICAL REACTIVITY TO BACTERIAL BRUCELLA ANTIGEN. ADMINISTRATION OF HYDROCORTISONE AND CYTOTOXIC SERA IN HIGH DOSES LED TO REDUCTION OF PRIMARY IMMUNOLOGICAL REACTION TO THE ANTIGEN. COMBINED ADMINISTRATION TO NEONATES OF HYDROCORTISONE OR OF CYTOTOXIC SERA WITH A BACTERIAL ANTIGEN INTENSIFIED THE SPECIFIC IMMUNOLOGICAL REACTIVITY. REPEATED ADMINISTRATION OF THE ANTIGEN AT THE AGE OF THREE WEEKS WAS ACCOMPANIED BY ACTIVE FORMATION OF ANTIBODIES ACCORDING TO REVACCINATION TYPE.

UNCLASSIFIED

USSR

KOZLOV, M. V.

"A Walk in a Homogeneous Random Medium"

Teoriya Veroyatnostey i yeye Primeneniya [The Theory of Probabilities and Its Applications], 1975, Vol 18, No 2, pp 406-408 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1975, Abstract No 10V87)

Translation: The following plan of a walk in a homogeneous medium is studied. The random properties of the medium are determined by assignment for all integer  $x$  of mutually independent random quantities  $v_x$ ,

$$P(v_x = 1) = p, P(v_x = -1) = q = 1 - p.$$

Process  $\xi(t)$ ,  $t \geq 0$  is an integer, defined by the conditions

$$\xi(0) = 0, \xi(t + 1) - \xi(t) = \Delta_t v_{\xi(t)}$$

where  $\Delta_t$  are independent of each other and with values  $v_x$  and

$$P(\Delta_t = 1) = p_\alpha = (1 + \alpha)^{-1}, \alpha > 1,$$

$$P(\Delta_t = -1) = q_\alpha = \alpha(1 + \alpha)^{-1} = 1 - p_\alpha.$$

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USSR

KOZLOV, M. V., Teoriya Veroyatnostey i yeye Primeneniya, 1973, Vol 18, No 2, pp 406-408

It is assumed that  $p < 1/2$ ; then  $\xi(t) \rightarrow +\infty$  as  $t \rightarrow \infty$ .

Let us represent by  $\eta_x$  the number of times  $\xi(t)$  reaches point  $x$ .

The values of  $\eta_x$  where  $x \geq 0$  have identical probability distribution.

The main result of this article is (presented without proof)

Theorem 2. Where  $\gamma \leq 2$  for a certain sequence of positive numbers  $a_n$  such that

$$(\ln n)^{-c} \leq a_n \cdot n^{-1/\lambda} \leq (\ln n)^c,$$

where  $c > 0$  is a certain constant, the normalized sums

$$\zeta_n^* = a_n^{-1}(\zeta_n - nb_\gamma), \text{ where } b_\alpha = 0 \text{ if } \gamma < 1 \text{ and } M\eta \text{ if } 1 < \gamma \leq 2,$$

are stochastically limited:

$$P(|\zeta_n^*| > z_\epsilon) < \epsilon$$

with all  $n$  and any predetermined  $\epsilon > 0$ .

Author's view

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USSR

UDC: 620.193.01:669.725

DAVYDOV, A. D., KASHCHEYEV, V. D., KOZLOV, M. V.

"Influence of Anions in Electrolyte on Anodic Dissolution of Beryllium"

Moscow, Zashchita Metallov, Vol 9, No 4, Jul-Aug 73, p 436.

Translation: The authors produced anodic potentiodynamic (2 v/min) polarization curves on a rotating (5000 rpm) beryllium disc electrode. After the potential corresponding to the anion present is reached, the rate of dissolution of the metal increases rapidly. In hydrochloric and particularly sulfuric acid, anodic dissolution of beryllium begins at less positive potentials than in the corresponding salts, apparently a result of the dissolution of the oxide film. The yield per current with anodic dissolution of beryllium also depends on the nature of the anions present in the electrolyte and generally exceeds 100% as  $\text{Be}^{2+}$ .

USSR

KOZLOV, N. (Chairman), and KAARDE, I., (Editor)

Sbornik Nauchnykh Trudov Estonskoy Sel'skokhozyaystvennoy Akademii (Collection of Scientific Reports, Estonian Agricultural Academy), Tartu, 1970, 258 pp

Translation: Partially Expanded Table of Contents

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USSR

KOZLOV, N., (Chairman), and KAARDE, I., (Editor), Sbornik Nauchnykh Trudov  
Estonskoy Sel'skokhozyaystvennoy Akademii, Tartu, 1970, 258 pp

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MEDZYAVICHYUS, A. K., A new system of management of pig breed- ing — a method of combatting helminthiasis in pigs	15
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Translation: I. Survey Reports  
Data of the Study of Parasitic Diseases and Diseases with Natural Foci as  
Found in the Estonian SSR, by O. M. Tamm and K. A. Vasil'yeva, Republic  
Sanitary Epidemiological Station, Ministry of Public Health, Estonian SSR

In the Estonian SSR, just as in other Baltic republics with analogous flora  
and fauna and similar social circumstances, the occurrence of a number of  
parasitic and natural focus diseases is still observed.

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USSR

KOZLOV, N., (Chairman), and KAARDE, I., (Editor), Sbornik Nauchnykh Trudov Estonskoy Sel'skokhozyaystvennoy Akademii, Tartu, 1970, 258 pp

A study is being carried out at the Tallin Scientific Research Institute of Epidemiology, Microbiology and Hygiene of various questions relating to medical parasitology. Candidate of medical sciences, A. K. Yygiste has now completed a doctoral dissertation devoted to problems of morphogenesis of the fetus and of its characteristics as related to the virulence of the pathogen of toxoplasmosis. In 1969, E. A. Peykre completed and defended his candidate's dissertation entitled "A Study of the Natural Foci of Ornithosis in the Estonian SSR."

On the basis of morbidity data and from various studies of tickborne encephalitis (E. M. Raudam, 1955; 1967; A. Ye. Karapezyan, V. Ya. Zasypkin, 1959; K. A. Vasil'yeva, 1957; K. A. Vasil'yeva, M. H. Shumardin, 1961), it is known that the southeastern section of the republic has natural foci of tickborne encephalitis, which appear to be active but not intensive. This is confirmed by various cases of tickborne encephalitis registered almost yearly in the Estonian SSR. Because of the importance of this, research was continued in 1968-1969 (by K. A. Vasil'yeva and M. G. Chernysheva) and virological research methods were used more widely. Research was conducted

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USSR

KOZLOV, N., (Chairman), and KAARDE, I., (Editor), Sbornik Nauchnykh Trudov Estonskoy Sel'skokhozyaystvennoy Akademii, Tartu, 1970, 258 pp

at a laboratory for tickborne encephalitis at the Institute of Polymyelitis and Viral Encephalitides of the AMN SSSR (Ye. S. Sramanova, M. E. Bychkova). As a result of a study conducted on ticks collected from the territory of the focus (Yygevaskiy and Tartu regions), in 1968, two strains of tickborne encephalitis virus were isolated, EK-13 and EK-14, and another in 1969, EK-29.

These results confirm an active focus of tickborne encephalitis, and consequently, the urgency of this problem for the republic. The magnitude of this problem is defined by the wide distribution of Ixodid ticks in the Estonian SSR.

Various helminthiases have also spread significantly among the population, to 1.1% in 1969. Helminthiasis infestation decreases from year to year; for example; in 1960, 4.9% of the population was infested; in 1965, 2.5% of those studied. Nevertheless, the rate of decrease has noticeably slowed in recent years.

The most widespread is ascariasis, the incidence of which was 0.69% in 1969; 61.9% of the reported cases of helminthiasis were of this type. Ascariasis

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USSR

KOZLOV, N., (Chairman), and KAARDE, I., (Editor), Sbornik Nauchnykh Trudov Estonskoy Sel'skokhozyaystvennoy Akademii, Tartu, 1970, 258 pp

has general circulation in the republic, while in various regions there is a low degree of infestation, there are small territorial foci and microfoci with higher morbidity.

A marked incidence still remains of broad tapeworm -- in 1969, 0.33% of those studied. On the whole the decrease of infestation is insignificant.

The incidence of taeniasis (infestation by *Taeniarhynchus*) among the population of the republic stands at 0.003% of those examined and has remained at this level since 1963. The low degree of infestation, 0.28 per 10,000 indicates that taeniasis has been eliminated in the republic as a mass disease, yet it cannot be considered completely eradicated, as no decrease in the incidence of *Cysticercus bovis* has been observed. Taking into consideration the importance of the detection of all actual taeniasis foci, the urgency of this problem in the republic has not decreased, and consequently neither has the necessity for further research with the aim of total eradication of taeniasis in the republic.

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USSR

KOZLOV, N., (Chairman), and KAARDE, I., (Editor), Sbornik Nauchnykh Trudov Estonskoy Sel'skokhozyaystvennoy Akademii, Tartu, 1970, 258 pp

Taking into account that an isolated, insular focus of tularemia exists in the republic, the possibility of the presence of potential natural foci cannot be ruled out. In 1969, a study was conducted (by the Republic Sanitary Epidemiological Station) of the natural immune layer among the agricultural population in two regions of the republic. A zoological-parasitological examination of rodents and domestic animals was also conducted. The results of this work showed that none of those studied appeared to be immune to tularemia. Positive results (low titers) were obtained during the serological investigation of rodents in individual cases; however, they cannot be considered specific, and consequently it is necessary to further investigate this problem.

Because of the importance of the protozoan group and the fact that it has not been sufficiently studied, except for trichomoniasis of the urogenital tract, new problems have arisen such as amebiasis, a disease which is increasing and acquiring general significance in infection pathology, and even balantidiasis, which still circulates among the livestock of the republic.

6/7



USSR

KOZLOV, N., (Chairman), and KAARDE, I., (Editor), Sbornik Nauchnykh Trudov Estonskoy Sel'skokhozyaystvennoy Akademii, Tartu, 1970, 258 pp

In 1969, for the first time in the Estonian SSR, a case of trichinosis in humans was registered. It was caused by ingesting contaminated wild boar meat, which indicates the circulation of *Trichinella* strains among the wild animals of the republic. Plans for prophylaxis of these diseases in the future must include a study of this problem involving specialists from scientific research and practical institutes of the republic, organs of public health, and veterinary services. Consultation with leading Soviet scientists is recommended, and also the exchange of work experience and coordination of research with other Baltic republics.

7/7

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1/2 013 UNCLASSIFIED PROCESSING DATE--11DEC70  
 TITLE--REACTIVITY OF CELLULOSE. II. EFFECT OF CELLULOSE DEHYDRATION  
 CONDITIONS ON THE REACTIVITY OF CELLULOSE DURING ACETYLATION -U-  
 AUTHOR--(03)--KUZLOV, N.A., MEDVED, L.N., TARAKANOV, O.G.  
 COUNTRY OF INFO--USSR  
 SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 940-3  
 DATE PUBLISHED-----70  
 SUBJECT AREAS--CHEMISTRY, MATERIALS  
 TOPIC TAGS--CELLULOSE, NATURAL FIBER, DEHYDRATION, HYDROGEN BONDING  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROJY REEL/FRAE--3008/1498 STEP NO--UR/0080/70/043/004/094C/0943  
 CIRC ACCESSION NO--AP0138499  
 UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11DEC70

2/2 013

CIRC ACCESSION NO--AP0138499  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACETYLATION RATE CONSTS. (K)  
OF VARIOUS COTTON CELLULOSE (I) SAMPLES OBTAINED BY SCOURING,  
CHLORINATION, ALK. TREATMENT, HYPOCHLORITE BLEACHING, PEROXIDE  
BLEACHING, OR ACID TREATMENT WERE OBTAINED. THERE IS SOME  
CORRESPONDENCE BETWEEN THE SP. SURFACE OF I AND K; HOWEVER, THE MAIN  
FACTOR IN K DETN. IS THE RELATION BETWEEN THE INTER AND INTRAMOL.  
H-BONDING.

UNCLASSIFIED

Lasers & Masers

UDC 621.375.826

USSR

ALEKSEYEV, V. A., KOZLOV, N. P., and PROTASOV, Yu. S.

"Organic-Dye Laser"

Moscow, Pribory i Tekhnika Eksperimenta, November-December 1973,  
pp 137-138

Abstract: The description is given of a laser containing an alcohol solution of 6Zh rhodamine excited by the radiation of the plasma focus of a pulse accelerator operating in a plasma of metals and dielectrics. Light sources with pulse energies of up to 7500 j were used for pumping. Other details and technical characteristics of the laser are given together with a sketch showing some details of the instrument's structure. The reflector was made of polished duralumin in the form of an elliptical cylinder with a major semiaxis of 240 mm and a minor semiaxis of 210 mm. The energy generated was in the spectral range of 593-599 nm and the generation time was about 16  $\mu$ s.

UDC: 621.382.2

USSR

~~KOZLOV, N. B.~~ LEVASHOV, I. P., MURYGIN, V. I., POPOV, L. V., SONDAYEVSKIY,  
I. A. and STAFEYEV, V. I., Moscow Institute of Electronic Technology  
"Some Research in S-Diode Neuristors"

Leningrad, Fizika i tekhnika poluprovodnikov, vol 6, No 6, 1972,  
pp 1054-1061

Abstract: The neuristors investigated in this article have S-shaped volt-ampere characteristics and are of two types: first, with common anti-cutoff contact and a sectioned p-n junction; second, with common p-n junction and sectioned anti-cutoff contact. The schematics of both types are given. If the diode structures in the circuit are sufficiently far from each other, the switching delay time may be much less than the switching time of an individual element, and the interelement switching time can be neglected. It is shown that when the delay time between the switching of neighboring elements is much greater than the switching time, the dependence of the breakdown voltage on the parameters of the material has only a slight effect on the coupling between the active elements in the neuristor line. The second part of this paper describes experiments performed to verify the theoretical results of the first part. These experiments used neuristors of p-type germanium compensated by gold.

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196

USSR

UDC: 620.10

GUBAREV, V. Ya., Engineer, KOZLOV, N. P., Candidate of Technical Sciences, Docent, LESKOV, L. V., Doctor of Physical and Mathematical Sciences, Professor, PROTASOV, Yu. S., Graduate Student, Moscow Higher Technical Academy imeni N. E. Bauman

"On Measurement of Small Deflections"

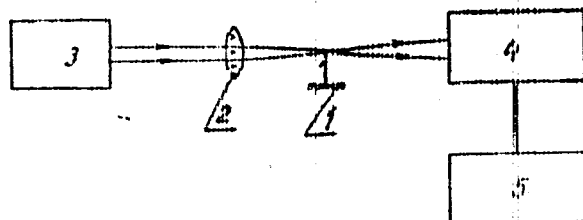
Moscow, Izv. VUZov: Mashinostroyeniye, No 9, 1972, pp 190-191

Abstract: The paper describes a procedure and experimental equipment for measuring displacements of the order of  $10^{-3}$  mm at frequencies of the order of hundreds of kHz. The measurement installation is based on the Töpler schlieren method as illustrated in the diagram. Sharp-edged plate 1 is securely fastened to the article at the point to be measured in the plane of deflection. Lens 2 focuses a beam from gas laser 3 onto the sharp edge of this plate. The light beam is then allowed to fall on the cathode of photomultiplier 4 whose output signal is registered by oscilloscope or digital recorder 5.

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USSR

GUBAREV, V. Ya. et al., Izv. VUZov: Mashinostroyeniye, No 9, 1972, pp  
190-191



2/2

UDC 669.017.11539.56.001.5

USSR

GULYAYEV, A. P., VOLKOVA, M. A., VYSHVANYUK, I. M., KUZLOV, H. P., and  
MATSNEVA, YE. G.

"Mechanical Properties of 10GT Steel at Negative Temperatures and Influence  
of Imitated Welding Cycle on the Cold Brittleness Threshold"

Spetsial'nyye Stali i Splavy (Special Steels and Alloys -- Collection of  
Works), No 77, Metallurgiya Press, 1970, pp 181-187

Translation: It is established that the mechanical properties of all melts  
and shapes of 10GT steel studied, tested at  $-60^{\circ}\text{C}$ , satisfy the require-  
ments of All-Union State Standard GOST 5781-61, while the impact tough-  
ness in the hot-rolled state at  $-60^{\circ}\text{C}$  is  $1,000-2,200 \text{ kJ/m}^2$  ( $10-22 \text{ kg}\cdot\text{m/cm}^2$ ).

The cold brittleness threshold of periodic profile No 16-32 of 10GT  
steel lies in the interval from  $-80$  to  $-100^{\circ}\text{C}$ . Fully viscous fracture of  
the steel occurs at room temperature.

The cold brittleness threshold of 10GT and St5 steels after a weld-  
ing cycle is practically independent of preliminary heat treatment. The  
use of heat treatment for welded products is undesirable, since welding  
reduces its effectiveness. 2 figures; 1 table.

1/1



1/2 017 UNCLASSIFIED PROCESSING DATE--20NOV70  
 TITLE--METHOD OF ALLOYING STEEL -U-  
 AUTHOR--(05)-SHUSHLEBIN, G.A., KOZLOV, N.P., ALYMOV, A.A., KALCHENKO, T.V.,  
 KNYAZEV, V.A.  
 COUNTRY OF INFO--USSR  
 SOURCE--U.S.S.R. 263,034  
 REFERENCE--OTKRYTIYA, IZOBRETI., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
 DATE PUBLISHED--10FEB70  
 SUBJECT AREAS--MATERIALS  
 TOPIC TAGS--CHEMICAL PATENT, CRYOLITE, FLUORITE, ALLOY STEEL, ZIRCONIUM  
 STEEL, STEEL MANUFACTURE PROCESS  
 CONTROL MARKING--NO RESTRICTIONS  
 DOCUMENT CLASS--UNCLASSIFIED  
 PROJY KEEL/FRAME--3004/1822 STEP NO--UR/0482/TC/000/000/0000/0000  
 CIRC ACCESSION NO--AA0132087  
 UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AA0132087

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STEEL IS ALLOYED ZR BY INTRODUCING  
A ZR CONTG. ALLOY WITH PARTICLE DIMENSIONS SMALLER THAN OR EQUAL TO 20  
MM SMALLER THAN OR EQUAL TO 1PERCENT ON THE LIQ. STEEL WT. AND A MIXT.  
CONTG. 3 PARTS CRYOLITE TO 1 PART FLUORITE LARGER THAN OR EQUAL TO  
0.1PERCENT ON THE LIQ. STEEL WT. INTO THE MOLD. FACILITY:  
TSENTRAL'YY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT CHERNOY METALLURGIY IM.  
I. P. BARDINA.

UNCLASSIFIED

USSR

UDC 547.574

KOZLOV, N. S., PAK, V. D., GACHKOVSKIY, V. F., and BALYKVA, I. A., Perm' Agricultural Institute imeni D. N. Pryanishnikov, Perm', and Institute of Chemical Physics, Academy of Sciences USSR

"Synthesis and Properties of Monophenyl- and Monoalkylphosphite Ammonium Complexes of Arylidenebutylamines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2497-2500

Abstract: The reaction of arylidenebutylamines  $RC_6H_4-CH=N-C_4H_9$  with diphenyl and dialkyl phosphites proceeded in one direction only, leading to the formation of monophenyl- and monoalkylphosphite ammonium complexes of azomethines  $(RC_6H_4-CH=N^+-C_4H_9)O^--P(OR')(OH)$  (I; R = H, p-MeO, p-Me<sub>2</sub>N, p-Cl, p-Br, p-NO<sub>2</sub>; R' = Ph, Me, Et, Pr, i-Pr, Bu). The compounds I were crystalline substances with m. p. 192-233°. The spectra of their luminescence induced by radiation with a wavelength in the region of 365 nm were determined. It had been established in earlier work by Kozlov et al that the reaction of arylidene-methylamines with esters  $(R'O)_2POH$  (R' = Ph or alkyl) could result in the formation of either aminophosphonic esters or of monophenyl- and monoalkylphosphite ammonium complexes of azomethines.

1/1

USSR

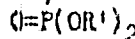
UDC 547.57

KOZLOV, N. S., PAK, V. D., GARTMAN, G. A., and BALYKOVA, I. A.

"The Direction of the Reaction of Arylidenemethylamines with Diphenyl and Dialkyl Phosphites"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2360-2363

Abstract: It had been established in earlier work by Kozlov et al (Izv. AN Beloruss. SSR. Ser. Khim., No 3, 95, 1967; No 2, 199, 1968; No 2, 113, 1968) that aminophosphonic esters are the principal products of the reaction of aromatic azomethines with diphenyl and dialkyl phosphites. In this instance the reaction of arylidenemethylamines  $RC_6H_4 CH=NMe$  with diphenyl and dialkyl phosphites was studied. In the majority of cases monophenyl- and monoalkyl-phosphite ammonium complexes of azomethines formed:  $RC_6H_4 CH=NMe + (R'O)_2POH + H_2O \rightarrow (RC_6H_4 CH-NHMe)^+ OP(OR')OH^- (I) + R'OH$ . In some instances, however, amino-phosphonic esters formed under identical conditions from arylidenemethylamines and dialkyl phosphites:  $RC_6H_4 CH=NMe + (R'O)_2 POH \rightarrow RC_6H_4 CHNEMe (II)$ . The dual



direction of the reaction of arylidenemethylamines can be explained by the  
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USSR

KOZLOV, N. S., et al., Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2360-2363

higher basicity of arylidenemethylamines as compared with aromatic azomethines. As a result, the nucleophilic activity of the azomethines was reinforced. The properties of the compounds I and II that were synthesized are listed in tables.

2/2

UDC 547.574:547.26:118

USSR

KOZLOV, N. S., PAKH, V. D., GAMALET, V. G., Perm Agricultural Institute

"Synthesis of Organophosphorus Compounds Based on Azomethynes"  
XI. Study of the Reactions of Schiff's Bases with Phenyl Phosphate

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1217-1219

Abstract: Phenyl phosphate was made to react with various alkylidenearylamines, such as butylideneaniline, heptylideneaniline. The following products of the type  $(RCH=NHR')^+O^-P(:O)(OH)OC_6H_5$  were obtained (R and R' given):  $C_6H_5$ ,  $C_6H_5$ ;  $C_6H_5$ , p- $C_6H_4CH_3$ ;  $C_6H_5$ , m- $C_6H_4CH_3$ ;  $C_6H_5$ , o- $C_6H_4CH_3$ ;  $C_6H_5$ , p- $C_6H_4COOH$ ;  $C_6H_5$ , o- $C_6H_4COOH$ ;  $C_6H_5$ , m- $C_6H_4COOH$ ;  $C_6H_5$ , p- $C_6H_4COOCH_3$ ;  $C_6H_5$ , p- $C_6H_4COOCH_3$ ;  $C_6H_5$ , o- $C_6H_4Cl$ ; p- $CH_3OC_6H_4$ ,  $C_6H_5$ ; p- $NO_2C_6H_4$ ,  $C_6H_5$ ; p- $NO_2C_6H_4$ , p- $C_6H_4Cl_3$ ; p- $CH_3OC_6H_4$ , p- $C_6H_4Cl_3$ ;  $C_6H_5$ ,  $C_6H_5$ ,  $CH_3(CH_2)_5$ ,  $C_6H_5$ . These compounds are white, crystalline, soluble in water, alcohol, dioxane, and dimethylformamide. They dissolve partially in benzene, but they are insoluble in diethyl ether or petroleum ether. Their IR spectra have a broad band at  $2600\text{ cm}^{-1}$ , which is characteristic for the  $>Na$  group. As is the case with all amine salts, these compounds are hydrolyzed in alkali to the corresponding azomethynes and the metal phenyl phosphate. The temperature dependence of the hydrolysis constant of

1/2

USSR

KOZLOV, N. S., et al, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1217-1219

these compounds was studied. It was found also that electronegative substituents at the benzene ring of the amine moiety increase the hydrolysis rate, whereas electropositive substituents decrease it. Substituents at the benzene group of the aldehyde moiety do not exhibit such an effect on the hydrolysis rate.

2/2

- 35 -

1/2 030 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--PREPARATION OF N,N-DIMETHYLAMINOMETHYLFERROCENE HYDROCHLORIDES AND  
NITRATES -U-  
AUTHOR--KALENNIKOV, E.A., VISHNYAKOVA, T.P., KOZLOV, N.S. *K*  
COUNTRY OF INFO--USSR  
SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. KHIM. NAVUK 1970, (11), 129  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--IR SPECTRUM, HYDROLYSIS, COPPER CHLORIDE, COBALT CHLORIDE,  
FERROCENE, AMINE DERIVATIVE, NITRATE, ORGANIC SALT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1987/1074 STEP NO--UR/0419/70/000/001/0129/0129  
CIRC ACCESSION NO--AP0104472  
UNCLASSIFIED



2/2 030

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104472

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. TREATING 5 G  
N,N-DIMETHYLAMINOMETHYLFERROCENE (I) IN CH SUB2 CL SUB2 WITH 14.1 ML  
15PERCENT HCL GAVE FROM THE ORG. LAYER 90-5PERCENT HCL SALT. WHILE  
CONCD. HNO SUB3 DESTROYS I, 15PERCENT HNO SUB3 FORMED ITS NITRATE IN  
90-5PERCENT YIELD. THESE SALTS WERE ALSO FORMED FROM REACTION OF I WITH  
AQ. SALTS OF CO AND CU, PROBABLY OWING TO INTERMEDIATE HYDROLYSIS OF CU  
OR CO CHLORIDES AND NITRATES, RESP. THE YIELDS WERE 90-5PERCENT. IR  
SPECTRAL DATA WERE GIVEN.

UNCLASSIFIED

USSR

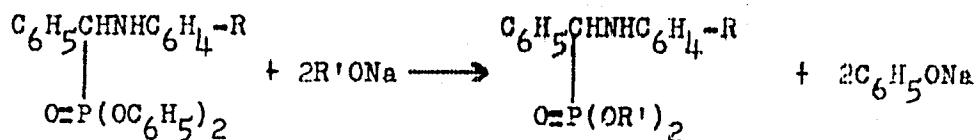
UDC 547.574 + 241

*K*  
 KOZLOV, N. S., PAK, V. D., YELIN, YE. S., Institute of Physico-Organic Chemistry, Academy of Sciences Belorussian SSR; Perm Agricultural Institute imeni D. N. Pryanishnikov, Perm, Ministry of Agriculture USSR

"Some Properties of Diphenyl Esters of N-aryl Substituted Amino-phosphinic Acids"

Minsk, Vestsi Akademiyi Navuk BSSR, No 2, 1970, pp 102-104

Abstract: Failing to achieve transesterification of diphenyl esters by aliphatic alcohols, the authors accomplished it readily with alcoholates of alkaline metals:



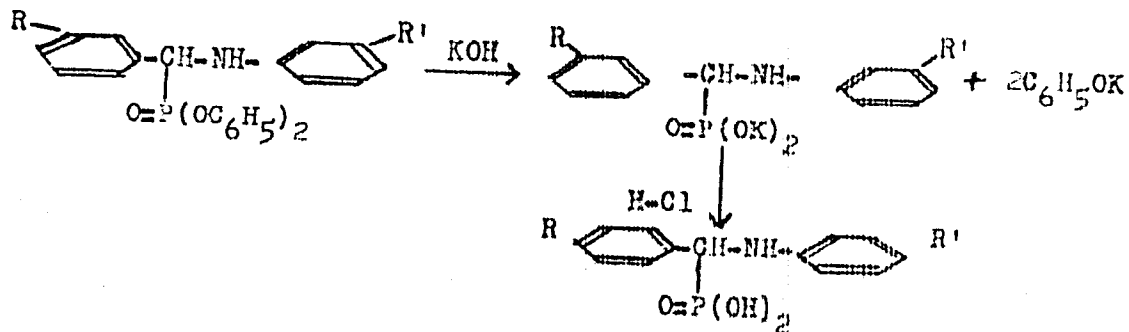
where R = H, n-CH<sub>3</sub>, m-CH<sub>3</sub>; R' = CH<sub>3</sub>, C<sub>3</sub>H<sub>7</sub>, C<sub>4</sub>H<sub>9</sub>.

1/3

-USSR

KOZLOV, N. S., et al, Vestsi Akademiyi Navuk BSSR, No 2, 1970,  
pp 102-104

The authors also succeeded in obtaining N-aryl substituted aminophosphinic acid by heating the esters in an aqueous solution of potassium hydroxide and saponifying them, and subsequently treating them with a weak solution of HCl:



2/3

- 84 -

USSR

KOZLOV, N. S., et al, Vestsi Akademiyi Navuk BSSR, No 2, 1970,  
pp 102-104

These products are insoluble in ether, benzene, dioxane and water, but are soluble in alcohol and aqueous solutions of alkalies. When analyzed by infrared spectroscopy, the products do not give adsorption bands characteristic for the NH-group.

3/3

USSR

K

UDC 547.574+24.1

KOZLOV, N. S., PAK, V. D., YELIN, YE. S., Institute of Physico-Organic Chemistry, Academy of Sciences Belorussian SSR; Perm Agricultural Institute imeni D. N. Pryanishnikov, Perm, Ministry of Agriculture USSR

"Obtaining Aminophosphinic Esters and Their Acid Decomposition"

Minsk, Vestsi Akademiyi Navuk Belaruskay SSR, No 2, 1970, pp 87-90

Abstract: The esters of aminophosphinic acids were obtained by condensation of aromatic amines and aldehydes with dialkyl- or diphenylphosphites, and also by condensation of aromatic Schiff's bases with the above phosphites in the presence of a catalyzer, concentrated  $\text{HCl}$  or  $\text{SnCl}_2$ . They are white or yellow crystals, soluble in ether, alcohol, benzene, dioxane and acetone. Attempts to use azomethanes with ortho-substituents gave negative results.

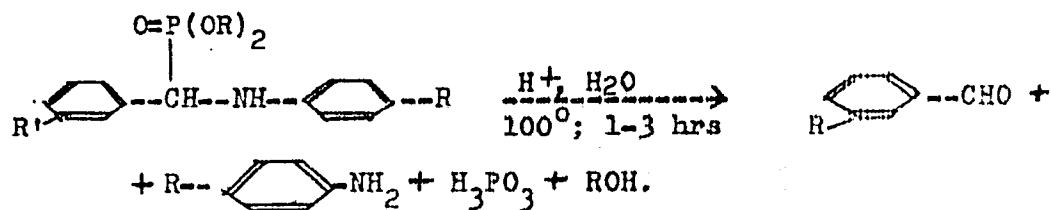
The authors prove experimentally that N-aryl substituents of the aminophosphinic acids are completely decomposed in hydrochloric and acetic acids:

1/2

- 85 -

USSR

KOZLOV, N. S., et al, Vestsi Akademiyi Navuk Belaruskay SSR, No 2, 1970, pp 87-90



Electropositive substituents in the benzene ring ( $\text{CH}_3$ ,  $\text{OCH}_3$ ,  $i\text{-C}_3\text{H}_7$ ), as a rule, accelerate decomposition; electronegative substituents ( $\text{NO}_2$ ,  $\text{Cl}$ ,  $\text{I}$ ) slow the reaction by interfering with the transfer of  $\text{H}^+$  to the electrophilic N nucleus.

2/2

1/2 022

TITLE--5,6-BENZOQUINOLINES -U- UNCLASSIFIED

PROCESSING DATE--09OCT70

AUTHOR--KOZLOV, N. S.

K

COUNTRY OF INFO--USSR

SOURCE--(5,6-BENZOKHINDLINY) MINSK. NAUKA I TEKHNIKA. 1970, 133 PP.

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HETEROCYCLIC NITROGEN COMPOUND, PYRIDINE, BENZENE DERIVATIVE, QUINOLINE, IR SPECTRUM, UV SPECTRUM, LYSERGIC ACID DIETHYLAMIDE, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1993/2011

STEP NO--UR/0000/70/000/000/0001/0133

CIRC ACCESSION NO--AM0114400

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AM0114400

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE, 3. NOMENCLATURE OF BENZOQUINOLINES, 5. 1. BASIC METHODS OF SYNTHESIS OF 5,6,BENZOQUINOLINE DERIVATIVES, 9. 2. SYNTHESIS OF 5,6,BENZOQUINOLINE DERIVATIVES BY MEANS OF CATALYTIC CONDENSATION OF AZOMETHYNES WITH KETONES, 28. 3. SYNTHESIS OF METHYL AND ARYL DERIVATIVES OF 5,6,BENZOQUINOLINE, 44. 4. SYNTHESIS OF STYRYL DERIVATIVES OF 5,6,BENZOQUINOLINE, 51. 5. SYNTHESIS OF MULTINUCLEAR HETEROCYCLIC COMPOUNDS, 59. 6. SYNTHESIS OF 5,6,BENZOQUINOLINE DERIVATIVES WITH CONDENSED CYCLES, 69. 7. SYNTHESIS OF CARBONYL DERIVATIVES OF 5,6,BENZOQUINOLINE, 79. 8. SYNTHESIS OF AMINES OF THE 5,6,BENZOQUINOLINE SERIES AND THEIR DERIVATIVES, 84. 9. THE INFRARED AND ULTRAVIOLET SPECTRA OF 5,6,BENZOQUINOLINE DERIVATIVES, 91. 10. THE PRACTICAL UTILIZATION OF DERIVATIVES OF 5,6,BENZOQUINOLINE, 99. 11. LITERATURE, 114, APPENDIX, 125. DESCRIBED ARE ALL EXISTING BASIC MEANS TO OBTAIN 5,6,BENZOQUINOLINES AND THEIR DERIVATIVES, KNOWN IN SOVIET AND FOREIGN LITERATURE. THERE ARE DATA ON THE SYNTHESIS OF LYSERGIC ACID, A NATURAL COMPOUND, A DERIVATIVE OF 5,6,BENZOQUINOLINE AND THE SYNTHESIS OF ANALOGS OF LYSERGIC ACID POSSESSING A DIVERSE PHYSIOLOGICAL ACTIVNESS.

UNCLASSIFIED



Acc. Nr:

AP0048937

Abstracting Service:

CHEMICAL ABST. 5-70

Ref. Code:

618 0028

100217f Catalytic synthesis of aromatic Schiff's bases.  
~~Kozlov, N. S.; Pak, V. D.; Chuklinov, L. V. (Perm. Sel'khoz. Inst., Perm. USSR). Zh. Obshch. Khim. 1970, 40(1), 191-5 (Russ). Passing 1:3 (molar)  $RC_6H_4NO_2$ - $PhCH_2OH$  over com. catalyst of Cu-promoted  $Al_2O_3$  at 340-50°/1 atm at 0.4 ml/min after the catalyst had been reduced 2 hr with H at 300°, gave BzH and 30-60%  $RC_6H_4N$ : $CHPh$  (R = H, o-Me, p-Me, o-Cl, p-Cl, or p-Br). G. M. Kosolapoff~~

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REEL/FRA  
19800709

de 7

1/2 017

TITLE--REGENERATION OF AN ALUMINUM PLATINUM CATALYST INACTIVATED BY ALUMINUM SULFATE -U-  
AUTHOR-(02)-KOZLOV, N.S., IVANKOVICH, E.F.

UNCLASSIFIED  
PROCESSING DATE--0200170

COUNTRY OF INFO--USSR

K

SOURCE--VESTSI AKAD. NAVUK BELARUS. SSR, SER. KHIM. NAVUK 1970, (1) 64-8  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALUMINUM SULFATE, PLATINUM, ALUMINUM OXIDE, HYDROGEN SULFIDE, CATALYST ACTIVITY, CATALYST REGENERATION, CATALYTIC DEHYDROGENATION

CONTROL MARKS--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FILE/FRAML--1967/1967

STEP NO--UR/0419/70/000/001/0054/0058

CIRC ACCESSION NO--AP0104989

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--0206170

CIRC ACCESSION NO--A0104889

ABSTRACT/EXTRACT--(U) GP-U- ABSTRACT. THE REDN. OF AL SUB2 (SL SUB4) SUB3  
 DEPOSITED ON GAMMA AL SUB2 O SUB3 BY H WAS STUDIED ON SAMPLES OF PURE  
 GAMMA AL SUB2 O SUB3 AND ON GAMMA AL SUB2 O SUB3 TREATED WITH AN AQ.  
 SOLN. OF H SUB2 PTCL SUB6 WITH 0.5 WT. PERCENT PT. THE CONTENT OF AL  
 SUB2 (SO SUB4) SUB3 CORRESPONDED TO 0.2-0.8 WT. PERCENT S. THE EVOLUTION  
 OF H SUB2 S WAS OBSD. WITH PURE GAMMA AL SUB2 O SUB3 LARGER THAN OR  
 EQUAL TO 420DEGREES AND WITH PT PLUS GAMMA AL SUB2 O SUB3 SAMPLES LARGER  
 THAN OR EQUAL TO 300DEGREES. THE ACTIVATION ENERGIES OF THE REDN. ON  
 GAMMA AL SUB2 O SUB3 OR ON PT PLUS GAMMA AL SUB2 O SUB3 WERE 31.9 OR 7.7  
 KCAL-MOLE, RESP. THE REACTION RATE WAS GREATER ON PT PLUS GAMMA AL SUB2  
 O SUB3 SAMPLES. MOST OF THE S WAS REMOVED DURING THE 1ST HR AND THEN  
 THE S CONTENT DECREASED SLOWLY. THE CATALYTIC ACTIVITY OF THE RECOVERED  
 PT PLUS GAMMA AL SUB2 O SUB3 CATALYST WAS STUDIED DURING THE  
 DEHYDROGENATION OF C SUB6 H SUB12 AT 300DEGREES. THE DEHYDROGENATION  
 DEGREE (ALPHA) WAS 85-91PERCENT FOR A S CONTENT SMALLER THAN OR EQUAL TO  
 0.1 WT. PERCENT. WITH INCREASE IN THE S CONTENT GREATER THAN 0.1 WT.  
 PERCENT, ALPHA DECREASED.

UNCLASSIFIED

1/2 009

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--ELECTROPHILIC SUBSTITUTION OF POLYPHOSPHORIC ACID. III. ALKYLATION OF TOLUENE BY SECONDARY ALCOHOLS IN THE PRESENCE OF POLYPHOSPHORIC ACID

AUTHOR--(02)-KOZLOV, N.S., KELYN, A.G.

COUNTRY OF INFO--USSR

K

SOURCE--ZH. PRIKL. KHIM. LENINGRAD 1970, 43(4), 943-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALKYLATION, TOLUENE, PHOSPHORIC ACID, BUTANOL, ALCOHOL, CYCLOHEXANOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/0728

STEP NO--UR/0080/70/043/004/0943/0944

CIRC ACCESSION NO--AP0119635

UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AP0119635  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23JCT70

ABSTRACT. ALKYL TOLUENE YIELDS FROM THE  
 ALKYLATION OF PHME BY ISO-PROH (I), SEC-BUOH (II), SEC-C SUB5 H SUB11 OH  
 (III), SEC-C SUB8 H SUB17 OH (IV), CYCLOHEXANOL (V), AND  
 METHYLCYCLOHEXANOL (VI) IN THE PRESENCE OF POLYPHOSPHORIC ACID DECREASED  
 WITH INCREASING MOL. WT. OF THE ALC. AND WERE LOWEST FOR THE CYCLIC  
 ALCS. AS THE REACTION TEMP. WAS INCREASED, YIELDS PASSED THROUGH 2  
 MAX. AT TEMPS. LOWER THAN THOSE OBSD. WHEN PRIMARY ALCS. WERE USED. AS  
 THE PHME-I RATIO WAS REDUCED FROM 2 TO 0.25, THE PROPORTION OF  
 MONO-:DI-:TRISUBSTITUTED PRODUCTS CHANGED FROM 62.7:34.1:3.2 TO  
 13.5:61.4:25.1. ALKYLATES FROM II, III, AND V CONTAINED ONLY  
 10-12PERCENT DISUBSTITUTED PRODUCTS AND THOSE FROM IV AND VI ALMOST  
 NONE.  
 FACILITY: PERM. PEDAGOG. INST., PERM, USSR.

UNCLASSIFIED

UNCLASSIFIED  
TITLE—REACTION OF SCHIFF BASES WITH 1,3 INDANDIONE —U— PROCESSING DATE—30OCT70  
AUTHOR—(03)—KOZLOV, N.S., PAK, V.D., NUGUMANOV, Z.I.  
COUNTRY OF INFO—USSR  
SOURCE—KHIM. GETEROTSIKL. SOEDIN. 1970, (2), 194-6  
DATE PUBLISHED—70  
SUBJECT AREAS—CHEMISTRY  
TOPIC TAGS—SCHIFF BASE, POLYNUCLEAR HYDROCARBON, AROMATIC KETONE,  
HETEROCYCLIC NITROGEN COMPOUND, AMINE  
CONTROL MARKING—NO RESTRICTIONS  
DOCUMENT CLASS—UNCLASSIFIED  
PROXY REEL/FAME—2000/0841  
CIRC ACCESSION NO—AP0124507  
STEP NO—UR/0409/70/000/002/0194/0196  
UNCLASSIFIED

CIRC ACCESSION NO--A0124507  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. FROM 1,3 INDANDIONE (I) AND (M OR P SUBSTITUTED BENZAL) ANILINE OR (M OR P SUBSTITUTED BENZAL) BETA NAPHTHYLAMINES THE FOLLOWING 2 SUBSTITUTED 1,3 INDANDIONES WERE PREPD. IN ALC. OR BENZENE UNDER ELIMINATION OF ANILINE: BENZYLIDENE, M. 152-3DEGREES (YIELD 70PERCENT) FROM ANILINE DERIV.; P METHOXYBENZYLIDENE, M. 155-6DEGREES (YIELD 80PERCENT); P BROMOBENZYLIDENE, M. 169-70DEGREES (YIELD 85PERCENT); M NITROBENZYLIDENE, M. 246-8DEGREES; AND P NITROBENZYLIDENE, M. 228-30DEGREES (85PERCENT). USING BENZYLIDENE BETA NAPHTHYLAMINES SCHIFF BASES IN ETHANOL ON A WATER BATH THE PRODUCT OF THE REACTION WITH I WAS II. FACILITY: PERM. SEL'SKOKHOZ. INST. IM.  
PRYANISHNIKOVA, PERM, USSR.

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124759

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS AND MECHANISM OF THE REACTION OF SCHIFF BASES WITH (ETO)SUB3 P TO GIVE RC SUB6 H SUB4 CH(P(O)(OET)SUB2)NHC SUB6 H SUB4 R PRIMEL WAS STUDIED. THE REACTION WAS FIRST ORDER WITH RESPECT TO BOTH REACTANTS. A REACTION MECHANISM WAS PROPOSED. THE INFLUENCE OF CONCD. HCL AS A REACTION CATALYST WAS STUDIED: RESULTS SUGGESTED THAT THE CHEM. REACTIVITY OF SCHIFF BASES IS DETD. BY THEIR CONFIGURATION. FACILITY: INST. FIZ.-ORG. KHIM., MINSK, USSR.

UNCLASSIFIED



1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--SOME PROPERTIES OF DIPHENYL N ARYLAMINOPHOSPHONIC ESTERS -U-  
AUTHOR--(03)-KOZLOV, N.S., PAK, V.O., YELIN, YE.S.  
COUNTRY OF INFO--USSR  
SOURCE--AKADEMIYA NAVUK BELARUSKAY SSR, VESTSI, SERYYA KHIMICHNYKH NAVUK,  
1970, NR 2, PP 102-104  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY  
  
TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, ESTERIFICATION, HYDROLYSIS,  
BENZENE DERIVATIVE, POLYNUCLEAR HYDROCARBON  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3007/1336 STEP NO--UR/0419/70/000/002/0102/0104  
  
CIRC ACCESSION NO--AP0136712  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136712

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. THE RESULTS OF THE CONTINUED STUDY OF DIPHENYL ARYLAMINOPHOSPHONATES ARE GIVEN. THE POSSIBILITY OF TRANSESTERIFICATION OF DIPHENYL ESTERS WITH ALKALI ALCOHOLATES IS DISCUSSED AND THE STABILITY OF DIALKYL ESTERS IN ALKALINE MEDIA FOLLOWED BY COMPLETE HYDROLYSIS IN ACID MEDIA IS DESCRIBED. A STUDY WAS MADE OF THE ALKALINE HYDROLYSIS OF DIPHENYL ARYLAMINOPHOSPHONATES IN AN AQUEOUS KOH SOLUTION. SUBSEQUENT ACIDIFICATION YIELDED FREE ARYLAMINOPHOSPHONIC ACIDS. THE ACIDS, RECRYSTALLIZED FROM ETHANOL; HAD MELTING POINTS HIGHER THAN THE INITIAL ESTERS. THE HYDROLYSIS REACTION OCCURRED AS FOLLOWS: THE COMPOUNDS OBTAINED BY THE ALKALINE HYDROLYSIS ARE SHOWN IN THE FOLLOWING TABLE: (TABLE SHOWN ON MICROFICHE). FACILITY: INSTITUT FIZIKO-ORGANICHESKOY KHIMII, AN BSSR; PERMSKIY SEL'SKOKHOZYAYSTVENNY-INSTITUT.

UNCLASSIFIED

Acc. Nr.: AT0046535

Ref. Code: 1180146

USSR

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UDC 62-752.4

KOZLOV, O.D.

"Effect of Torsional Oscillations on a Gyrocompass with Torsion Support"

O vliyani krutil'nykh kolebaniy na girokompas s torstionnyy podvesom (cf. English above), Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy, Priborostroyeniye, 1970, No 1, pp 85-89

Translation:

The forced motion is considered of the sensitive element of a gyrocompass on a torsion support with account for the stiffness of the torsion suspension in bending and twisting. The dynamic equilibrium position is determined.

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UDC: 531.787

KOZLOV, O. V., POLENOV, B. V., KHAZANOV, B. I.

"On Measuring Atmospheric Pressure by Using Radioactive Emitters"

Tr. Soyuz. NII priborostr. (Works of the Union Scientific Research Institute of Instrument Making), 1972, vyp. 17, pp 106-115 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 6, Jun 72, Abstract No 6.32.525)

Translation: The authors consider various methods of measuring pressure in the range from 40 to 760 mm Hg by using radioactive emitters with respect to mean free path and specific losses of energy of alpha particles, and with respect to scatter of beta particles. The technical specifications are given as well as possible fields of application of methods of this type. Three illustrations, bibliography of ten titles.

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- 149 -

Organ and Tissue Transplantation

USSR

UIC 612.17+612.2157-089.043

PRIYMAK, A. A., GERASIMENKO, N. I., ANICHKOV, M. N., VICEORCHIK, I. V.,  
AVERBAKH, M. N., DOBKIN, V. G., DEMIDOV, B. S., VICEORCHIK, S. I., PAMONOVA,  
Z. I., PETUKHOVA, I. V., VAKSIAN, B. M., GALAYEVA, V. N., and KOBLOV, P. D.

"Use of an Isolated Heart-Lung Preparation in Experimental Transplant Surgery"

Moscow, Voenno-Meditsinskiy Zhurnal, No 2, 1971, pp 22-23

Abstract: Brief preliminary report on the use of an isolated heart-lung preparation with a working heart in more than 200 experiments on dogs, swine, calves, and sheep. The isolated heart-lung preparation is connected by special cannulas to the peripheral vessels of the recipient's systemic circulation. The isolated lungs inspire an air mixture under hyperventilation conditions. The parameters of electrical activity of the donor's and recipient's hearts, recipient's brain, hemodynamics, biochemical changes in blood, external respiratory function, blood gases, morphology of the tissues of the isolated heart-lung preparation (in various stages of survival) and of the recipient (following biological oxygenation) are investigated. The experiments showed that the physically stabilized heart-lung preparation when used as a biological oxygenator remains viable and ensures good lung and heart function for 10 to 15 hours. It is capable of adjusting automatically to the recipient's circulation and without traumatizing the formed elements

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USSR

PRIYHAK, A. A., et al., *Voyenno-Meditsinskiy Zhurnal*, No 2, 1971, pp 22-23  
of the blood maintains the necessary blood flow rate.

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USSR

UDC: None

ARTEMENKOV, I. I., KOZLOV, P. I., MELIKHOV, P. I., MUEHIN, P. A.,  
and PAFKOV, I. N.

"Maintaining a String Plasma in the TOKAMAK TO-1 by an Automatic  
Control System"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 17,  
No 5, 1973, pp 251-254

Abstract: The principal difficulty in controlling the maintenance of a string plasma in the Tokamak TO-1 is the amplification of the current induced in the control winding that occurs with shifts of the plasma. To cope with this and other control problems, the authors of this letter conducted experiments on the TO-1 to study the dependence of the microscopic characteristics of a plasma string on the time constant of the control winding within the range of 0.04-2 seconds. Typical oscillograms of the discharge at initial hydrogen pressures of  $2 \cdot 10^{-4}$  mm Hg, with a longitudinal magnetic field of 0.2 kgauss and a vertical correcting field of 23 gauss for two values of the control winding time constant, show that a duration of a plasma current pulse of as much as 400 msec is basically a function of the vertical correcting field. The curves for these functions are obtained. Examination of oscillograms taken by magnetic probes  
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USSR

ARIEMENKOV, L. I., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 17, No 5, 1973, pp 251-254

measuring the shift in the plasma string along its large radius shows that it can be divided into three stages, each of which is analyzed. The authors express their thanks to I. N. Golovin for his comments and to H. N. Shvindt for conducting the optical measurements.

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1/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT71

TITLE--EFFECT OF WATER VAPOR AND ETHYL ALCOHOL ON THE THORIUM 228 EMANATION  
DIFFUSION RATE IN CELLULOSE TRIACETATE -U-

AUTHOR-(04)-NITZOLD, D., ZABORENKO, K.B., KURBANOV, KH.Y., KOZLOV, P.V.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(3), 182-4

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY, MATERIALS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--SORPTION, WATER, ETHANOL, CELLULOSE RESIN, ACETATE, THORIUM  
ISOTOPE, SCINTILLATION

CENTRAL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--2000/0670

STEP NO--UR/0460770/012/003/0182/0184

CIRC ACCESSION NO--AP0124342

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT7

CIRC ACCESSION NO--AP0124342

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SORPTION OF H SUB2 O OR ETOH BY CELLULOSE TRIACETATE (I) INCREASES THE DIFFUSION OF THORON (EMANATION FROM PRIME228 TH) FROM THE INSIDE OF THE I FILM TO ITS OUTSIDE. THE FILMS CONTG. ADSORBED THORON WERE KEPT IN STREAMS OF DRY AIR OR AIR SATD. WITH H SUB2 O OR ETOH VAPOR AND THE RATES OF THORON EMANATION WERE DETD. BY SCINTILLOMETRY. FROM THE KINETIC CURVES THUS OBTAINED, THE DIFFUSION COEFFS. OF H SUB2 O AND ETOH INTO I WERE FOUND TO BE 2.7 TIME: 10 PRIME NEGATIVE 6 AND 8.2 TIMES 10 PRIME NEGATIVE 4 CM PRIME2-MIN, RESP. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.387

DJBITSKIY, L.G., KOZLOV, R.I., KOROZOV, I.I., SOKOLOV, N.A., SRETENSKIY, V.N.

"System Approach To Analysis Of Causes And Nature Of Failures Of Products Of Electronic Technology"

Elektron. tekhnika. Nauchno-tekhn. sb. Upr. kachestvom i standartiz.  
(Electronic Technology. Scientific-Technical Collection. Quality Management And Standardization), 1970, Issue 3, pp 3-12 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A2)

Translation: The principles are considered of a system approach which makes it possible to determine operationally the causes of failures and to increase the effectiveness of operation of a system of supervision and control of the quality of the products of electronics technology. Examples are presented of the realization of a system approach for gas-discharge devices (with gas filling) which assumes use of a computer for processing of the results obtained. M.V.

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- 73 -

USSR

UDC: 629.78.002.3

TROFILOVSKAYA, L. S., NEMCHENOK, L. S., and KOZLOV, S. B.

"Materials for the Cages of Instrument Ball Bearings"

Tr. Lenigr. in-t aviats. priborostr. (Works of the Leningrad Institute of Aviation Instrument Building), 1971, vyp. 73, pp 97-102 (from REZh-41. Inzhenerstvo, Moscow, No 3, Mar 1972, Abstract No 3.41.242)

Translation: The authors present the results of a study on the wear resistance and coefficient of friction of the AFQM-80 materials, D13 sheet graphite and textolite on a polished base, all of which can be used for cages of high-speed bearings. Original article: four illustrations, one table, and two bibliographic entries. Resume.

1/1

- 49 -

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EXPERIMENT ON THE BEAM EXTRACTION BY AN ELECTROSTATIC DEFLECTOR  
FROM THE JINR 2 METRE ISOCHRONOUS CYCLOTRON -U-  
AUTHOR--(05)-SHELAYEV, I.A., ALFEYEV, V.S., KOZLOV, S.I., NIKOLAYEV, V.M.,  
GGANESYAN, R.TS.  
COUNTRY OF INFO--USSR  
SOURCE--LAB. OF NUCLEAR REACTIONS). 1970. 12P. DEP. CFSTI  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--IGN BEAM, CYCLOTRON, ELECTROSTATICS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/0139 STEP NO--UR/0000/70/000/000/0012/0012  
CIRC ACCESSION NO--AT0127763

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0127763

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXTRACTION OF THE ION BEAM FROM THE JINR 2 METER ISOCHRONOUS CYCLOTRON BY A SYSTEM COMBINING AN ELECTROSTATIC DEFLECTOR AND FOCUSING MAGNETIC CHANNEL IS DESCRIBED. FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA USSR.

1/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ORBIT PARAMETERS OF THE 2 METER JINR ISOCHRONOUS CYCLOTRON --U--  
AUTHOR--(03)--SHELAYEV, I.A., KCZLOV, S.I. ~~KLENIN, B.A.~~  
COUNTRY OF INFO--USSR  
SOURCE--JINR P9 5033 LAB. OF NUCLEAR REACTIONS. 1970. 18P. DEP. CFSTI  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ORBIT PARAMETER, CYCLOTRON, MAGNETIC FIELD MEASUREMENT,  
BETATRON, OSCILLATION/(U)BESH DIGITAL COMPUTER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/0165 STEP NO--UR/0000/70/000/000/0018/0018  
CIRC ACCESSION NO--AT0127789  
UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0127789

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SCHEME OF THE CALCULATION OF THE ORBIT PARAMETERS AND PHASE GRAPHS, ADOPTED BY PROCESSING THE DATA OF THE MAGNETIC FIELD MEASUREMENTS OF THE 2 METRE ISOCHRONOUS CYCLOTRON, IS DESCRIBED. THE RESULTS OF THIS CALCULATION PERFORMED BY USE OF THE BESM 4 COMPUTER ARE PRESENTED. IT IS SHOWN THAT THE VALUES OF THE  $\nu_0$  SUBR,  $\nu_0$  SUBZ BETATRON OSCILLATION FREQUENCIES, OBTAINED ACCORDING TO THE APPROXIMATE ANALYTICAL FORMULAE, AGREE WELL WITH THE RESULTS OF NUMERICAL INTEGRATION. FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA USSR.

UNCLASSIFIED



1/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70  
 TITLE--EFFECT OF RADICAL CHEMISORPTION ON THE ELECTROPHYSICAL PARAMETERS  
 OF THE REAL SURFACE OF GERMANIUM -U-  
 AUTHOR--(04)-KOZLOV, S.N., NOVOTOTSKIYVLASOV, YU.F., KISELEV, V.F.,  
 SHARAPOV, V.M.  
 COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 356-8

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CHEMISORPTION, GERMANIUM SEMICONDUCTOR, CRYSTAL SURFACE,  
 CHARGE EXCHANGE, OXIDE FILM, EPR SPECTRUM, QUINONE, BENZENE DERIVATIVE,  
 MOLECULAR INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
 PROXY REEL/FRAE--1988/0084

STEP NO--UR/0449/70/004/002/0356/0358

CIRC ACCESSION NO--APO105170

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105170

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHEMISORPTION OF STRONG ACCEPTOR MOLS. (N-BENZOQUINONE) ON N TYPE GE WITH HIGH RESISTIVITY (27 OHM CM) WAS STUDIED TO DET. THE MECHANISM OF CHARGE TRANSFER BETWEEN A SEMICONDUCTOR AND MOLS. CHEMISORBED ON THE SURFACE OF A SEMICONDUCTOR OXIDE FILM. ALTERATIONS IN ELECTROPHYS. PROPERTIES OF THE SURFACE WERE STUDIED AT 300DEGREEK ON GE PLATES ETCHED IN BOILING H SUB2 O SUB2, WHILE ON GE POWDER, CHEMISORPTION WAS STUDIED BY EPR. WHEN N BENZOQUINONE WAS LET IN, THE SURFACE WAS QUICKLY CHARGED NEG. (TAU LESS THAN 2 MIN), THE CONCN. OF FAST SURFACE STATES INCREASED, AND THE MAX. RECOMBINATION RATE INCREASED SLIGHTLY (FROM 1050 TO 1350 CM-SEC). THE EPR PEAK INTENSITY AFTER 1 HR CORRESPONDED TO A SPIN CONCN. OF 1.1 TIMES 10 PRIMEL-CM PRIME2 AND WAS NOT CHANGED IN THE COURSE OF A FEW DAYS, AS WELL AS ELECTROPHYS. PROPERTIES OF GE IN N BENZOQUINONE VAPOR. IT IS ASSUMED THAT NEW SURFACE STATES CAN BE CREATED BY DIFFUSION OF ADSORBENT MOLS. TO THE SEMICONDUCTOR OXIDE INTERFACE. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--EFFECT OF THE ADSORPTION OF SOME MOLECULES ON THE ELECTROPHYSICAL  
PARAMETERS OF THE REAL SURFACE OF GERMANIUM -U-  
AUTHOR--(03)-KOZLOV, S.N., NOVOTOTSKIYVLASOV, YU.F., KISELEV, V.F.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 353-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, CHEMISTRY  
TOPIC TAGS--GERMANIUM ALLOY, CARBON DIOXIDE, GAS ADSORPTION, CARBON  
MONOXIDE, SURFACE AREA, OXIDE FILM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1477 STEP NO--UR/0449/70/004/002/0353/0355  
CIRC ACCESSION NO--AP0120264  
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PROCESSING DATE--23OCT70

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF THE ADSORPTION OF CO, CO SUB2, AND NO MOLS. ON THE SURFACE POTENTIAL,  $\chi$ , THE CURVES FOR THE CHARGE CAPTURE BY FAST SURFACE STATES ( $Q_{SUB1}$ ), THE VALUE OF THE CHARGE CAPTURED ON SLOW SURFACE STATES ( $Q_{SUMMU}$ ), THE KINETICS OF SLOW PROCESSES ( $\tau$ ), AND THE RATE OF SURFACE RECOMBINATION ( $\sigma$ ) FOR RHO AND N GE WITH A SP. RESISTANCE (25-30 OHM CM), ORIENTED PARALLEL TO THE (111) PLANE. THE FIELD EFFECT METHOD AT A HIGH, SINUSOIDAL SIGNAL WAS USED IN COMBINATION WITH THE STANDARD PHOTOCOND. THE DETNS. WERE MADE ON FRESHLY ETCHED SAMPLES (AFTER HOLDING IN A VACUUM FOR SEVERAL DAYS) AND ON SAMPLES HEATED IN A VACUUM AT 500DEGREEK. ALL OF THE MEASUREMENTS WERE MADE AT 300DEGREEK AND THE CHANGES IN THE VALUES WERE TABULATED. ON THE FRESHLY ETCHED SAMPLES ALL 3 MOLS. ACTED AS ACCEPTORS. FOR THESE A TYPICAL VALUE OF  $\tau$  IS SIMILAR TO 3-5 MIN AND ON THE HEATED SAMPLES  $\tau$  SIMILAR TO 20-30 MIN. THE DIFFERENCE IS DUE TO THE DIFFERENCE IN THE H SUB2 O CONCN. IN THE OXIDE LAYER.  
FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

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1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--SELECTIVE ADSORPTION IN MACROMOLECULAR SOLUTIONS AND RATE CONSTANTS  
OF POLYMERIZATION ELEMENTARY STEPS -U-  
AUTHOR--(02)-KOZLOV, S.V., YENIKOLOPYAN, N.S.  
COUNTRY OF INFO--USSR *K*  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 839-40  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--POLYMERIZATION, ADSORPTION, CHEMICAL REACTION RATE, METHYL  
METHACRYLATE, BENZENE DERIVATIVE, FLUORINATED ORGANIC COMPOUND,  
CHLORINATED ORGANIC COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/1875 STEP NO--09/0020/70/191/004/0839/0840  
CIRC ACCESSION NO--A0132137

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2/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70  
CIRC ACCESSION NO--AT0132137  
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE SELECTIVE ADSORPTION ENERGY  
OF POLYMERS IN DIL. SOLNS. (A. R. SCHULTS, P. J. FLORY, 1959) WAS TREATED  
ANAL. THE POLYMER. RATE OF PM METHACRYLATE IN PHE, PHCL, OR D, H<sub>2</sub>O SUBS  
H SUB4 CO SUB2 WAS INVERSELY PROPORTIONAL TO MONOMER CONCN., PRESUMABLY  
DUE TO SELECTIVE ADSORPTION. THE EFFECTIVE RATE CONST. MAY PASS THROUGH  
A MAX. WHENEVER THE VOL. FRACTION OF THE INERT SOLVENT IS CHANGED.  
FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--DIFFUSION CONTROL OF CHAIN TERMINATION AND MOLECULAR WEIGHT  
DISTRIBUTION IN RADICAL POLYMERIZATION -U-  
AUTHOR--(04)--KOZLOV, S.V., KAMENOMOSTSKAYA, S.L., OYCHINNIKOV, A.A.,  
YENIKOLOPYAN, N.S.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(5), 1063-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--REACTION KINETICS, RADICAL POLYMERIZATION, MOLECULAR WEIGHT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PRCXY REEL/FRAE--3004/1871 STEP NO--UR70020/70/191/005/1063/1055  
CIRC ACCESSION NO--AT0132133

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2/2 015 UNCLASSIFIED PROCESSING DATE--0483070  
CIRC ACCESSION NO--AT0132133  
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. MATH. RELATIONS ARE DEVELOPED TO  
EXPRESS THE DEPENDENCE OF CHAIN TERMINATION KINETICS AND MOL. WT.  
DISTRIBUTION ON DIFFUSION CONTROL IN RADICAL POLYMERIZATION. FACILITY:  
INST. KHIM. FIZ., MOSCOW, USSR.

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KOZLOV, V.

REVIEW OF NEW FORENSIC PSYCHOLOGY TEACHING AID

[Book review by Prof. D. Rasseykin, Doctor of Juridical Sciences, V. Kozlov, Lecturer, and N. Khaydarov, Instructor at the Saratov Juridical Institute; Moscow, Sotsialisticheskaya Zakonnost', Russian, No. 12, 1971, signed to press 12 November 1971, pp. 85-86.]

During the last decade interest in psychology has noticeably grown. And forensic psychology, the elaboration and development of which began relatively recently, is attracting attention. The development of forensic psychology and the timely introduction of its achievements into practice are directly connected with teaching it in the higher juridical education institutes. Therefore, texts and teaching aids for this discipline are extremely needed.

The work of A. Duflov being reviewed is one of the first attempts to create a teaching aid for forensic psychology. The role of psychological regularities and the psychological characteristics in implementing the tasks of socialist justice is shown in it. The author gives special attention to studying the activity of implementing justice and investigates its psychological sides and special features. The aid contains a general and a special part.

The first section (the general part) is an introduction to forensic psychology. Here its significance for the activity of implementing justice, its subject, method, tasks, and place in the system of other sciences are shown. The author exhaustively argues for the theoretical basis of making forensic psychology an independent science. He says that the use of psychological laws and characteristics by themselves in any form of human activity still cannot create the bases for making it an

<sup>1</sup>A. Duflov, Sudebnaya psikhologiya (uchebnoye posobie) [Forensic Psychology (Teaching Aid)], Vysshaya Shkola Publishing House, Minsk, 1970, 363 pp.

JPRS 5568  
11 May 72

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UDC 547.241

GRAPOV, A. F., KOZLOV, V. A., BABKINA, E. I., and MEL'NIKOV, N. N., All Union Scientific Research Institute of Chemical Plant Protective Agents, and the Branch of the Scientific Physical-Chemical Research Institute imeni L. Ya. Karpov

"Chlorocyclohexylthiophosphonic Acid and Cyclohexenylthiophosphonic Acid Chlorides and Amides"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1919-1921

Abstract: Heating phosphorus trichloride with chlorocyclohexyldichlorophosphine at 125° for 3 hrs yields 2-chlorocyclohexylthiophosphonic acid dichloride, which reacted with triethylamine in benzene solution converts to cyclohexen-1-ylthiophosphonic acid dichloride.  $\alpha$ -Chlorocyclohexyldichlorophosphine reacted with triethylamine yields cyclohexen-1-ylidichlorophosphine which can be converted to a derivative of tetracoordinated phosphorus by an exchange reaction with phosphorusthiochloride.

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UDC 615.471:615.849.5

DENISENKO, O. N., IL'ICHEV, B. V., KOZLOV, V. A., SKOROPAD, Yu. D.,  
STROYKOV, M. Ye.

"Fifty-Channel Dosimeter With Transistorized Detectors"

Moscow, Meditsinskaya Radiologiya, Vol 18, No 2, 1973, pp 40-45

Translation: Department of Roentology and Radiology (Chief-Academician of Academy of Medical Sciences, USSR, G. A. Zedgenidze) of the Scientific-Technical Institute of Medical Radiology of the Academy of Medical Sciences, USSR, Obninsk.

Growth of means for measurement of dose fields lead to the creation of automatic isodoseographs of the following or scanning type (V. A. Volkov, Kh. Dzhons; E. G. Bochkarev and V. A. Mikhaylov). In essence such an isodoseograph is a dosimeter, the movement and recording of readings of which take place automatically. The principal disadvantages of a device of this type is the low operativeness, the impossibility of measurements in solid phantoms, and also with the use of mobile methods of irradiation provide a way so that the isodosograph pertains to the class of single-channel recording systems.

Transition to multichannel methods of recording because of the basic trend in measuring techniques makes it possible to eliminate the disadvantages mentioned above.

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In the literature a 10-channel isodoseograph with ionization chambers (Birkner) is described; however, the small number of detectors requires additional transfer of them which for practical purposes reduces the principal advantages of a multichannel system to nothing.

A fifty-channel system of recording a dose field with megavolt radiation energy was developed by us.

The over-all block diagram of the multichannel dosimeter shown in Fig. 1 is constructed on the principle of time sharing of the channels. The commutator  $K_1$ , which is triggered by the generator  $G$ , successively connects the detectors  $D_1--D_{50}$  to the input of the d-c amplifier (UPF). The amplified signal passes by way of commutator  $K_2$ , operating in step with the commutator  $K_1$ , through the correcting network  $K_{Ts1}--K_{Ts50}$  intended for balancing the sensitivity of the detectors, and is admitted into the recording device. The recording device is a digital voltmeter  $TsV$ , the frequency of the measurement cycle of which is also determined by the generator  $G$ . The response of the digital voltmeter can be recorded visually, photographically or with the aid of the digital-printing device  $TsU$ . During the comparative representation of the results of the measurements, the signal  $J_0$  of the reference detector is

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established with the aid of a resistor R, 100 percent equal to 100 units (mv). The sensitivities  $J_n$  of the other detectors automatically represent the ratio  $J_n/J_0$  expressed in percentages.

Semiconductor silicon phototransducers with a p-n junction are used as radiation detectors, the electrical and dosimetric character of which are well known (Yu. B. Mandel'tsvayg; A. N. Krongauze and coauthors; F. I. Glerin and coauthors). For their use in a multichannel system it is necessary that the spread of the basic parameters -- sensitivity, energy dependence, internal resistance -- be a minimum. The initial choice of detectors with dimensions of 10 x 10 x 1 mm from a batch of 300 pieces was made on the basis of measurements with the aid of an avometer [ampere-volt-ohmmeter] of the values of the forward and back resistances. As investigations showed, for maintenance of zero of an amplifier operating in a compensating regime it is necessary that the magnitude  $R_{back}$  be not less than 50--60 kOhm.

After this, the energy dependence was studied of 10 detectors arbitrarily selected from a batch of detectors in the 13-120 e.v. range.

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The results obtained show that the maximum spread does not exceed 20-30 percent. It practically did not affect the attenuation curves of  $\text{Co}^{60}$  measured with the aid of these detectors. The attenuation curves coincided with attenuation curves measured by the scintillation detector of the NS-200/B dosimeter with a precision on the order of 3 percent, which corresponds to data obtained in the work of V. K. Lyapidevskiy. The geometry of the detector in the form of a plate with dimensions of 10 x 10 x 1 mm is not optimum, which appears in the dependence of the sensitivity on the angle of incidence of the quanta emission. In order to improve the geometry, the plates were divided into two equal halves which then were superimposed one on the other (sensitive side inward) so that the over-all dimensions of the detector became equal to 10 x 5 x 2 mm. Electrically, these parts of the detector were connected in parallel, thanks to which the electrical parameters and the sensitivity of the new detector correspond to the original (up to cutting). The dependence of the response on the angle of incidence of the  $\gamma$  quanta during this did not exceed 5 percent (the analogous magnitude for the original plate was 25 percent).

The maximum spread of the detector was in sensitivity. The differential distribution of sensitivity is shown in Fig. 2 a and the integral in Fig. 2 b.

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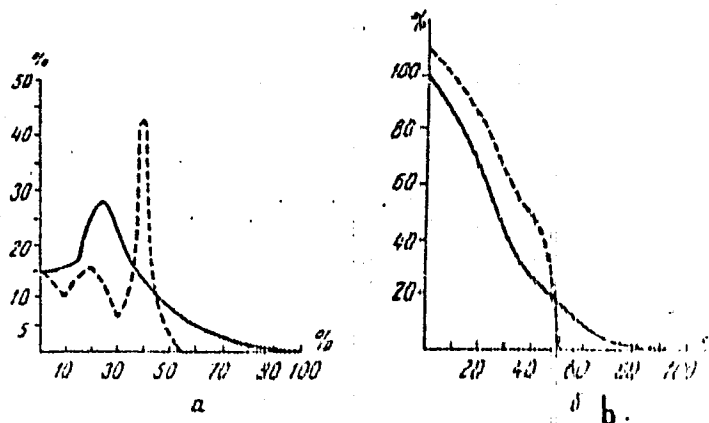


Fig. 2. Distribution of Detectors With Respect to Sensitivity  
a--Differential; b--Integral. Solid line up to "cutting of the detectors; dotted line, after.

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$Co^{60}$  radiation was used in determining the sensitivity. The relative sensitivity (the response of the most sensitive detector is taken as equal to 100) is plotted on the X axis and the relative number of detectors (the overall number of detectors in a batch corresponds to 100) on the Y axis.

All detectors were equalized to a relative sensitivity of 40 percent. It is clear that during this it is possible to utilize those detectors, the relative sensitivity of which exceeds 40 percent. It is possible mechanically to reduce the sensitivity (e.g., by a decrease of the dimensions of the detector) and by electrical means. We used the latter method, for which correcting networks were introduced into the electrical circuit [tsep'] for the signals after amplification, with the aid of which it was possible smoothly to change the sensitivity to the necessary magnitude. As seen from Fig. 2 b, the relative number of detectors which were used during this did not exceed 25 percent (for a relative sensitivity of 40 percent). In order to increase the output of the detectors in a batch which are used, and the preliminary (up to electrical correction) equalizing of their sensitivity, the process described above of improving the geometry of the detectors was used. To accomplish this, the halves of detectors with a relative sensitivity greater than 40 percent were connected with halves of detectors with a relative sensitivity less than

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40 percent, so that the sum of their relative sensitivities would amount to 40 percent. The corresponding distributions after these operations are shown in the dotted lines of Figs. 2 a and 2 b. It is seen that the output of detectors which are used increased up to 55 percent. Furthermore, the spread of the detectors with respect to sensitivity (see Fig. 2 a) was substantially decreased, which to a considerable degree contributed to a simplification of the electrical circuits for sensitivity control. After electrical connection the final spread of 50 selected detectors did not exceed 2 percent.

The detectors were placed at the ends of rods (at a depth of 3 mm) with a length of 30 cm and a diameter of 1 cm, made of tissue-equivalent mass M-3. Conductors with a cross section of 0.14 mm passed within the rods. The number of the detector was placed on the lateral face of the rod. For convenience in exploitation, all the detectors were united in groups of 10 pieces each, which are connected via releasable connections to the block of the K<sub>1</sub> commutator, distributed in the immediate vicinity of the phantom.

The principal circuit and the external appearance of the multichannel dosimeter are shown in Figs. 3 and 4.

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