



of anion-radicals of electron-accepting substances (Z. V. Radtsig), shown in the reports of S. P. Solodovnikov and K. I. Terokhova. It was found that the properties of the products of electron transfer depend not only on the character of the electron transfer but also on the entry of these products into the reaction of the lone acceptor.

Triethylgermyl derivatives of lithium or potassium with benzophenone, react in benzene or potassium ethylidide, giving analogues of triethylgermyl-substituted benzophenone. A completely different product forms in hexane, side by side with benzophenone ketyl. In other words, in hexane the reaction of the existing radical with triethylgermyl anion, which reacts further according to a scheme of single-electron transfer. Similar organic compounds, such as bis-(triethylgermyl)-mercury or bis-(triethylgermyl)-cadmium are capable of participating in electron transfer also in non-polar solvents of the type of benzene, if a sufficiently strong acceptor for example tetracyanoethylene, is used (recently shown G. A. Nazuvayev and G. A. Akhmedov).

V. P. Kamol't and G. V. Okhlopystin revealed the general mechanism of the oxidation of organometallic compounds according to which a single electron is torn away from the radical and they simultaneously decompose into an organic radical and the cation of the radical. The radical, if they do not react chemically, give off still another electron, being oxidized to carbocations. The reaction ends with the organic stabilization of these cations. For example, through their action with molecules of the solvent, the formation of a product of the oxidation of benzylmercuracetate by lead tetraacetate in acetic acid. Aliphatic mercury chlorides under the same conditions give ethers of acetic acid, paraffins and olefins. The formation of hydrocarbons in that reaction also indicates the existence of radicals as intermediates of the oxidation.

The ability of organomercury compounds to act as electron donors was shown on the example of reactions of diarylmercury with tetranitroethane (A. A. Shevlev, I. P. Belitskaya et al). Upon reacting with nitroethane, I. P. Belitskaya and A. N. Kargin, I. P. Belitskaya and V. I. Slonko) results agree with the hypothesis that in the first stage of the reaction on the cation-radical of diarylmercury and the radical form. The latter forms through electron transfer either to the nitronium cation or to the tetranitroethane radical. The radical of diarylmercury decomposes, giving the cation-radical Ar<sup>+</sup>. That radical reacts insignificantly with the lowly reactive

USSR

UDC 543.422.27:541.515:547.1'118

SOLODOVNIKOV, S. P., BOKANOV, A. I., CHEKUNINA, L. I., and STEPANOV, B. I.,  
Institute of Elemental Organic Compounds, Academy of Sciences SSSR and  
Moscow Chemical Technology Institute imeni D. I. Mendeleeva

"ESR Spectra of the Anion Radicals of Phenyl-bis-(p-nitrophenylethynyl)  
phosphine and Phosphenoxides"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, 1, Jan 73,  
pp 205-206

Abstract: The ultrafine structures of ESR spectra of the anion radicals of  
(p-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>C≡C-)<sub>2</sub>-P(C<sub>6</sub>H<sub>4</sub>X-p) (I), for X = H, Cl, N(CH<sub>3</sub>)<sub>2</sub> and (p-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>C≡C-)<sub>2</sub>  
P(O)C<sub>6</sub>H<sub>5</sub> (II). The electrons appear to be localized only in the p-nitro-  
phenylacetyl fragment of (I) for X = H. The substitution of N(CH<sub>3</sub>)<sub>2</sub> for H  
results in a small increase in the splitting of the P relative to H (and  
also to X = Cl). The secondary spectra of (I) and (II) have the same form  
as those of the anions. The polarographic reduction of I for X = H and II  
did not show a σ-system for the nitrophenylethynyl group through the P atom.  
Measurement of the electrode potential of the first half wave relative to a  
saturated calomel electrode in acetonitrile gave the following values for  
-E<sub>1/2</sub> in volts: C<sub>6</sub>H<sub>5</sub>NO<sub>2</sub>, 1.10; p-NC<sub>6</sub>H<sub>4</sub>NO<sub>2</sub>, 0.99; (I) for X = H, 0.94;  
and (II), 0.94.

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1/2 030

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--EFFECT OF SUBSTITUENTS ON THE REACTIVITY OF DI, TERT, BUTYL PEROXIDE -U- AROXYL RADICALS WITH  
AUTHOR--(04)--PROKOFYEV, A.I., SOLODOVNIKOV, S.P., NIKIFOROV, G.A., YERSHOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER KHIM. 1970, (3), 558-61

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REACTION KINETICS, ORGANIC PEROXIDE, BENZENE DERIVATIVE, CHEMICAL REACTION RATE, ELECTRON THEORY, ACTIVATION ENERGY, FREE RADICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/0742

STEP NO--UR/0062/70/000/003/0558/0561

CIRC ACCESSION NO--AP0124412

UNCLASSIFIED

2/2

030

CIRC ACCESSION NO--A0124412

UNCLASSIFIED

PROCESSING DATE--23OCT70

USSR

SOLODOVNIKOV, V. V., ZOTOV, M. G. and BIRYKOV, V. F.

"Estimation of the Parameters of Spectral Density of an Unstable Random Process on the Basis of Its Realizations"

Izv. Vyssh. Ucheb. Zavedeniy. Priborostroyeniye [News of Higher Educational Institutions. Instrument Building], 1973, Vol 16, No 5, pp 9-13 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V191)

Translation: A class of unstable random processes is studied, produced by transmission of stable white noise through an unstable forming device. It is assumed that the structure of the spectral density is fixed, and that only certain parameters must be estimated. A system of equations is produced determining the values of the desired parameters of spectral density. It is shown that the spectral density parameters are defined with probability 1 by a single realization of the random process studied. The system of equations produced unambiguously defines the values of the desired parameters. Author's view

1/1

USSR

SOLODOVNIKOV, V. V., ARTEMENKO, A. I., Izvestiya VUZov: Priborostroyeniye, Vol 16, No 1, 1973, pp 25-30  
encountered in practical problems, the authors present a survey of incorrect problems and propose a method of regularizing such problems based on the principle of complexity (V. V. Solodovnikov, IVUZ Priborostr., 1970, Vol 13, No 3).

2/2

- 65 -

Theoretical Automation

USSR

SOLODOVNIKOV, V. V., ARTEMENKO, A. I., Moscow Higher Technical Academy imeni N. E. Bauman

UDC: 62-50

"The Principle of Complexity and Regularization of Incorrect Problems in Optimum Control"

Leningrad, Izvestiya VUZov: Priborostroyeniye, Vol 16, No 1, 1973, pp 25-30

Abstract: The optimum control problem which consists in minimizing the functional

$$F(u) = \int_0^T \varphi(x, u, t) dt + \phi(x(T)),$$

$$\frac{dx}{dt} = f(x, u, t), \quad x(0) = C$$

in the space  $L_2(0, T)$  is incorrect if it satisfies at least one of the following conditions: its solution does not exist; the solution is unstable - i. e., small perturbations of initial data cause arbitrarily large variations of the solution in a given region; the solution is not unique. Taking incorrectness due to instability of the solution as the most important type

1/2

SOLODOVNIKOV, V. V., ARTEMENKO, A. I.

USSR

SOLODOVNIKOV, V. V. and SHRAMKO, L. S.

UDC: 62-506

"Design and Determination of Characteristics of Analytic, Self-Adjusting Systems With Standard Models"

Moscow, 270 pp, 1972, "Mashinostroyeniye," pp 269-270

Translation:

Foreword...

Introduction...

Chapter 1.

TABLE OF CONTENTS

Principles of Construction and Classification of Self-Adjusting Systems...

1. Passive and active, open and closed self-adjusting systems...
2. Analytic, search, and combination self-adjusting systems...
3. Self-adjusting systems with standard models...
4. Compensation self-adjusting systems with standard models...
5. Analytic gradients of self-adjusting systems with standard models...
6. Derivation of self-adjustment algorithms on the basis of small variations in transfer function coefficients....

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USSR

SOLODOVNIKOV, V. V. and SHRAMKO, L. S., "Mashinostroyeniye," 1972, p 2

9. Simplified equivalent self-adjustment in harmonic activity...
  10. Investigating self-adjusting systems in harmonic activity...
  11. Self-adjusting systems in periodic and arbitrary activity...
- Chapter 3. Linearized Equivalents of Analytic Gradient Self-Adjusting Systems With Standard Models...
1. Stationary linearized equivalents in free oscillations...
  2. Analysis of self-adjustment in a system whose structure is essentially nonlinear (free oscillations)...
  3. Stationary linearized equivalents in forced oscillations of the basic system's tuned circuit...
  4. Analysis of self-adjusting systems with forced oscillations in the nonlinear tuned control circuit...
  5. Self-adjustment equations in the action of  $g(t)$  with a high random component...
  6. Equations of self-adjusting systems with basic nonlinearities in random activity (free oscillations)
  7. Equations of self-adjusting systems with basic nonlinearities in random activity (forced oscillations)...
  8. Other methods of analyzing and synthesizing self-adjusting systems with standard models...

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USSR

SOLODOVNIKOV, V. V. and SHRAMKO, L. S., "Mashinostroyeniye," 1972, p 2

Chapter 4. Synthesizing Analytic Gradient Self-Adjusting Systems with Standard Models...

1. Statement of the synthesis problem...
2. Solving synthesis problems for a specific structure of the basic control system...
3. A general method for synthesizing analytic gradient, self-adjusting systems with standard models...
4. Technical realization of self-adjusting blocks...
5. Considering the efficiency criterion in the design of analytic gradient, self-adjusting systems with standard models...
6. Synthesis based on the efficiency criterion...
7. Self-adjustment as a means of improving the efficiency of automatic control systems...

Bibliography...

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USSR

UDC: 62-506

SOLODOVNIKOV, V. V. and SHRAMKO, L. S.

"Design and Determination of Characteristics of Analytic, Self-Adjusting Systems With Standard Models"

Moscow, 270 pp, 1972, "Mashinostroyeniye," p 2

Translation: This book is devoted to automatic control systems with self-adjusting parameters, calculated by the gradient method with the use of auxiliary operators. Systems of this type are classified, their purposes and advantages are considered, and the theory and results of research into some of the systems' characteristics and different examples of the computation and design are given.

A great deal of attention has been devoted to an explanation of the method of equivalent self-adjusting circuits, developed by the authors, through which the computations of analytic self-adjusting systems with standard models necessary for design can be made with sufficient ease by methods known from control theory.

The book is aimed at engineers and scientific-technical personnel working with self-adjusting automatic control systems. Six tables, 91 illustrations, bibliography of 43 titles.

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USSR

UDC 8.74

SOLODOVNIKOV, V. V., SHIKHOVTSSEV, V. A.

"Finite Approximation and Its Application in the Problem of Recognition and Identification of Nonlinear Systems"

V sb. Avtomat. upr. i vychisl. tekhn. (Automatic Control and Computer Engineering — collection of works), Vyp. 10, Moscow, Mashinostroyeniye Press, 1972, pp 59-73 (from RZh-Kibernetika, No 9, Sep 72, Abstract No. 9V686)

Translation: The class of finite functions is defined, and the problem of approximating continuous functions by a finite piecewise linear function is solved. The finite approximation is used for identification of essentially nonlinear systems without memory and for a class of nonlinear systems with memory. Recurrent relations are obtained for an unbiased estimate of the parameters defining the nonlinear system. The prospects for application of the method of finite approximation are discussed.

1/1

1/2 014 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--A METHOD OF SYNTHESIZING A CLASS OF DIGITAL CONTROL SYSTEMS -U-  
AUTHOR--(02)-SOLODOVNIKOV, V.V., KOLESNIK, V.P. 5  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VUZ. PRIBOROSTROENIE, VOL. 13, NO. 1, 1970, P. 39-44  
DATE PUBLISHED-----70  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.  
TOPIC TAGS--DIGITAL SYSTEM, PROGRAMMED AUTOMATIC CONTROL, COMPUTER LOGIC  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1986/0371 STEP NO--UR/0146/70/013/001/0039/0044  
CIRC ACCESSION NO--AP0102383  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0102383

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF A CONTROL PROGRAM STRUCTURE WHICH REALIZES A TIME OPTIMAL SECOND ORDER CONTROL WITH A PURE DELAY AND ENSURES THE ABSENCE OF AUTO OSCILLATIONS UNDER STEADY STATE CONDITIONS. A METHOD OF SYNTHESIZING THE CONTROL PROGRAM PARAMETERS IS PROPOSED, WHICH TAKES INTO ACCOUNT THE LEVEL QUANTIZATION SPACINGS AND THE LOGIC CONDITIONS IN ACCORDANCE WITH WHICH CHANGES IN THE PROGRAM STRUCTURE ARE MADE.

UNCLASSIFIED

1/2 040 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--THE DESIGN OF THE CONTROL SYSTEM SPACECRAFT STABILISATION WITH  
HUMAN OPERATOR -U-  
AUTHOR-(05)-SOLODOVNIKOV, V.V., OMITRIEV, A.N., SEMENOV, V.V., ARUTUINDV,  
S.K., LOBUSOV, E.S.  
COUNTRY OF INFO--USSR, FRANCE S  
SOURCE--INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, SYMPOSIUM ON  
AUTOMATIC CONTROL, 3RD, TOULOUSE, FRANCE, MAR 2-6, 1970, PAPER, 18  
DATE PUBLISHED---MAR70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, SPACE TECHNOLOGY

TOPIC TAGS--MAN, MAN MACHINE SYSTEM, MANUAL, SPACECRAFT RENDEZVOUS, ORBIT  
CORRECTION, SPACECRAFT LANDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/0006

STEP NO--FR/0000/70/000/000/0018/0018

CIRC ACCESSION NO--AT0117306

UNCLASSIFIED

2/2 040

CIRC ACCESSION NO--AT0117306

ABSTRACT/EXTRACT--(U) GP-0-

OF MAN IN SOLVING NUMEROUS

CORRECTION, LANDING, ETC.

SPACECRAFT STABILIZATION.

ANALYTICAL DESIGN IS NECESSARY.

INFORMATION RESEARCH OF HUMAN OPERATOR FEATURES.

MANUAL TRACKING IS THE NECESSITY FOR CONSTANCY OF INFORMATION

TRANSMISSION RATE. THE CORRELATION BETWEEN RANDOM DELAY TIME AND INPUT

PROVIDED AN OPPORTUNITY TO OBTAIN A STOCHASTIC DYNAMIC MODEL OF THE

OPERATOR.

UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT. CONSIDERATION OF THE ACTIVE ROLE  
SPACE PROBLEMS SUCH AS RENDEZVOUS, MIDCOURSE  
ALL THESE OPERATIONS INCLUDE MANUAL  
BECAUSE OF THEIR GREAT IMPORTANCE,  
ATTENTION IS GIVEN TO THE DYNAMIC AND  
THE MAJOR REASON FOR  
CONSTANCY OF INFORMATION  
RANDOM DELAY TIME AND INPUT  
STOCHASTIC DYNAMIC MODEL OF THE

UNCLASSIFIED



USSR

UDC 615.37:[576.851.49+576.851.551]:615.451.13].036.8

SHORSHER, S. B., SOLODOVNIKOV, Yu. L., PANKRATOVA, L. P., and TSURIKOVA, Z. F.,  
Moscow Institute of Epidemiology and Microbiology, and Yaroslavskaia Oblast  
Epidemiological Station

"A Study of Reactivity to Combined Typhoid and Tetanus Vaccinations"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 2, 1973,  
p 132

Abstract: Reactions of industrial workers to vaccination by Vi-antigen and Vi-monovaccine against typhus, and by these vaccines combined with tetanus toxoid were compared. Postvaccination reactions were not dependent on age or sex. Reactions to Vi-antigen combined with tetanus anatoxin were not more severe than those to Vi-monovaccine alone. Thus the combination can be recommended for practical use. Viminovaccine combined with tetanus toxoid caused reactivity that exceeded permissible levels. Consequently further research must be carried out on this combination to decrease reactivity to it prior to its recommendation for use.

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USSR

UDC 681.327

DORGZHKINA, V. Ya. KULTYGIN, Ye. V., SOLODOVNIKOV, Yu. N.

"Device for Data Input to Digital Computers"

Tr. Vses. n.-i. in-ta stroit. i dor. mashinostr. (Works of the All-Union Scientific Research Institute of Construction and Road Machine-Building), No 46, 1970, pp 84-85 (from RZh-Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 9, Sep 70, Abstract No 9B515K)

Translation: Statistical processing of experimental data usually requires use of a digital computer. Under experimental conditions, the data is recorded in the form of a continuous signal on an oscillographic tape. Therefore, most often this data is input to the digital computer in two steps: conversion of the initial data into numerical values and transfer of the numerical values to the information carrier for the digital computer. These steps are extremely labor-consuming and greatly increase the processing time as a whole. A device has been developed for inputting data directly to the ready-access memory of the computer. The basic advantage of the device is the fact that it is built on the basis of elements and modules of series-manufactured computers. The block diagram of the device was developed as applied to the Razdan-2 digital computer.

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1/2 022 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--PROPHYLACTIC APPLICATION OF DRY POLYVALENT DYSYNTERY BACTERIOPHAGE  
WITH PECTIN IN CHILDREN'S PRE SCHOOL INSTITUTIONS -U-  
AUTHOR--(05)--SOLODOVNIKOV, YU.P., PAVLOVA, L.I., MELYANOV, P.I., GARNOVA,  
N.A., NOGIEVA, YU.B.  
COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5,  
PP 131-137  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROPHYLAXIS, BACTERIOPHAGE, DYSYNTERY, EPIDEMIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1994/0139

STEP NO--UR/0016/70/000/005/0131/0137

CIRC ACCESSION NO--AP0114535

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114535

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS PRESENT THE RESULTS OF STRICTLY CONTROLLED EPIDEMIOLOGICAL TRIAL ON THE STUDY OF THE EFFICACY OF DRY POLYVALENT DYSENTERY BACTERIOPHAGE WITH PECTIN IN CHILDREN'S PRE SCHOOL INSTUTIONS OF YAROSLAVL. THE CHILDREN WERE GIVEN BACTERIOPHAGE DAILY DURING THE MONTHS FROM JUNE TO OCTOBER. THIS LED TO DECREASE OF THE INCIDENCE OF THE FOLLOWING DISEASES IN THE GROUP UNDER STUDY: OF BACTERIOLOGICALLY CONFIRMED DYSENTERY, 2.5 TIMES, OF CLINICALLY AND BACTERIOLOGICALLY CONFIRMED DYSENTERY, 2.3 TIMES, AND OF THE SUM TOTAL OF ACUTE INTESTINAL DISEASES, 2.1 TIMES. FACILITY: TSENTRAL'NYI INSTITUT EPIDEMIOLOGII, GOR'KOVSKIY INSTITUT EPIDEMIOLOGII I MIKROBIOLOGII, YAROSLAVSKAYA GORODSKAYA SANITARNO-EPIDEMIOLOGICHESKAYA STANTSIYA.

UNCLASSIFIED

USSR

UDC 669.295.48(088.8)

SOLOVISOV, D. K., CHIKODANOV, A. I., and VOROB'YEV, L. I.

"Method for Degreasing Titanium Alloy Scrap"

USSR Author's Certificate No 261095, filed 31 Jun 68, published 6 May 70  
(from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G158 P)

Translation: A method is proposed for degreasing Ti-alloy scraps in smelting. To increase refining quality, the treatment is conducted in the spent melt of electrolytic magnesium baths. A method is described for distribution of the material incentives between shops and sectors. 2 tables. [Moscow Institute of Steel and Alloys] A. Shmeleva

1/1

USSR

FEDOROV, F. I.; SOLODUKHIN, A. M.; KUZ'NETSKIY, V. A. (Belorussian State University)

"Application of the Effective Radial Potential to the Calculation of Atomic Levels"

Minsk, Vestsi Akademi Navuk BSSR: Seriya Fizika-Matematychnykh Navuk; May-June, 1972; pp 49-55

ABSTRACT: The effective radial potential, introduced in a previous paper by F. I. Fedorov (Vestsi AN BSSR, Seriya Fizika-Matematychnykh Navuk; No. 3, 129, 1968), is used for the calculation of the energy levels of atoms with several electrons. In the first approximation in perturbation theory an equation with an effective potential is solved for an arbitrary  $n\ell m$ -state of an electron in a multielectron atom, taking into account the effect of the remaining electrons. By means of an approximate Hamiltonian the energy of the ground states of the helium, lithium, and beryllium atoms is calculated.

The article includes 46 equations. There are 9 bibliographic references.

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USSR

UDC 681.332.001

SOLODUKHIN, V. A.

"Automation of Analog Computer Programming, and the Inverse Problem of Optimization"

Sb. nauch. tr. aspirantov. Leningr. in-t tochnoy mekh. i optiki (Collected Scientific Works of Graduate Students. Leningrad Institute of Precision Mechanics and Optics), Leningrad, 1972, pp 58-61 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 9, Sep 72, Abstract No 9B444)

Translation: The paper deals with one of the possible approaches to solving the problem of estimating the maximum values of variables which result when a system of ordinary differential equations is solved, and also with problems of choosing variables when checking out analog computers. The given approach is based on using generalized characteristics, taking as such generalized characteristics integral functionals which are criteria of optimality of the investigated system. The structure and specific form of the functionals are established on the basis of analysis of the structure of the dynamic object and its controlling device as a result of solving the inverse problem of optimization. Bibliography of two titles. I. V.  
1/1

USSR

UDC 546.185

LAZUKINA, L. A., KOTLYAR, N. G., KUKHAR', V. P., and SOLODUSHENKOV, Institute of Organic Chemistry, Ukrainian Academy of Sciences

"Phosphazo-1,3,5-Triazines. VI. Phosphorus-Containing Compounds Based on 2,4-Diamino-6-Halomethyl-1,3,5-Triazines"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,386-2,389

Abstract: The synthesis of phosphorus-containing compounds based on 2,4-diamino-6-haloalkyl-1,3,5-triazines is of interest in connection with study of the physiological activity of this group of compounds. Several different approaches to the synthesis were tried. In particular, the attempt to obtain a phosphoran from a phosphonium salt by the action of sodium methoxide in methanol, was unsuccessful. Sixteen triazines were synthesized.

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USSR

UDC 546.185:541.651.2

KUKHAR', V. P., PETRASHENKO, A. A., ZIMUROVA, I. N., ~~TUKHAR', A. A.,~~  
~~SOIODUSHENKOV, S. M.~~ Institute of Organic Chemistry, Kiev,  
Academy of Sciences Ukrainian SSR

"Basicity of Phosphazo Compounds. I"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70,  
pp 1696-1699

Abstract: m-Triphenylphosphazobenzoic acid and its methyl ester, melting at 199-201° and 126-127°, respectively, were synthesized by adding triphenylphosphine to a hot solution of the parent acid or ester in benzene and collecting the product precipitated from the cooled mixture. The p-triphenylphosphazobenzoic acid was obtained analogously with reversed addition of the reagents; the product melted at 241-243°C. To obtain triphenylphosphazo-p-trifluoromethylsulfonylbenzene, m.p. 157-159°, triphenylphosphine was added to the benzene solution of p-trifluoromethylsulfonylazido-benzene. A solution of p-trifluoromethylsulfonylaniline in dilute hydrochloric acid was diazotized, and a solution of sodium azide 1/2

USSR

KUKHAR', V. P., et al, Zhurnal Obshchey Khimii, Vol 40, No 8, Aug 70, pp 1696-1699

was added gradually, yielding p-trifluoromethylsulfonylazidobenzene, m.p. 53-55°. Other compounds were obtained by known methods. Their pK values for basic and acidic ionization were determined. It was found that the substituents on the phenyl ring show principally an inductive effect on the reactive center of the tri-phenylphosphazoarenes. The m-triphenylphosphazo group is a greater electron donor than the m-dimethylamino group, and the p-triphenylphosphazo group is a slightly lesser electron donor than the p-dimethylamino group. In 95% alcohol the m- and p-triphenylphosphazobenzoic acids exist to a considerable degree as internal salts.

2/2

USSR

UDC 547.491.8

2

KUKHAR<sup>1</sup>, V. P., BUKOVSKII, M. I., KASHEVA, T. N., PALEYCHUK, V. S.,  
PETRASHENKO, A. A., SOLODUSHENKOV, S. N., Institute of Organic Chemistry,  
Academy of Sciences Ukrainian SSR

"Phosphazo-1,3,5-triazines. IV"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, 1226-1229

Abstract: 2-Azido-4,6-dimethoxy(phenoxy)-1,3,5-triazines easily react with tertiary phosphines and trialkyl phosphites to form 2-phosphazo-4,6-dimethoxy(phenoxy)-1,3,5-triazines. The reaction is exothermic and is completed within 10-15 min. Triphenyl phosphite reacts less rapidly. Tertiary phosphines react easily with azides of diaminotriazines to form 2-phosphazo-4,6-diamino-1,3,5-triazines. The phosphazo compounds are colorless crystals which readily dissolve in alcohol, acetone, methanol, but which are insoluble in water and hexane. They are hydrolyzed in boiling water or in 1N hydrochloric acid. The basicities of the compounds were determined in nitromethane and recalculated to the corresponding values in water. All these compounds were found to be weak bases. Presence of amino or alkylamino groups in the molecule raises the basicity by 3-4 units.

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1/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--PHOSPHAZOTRIAZINES. III. OXIDATIVE IMINATION OF COMPOUNDS, OF  
PHOSPHORUS, III, WITH AZIDES OF 1,3,5, TRIAZINES -U-  
AUTHOR--(04)-BUKOVSKIY, M.I., SOLODUSHENKOV, S.N., MOSIYCHUK, A.I., KUKHAR,  
V.P.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 782-4  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, TRIAZINE, ISOMER, IMINE, AZIDE,  
ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1138

STEP NO--UR/0079/70/040/004/0782/0784

CIRC ACCESSION NO--AP0128563

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128563

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AND I IS SHOWN ON MICROFICHE.  
USSR.

AN EQUIMOLAR MIXT. OF PH SUB3 P  
FACILITY: INST. ORG. KHIM., KIEV,

UNCLASSIFIED

USSR

UDC: 547.491.8

BUKOVSKIY, M.I., SOLODUSHENKOV, S.N., MOSTYCHUK, A.I., and RUKHAR', V.P.,  
Institute of Organic Chemistry, Kiev, Academy of Sciences Ukrainian SSR

"Phosphotriazines. III. Oxidative Imination of Trivalent Phosphorus Compounds by 1,3,5-Triazine Azides"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 782-784

Abstract: For purposes of a study of physiological activity the authors synthesized a series of previously unknown phosphazo-1,3,5-triazines by oxidative imination of trivalent phosphorus compounds with 1,3,5-triazine azides. Triphenylphosphine, trialkyl phosphites and N,N,N,N-tetraethyl diaminoethylphosphite react with 1,3,5-triazine azides to evolve nitrogen and form corresponding phosphazo compounds. Trialkoxyphosphazo-1,3,5-triazines are hydrolyzed by 1 N hydrochloric acid to give 2-N-dialkoxyposphonylamino-4,6-bisarylamino-1,3,5-triazines.

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USSR

UDC: 681.355:519.24

VASIL'YEV, P. V., ~~SOLODYANNIKOV, Yu. V.~~, SHIROKOV, S. M., Kuybyshev Electrical Engineering Institute of Communications

"A Computer Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratztsy, Tovarnyye Znaki, No 9, Mar 72, Author's Certificate No 331407, filed 22 Jun 70, published 7 Mar 72, p 158

Translation: This Author's Certificate introduces a computer device which contains an adder module, matching devices, memory units, switches, an input device, a registration device, and a control module. As a distinguishing feature of the device the functional possibilities of the unit are extended by connecting one input of each switch through the corresponding matching device to one of the outputs of the adder module and the input of the registration device. The other input and one of the outputs of each switch are connected to the corresponding memory unit, and the other output of each switch is connected to the corresponding output of the input device and through another corresponding matching device to one of the inputs of the adder module. This input of the adder module is also connected to the input device.

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USSR

UDC 615.919:591.145.2.615.918:58.615.9:576.8.097.29

SOLODYKHO, I. G., and CHEREPNOVA, N. A.

"The Specific Reaction to Bee Venom"

Uch. zap. Gor'kov. un-t. Ser. biol. (Educational Proceedings of the Gor'kov University, Biological Series), Vyp 40, 1972, pp 61-64 (from Referativnyy Zhurnal -- Farmakologiya. Khimioterapevticheskiye Sredstva. Toksikologiya, No 1, 1973, Abstract No 1.54.788 by V. K.)

Translation: Rabbits were immunized with bee venom (BV; 0.3 - 0.35 mg/kg by intramuscular injection 4 times on 4 days with 3 day intervals between injections). The diluted serum from the immunized rabbits by the 10th - 11th day formed a precipitate band when treated with BV in dilutions of 1:5000 to 1:20,000. For dilutions of 1:250 to 1:1000 BV formed a precipitate band with nonimmunized serums, distinguishing the BV from snake venoms.

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USSR

PULATOV, I. R., SOLOGUB, G. R., and RIZAYEVA, F. N., Uzbekistan Scientific Studies Institute of Vaccines and Serums

"Self-Immunization Processes for Animals for the Introduction of Venom From the Middle Asian Viper (*Vipera lebetina turanica*)"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, Jul 73, pp 50-51

Abstract: An injection of snake venom, or tissue from another animal that had previously been injected with the venom, into an organism may be used to stimulate the formation of antibodies against the serum. Experiments on white mice have shown that antibodies are developed in response to treatment with liver and spleen at different times after the injection of the venom. Antibodies were separated by precipitation of the antibody-antigen complex with  $(\text{NH}_4)_2\text{SO}_4$ , 4, 10, and 15 days after the injection. With the antigens from normal spleen (titre of 1:11 and 1:16), antibodies were observed in 36.6% of the cases after 4 days and in 100% of the cases after 10 days. Thus for a single injection of snake venom an animal is able to respond with a specific self-immunological reaction which develops in the presence of antibodies in the blood serum and which is corroborated by a cytological reaction.

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lytic substance. To precipitate a highly active catalyst by a simplified method, 5-6% Zn acetate is used for peptization. 1933

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1933 2/188

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AA9020878

CA 4/69

LR 0482

67564a Iron-chromium-zinc catalyst for olefin polymerization. Polymers

1/2 046 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--HYDRO EROSION OF METALS IN AN ACID MEDIUM -U-  
AUTHOR-(103)-NEKOZ, A.I., PREYS, G.A., SOLOGUB, N.A.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ.-KHIM. MEKHAN. MAT., 1970, 6, (2), 109-111  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--CARBON STEEL, AUSTENITIC STAINLESS STEEL, CAST IRON, BRONZE,  
JET FLOW, FLUID FLOW, WATER, EROSION, CITRIC ACID, PHOSPHATE, METAL  
CRACKING/(U)KH18NIOT STAINLESS STEEL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/1674 STEP NO--UR/0369/70/006/002/0109/0111  
CIRC ACCESSION NO--AP0129044  
UNCLASSIFIED

2/2 046

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129044

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESISTANCE OF A NUMBER OF C  
STEELS, AUSTENITIC STAINLESS CR-NI STEEL K18N10T, GREY CAST IRON, AND A  
STANDARD BRONZE TO HYDRO EROSION IN NORMAL TAP WATER AND A SOLUTION OF  
CITRIC ACID CONTG. VARIOUS PHOSPHATES AT P H 6.5 WAS STUDIED. THE TESTS  
WERE CARRIED OUT IN A JET IMPACT TEST APPARATUS WITH A LIQUID TEMP. OF  
50DEGREESC, THE SAMPLES BEING ROTATED AT 60 M-SEC. CRACK FORMATION AND  
RUPTURE DEVELOPED AFTER A CHARACTERISTIC TIME FOR EACH METAL, THE  
MECHANISMS DIFFERED FROM ONE CASE TO ANOTHER.

UNCLASSIFIED

USSR

UDC 539.385

GRINBERG, N. M., BOYCHUK, V. M., TSURIKOV, N. A., SOLOGUB, P. S., GLADKIKH, B. V., POPIRNYI, V. Ye., Khar'kov, Leningrad. 2

"Durability of Titanium Alloy in a Vacuum at Low and High Temperatures"

Kiev, Problemy Prochnosti, No. 4, Apr 71, p. 36-40.

Abstract: Results are presented from a study of the durability of titanium alloy under cyclical twisting in the range from 133 to 432°K under a vacuum of 10<sup>-7</sup>mmHg. A significant (approximately 7 times) increase in durability of unrolled specimens is discovered for loading under a vacuum in comparison with the same loading in air. When the surface is hardened by rolling, the vacuum has almost no influence on the durability of the alloy under cyclical deformation. An increase is noted in the durability of the alloy at low temperatures, as well as in increase in static strength under these conditions. The durability as a function of temperature above room temperature follows a complex curve. Certain specifics of the fatigue rupture are studied by electron microscopy and electron fractography. An attempt is made to explain the phenomenon observed.

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1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--RIGOROUS SOLUTION TO THE PROBLEM OF DIFFRACTION OF ELECTROMAGNETIC  
WAVES BY A RIBBON STRUCTURE -U-  
AUTHOR-(02)-MASALOV, S.A., SOLOGUB, V.G.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL VYCHISLITEL'NOI MATEMATIKI MATEMATICHESKOI FIZIKI, VOL.  
10, MAY-JUNE 1970, P. 693-715  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ELECTROMAGNETIC WAVE DIFFRACTION, LINEAR EQUATION, ALGEBRAIC  
EQUATION, ELECTRON POLARIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605007/004 STEP NO--UR/0208/70/010/000/0693/0715  
CIRC ACCESSION NO--AP0139877  
UNCLASSIFIED

2/2 014

CIRC ACCESSION NO--AP0139877

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONSIDERATION OF THE PROBLEM OF DIFFRACTION OF PLANE ELECTROMAGNETIC WAVES BY A PERIODIC STRUCTURE FORMED BY AN INFINITE SYSTEM OF PARALLEL STRIPS OF IDENTICAL THICKNESS. USING CERTAIN RESULTS OBTAINED BY BERZ (1951) AND AGRANOVICH ET AL. (1962), THE PROBLEM IS REDUCED TO THE SOLUTION OF INFINITE SYSTEMS OF LINEAR ALGEBRAIC EQUATIONS, THESE EQUATIONS ARE THEN REGULARIZED, THE EXISTENCE OF A SOLUTION TO THE INITIAL PROBLEM IS SHOWN, AND TWO METHODS OF SOLVING THE REGULARIZED INFINITE SYSTEMS ARE DEMONSTRATED. THE SPECIAL CASE OF E POLARIZATION IS DISCUSSED.

UNCLASSIFIED



USSR

UDC 621.771

POLUKHIN, V. P., YEFIMENKO, S. P., NIKOLAYEV, V. A., POLUKHIN, P. I.,  
SOLOGUB, V. L., and DUNAYEVSKIY, V. I.

"On the Question of Optimal Conditions for Operating the Rolls of Cold Rolling  
Mills"

Moscow, Plasticheskaya Deformatsiya *Me. allow i Splavov*, "Metallurgiya"  
Publishing House, No 64, 1970, pp 53-63

Translation: The article gives recommendations for situating the rolls on the  
stands, evaluates the degree of built-up metal danger, and offers steps to  
restore working rolls damaged during the operating process. A new generalized  
criterion of hardness is proposed which makes it possible to evaluate condi-  
tions of roll manufacture and causes of service failures in them. Four  
illustrations and two tables.

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USSR

UDC 519.24

SOLOGUB, YE. I., SHATS, M. KH., and SHUPOV, L. P.

"Approximation of the Distribution Laws of the Pearson and Gram-Charlier Curves on an Electronic Computer"

Sb. nauch. tr. N.-i. i proyekt. in-t po obogashch. i aglomer. rud chern. met. (Collection of Scientific Works of the Scientific Research and Design Institute on Concentration and Agglomeration of Ferrous Metallic Ores), No 12, 1971, pp 4-32 (from Referativnyy Zhurnal -- Matematika, No 9, Sep 71, Abstract No 9V114, by K. Latyshev)

Translation: Formulas and graphs are presented for establishing the type of distribution curve based on sampling data. The study employs concepts which have already become "classic" and are presented in many handbooks and reference works.

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USSR

UDC: 518.5:681.3.06

YARUSOVA, O. V., SOLOGUB, Ye. I.

"Methods of Comparing Two Variants on the 'Promin'-M Computer"

Sb. nauch. tr. N.-i. i proyekt. in-t po obogashch. i aglomer. rud chern. met. (Collected Scientific Works of the Scientific Research and Design Institute on enrichment and Agglomeration of Ferrous Metal Ores), 1971, vyp. 12, pp 107-111 (from RZh-Kibernetika, No 7, Jul 71, Abstract No TV759)

Translation: The authors describe algorithms for comparing two sets of numerical data obtained as a result of certain measurements. Each set is characterized by an average value and by an index of running deviation (variability) from the average. In order to evaluate the difference between the sets as a whole, use is made of a method of comparing two averages; in order to evaluate the difference between the sets with respect to conjugate measurements, use is made of Student's criterion (assuming that the number of measurements  $n$  is less than or equal to 30-50 and the statistical set has a close to normal distribution law) or

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YARUSOVA, O. V., SOLOGUB, Ye. I., Sb. nauch. tr. N.-i. i proyekt. in-t  
po obogashch. i aglomer. rud chern. met., 1971, vyp. 12, pp 107-111

Wilcoxon's law (assuming that  $n$  is less than 35). The latter is independent of the law of distribution of the statistical set. Structural schemes are given for programs of comparison of the two sets with respect to averages by Student's  $t$ -criterion, and with respect to conjugate pairs -- by Wilcoxon's criterion. The operation of the programs is illustrated by examples. A. Doroshenko.

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~~can't be found~~

2/2

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USSR

UDC: 519.281

SOLOGUB, Ye. I.

"Computation of Levels of Significance and Quantiles of Student's Density"

Sb. nauch. tr. N.-i. i proyekt. in-t po obogashch. i aglomer. rud chern. met. (Collected Scientific Works of the Scientific Research and Design Institute on Enrichment and Agglomeration of Ferrous Metal Ores), 1971, vyp. 12, pp 32-36 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V218)

Translation: Equations convenient for digital computer solution are presented for two versions of problems associated with Student's density: 1) determination of the level of significance with respect to given values of the number of degrees of freedom and the quantile, 2) determination of the quantile from given values of the number of degrees of freedom and level of significance. Ya. Shor.

1/1

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USSR

UDC: 519.24

SOLOGUB, Ye. I., SHATS, M. Kh., SHUPOV, L. P.

"Computer Approximation of Distribution Laws by Pearson and Gram-Charlier Curves"

Sb. nauchn. tr. N.-i. i proyekt. in-t po obogashch. i aglomer. rud chern. met. (Collected Scientific Works of the Scientific Research and Design Institute on Enrichment and Agglomeration of Ferrous Metal Ores), 1971, vyp. 12, pp 4-32 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V114)

Translation: Formulas and graphs are presented for determining the type of distribution curve on the basis of sample data. The paper expounds ideas which have already become "classical" and are set forth in many texts and handbooks. K. Latyshev.

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1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--ACTIVITY OF SOME ENZYMES DURING THE POISONING OF ANIMALS WITH  
CARCINOGENIC AMINODIPHENYL COMPOUNDS -U-  
AUTHOR--SOLOIMSKAYA, YE.A.  
COUNTRY OF INFO--USSR  
SOURCE--VOP. ONKOL. 1970, 16(4), 94-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--CARCINOGEN, BENZENE DERIVATIVE, AMINE DERIVATIVE, POISON  
EFFECT, ENZYME ACTIVITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/1889 STEP NO--UR/0506/70/016/004/0094/0098  
CIRC ACCESSION NO--AP0127290  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0127290

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BENZACINE ADMINISTERED S.C. TO RATS AT 100 MG-KG INHIBITED WHILE O TOLIDINE OR 3,3 PRIME, DICHLOROBENZIDINE AT THE SAME DOSES INCREASED THE ACTIVITY OF MONOAMINE OXIDASE AND HISTAMINASE. THE ACTIVITY OF THE ENZYMES CATALYZING OXIDATIVE DEAMINATION OF ENDOGENOUS AMINES INCREASED IN RATS RECEIVING ANY OF THE 3 AMINODIPHENYL DERIVS. AT 100 MG-KG S.C. ONCE A WEEK FOR 2 MONTHS. CHANGES IN THE ACTIVITY OF THE OXIDN. REDN. ENZYMES DURING BOTH ACUTE AND CHRONIC POISONING DID NOT INDICATE ANY DEFINITE FEATURES IN THE ACTION OF THE VARIOUS CARCINOGENIC COMPOS. GENERALLY, CATALASE, PEROXIDASE, AND CYTOCHROME OXIDASE ACTIVITIES DECREASED DURING PROLONGED ADMINISTRATION OF THE AMINODIPHENY DERIVS. FACILITY: N. N. PETROV RES. INST. ONCOL., LENINGRAD, USSR.

UNCLASSIFIED



USSR

UDC: 620.193.41

SOLOK, A. M., KHODOS, R. S., KUZNETSOV, V. M.

"Corrosion Resistance of the Alloys EI-435 and EI-437B in a Mixture of Nitric and Hydrofluoric Acids"

Moscow, Zashchita Metallov, Vol 9, No 3, Jul-Aug 73, pp 437-439.

Abstract: This article studies the influence of concentration, composition and temperature of the solution on the general and intercrystalline corrosion of EI-435 and EI-437B alloys in a mixture of nitric and hydrofluoric acids. The specimens were produced by open induction melting and vacuum-arc remelting. Both general and intercrystalline corrosion of both alloys were observed. The vacuum arc remelted metal corrodes significantly more strongly in all cases and has a significantly higher tendency toward intercrystalline corrosion than the open melted metal. An increase in the concentration of F<sup>-</sup> ions causes greater general corrosion at all concentrations of nitric acid studied.

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USSR

UDC 539.4.42

KAKHOVSKIY, N. I., YUSHCHENKO, K. A., MON'KO, G. G., SOLOKHA, A. M., and  
KVASNEVSKIY, O. G., Kiev, Institute of Electric Welding imeni Ye. O. Paton,  
Academy of Sciences UkrSSR

"Fundamentals of Alloying Steel and Weld Metal for Structures Operating  
Continuously at Low Temperatures"

Kiev, Problemy Prochnosti, No 8, Aug 70, pp 119-125

Abstract: Results are presented of a series of investigations for determining the mechanical properties of Cr-Ni-N and Cr-Ni-Mn-N steels for the purpose of establishing optimal quantities of alloying elements for obtaining austenite-stable steels under conditions of long-duration operation at low temperatures (to -100°C). The results show that a 15% Ni content in Cr-Ni-N and Cr-Ni-Mn-N steels is sufficient for complete austenite stability. The effect of alloying metals on the mechanical properties of steels and weld metals is shown in graphs.

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USSR

UDC 539.411.5

YUSEHENKO, K. A., KAKHOVSKIY, N. I., KVASNEVSKIY, O. G.,  
MONKO, G. G., SOLOKHA, A. M., (Kiev), Institute of Electric  
Welding imeni Ye. O. Paton

"The Influence of Second-Phase Separations on the Embrittlement  
of High-Alloy Austenitic Steels at Low Temperatures"

Kiev, Problemy Prochnosti, No 8, 1970, pp 99-103

Abstract: In the article are presented results of research  
carried out with the aim of ascertaining the influence of  
nitrogen alloying upon the tendency of some austenitic steels,  
used in cryogenics, toward brittle destruction. 7 figures,  
1 table, 7 bibliographic entries.

1/1

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1/2 027 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ELECTROCHEMICAL PROCESS FOR REPROCESSING OFFSET BIMETALLIC FORMS  
-U-  
AUTHOR--(03)-SCLCKHINA, V.G., SAMOSHENKOVA, K.G., BELYAYEVA, YU.I.  
COUNTRY OF INFO--USSR 3  
SOURCE--POLIGRAFIYA 1970, (3), 41-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--ELECTROCHEMICAL MACHINING, BIMETAL, COPPER, ZINC, CHROMIUM  
OXIDE, AMMONIUM SULFATE, CARBONATE, NITRIC ACID, ALUMINUM ALLOY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3006/0632 STEP NO--UR/0543/70/000/003/0041/0043  
CIRC ACCESSION NO--AP0134394  
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134394

ABSTRACT/EXTRACT--(U) CP-C- ABSTRACT. CU-ZN OFFSET FORMS ON AL SUPPORTS CAN BE REPROCESSED BY NEW PROCEDURES, ELIMINATING THE MECH, SURFACING STEPS. THE UPPER CU LAYER IS REMOVED BY ANODIC DISSOLN. IN CRD SUB3 AND (NH SUB4) SUB2 SO SUB4 OR (NH SUB4) SUB2 CO SUB3, IN BOTH CASES AT 5A-DM SUB2 AND 20-5DEGREES. BOTH CU AND ZN LAYERS ARE DISSOLVED IN 40PERCENT HNO SUB3 LR PREFERABLY ANODICALLY, IN 20PERCENT H SUB2 SO SUB4 AT 5 A-DM SUB2 AND 20-5DEGREES. IN BOTH CASES SMOOTH SURFACES ARE OBTAINED, READY FOR NEW COATING.

UNCLASSIFIED

1/3 016 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--SEASONAL DEPENDENCE OF THE DOMINANT DIRECTION OF POLARIZATION OF  
GEOMAGNETIC VARIATIONS -U-  
AUTHOR--(02)-DUBROVSKIY, V.G., SOLOKHOV, V.V. S  
COUNTRY OF INFO--USSR  
SOURCE--GEOMAGNETIZM I AERONOMIJA, VOL. 10, NO. 1, 1970, P. 167-169  
DATE PUBLISHED-----70  
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY  
TOPIC TAGS--SEASONAL VARIATION, MAGNETIC POLARIZATION, GEOMAGNETIC FIELD,  
TELLURIC CURRENT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1986/1038 STEP NO--UR/0203/70/010/001/0167/0169  
CIRC ACCESSION NO--AP0102969  
UNCLASSIFIED

2/3 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0102969

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EVALUATION OF SOME NEW EXPERIMENTAL DATA INDICATING THE PRESENCE OF A CERTAIN PATTERN IN THE SEASONAL CHANGES IN THE DOMINANT DIRECTION OF POLARIZATION OF GEOMAGNETIC VARIATIONS. THE DATA IN QUESTION WERE OBTAINED FROM AN ANALYSIS OF THE RESULTS OF MAGNETOTELLURIC FIELD OBSERVATIONS IN THE LOWLANDS OF WESTERN TURKMENIA. THE AZIMUTHS OF THE MAJOR AXES OF THE STATISTICAL POLARIZATION ELLIPSES WERE TAKEN AS A PARAMETER CHARACTERIZING THE DOMINANT DIRECTION OF POLARIZATION OF THE MAGNETOTELLURIC FIELD. IT IS FOUND THAT OVER THE ENTIRE LENGTH OF THE PROFILE STUDIED THE MAJOR AXES OF THE MAGNETIC AND ELECTRICAL STATISTICAL POLARIZATION ELLIPSES IN THE PERIOD RANGE FROM 10 TO 200 SEC ARE ORTHOGONAL WITH AN ACCURACY OF UP TO 10 TO 15 DEG, THUS ATTESTING TO THE ABSENCE OF LARGE MAGNETOTELLURIC FIELD DISTORTIONS DUE TO HORIZONTAL GEODELECTRIC INHOMOGENEITIES IN THIS FREQUENCY RANGE. THE RELATIVELY LOW DEGREE OF DISTURBANCE OF THE MAGNETOTELLURIC FIELD STRUCTURE IN THIS FREQUENCY RANGE IS ALSO INDICATED BY THE DEGREE OF POLARIZATION, WHICH FLUCTUATES FROM 0.45 TO 0.65. IN THE CASE OF VARIATIONS WITH A PERIOD EXCEEDING 200 SEC DEVIATIONS FROM ORTHOGONALITY EXCEEDING 20 TO 30 DEG WERE NOTED ONLY AT CERTAIN OBSERVATION POINTS. A PRONOUNCED DEPENDENCE OF THE DOMINANT DIRECTION OF POLARIZATION OF THE MAGNETOTELLURIC FIELD ON THE SEASON OF THE YEAR IS NOTED, ESPECIALLY IN THE CASE OF MICROPULSATIONS OF THE MAGNETIC FIELD (PERIODS OF 10 TO 100 SEC).

UNCLASSIFIED

3/3 016

CIRC ACCESSION NO--AP0102969

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--ONLY IN THE LOW FREQUENCY RANGE (PERIODS GREATER THAN 400 SEC) DOES THE DOMINANT DIRECTION OF POLARIZATION OF THE MAGNETIC FIELD VARIATIONS NOT DEPEND ON THE SEASON, BUT CORRESPONDS TO A NORTHWEST TO SOUTHEAST DIRECTION.

UNCLASSIFIED



Thermomechanical Treatment

USSR

SOLOMADINA, YE. A., YANKOBSKIY, V. M., and BERNSHTEYN, H. L.

"Strain Hardening of Low-Carbon Steel with Thermomechanical Treatment"

Dnepropetrovsk, Metallurgicheskaya I Gornorudnaya Promyshlennost', No 4(82),  
Jul-Aug 73, pp 25-27

Abstract: The effect of combined thermomechanical treatment on the properties of brand-10 low-carbon martensitic steel containing 0.06, 0.10 and 0.14% C was investigated according to two schemes (high-temperature thermomechanical treatment + cold deformation and high-temperature thermomechanical treatment + warm deformation). The advantage of warm deformation are shown and the possibility is demonstrated of making high-strength casing pipe with a 50-75 kg/mm<sup>2</sup> yield point from such steel. One table, seven bibliographic references.

1/1

USSR

UDC 620.172.254.05

BURNOS, V. A., TSVIKOVICH, S. I., SOLOMADINA, YE. A., and YANKOVSKIY, V. M.,  
All-Union Scientific Research and Engineering Design Institute of the Pipe  
Industry, Dnepropetrovsk

"Attachment for Tensile Testing Metals At Fast Strain Rates"

Moscow, Zavodskaya laboratoriya, Vol 39, No 6, Jun 73, pp 755-756

Abstract: A special attachment has been developed at the All-Union Scientific Research and Engineering Institute of the Pipe Industry which when fitted to a K-117-Ye eccentric press allows tensile testing to be conducted at increased strain rates. Samples of steels 10, 20, 45, 30KhGSA, and 1Kh18Ni9Ti were tested using the new attachment and the results compared against tests conducted according to GOST 9651-61. The experimental strain rate was 20  $\text{s}^{-1}$  as compared to GOST 9651-61 with a strain rate of 0.005  $\text{s}^{-1}$ . No conclusions are given. A diagram of the unit is provided in the text. 1 figure, 1 table, 4 bibliographic references.

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USSR

UDC 621.372.852.2

BOKRINSKAYA, A.A., SOLOMAKHA, A.V.

"Wide-Band Phase-Shifting Circuits Based On The Resonance Of Domain Boundaries In Ferrites"

Vestn. Kiyev. politekhn. in-ta. Ser. radiotekhn. i elektroakust. (Bulletin Of The Kiev Polytechnical Institute. Radio Engineering And Electroacoustics Series), 1971, No 8, pp 15-18 (from RZh--Radiotekhnika, No 9, Sept 1971, Abstract No 9B149)

Translation: The possibility is shown of creating wide-band phase-shifting networks based on the use of the dispersion of the magnetic permeability of ferrite materials which results from resonance of the domain boundaries. The theoretical and experimental phase characteristics are presented of quadripoles operating in the dispersion band of the magnetic permeability of the core. The possibility is shown of a deformation of the characteristics by a change of the parameter of the connection, and by a choice of the dimensions and trade-name of the core. The frequency and phase characteristics are presented of wide-band circuits for a constant phase shift of  $30^\circ$ ,  $45^\circ$ , and  $60^\circ$ . 3 ill. 3 ref. Summary.

1/1

USSR

UDC: 621.317.411

BOKRINSKAYA, A. A., SOLOMAKHA, A. V.

"Measuring the Magnetic Spectra of High-Permeability Ferrites"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 120-121 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A359)

Translation: The authors consider a circuit for measuring the magnetic spectra of polycrystal ferrites with high magnetic permeability by using current and voltage phase relationships. The specimen to be studied is introduced into the circuit as the core of a coil whose inductance and equivalent impedance are measured as a function of frequency. Relationships are derived for calculating the quantities to be measured. Two illustrations, bibliography of two titles. N. S.

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1/2 046  
UNCLASSIFIED  
PROCESSING DATE--30OCT70  
TITLE--FALSE INFORMATION IN A SCANNING INTERFEROMETER SIGNAL -U-  
AUTHOR--(02)-SOLOMAKHA, D.A., TOROPOV, A.K.  
COUNTRY OF INFO--USSR  
SOURCE--OPTIKA I SPEKTROSKOPIIA, VOL. 28, APR. 1970, P. 818-820  
DATE PUBLISHED--APR70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--INTERFEROMETER, LASER EMISSION, HELIUM NEON LASER, SIGNAL  
DISTORTION, ERROR CORRECTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/1223  
STEP NO--UR/0051/70/028/000/0818/0820  
CIRC ACCESSION NO--AP0124877  
UNCLASSIFIED

2/2 046

CIRC ACCESSION NO--A0124877

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF A SCANNING INTERFEROMETER OF PLANE PARALLEL GEOMETRY TO THE INVESTIGATION OF THE EMISSION FROM A HELIUM NEON LASER. PARTICULAR ATTENTION IS GIVEN TO THE POSSIBILITY OF ELIMINATING FALSE INFORMATION CONTAINED IN THE INTERFEROMETER SIGNAL. THE CONDITIONS UNDER WHICH A FALSE SIGNAL IS GENERATED ARE DEMONSTRATED BY EXAMPLES. MEANS OF DETECTING AND ELIMINATING A FALSE SIGNAL ARE EXAMINED, AND RECOMMENDATIONS FOR ELIMINATING A FALSE SIGNAL ARE PROPOSED FOR LASERS OPERATING ONLY IN THE TEM SUB 01 MODE AND IN THE TEM SUB01 AND TEM SUB00 MODES SIMULTANEOUSLY.

UNCLASSIFIED

1/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--EFFECT OF NON PLANE PARALLELISM OF AN INTERFEROMETER ON OPTICAL  
MULTIPLICATION OF LENGTHS -U-  
AUTHOR--(02)--KORONKEVICH, V.P., SOLOMAKHA, D.A.

COUNTRY OF INFO--USSR

SOURCE--OPTIKA I SPEKTROSKOPIIA, VOL. 28, MAR. 1970, P. 579-584

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLANE GEOMETRY, LIGHT REFLECTION, FABRY PEROT INTERFEROMETER,  
SURFACE ROUGHNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1567

STEP NO--UR/0051/70/028/000/0579/0584

CIRC ACCESSION NO--AP0118550

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118550

ABSTRACT/EXTRACT--(U) G2-0- ABSTRACT. STUDY OF THE EFFECT OF IMPERFECTIONS IN THE REFLECTING SURFACES ON INTERFEROMETERS OF TRADITIONAL PLANE PARALLEL GEOMETRY. THE MAXIMUM POSSIBILITIES OF CLASSICAL SCHEMES FOR OPTICAL MULTIPLICATION OF LENGTHS ARE ESTIMATED, AND AN ATTEMPT IS MADE TO ASCERTAIN THE MEASUREMENT ERRORS CAUSED BY DEPARTURES OF THE REFLECTING SURFACES FROM PLANE PARALLELISM. IT IS SHOWN THAT THE CONTRAST OF THE SUPERPOSITION BANDS AND THE ACCURACY OF MEASURING THE MULTIPLIED LENGTH ARE LIMITED BY DEVIATIONS FROM PLANE PARALLELISM IN A FABRY-PEROT INTERFEROMETER.

UNCLASSIFIED



1/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70  
BUBBLECAP TRAYS -U-

TITLE--EQUATION FOR THE GAS PHASE MASS TRANSFER OF

AUTHOR--SOLOMAKHA, G.P.

COUNTRY OF INFO--USSR

SOURCE--TEOR. OSN. KHIM. TEKHNOL. 1970, 4(2), 181-8

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MASS TRANSFER, DISTILLATION EQUIPMENT, VAPORIZATION,  
THERMODYNAMIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1992/0056

STEP NO--UR/0455/70/004/002/0181/0188

CIRC ACCESSION NO--AP0111250

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0111250

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIFFERENT METHODS FOR THE STUDY OF MASS TRANSFER ON TRAY COLUMNS WERE ANALYZED AND A METHOD FOR STAGE BY STAGE TREATMENT OF EXPTL. DATA IS SUGGESTED. THE HYDRAULIC PARAMETERS AFFECTING THE MASS TRANSFER COEFF. ARE DETD. 1ST. THE PHYSICOCHEM. PROPERTIES OF THE SYSTEM ARE DEVELOPED IN THE 2ND STAGE. EQUATIONS BASED ON THE SUGGESTED METHOD ARE DEVELOPED. AVAILABLE DATA ON MANY SYSTEMS ARE CORRELATED BY A SINGLE PLOT  $\beta \text{SUB GF} \text{ EQUALS } 12.4 \text{W SUBK PRIME } 1.05 \text{H SUBCT PRIME } 0.65$ , WHERE  $\beta \text{SUB GF}$  IS THE MASS TRANSFER COEFF. REFERRED TO A SINGLE TRAY,  $\text{W SUBK}$  IS THE VELOCITY OF THE GAS REFERRED TO THE OPERATING AREA OF THE TRAY, AND  $\text{H SUB CT}$  IS THE HEIGHT OF LIQ. IN THE STATIC LAYER. FOR 7 GAS-LIQ. SYSTEMS  $\text{N SUBG EQUALS } 0.335 \text{W SUBE PRIME } 0.32 \text{S SUB CG PRIME } 0.5$ , WHERE  $\text{N SUBG}$  EQUALS NO. OF TRANSFER UNITS FOR THE GAS,  $\text{W SUBE}$  EQUALS WEBER NO., AND  $\text{S SUBCG}$  EQUALS SCHMIDT NO. FOR THE GAS. FACILITY: .MOSK. INST. KHIM. MASHINOSTR., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 51

SOLOMAKHIN, I. S., PORTNOVA, YE. G.

"Mathematical Programming in Technical-Economic Problems of Ferrous Metallurgy"

Matematicheskoye programmirovaniye v tekhniko-ekonomicheskikh zadachakh chernoy metallurgii (Mathematical Programming in Technical-Economic Problems of Ferrous Metallurgy), Moscow, Metallurgiya Press, 1972, 168 pp, ill., 44 k (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V539K)

Translation: The book contains the following divisions: Part 1. Methods and Problems of Optimal Planning in Ferrous Metallurgy. Chapter I. Linear Programming. Chapter II. Application of the Methods of Linear Programming to Production Planning Problems in Ferrous Metallurgy. Chapter III. Dynamic Programming. Chapter IV. Application of the Methods of Dynamic Programming to Production Planning Problems in Ferrous Metallurgy. Part 2. PERT Planning and Control. Chapter V. Basic Concepts and Calculating the PERT Chart Parameters. Chapter VI. Optimization of the PERT Chart and Practical Application of the PERT System for Production Organization in Ferrous Metallurgy.

1/1

1/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--CHANGES IN THE BLOOD SYSTEM IN PATIENTS WITH HISTAMIN RESISTANT  
ACHYLIA -U-

AUTHOR--SOLOMAKHINA, N.V.

COUNTRY OF INFO--USSR

S

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 44-47

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANEMIA, BLOOD SERUM, PROTEIN, ERYTHROCYTE, THROMBOCYTE,  
ALBUMIN, ALPHA GLOBULIN, GAMMA GLOBULIN

CONTRCL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3002/1925

STEP NO--UR/0504/T0/042/006/0044/0047

CIRC ACCESSION NO--AP0129274

UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--AP0129274  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. ANEMIA WAS DETECTED IN 28.8PERCENT OF THE BASES IN HISTAMINORESISTANT ACHYLIA. SIDEROPENIA, A DROP IN THE B SUB12 CONTENT IN THE BLOOD SERUM, A CONSIDERABLE DECREASE OR ABSENCE OF GASTROMUCOPROTEIN IN THE GASTRIC CONTENTS WERE REVEALED IN THE MAJORITY OF PATIENTS. ERYTHROCYTOMETRIC STUDIES SHOWED THE PRESENCE OF TWO TENDENCIES TO MYCROCYTOSIS AND MACOCYTOSIS, THE FIRST TENDENCY BEING MORE EXPRESSED. THERE IS ALSO A TENDENCY TO LEUCOPENIA AND THRCMBOCYTOPENIA. THERE WAS SEEN AN INSIGNIFICANT DECREASE OF TOTAL PROTEIN IN THE BLOOD SERUM, A DROP IN THE ALBUMIN LEVEL TO D INCREASE OF ALPHA SUB1-ALPHA SUB2 AND GAMMA GLOBULIN FRACTION. FACILITY:  
KAFEDRA GOSPITAL'NOY TERAPII TOMSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

UDC 621.3-528.3.025.135

ANISIMOV, B. V., Doctor of Technical Sciences, SOLOMATIN, N. M., Candidate of Technical Sciences, BELYAYEV, V. A., and SILANT'YEV, YU. N., Engineers

"Design of Digital, Computer-Based, Factographic Data Retrieval System"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 12, 1972, pp 48-49

Abstract: The article describes a factographic data retrieval system created at the Chair of Mathematical Machines, Moscow Higher Technical School imeni N. E. Bauman, for automatically finding short abstracts of scientific and technical articles placed in the storage of a computer. The abstracts issued at the request of instructors and students can be read without subsequent processing. The unique feature of the system is the complete formalization of the reduction of the primary entries before they input into the computer. This reduces to a minimum the subjective factors which are characteristic of unformalized reduction techniques and which are the principal sources of the errors that occur in machine retrieval.

1/1

USSR

UDC: 8.74

SOLOMATIN, V. F.

"Model of a Memory Device on Neuron-Like Elements Which Realizes Holographic Principles of Data Recording and Readout"

Probl. bioniki. Resp. mezhd. temat. nauch.-tekhn. sb. (Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection), 1971, vyp. 6, pp 56-60 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V959)

Translation: The paper describes a model of a memory device which has the property of distribution of stored information and is resistant to damage of memory elements, with parallel recording and readout. On the basis of analysis of the model, hypotheses are stated relative to possible methods of functioning of the memory in the brain. Three figures, bibliography of ten titles. Author's abstract.

1/1

Acc. Nr:

AP0038027

S

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, 1970, Vol 58, Nr 1, pp 51-59

CONVERSION OF AN INFRARED IMAGE INTO A VISIBLE  
IMAGE BY NONLINEAR OPTICAL METHODS

Voronin, F. S.; Divlekevev, M. I.; Il'inskiy, Yu. A.;

Solomatin, V. S.

Conversion of an image from the infrared to visible range in a nonlinear crystal is analyzed. The resolving power is estimated. Conversion from 1.0 $\mu$  to 0.53 microns in a KDP crystal is obtained; the resolving power is 18 lines per millimeter.

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REEL/FRAME  
19731068

21

GB



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36

TECHNICAL TRANSLATION

1860 / PSTC-IT-23-2013-72

89 Dec 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION  
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,  
SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PREDACHI IZPRAVANSII LAZERNYI IZLUCHENIYEM

AUTHOR: I. A. DERJUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY  
IYENI T.S. SHEVCHENKO

Translated for FSTC by ACS1

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- File Page -

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--AMPERCMETRIC TITRATION OF FORMALDEHYDE AND FORMIC ACID -U-  
AUTHOR--(02)-USVYATSOV, A.A., SOLOMATIN, V.T.  
COUNTRY OF INFO--USSR  
SOURCE--ZAVOD. LAB. 1970, 36(2), 154-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--AMPERCMETRIC TITRATION, FORMAL DEHYDE, FORMIC ACID, PLATINUM  
ELECTRODE, GRAPHITE, CHEMICAL LABORATORY APPARATUS/(U)AUL TITRATION  
APPARATUS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3004/2019 STEP NO--UR/0032/70/036/002/0154/0155  
CIRC ACCESSION NO--AP0132280  
UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--APC132280  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT. THE AMPEROMETRIC TITRATOR AU-1 WITH PT OR GRAPHITE ROTATING ELECTRODE (900 RPM) WAS USED. DETN. OF FORMALDEHYDE IS BASED ON ITS OXIDN. TO FORMIC ACID BY AMMONIACAL SOLN. OF AG PRIME POSITIVE AND AMPEROMETRIC TITRN. OF EXCESS AG PRIME POSITIVE BY 0.01-0.05M K SUB4 FEEN SUB6 AT 1.12 V. TOTAL FORMIC ACID (ORIGINALLY PRESENT PLUS PRODUCED BY OXIDN. OF FORMALDEHYDE) IS OXIDIZED BY 10 ML 0.05-0.1N KMNO SUB4 AT PH 6.0-7.0 TO CO SUB2 AND H SUB2 O, AND THE EXCESS OF MNC SUB4 PRIME NEGATIVE IS AMPEROMETRICALLY TITRATED BY 0.05-0.1N MNSO SUB4 IN NA PYROPHOSPHATE MEDIUM AT PLUS 0.42 V. IF ACETALDEHYDE IS PRESENT, IT MUST BE REMOVED BY BUBBLING OF AIR.

UNCLASSIFIED

C. Application of Theoretical, Probability and  
Statistical Methods

USSR

SOLOMATIN, V. V., PAK, M. D. and BUKANOVSKIY, A. V.

"Application of Methods of Mathematical Statistics to the Study of the  
Parametric Dependence of a System on an Object of Control"

Tr. NII Upravl. Mashin i Sistem [Works of the Scientific Research  
Institute for Control Machines and Systems], 1973, No 7, pp 5-11 (Trans-  
lated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No  
10V197)

Translation: This article is dedicated to analysis of the problem of  
application of methods of mathematical statistics to the practice of  
planning and improvement of control systems at industrial enterprises.  
The work gives a number of equations for the dependence of parameters  
of the control system on the object. Substituting the fixed values of  
parameters of the object into the equations produced, the calculation  
value of any parameter of the control system can be produced. The re-  
sults of investigation of the parametric dependence of the system on  
the control object allow a scientifically well-founded solution of the  
problem of improvement of the control system and estimation of its qual-  
ity to be produced.

Author's view

1/1

USSR

UDC 669.71'74.472

KORNILOV, N. I., ILYUSHCHENKO, N. G., SOLOMATIN, V. Ye. and BOYDENKO, V. S.  
"Investigation of the Behavior of Manganese and Aluminum in a Molten Mixture  
of Lithium and Potassium Chlorides in the Presence of Aluminum Fluoride"

Tr. In-ta elektrokhimii. Ural'skiy fil. AN SSSR (Works of the Institute of  
Electrochemistry. Ural Branch of the Academy of Sciences USSR), 1970, vyp. 15,  
pp 97-101 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G244 by G.  
SVOYTSEVA)

Translation: Determinations were made of equilibrium electrode potentials of  
Al-Mn alloys (48-60 at.% Mn) relative to comparison Al-electrode at 693-873° K,  
and a study was also made of the kinetics of Al transfer to Mn in a eutectic  
mixture of KCl and LiCl with the addition of AlF<sub>3</sub> in contact with metallic Al.  
Measurement of the Mn-electrode potential in time makes possible quality con-  
trol of the character of the resultant surface alloys. Five illustrations.  
Bibliography of 12 titles.

1/1

1/2 030

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--CORRECTION OF THE WATER AND SALT METABOLISM IN PATIENTS 8FTER  
OPERATIONS ON THE STOMACH -U-  
AUTHOR--(05)-SHKROB, O.S., DREYZINA, A.M., SOLOMATINA, N.F., KUZMINA, L.N.,  
PARSHENKOVA, O.I.  
COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 4, PP 60-65

DATE PUBLISHED-----70

5

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--METABOLISM, SURGERY, STOMACH, DIGESTIVE SYSTEM, ELECTROLYTE,  
BLOOD CIRCULATION, BLOOD PLASMA, PROTEIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1983/1236

STEP NO--UR/0531/70/000/004/0060/0065

CIRC ACCESSION NO--AP0054131

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054131

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS REPORT THE RESULTS OF CORRECTION OF WATER IONIC DISTURBANCES IN PATIENTS OPERATED ON THE STOMACH. A TOTAL OF 120 PATIENTS SUBJECTED TO GASTRECTOMY, RESECTION OF THE STOMACH AND PALLIATIVE OPERATIONS WERE EXAMINED. CORRECTION OF HYDROIONIC DISTURBANCES WAS CARRIED OUT FROM THE FIRST DAY AFTER THE OPERATION AND CONSISTED IN OBLIGATORY USE OF POLYIONIC SOLUTIONS WITH DUE CONSIDERATION OF THE LOSS OF ELECTROLYTES. DYNAMIC INVESTIGATIONS OF PLASMA AND URINARY ELECTROLYTES, VOLUME OF CIRCULATING BLOOD, PLASMA, CIRCULATING PROTEIN, HEMOGLOBIN, HEMATOCRIT, VOLUME OF INTRACELLULAR AND TOTAL WATER AGAINST THE BACKGROUND OF THE SOLUTIONS ADMINISTERED DURING PARENTERAL NUTRITION REVEALED NO ESSENTIAL FLUCTUATIONS. THIS TESTIFIED TO THE FACT THAT THE EMPLOYED METHOD OF PARENTERAL NUTRITION IN PATIENTS AFTER OPERATIONS ON THE GASTROINTESTINAL TRACT COMPENSATES THE WATER AND SALT DEFICIENCY. AS THE RESULT OF THE ABOVE MENTIONED TREATMENT DURING THE LAST TWO YEARS NO SYMPTOMS OF DEHYDRATION AND DYSELECTROLYTEMIA WERE OBSERVED.

UNCLASSIFIED



USSR

Physiology

UDC 612.27+612.821.6

MEYERSON, F. Z., SOLOMATINA, Ye. S., VIKHLYAYEV, Yu. I. and KLYGUL', T. A.,  
Laboratory of Experimental Cardiology, Institute of Normal and Pathological  
Physiology and Laboratory of Psychopharmacology, Institute of Pharmacology,  
Academy of Medical Sciences USSR, Moscow

"The Influence of Adaptation to Altitude Hypoxia on the Behavior of Animals in  
a Stress Situation"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23,  
Vyp 4, Jul/Aug 73, pp 751-756

Abstract: The influence of adaptation to hypoxia on the behavior of 40 rats  
in situations creating a conflict between the drinking and the defensive  
reflexes was studied. It was found that adapted animals made three times as  
many attempts to drink as controls, despite a painful electric shock. The  
experimental subjects showed a lower threshold of pain sensitivity, the same  
strength for the drinking reflex, the same motor activity in nonconflict situa-  
tions and lower motor activity in conflict situations than controls. Therefore  
these factors are not considered possible causes for the change observed.

1/2

USSR

MEYERSON, F. Z., et al., Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov, Vol 23, Vyp 4, Jul/Aug 73, pp 751-756

Earlier findings also eliminate disturbance in the elaboration of defensive conditioned reflexes. It was further found that interrupting the drinking reflex required a shock of twice the voltage in experimental rats as in controls. The greater stability of the drinking reflex to pain is said to be caused by a greater force and concentration of excitation in the neuron system responsible for the drinking reflex, and a deeper inhibition of the neuron system responsible for the motor pain reaction. This may be caused by some general change in the functioning and metabolism of the brain.

2/2

- 59 -

USSR

UDC: 621.375.8

KAMACH, Yu. E., KOZLOVSKIY, Ye. N., OVCHINNIKOV, V. M., SOLOMATNIKOVA, G. M.

"An Electro-Optical Reflection Gate for Q-Switching a Laser Cavity With Polarized Emission"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 17, Jun 72, Author's Certificate No 273023, Division H, filed 7 Feb 68, published 24 May 72, p 250

Translation: This Author's Certificate introduces: 1. An electro-optical reflection gate for Q-switching a laser cavity with polarized emission. The gate is made from an optically uniaxial crystal in the form of a parallelepiped with annular parallel electrodes on the ends of the crystal. The edges of the crystal are perpendicular to one of the bases and parallel to the Z axis. As a distinguishing feature of the patent, in order to reduce losses of light, simplify design, improve reliability and increase stability, the other base of the crystal is made in the form of at least one reflecting face which is inclined to the optical axis of the crystal at an angle equal to or greater than the angle of total internal reflection. 2. A modification of this gate in which a reflective coating is applied to part of the lateral face opposite the inclined base and bounded by the electrode.

1/1

USSR

UDC: 621.375.8

KAMACH, Yu. E., KOZLOVSKIY, Ye. N., OVCHINNIKOV, V. M., SOLOMATNIKOVA, G. M.

"An Electro-Optical Reflection Gate for Q-Switching a Laser Cavity"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obraztzy, Tovarnyye Znaki, No 17, Jun 72, Author's Certificate No 270920, Division H, filed 16 Feb 68, published 24 May 72, p 250

Translation: This Author's Certificate introduces an electro-optical reflection gate for Q-switching a laser cavity. The gate is made from an optically uniaxial crystal in the form of a parallelepiped with annular electrodes, the edges being parallel to the optical Z axis, and with a base inclined to the optical axis of the crystal at an angle equal to or greater than the angle of total internal reflection. A reflective coating is applied to part of the lateral face opposite the inclined base. As a distinguishing feature of the patent, the gate is designed for use in lasers with unpolarized emission. The other base of the crystal is inclined to its optical axis at an angle equal to or greater than the angle of total internal reflection, and is located in a plane which is mutually perpendicular with respect to the first base.

1/1

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--REDUCTIVE PRECIPITATION ELECTRIC SMELTING OF ANTIMONY CONCENTRATES  
WITH A ROASTED MATTE -U-  
AUTHOR--(03)--ROZLOVSKIY, A.A., SOLOMATOV, N.K., GAMALIY, L.I.

S

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(1), 22-6

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--ANTIMONY, COKE, ROASTING FURNACE, ELECTRIC FURNACE, IRON,  
METALLURGICAL PROCESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1989/0750

STEP NO--UR/0136/70/043/001/0022/0026

CIRC ACCESSION NO--AP0107292

UNCLASSIFIED

2/2 011

CIRC ACCESSION NO--AP0107292

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A FLOW CHART SHOWING THE CHAIN OF  
 APP. USED FOR REDUCTIVE PPTN. ELECT. SMELTING OF SB CONCS. WITH A  
 ROASTED MATTE IS DESCRIBED IN DETAIL. THE OPTIMUM CONDITIONS AS  
 APPLICABLE TO THE DESIGN OF THE ENTIRE APP. ARE PRESENTED. THE OPTIMUM  
 COMPN. OF THE BATCH WAS 18 PARTS FE CHIPS, 24 PARTS SODA ASH, 15 PARTS  
 LIMESTONE, AND 4 PARTS COKE DUST, ALL PER 100 PARTS CONC. THE MATERIAL  
 BALANCE AND THE BALANCE OF THE METALS ARE IMPORTANT AND ARE DISCUSSED.  
 REDUCTIVE PPTN. ELEC. SMELTING OF SB CONCS. WITH A ROASTED MATTED HAS  
 MANY ADVANTAGES AS COMPARED WITH THE METHOD OF PPTN. SMELTING OF SB  
 CONCS. AMONG THE SHORTCOMINGS OF THE REDUCTIVE PPTN. METHOD ARE LOWER  
 M.P. OF THE CONC. AND INCREASED CONSUMPTION OF ELEC. ENERGY, WHICH CAN  
 BE ELIMINATED BY ORGANIZED GRANULATION AND CONTINUOUS LOADING OF THE  
 BATCH.

UNCLASSIFIED

USSR

UDC 681.335

BLAZHKEVICH, B. I., VOROBKEVICH, V. Yu., MASLOV, V. S., SOLONCHAK, V. P., and  
YATSUN, I. A.

"Analogous-Code Measuring Transformer"

V Sb. "Konf. po Avtomatiz. Nauch. Issled. na Osnove Primeneniya EVM, 1972"  
[In the Collection "Conference on Automation of Scientific Investigations  
on the Basis of the Application of Electronic Computers, 1972"], Novosi-  
birks, 1972, pp 84-90 (from Referativnyy Zhurnal, No 10, Oct 72. 32.  
Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 10.32.119)

Translation: An analogous-code measuring transformer of tracking action with  
an input impedance  $\geq 10^9$  ohm is discussed. The transformer is designated for  
remote measuring the slowly changing component of the output voltage of the  
statical transducer of the electric field intensity in the  $\pm 640$  mv range with  
an error not exceeding 0.025%, at an transmission channel error up to 1%.  
One illustration, nine bibliographical references.

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USSR

BLAZHKEVICH, B. I., VOROBKEVICH, V. Yu., MASLOV, V. S., SOLOMCHAK, V. P., and YATSUN, I. A.

UDC 681.325.65

"An Analog-Digital Measurement Converter"

Novosibirsk, Konf. po avtomatiz. nauch. issled. na osnova primeneniya EVM, 1972--sbornik (Conference on Automating Computer-Based Scientific Research, 1972--collection of works), 1972, pp 84-90 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 72, abstract No 11B307)

Translation: The authors consider a servo-type analog-digital converter designed for remote measurement of a slowly varying component of the output voltage of a static electric field strength pickup within limits of  $\pm 640$  mV with an error no greater than 0.025% for a transmission channel error of up to 1%. The converter consists of a measurement amplifier, a device for automatic selection of subranges, a control unit, and a power supply. The given measurement range is broken down into 128 partially overlapping sub-ranges; selection of subranges is accomplished by automatic comparison of the input quantity with a discretely variable voltage formed by a code-analog converter from a reference voltage source. One illustration, bibliography of nine titles. L. P.

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USSR

UDC 681.325.65

BLAZHKEVICH, B. I., VOROBKEVICH, V. Yu., MASLOV, V. S., SOLOMCHAK, V. P.,  
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"An Analog-Digital Measurement Converter"

Novosibirsk, Konf. po avtomatiz. nauch. issled. na osnova primeneniya EVM,  
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converter from a reference voltage source. One illustration, bibliography of  
nine titles. L. P.

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USSR

UDC 669.721.046.4

LYANDRES, M. B., SOLOMENTSEV, V. A., REZNIKOV, I. L., SOLOV'YEV, Yu. V.,  
ENGEL', E. K.

"Automation of the Process of Dehydration of Carnallite in Fluidized Bed  
Furnaces"

Avtomatiz. Proizv. Protssesov Tsvet. Metallurgii [Automation of Production  
Processes in Nonferrous Metallurgy -- Collection of Works], Ordzhonikidze,  
Ir Press, 1971, pp 78-80, (Translated from Referativnyy Zhurnal, Metallurgiya,  
No 5, 1972, Abstract No 5 G244 by G. Svodtseva).

Translation: The production of dehydrated carnallite has been automated at  
the carnallite shop of the Bereznikovskiy titanium-magnesium combine on the  
basis of scientific research and planning-design work, allowing a significant  
technical-economic effect to be produced and the productivity of labor to be  
increased by 2 times.

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USSR

UDC 681.382

SOLOMIN, V. I., Engineer

"Use of Thyristors in Ferrite-Diode Circuits"

Moscow, Pribory i Sistemy Upravleniya, No 6, Jun 71, pp 44-45

Abstract: Triode thyristors type D235, D238 and KU201 with working currents of 2-10 A and voltages of 25-300 V are recommended for use in three-cycle ferrite-diode cells as the output amplifier for controlling the electro-mechanical I/O elements of computers. The technical data of the transistors are presented, and a keypunch control circuit is examined. The thyristors are recommended for use in ferrite-diode circuits for controlling alphanumeric printers, display panels and actuating mechanisms in automation.

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USSR

UDC 547.835:542.953

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MNDZHONYAN, AL. (DECEASED), MARKARYAN, E. A., MARTIROSYAN, T. N., SOLOMINA, I. P., and MARASHYAN, E. S., Institute of Fine Organic Chemistry, Academy of Sciences ArmSSR, Yerevan

"Isoquinoline Derivatives. VI. Synthesis and Pharmacological Properties of 4,6,7-Substituted 1(2)-Arylalkyl-1,2,3,4-tetrahydroisoquinolines and Their Analogues"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 12, Dec 71, pp 1683-1687

Abstract: Condensation of 6,7-dimethoxy-1,2,3,4-tetrahydroisoquinoline with diphenylacetic- and diphenylpropionic acyl chlorides gave respective amides -- N-(2-diphenylacetamido)- and N-(2-diphenylpropionylamido)-6,7-dimethoxy-1,2,3,4-tetrahydroisoquinoline, m.p. 133-134° and 145-146° respectively. These products were reduced with LiAlH<sub>4</sub> to tertiary amines and converted to hydrochlorides: N-(β-diphenylethyl)- and N-(γ-diphenylpropyl)-6,7-dimethoxy-1,2,3,4-tetrahydroisoquinoline, melting at 173-174° and 179-180° respectively. When 1-phenyl- or 1-p-methoxyphenylaminomethylcyclohexane was used in above condensation, the products were 1-(acetamidomethyl)-1-phenylcyclohexane and 3,4-dimethoxyphenylethylamide of diphenylpropionic acid. Cyclization of these amides followed by LiAlH<sub>4</sub> reduction yields respective tetrahydroisoquinolines.

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USSR

MNDZHOYAN, A. L., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 12,  
Dec 71, pp 1683-1687

Condensation of 1-phenylethyl-6,7-dimethoxy-1,2,3,4-tetrahydroisoquinoline  
with formalin gave 2,3-dimethoxy-13-phenyl-5,6,8,13,14,14a-hexahydroisoquino-  
lino-[2,1,-b] [2] benzazepine.

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USSR

UDC 541.69+547.754

MARKARYAN, E. A., SOLOMINA, L. P., and MARASHYAN, E. S., Institute of Fine Organic Chemistry Lenni A. L. Mdzhoyan, Acad. Sc. Armenian SSR (Yerevan)

"Synthesis and Investigation of Pharmaceutical Properties of 1-Diphenylalkyl Substituted 1,2,3,4-Tetrahydro- $\beta$ -carbolines and Their Derivatives"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 8, 1972, pp 683-688

Abstract: Tryptamines condensed with diphenylacetic acid and diphenylpropionic acid chlorides yield amides which can be converted to corresponding secondary amines by lithium aluminum hydride reduction. Bischler-Napieralski cyclization of these amines with phosphorus oxychloride yields 1-acylalkyl substituted tetrahydro- $\beta$ -carbolines which when condensed with formaline yield benz(g)indolo(2,3-a)-7-R-14-phenyl-5,7,8,13,13b,14-hexahydroquinoxalines and 5H-benz(5,6)azepino(1,2-a)-7-R-15-phenyl-7,8,13,13b,14,15-hexahydro- $\beta$ -carbolines. Most of these compounds exhibited short-lasting hypotensive activity.

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USSR

UDC 577.1:615.7/9

DOMNIN, S. G., SOLOMINA, S. N., STARIKOVA, S. K.

"Comparison of the Danger of Coniosis from the Dust of Low-Grade Bauxites and Alunites"

V sb. Vopr. gigiyeny truda i prof. patol. v metallurgii (Problems of Industrial Hygiene and Occupational Diseases in Metallurgy--Collection of Works), Moscow, 1972, pp 126-131 (from RZh-Biologicheskaya Khimiya, No 17, Sep 73 (Abstract No 17 F1928)

Translation: The fibrosis-producing property of dusts (D) from alunite ore and bauxite low in silica (B) was studied in rats. The extent of development of fibrosis under the influence of alunite D was found to vary with their content of free  $\text{SiO}_2$ . Fibrosis induced by low-grade bauxite D is scarcely distinguishable from experimental coniosis resulting from bauxite low in silica. The preliminary maximum permissible concentrations recommended for alunite dust, its concentrate, and low-grade bauxite dust are 2, 4, and 6 mg/m<sup>3</sup>, respectively.

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USSR

SATUNINA, A. Ye., SOLOMINA, V. L.

"Method of Investigation of University-Type Systems for Planning of ACS"

Tr. Mosk. Energ. In-ta [Works of Moscow Institute of Power Engineering],  
1973, No 158, pp 23-30 (Translated from Referativnyy Zhurnal Kibernetika,  
No 6, 1973, Abstract No 6V672).

Translation: During the process of planning an ACS, it is suggested that the following problems be solved in combination: 1) improvement of the structure and organization of administration; 2) improvement of document flow; 3) automation of administrative work; 4) increasing the technical skill of workers involved in administration and training of administrative workers to operate with the ACS.

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USSR

UDC: 638.61

BUDOVSKIY, I. I., MAKOSSEVSKIY, V. V., MELISHCHUK, I. S., REZHITSKIY, M. S.,  
SOLOMKO, A. A., TRON'KO, V. D., PALENCHUK, M. R., Kiev State University

"A Meter for Determining High-Frequency Power Transmission With the Use of  
a Laser Signal"

Moscow, Pribory i Tekhnika Eksperimenta, No 3, May/June 72, pp 110-112

Abstract: The paper describes an instrument for measuring high levels of power passing through transmission lines which operate in the 10 kHz - 30 MHz range. The meter is shown schematically in Fig. 1a. A laser beam with wavelength  $\lambda = 1.15 \mu$  passes successively through electro-optical and magneto-optical crystals of GaAs and  $Y_3Fe_5O_{12}$  located between polarization prisms  $P_1$ . The relative intensity of the laser signal at the output of the optical system is  $S/S_0 = |A - B(1 - \cos \Delta\varphi)| |1 + \cos 2\delta|$ , where  $A = 1/2 \cos^2(\alpha - \beta)$ ,  $B = 1/4 \sin 2\alpha 2\beta$ ;  $\Delta\varphi = \Delta\varphi_0 + \Delta\varphi_V$ ,  $\Delta\varphi_0$  is the phase shift which is independent of the field,  $\Delta\varphi_V$  is the phase delay induced by the electric field,  $\delta = \gamma + \Delta\phi_I$ ,  $\Delta\phi_I$  is the rotation of the polarization plane of the optical beam determined by the Faraday effect and dependent on the current in the magnetizing system,  $\gamma$  is the angle between polarization prisms  $P_2$  and  $P_3$ ,  $\alpha$  and  $\beta$  are the angles

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BUDOVSKIY, I. I. et al., Pribory i Tekhnika Eksperimenta, No 3, May/June 72, pp 110-112

between the axis  $x_1$  of the GaAs crystal and polarization prisms  $P_1$  and  $P_2$ . Angles  $\alpha$ ,  $\beta$  and  $\gamma$  are illustrated in Fig. 1b.

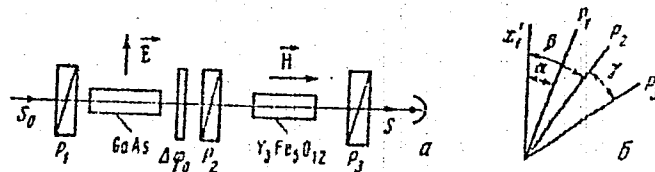


Fig. 1: a--schematic of the power meter; b--relative orientation of the polarizers.

A diagram of the power meter is shown in Fig. 2. The unit is a section of coaxial channel with wave impedance of  $75 \Omega$  with rectangular inner conductor 4 fastened between washers 2. Crystals of GaAs 6 and  $Y_3Fe_5O_{12}$  7 are fastened to inner conductor 4 at right angles to each other. The crystals measure  $2 \times 2$  mm in cross section. The GaAs crystal has a  $45^\circ$  cut which acts as a rotating mirror. Conductive cement is used to fasten electrode 5 to

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BUDOVSKIY, I. I. et al., Pribory i Tekhnika Eksperimenta, No 3, May/June 72, pp 110-112

the top of the GaAs crystal. The electrode is connected to the outer conductor 3. The central polarizer  $P_2$  is a polaroid film 11, cemented between two crystals. Polarization prisms 10 and 8, as well as  $\lambda/4$ -wave plate 9, are used for the necessary adjustment. The meter is connected to the coaxial channel by means of rf disconnects 1.

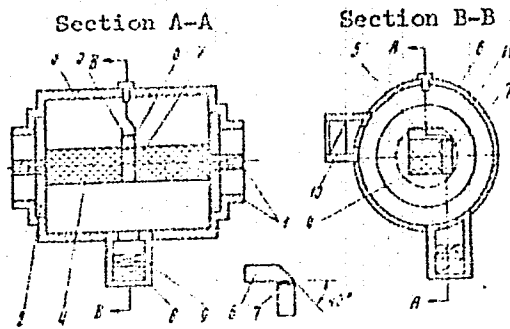


Fig. 2. Simplified diagram of the power meter.

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