

## Organophosphorus Compounds

UDC 632.95

USSR

KNUNYANTS, I. L., BYKHOVSKAYA, E. G., SIZOV, YU. A., ZINOV'YEVA, L. I.

"A Method of Making Alkyl Perfluorovinylalkylphosphinates"

USSR Author's Certificate No 297644, filed 22 Dec 69, published 1 Jun 71  
(from RZh-Khimiya, No 1(II), Jan 72, Abstract No 1N412)

Translation: Compounds of the general formula  $R(R'O)P(O)CF=CF_2$  (I) ( $R = Me, Et; R' = Pr, Bu$ ) are made by the reaction of dialkyl chlorophosphonates with perfluoromagnesium iodide (II) in an organic solvent at  $-15$  to  $20^\circ C$ . A solution of  $Me (iso-Pr)POCl$  in 10 ml of absolute ether is added with stirring, in a stream of  $N_2$ , to a solution of II obtained from 2.5 g Mg and 24 g  $CF_2=CFI$  at  $-15$  to  $20^\circ C$ , and the mixture is stirred for an hour at  $-10^\circ C$ ; the temperature is then raised to  $-5^\circ C$ , and the mixture is decomposed with a 10%  $H_2SO_4$  solution.

The reaction mixture is heated to  $20^\circ C$ . The ether layer is removed, the water layer is extracted with ether and dried over  $Na_2SO_4$ . After distilling the solvent, the result is 3.2 g of I ( $R = Me, R' = iso-Pr$ ), yield 30%, boiling point  $55^\circ/3$ ,  $d_4^{17} 1.2689$ ,  $n_D^{17} 1.3952$ . An similar method is used for synthesizing compound I ( $R = Me, R' = iso-Bu$ ), yield 30-35%, boiling point  $51-2^\circ/3$ ,  $d_4^{22} 1.2087$ ,  $n_D^{22} 1.3908$ . A. F. Prokof'yeva.

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UDC 547.241.07

USSR

KNUNYANTS, I. L., BYKHOVSKAYA, E. G., SIZOV, Yu. A., and FILYAKIN, V. A.

"A Method of Making 1,1-Bis-(dialkylphosphino)-4-alkanols-1"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, Jan 71, Author's Certificate No 289098, division C, filed 24 Nov 69, published 8 Dec 70, p 78

Translation: This Author's Certificate introduces: 1. A method of making 1,1-bis-(dialkylphosphino)-4-alkanols-1. As a distinguishing feature of the patent, dialkylphosphine is interacted with a 4-carboxylic acid halide in the presence of an organic base such as triethylamine in an organic solvent with subsequent isolation of the goal product by conventional methods. 2. A modification of this method distinguished by the fact that the process is carried out with boiling of the reaction mixture.

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1/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--DECOMPOSITION OF SUPERSATURATED SOLID SOLUTIONS IN GRANULATED  
ALUMINUM ALLOYS -U-  
AUTHOR-(04)-DOBATKIN, V.I., YELAGIN, V.I., FEDOROV, V.M., SIZOVA, R.M.  
COUNTRY OF INFO--USSR  
SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, METALLV MAR.-APR. 1970, P. 199-205  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--CHEMICAL DECOMPOSITION, SOLID SOLUTION, ALUMINUM ALLOY,  
ZIRCONIUM ALLOY, CHROMIUM ALLOY, VANADIUM ALLOY, TITANIUM ALLOY,  
MANGANESE ALLOY, MOLYBDENUM ALLOY, CHEMICAL STABILITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1989/1395 STEP NO--UR/0370/70/000/000/0199/0205  
CIRC ACCESSION NO--AP0107868  
UNCLASSIFIED

PROCESSING DATE--16OCT70

UNCLASSIFIED

2/2 024

CIRC ACCESSION NO--AP0107868  
ABSTRACT/EXTRACT--(U) GP-0-

ANOMALOUSLY SUPERSATURATED SOLID SOLUTIONS OF GRANULATED ALUMINUM ALLOYS  
CONTAINING MN, CR, ZR, TI, V, AND MO. IT IS FOUND THAT MICROHARDNESS  
AND ELECTRICAL RESISTIVITY IN SUPERSATURATED ALUMINUM ALLOYS ARE SUBJECT  
TO THE SAME RULES AS DESCRIBED PREVIOUSLY BY BARICH AND KOLESNICHENKO  
(1960). MAXIMUM STRENGTHENING DUE TO THE AGING OF ALLOYS WITH CR AND ZR  
IS SHOWN TO INCREASE BY A FACTOR OF MORE THAN TWO AS COMPARED WITH  
NONGRANULATED ALLOYS. IT IS ALSO SHOWN THAT THE STABILITY OF SOLID  
SOLUTIONS INCREASES WITH INCREASING MELTING POINT OF THE ALLOYING  
ELEMENTS.

UNCLASSIFIED

USSR

UDC: 54.386+661.883-546.226.39+532.785

MOTOV, D.L., and SKABICHEVSKAYA, G.I.

"Isolation of Double Sulfates of Zirconium and Aluminum from Sulfate Thiocyanate Solutions"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 15, No 1, 1970, pp 65-68

Abstract: A study was made of the formation double sulfates from sulfate solutions containing, along with the sulfate ions, other anions forming salts with zirconium, for example, thiocyanate. The method amounted to isothermal standing at 20°C of an acidic solution of zirconium thiocyanate containing ammonium sulfate. Change with time in the content of zirconium and thiocyanate ion in the solution was determined. Zirconium and SO<sub>3</sub> were determined by gravimetry as ZrO<sub>2</sub> and Ba SO<sub>4</sub>, and (NH<sub>4</sub>)<sub>2</sub>D -- by distillation of NH<sub>3</sub> followed by titration with sulfuric acid, and the SCN<sup>-</sup> ion -- argentometrically. Compounds not previously described in the literature were found: 4(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>·Zr<sub>2</sub>O(SO<sub>4</sub>)<sub>3</sub>·6H<sub>2</sub>O and 2(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>·ZrOSO<sub>4</sub>·2H<sub>2</sub>O.

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Acc. Nr.

AP0034103

Abstracting Service:  
CHEMICAL ABST. 4-7c

Ref. Code

ZR 007Y



74178x Separation of zirconium-ammonium double sulfates from sulfate-thiocyanate solutions. Motov, D. L.; Gubinskaya, G. I. (USSR). Zh. Neorg. Khim. 1970, 13(1), 65-5 (Russ). The double salts  $4(NH_4)_2SO_4 \cdot Zr_2O(SO_4)_3 \cdot 6H_2O$  and  $2(NH_4)_2SO_4 \cdot ZrOSO_4 \cdot 2H_2O$  formed when a soln. contg.  $ZrO_2$ , HSCN, and  $(NH_4)_2SO_4$  was kept at 20°. Kinetic curves for pptn. of the double-sulfates are given. Addn. of  $H_2SO_4$  to the soln. inhibits sepn. of the double salts. HMIR

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REEL/FRAME  
19710746

1/2 015

UNCLASSIFIED  
TITLE--OSMOTIC COEFFICIENTS AND ACTIVITY COEFFICIENTS OF LITHIUM BROMIDE,  
LITHIUM NITRATE, AND LITHIUM PERCHLORATE SOLUTIONS IN ACETONE AT  
AUTHOR--SKABICHEVSKIY, P.A. PROCESSING DATE--04DEC70

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(5), 1321-3

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--LITHIUM COMPOUND, BROMIDE, PERCHLORATE, NITRATE, OSMOSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3008/0884

STEP NO--UR/0076/70/044/005/1321/1323

CIRC ACCESSION NO--AP0137912

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137912

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACTIVITY COEFF. OF ACETONE AND  
ACTIVITY COEFFS. (GAMMA SUB PLUS OR MINUS) AND OSMOTIC COEFFS. OF LIND  
SUB3, LIBR, AND LICLO SUB4 WERE DETD. IN LIND SUB3 0.183-0.721, LIBR  
0.286-1.478, OR LICLO SUB4 0.261-5.073 M SOLNS. IN ACETONE AT 200EGREES.  
POS. DEVIATIONS FROM THE RAULT LAW WERE OBSD. IN ALL CASES EXCEPT FOR  
LICLO SUB4 LARGER THAN 2.5 M. ION DIAMS. WERE CALCD. FROM THE GAMMA SUB  
PLUS OR MINUS'S AS 4.2, 2.0, OR 2.7 ANGSTROM FOR LICLO SUB4, LIND SUB3,  
OR LIBR. THE GAMMA SUB PLUS OR MINUS OF LICLO SUB4 PASSES THROUGH A  
MIN. AT M EQUALS 2. THE GAMMA PLUS OR MINUS INCREASES IN THE ORDER LIND  
SUB3 SMALLER THAN LIBR SMALLER THAN LICLO SUB4.

UNCLASSIFIED



USSR

UDC 536.46:533.6

PERVITSKAYA, E. A., SKABIN, A. P., TARASYUK, V. A.

"Approximation Methods for Studying Diffusion Combustion in a System of Turbulent Jets"

V sb. Gorennye i vzryv (Combustion and Explosion -- Collection of Works), Moscow, "Nauka", 1972, pp 352-356 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B949)

Translation: A system of jets of hot components flowing from parallel channels (plane of circular) with thin walls and located in a certain order is discussed. The problem is reduced to the solution of heat conductivity equations for rectangular profiles of all gasdynamic values given at the input to the combustion zone by introducing ordinary Mises variables and linearization. A simple relationship is established between the longitudinal pressure drop  $\Delta p$  and the coefficient of combustion completeness  $\epsilon$

$$|\epsilon = \Delta p / \Delta p_{\infty}|$$

where  $\Delta p_{\infty}$  is the drop in the insufficient component under total combustion. Analysis of the measurements of the coefficient of completeness of combustion

USSR

PERVITSKAYA, E. A., et al, Goreniye i vzryv, Moscow, "Nauka", 1972, pp 352-356

given by different authors made it possible to establish a fairly general relationship between this and the input parameters in the case of an axisymmetric flow:  $\epsilon = 1 - e^{-ax^2}$ , where  $x$  is the longitudinal coordinate and  $a$  is the coefficient determined by the geometry, the relationship of the densities, and the stoichiometric coefficient. Authors' abstract.

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USSR

UDC 533.601.172

SKABIN, A. P., TARASYUK, V. A.

"Interaction of an Acoustic Disturbance with a Shock Wave"

Trudy Leningradskogo Politeknicheskogo Instituta, Aerotermodinamika  
(Works of the Leningrad Polytechnical Institute, Aerothermodynamics),  
No 313, 1970, pp 97-101

Translation: Expressions for the perturbations of the flow rate, momentum and energy on movement of a gas through a compression shock are written in the system of coordinates related to the compression shock. It is demonstrated that on incidence of sound waves from a supersonic region, the pressure perturbation is intensified on passage through the compression shock, and the entropy perturbation generates a pressure wave.

In cases where the wave incident on the compression shock is propagated from a subsonic region, expressions are obtained for the acoustic conductivity, the entropy component of the perturbation and the compression shock displacement velocity. The acoustic conductivity is a  $1/2$

USSR

SKABIN, A. P. et al., Trudy Leningradskogo Politehnicheskogo Instituta, Aerocermodynamika (Works of the Leningrad Polytechnical Institute, Aerothermodynamics), No 313, 1970, pp 97-101

real number which varies within highly restricted limits on variation of the Mach number beyond the compression shock. There are 2 illustrations and a 3-entry bibliography.

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Acc. Nr.: AP0046778

Ref. Code: UR025

USSR

UDC 621.791.03.96

SKACHKO, YU. N., MOSHKIN, V. F., GARKALYUK, R. I., POPOV, N. V., MEDVEDEV, A. N., SKORUPSKIY, B. P., KORSHUNOV, V. A.

"High-Frequency Welding of Spiral-Seam Pipe with Butt Seam Joining"

Kiev, Avtomaticheskaya Svarka (Automatic Welding), No 1, 1970, pp 63-65  
(from Avtomaticheskaya Svarka, No 1, 1970, p 80)

Translation: This article contains a study of the characteristic features of strip formation and upsetting during high-frequency welding of spiral-seam pipe with butt seam joining. New forming schemes and new designs of the mechanical units of tube welding mills are proposed. The peculiarities of welding pipe are investigated in the case of disturbance of the geometry of the initial tape. There are 4 illustrations and a 6-entry bibliography.

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Reel/Frame  
19790082

USSR

UDC 621.385.832.052.269.1.002.237

KARTSEV, YE.A., SHACHKO, YU.V.

"Improvement Of The Quality Of Electrooptical Systems By An Increase Of The Precision Of Control Of The Geometrical Dimensions Of Parts And Units Of The Optical System"

V sb. Technost' radioelektron.apparaty. Sb. 2 (Precision Of Radioelectronics Apparatus. Collection 2), Moscow, 1971, pp 60-66 (from RZh:Elektronika i yeye primeneniye, No 1, Jan 72, abstract No 1A269)

Translation: A device for control of the cathode-modulator interval is described, in which the contact method is used as well as a conversion of the movement of the measuring feeler [shchup] into a change of the frequency of pulsations of the oscillations of two string selfoscillators. The measuring forces prove to be entirely permissible and do not exceed (0.01--0.02) newton. The error of measurement of the cathode-modulator interval does not exceed plus or minus 2 micrometer. The results of the measurements are issued by the device in numerical form, which makes it possible to conduct automatic or semiautomatic grading with an output up to 3000 units per hour. 5 ill. M.V.

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USSR

UDC: None

BASOV, N. G., MAL'TSEV, K. K., MARKIN, Ye. P., MARTYIENKO, V. D.,  
ORAYEVSKIY, A. N., PANKRATOV, A. V., SAGITOV, R. G., and SEACHKOV,  
A. N.

"Chemical Laser of Mixed Difluoramin With Hydrogen"

Moscow, Sbornik kratkiye soobshcheniya po fizike, No 11, November  
1971, pp 3-9

Abstract: This brief communication reports oscillations obtained from oscillatory-rotatory transitions of HF molecules resulting from the reaction of HF<sub>2</sub>H with hydrogen, specifically the time variations of the gain yielded by the mixture as a function of the experimental conditions. The experimental equipment consisted of two lasers, an oscillator, and an amplifier, excited by an electrical discharge through the mixture. The oscillator was a quartz tube 85 cm long and 1.7 cm in diameter, with LiF windows set at the Brewster angle. Determinations were made of the optimal relationships between the pressures of the HF<sub>2</sub>H and H<sub>2</sub> in the mixture, and a curve is plotted of the energy of the pulse oscillation in the mixture as a function of the ratio of the two pressures. Curves are also plotted for the gain factor in the mixture as a function of time. The authors express their thanks to L. V. Kulakov for his help in plotting the pulse energy spectrum.

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USSR

UDC: 621.382.2

ALTUNYAN, S. A., MINAYEV, V. S., MINAZHDINOV, M. S., and SKACHKOV,  
B. I.

"Vitreous Formations in Si-Te Systems and Diode Switching Structures with 'Memory' on the Basis of Semiconductor Glass in the System"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol. 4, No. 11, 1970, pp 2214-2215

Abstract: This article describes the synthesis of several compounds with various contents of silicon and tellurium and the study of the effect of the history of the glass on vitreous formations and its switching characteristics. The purpose of this work was to explain the vitreous formation region in the Si-Te system and the effect of its glass content on switching characteristics. To identify the state of the vitreous formation, the methods of differential thermal analysis and x-ray phase analysis were used. The experiments showed that the vitreous formation region, when tempered in liquid nitrogen, lies within 15-25 atomic % Si and

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USSR

ALTUNYAN, S. A., et al., Fizika i tekhnika poluprovodnikov, Vol 4, No 11, 1970, pp 2214-2215

75-85 at.% Te. From investigation of the vitreous materials containing 20 at. % Si, 80 at. % Te, and 25 at. % Si, 75% Te, an exothermic effect reflecting an ordered structure in the glass was found.

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Explosives and Explosions

USSR

BORISOV, A. A., SKACHKOV, G. I., and OGURYAYEV, A. A., Institute of Chemical Physics, Acad. Sc. USSR, Moscow

"Ignition of N<sub>2</sub>O + NO Mixtures at High Temperature"

Moscow, Kinetika i Kataliz, Vol 14, No 2, Mar-Apr 73, pp 294-300

Abstract: Ignition delays  $t_{i...}$  were determined for N<sub>2</sub>O + NO mixtures in temperature range 1050-2500°K from the reflected shock waves, in a static bypass system. It has been shown that addition of NO lowers  $t_{i...}$ . Analytical expressions for the determination of  $t_{i...}$  as a function of the constants of elementary stages and of the thermophysical parameters of the reaction were developed by solving a system of kinetic equations together with the equation of heat balance under adiabatic conditions and within the constraints of the theory of thermal explosion. From the comparison of  $t_i$  determined in N<sub>2</sub>O with and without added NO, the reaction rate constant for the reaction  $H_2O + NO = NO_2 + H_2$  was found to be  $k_3 = 10^{14.44 \pm 0.2} \exp \{-(50 \pm 3)/RT\}$  cm<sup>3</sup>/mole·sec.

USSR

GARSEVANISHVILI, V. R., KADYSHEVSKIY, V. G., MIR-KASIMOV, R. M., SKACHKOV, N.B.,  
Joint Institute of Nuclear Research

"A Concept of the Relativistic Amplitude of Scattering at High Energies"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, Vol 7, No 2, May 1971,  
pp 203-216

Abstract: A concept of the relativistic amplitude of scattering at high energies is presented in the framework of the quasi-potential approach. The key point in the entire consideration is Fourier analysis of the three-parameter, non-Abelian translation group embedded as a subgroup in the Lorentz group. The concept presented is a generalization of the eikonal approximation in quantum mechanics. 29 bibliographic entries.

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USSR

SKACHKOV, N. B., Joint Institute of Nuclear Research

"Analytical Properties of the Relativistic Scattering Amplitude in a Quasipotential Approach"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, Vol. 5, No 1, 1970, pp 57-65

Abstract: The analytical properties of the relativistic scattering amplitude are studied based on the transfer of momentum and energy in a quasipotential approach. A comparison is made between the L<sub>g</sub>unov-Favkheldze equation and the Lippman-Schwinger equation, the former differing from the latter by a factor of  $1/\sqrt{k^2 + m^2}$ . A quasipotential equation is used in this paper to study the analytical properties of the two-particle relativistic scattering amplitude. A relativistic spectral presentation of the quasipotential was found to be more convenient in this study than the Yukawa potential. An integral corresponding to the second Born approximation is used here and a formula is given for transforming the integral for the solid angle into a spectral form. In the quasipotential approach a method has been formulated for constructing the local potential from the matrix elements of the scattering amplitude, and proof is given that the quasipotentials have a spectral form. This spectral presentation is valid only for certain fixed values and may be disrupted under certain other conditions. The singularity found when  $s < 0$  does not permit proving a dispersion  
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USSR

SKACHKOV, N. B., Teoreticheskaya i Matematicheskaya Fizika, Vol. 5, No 1, 1970, pp 57-65

relationship for  $t$  in the region  $s < 0$ . But if there were no singularity at the spectral function  $\zeta(s, T', M^2)$ , then only the left-hand branch cut would remain, thus allowing interpretation in terms of intermediate states of the  $u$ -channel. An analogous singularity appears when  $s < 0$  also in the attempt to construct the relativistic scattering amplitude satisfying the condition of two-particle unitarity in the  $s$ -channel.

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USSR

UDC 621.396.67.001.5

KREMENETSKIY, S. D., RADTSIG, YU. YU., SKACHKOV, V. A.

"Theory and Practice of Plane Curvilinear Radiator Design"

Moscow, Radiotekhnika i elektronika, No 10, 1970, pp 2060-2070

Abstract: The authors assert that there is very little material in the literature on the theory of design of such antennas of the more complex form, primarily due to the mathematical difficulties involved. The need for shifting antennas along the curvilinear surfaces of aircraft gives impetus to the study of plane curvilinear radiators. Also, the development of the theory of this type of radiator is of interest since it is directly connected with the theory of cylindrical antennas. This article considers the following three problems: the design of radiators for a given azimuthal or meridional component of the electric field in any vertical or horizontal plane; the design of radiators for the given electric field components in an arbitrary vertical or horizontal plane, i.e., for a given directional diagram vector; the design of radiators for the given electric field components in several planes. Experimental and computed data are compared.

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USSR

UDC 621.396.677

SKACHKOV, V. A.

"Optimal Solutions of the Problem of Synthesizing a Curvilinear Antenna for Limiting the Norm of the Derivative of the Source Distribution Function"

Tr. Kazan. aviats. in-ta (Works of the Kazan' Aviation Institute), 1971, vyp. 137, pp 39-44 (from RZh-Radiotekhnika, No 6, Jun 72, Abstract No 6B4)

Translation: In solving the problem of synthesizing a curvilinear antenna, the method of the theory of quasisolutions is used. This method insures the best approximation on the average to the given radiation pattern with restriction of the norm of the derivative of the source distribution function. The possibility of solving the reciprocal problem is noted: for a known accuracy of approximating the given radiation pattern find the distribution function of the current with the minimum norm of the derivative of the source distribution function. An example of synthesizing a ring radiator by the radiation pattern given in the plane of the antenna is presented. There are 2 illustrations and a 14 entry bibliography.

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USSR

UDC 615.281:547.734

VAKHREYEVA, K. I., LIPKIN, A. Ye., RYSKINA, T. B., and SKACHKOVA, N. I.,  
Kuybyshev Polytechnical Institute imeni V.V. Kuybyshev

"Synthesis of Azomethine Bases of the 2,2'-Bithiophene Series with Potential  
Biological Activity. Communication II."

Moscow, Khimiko-Farmatsevticheskly Zhurnal, No 3, 1973, pp 24-28

Abstract: Azomethine bases with nitro groups in the bithiophene portion of the molecule were synthesized to study the effects of the nitro groups on the antimicrobial activity of the more complex 2,2'-bithiophene derivatives. Nitration of 5-formyl-2,2'-bithiophene with cupric nitrate in acetic anhydride resulted in the formation of a mixture of 5-formyl-5'-nitro- and 5-formyl-3'-nitro-2,2'-bithiophene diacetates, hydrolysis of which gave 5-formyl-5'-nitro-2,2'-bithiophene (I) and 5-formyl-3'-nitro-2,2'-bithiophene (II). Reaction of I and II with aromatic amines, aminophenols, and aromatic acids resulted in the formation of azomethine bases, the structures of which were confirmed by chemical analyses and IR spectra. The most potent antibacterial activity was exhibited by the 3-carboxyphenyl (3'-NO<sub>2</sub>) derivative which, at a concentration of 250 µg/ml of solid medium was bacteriocidal for pathogenic pneumococci and straphylococci, and at a concentration of 400 µg/ml was bacteriocidal for *Shigella sonnei* and *Sh. flexneri*.

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USSR

UDC 771.537.61

PRUSS, P. Kh., Candidate of Sciences, MATSIYEVICH, L. V., IVANOV, A. M., MODEL',  
N. M., MUZYCHENKOV, M. S., and SKACHKOVA, Ye. V.

"The Interference Resolvometer 'LIR-1'"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 9, Sep 72, pp 30-34

Abstract: The technical characteristics, operating principle, and design of the first industrial sample of a displayed automatic device, the laser interference resolvometer LIR-1, are described by reference to its optical schema and photographs of the control desk and principal blocks. The resolvometer was developed according to the technical assignment of the State Optical Institute by the Krasnogorsk Mechanical Plant for the determination of resolutions of photographic materials in the  $440\text{--}2960\text{ mm}^{-1}$  range. A laser of the LG-36A type ( $\lambda = 6328\text{ \AA}$ ) is used as light source. The LIR-1 is a two-beam interferometer in which interference bands with sinusoidal distribution of brightness develop by interaction of two flat waves. It is designed for operation under laboratory conditions. Visual or diffraction methods can be used for the evaluation of exposed and processed resolvograms. Tests of a series of high-resolution photofilms yielded a value of the resolving ability which can be characterized as  $R > 2700\text{ mm}^{-1}$ , because all frequency groups up to the limiting, were reproduced. Values of R for high-resolution films are presented. Four illustr., one table, twelve biblio. refs.

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USSR

UDC 621.791.75:669.721.5

MAKAROV, V. I., and SKACHKOV, Yu. N.

Svarka Magniyevykh Splavov (Welding of Magnesium Alloys), Moscow, Izdatel'stvo "Mashinostroyeniye," 1972, 121 pp

Translation of Introduction: Magnesium alloys have been used in industry for the last 30-40 years. The aviation industry is the main user of these alloys because they can compete in many instances with aluminum alloys. Magnesium alloys possess high chemical stability with respect to many aggressive media, can carry high impact loads because of their low elasticity modulus, and they can be easily machined. This in addition to their good mechanical properties makes these alloys a desirable light structural material.

In comparison with aluminum alloys, magnesium alloys are more stable in aqueous carbonate solutions, and are not affected by gasoline, kerosene, benzene, toluene, phenol, rubber, oil, and greases that contain neither acids nor water.

However, magnesium alloys are less corrosive-resistant than aluminum alloys when subjected to mineral acids and their salts (with the exception of fluorides), organic acids, aqueous and alcohol solutions of certain organic

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USSR

MAKAROV, V. I., and SKACHKOV, Yu. N., Svarka Magniyevykh Splavov, Moscow, Izdatel'stvo "Mashinostroyeniye," 1972, 121 pp

halogens (chloromethyl, chloroethyl), and methyl alcohol. Magnesium alloys are unsuitable for application in fresh water and sea water, as well as in water vapors. Special corrosion-protective coatings (surface oxide films and paint-varnish coatings) make it possible to extend the life and area of application of these alloys.

Magnesium alloys are used for manufacturing items designed to function under various environments. The aviation, automobile, and electrical industries are the largest users of these alloys. They are also used for the building of cranes because of their light weight and ease in handling.

However, the application of magnesium alloys as structural materials would have been impossible without the development of machining methods and welding technology. With increased production of magnesium and its alloys, the application of welding in a protective atmosphere has found wider use for joining light metals and alloys. Contact welding -- such as spot, seam, and flash welding -- is also used quite frequently.

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USSR

MAKAROV, V. I., and SKACHKOV, Yu. N., Svarka Magniyevykh Splavov, Moscow, Izdatel'stvo "Mashinostroyeniye," 1972, 121 pp

As a rule, the contact welding of structural parts made of stamped sheet metal stock of small thickness (up to 4 mm) presents no difficulties. However, in order to protect the inside surfaces of lap joints from corrosion, spot welding should be carried out with the use of special cementing material. Blanks of different profiles or rods made of magnesium alloys can be joined successfully by contact welding. Gas welding (acetylene-oxygen) and plasma welding can also be used for the welding of magnesium alloys.

Nevertheless the weldability of magnesium alloys has been studied insufficiently compared with aluminum alloys. For many years much attention was paid to the production of high-strength alloys with good structural properties. As a result, the alloying technology aimed at the production of serviceable alloys did not consider the welding requirements. Therefore, only a small part of industrial magnesium alloys were deemed suitable for welding.

The metallurgy and technology of welding, as well as properties of welds produced by deformed magnesium alloys that are used for the production of

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USSR

MAKAROV, V. I., and SKACHKOV, Yu. N., Svarka Magniyevykh Splavov, Moscow, Izdatel'stvo "Mashinostroyeniye," 1972, 121 pp

structural parts have been studied insufficiently. This book considers problems of the weldability of magnesium alloys during fusion welding in protective gases. This method is most widely used for welding structural parts made of light metals.

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4/5	51

USSR

MAKAROV, V. I., and SKACHKOV, Yu. N., Svarka Magniyevykh Splavov, Moscow, Izdatel'stvo "Mashinostroyeniye," 1972, 121 pp

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5/5	120

USSR

UDC 669.293

①

GAL', V. V., NIKITIN, K. A., PAVLOV, Yu. A., SAVINOV, V. K., and SKACHKOVA, T. M.  
Moscow Institute of Steel and Alloys, Institute of High Temperatures of the  
Academy of Sciences USSR

"Study of the Process of Producing Niobium Carbide By Through Diffusion Saturation of Graphite"

Ordzhonikidze, Tsvetnaya Metallurgiya, No 2, 1973, pp 117-120

Abstract: The process of producing niobium and carbide by through diffusion saturation of graphite was analyzed, proceeding from the derived expression for the time  $\tau$  required to realize a through saturation of the grain  $\tau = R^2 / 6\beta D$ , where  $R$ =initial radius of the grain,  $D$ =coefficient of reactive diffusion, and  $\beta = \Delta C_1 / \Delta C_2$ , and  $\Delta C_1$ =homogeneity range of the growing phase and  $\Delta C_2$ =difference of solubilities in the growing phase and saturable grain. The duration of saturation of a graphite grainule was found to be less than the through saturation time of

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GAL', V. V., et al., *Tsvetnaya Metallurgiya*, No 2, 1973, pp 117-120

a metal granule of the same size. Experimental results of niobium carbide production by diffusion saturation of graphite granules in a pseudo-liquefied layer by their interaction with  $NbCl_5$  are reported. The temperature dependence  $T$  (duration of the experiment 1 hr) of the magnitude of the reaction surface  $S$ , referred to a single granule, is discussed by reference to the  $S/T$  diagram. The through diffusion saturation of graphite granules (0.5-0.8 mm), when using PG-50 porous graphite and niobium pentachloride, can be realized at temperatures  $> 2400^\circ$  and  $\sim 10$  hrs aging. Two figures, one table, two formulas, five bibliographic references.

2/2

- 42 -



USSR

UDC: 539.1.07.55:621.565

BIGANT, A. Ya., BANASHEK, V. E., RUDIK, M. P., SKAKODUR, G. A.

"A Cryostat Housing for Semiconductor Detectors of Radioactive Emission"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzsy, Tovarnyye Znaki, No 26, 1970, Soviet Patent No 278907, Class 21, filed 31 Jul 67, p 70

Abstract: This Author's Certificate introduces a cryostat housing for semiconductor detectors of radioactive emission. As a distinguishing feature of the patent, thermal coupling with the ambient atmosphere is reduced by making the unit in the form of an evacuated glass tube with metal vessels fastened to the end by means of glass-to-metal seals. A metal bulb is attached to one of these vessels with a vacuum-tight seal, and a metal refrigerator tube with radioactive emission detector attached is fastened to the other vessel. The radiation emission detector is fastened to the metal bulb by means of a spring contact, and a sorption pump is enclosed in the above-mentioned refrigerator tube.

1/1

- 67 -

USSR

UDC 669.15 - 194:621.785.7.001.5

VARLI, K. V., GORCHAKOVA, E. N., LANSKAYA, K. A., RIVLIN, A. M., and SKAKOV, Yu. A.,  
Moscow Institute of Steel and Alloys

"Structural and Phase Changes in Ferrite Steel During Heat Treatment"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 9,  
1970, pp 117-121

Abstract: A study was made of structural and phase changes in EP-503 ferrite steel containing 8% W during heat treatment. The tests were conducted 1) after forging with 960-840°C end temperature, with subsequent water and furnace cooling; and 2) after hardening at 1200°C with subsequent water cooling. The temperature interval of the Fe<sub>2</sub>W phase precipitation and related changes in hardness, lattice period of solid solution, and electric resistance were determined. Microstructures of the steel after forging, hardening, and tempering under various conditions are presented, and results are given of metallographic analysis of the steel after hardening at 1200°C. The lattice period of a solid solution of forged samples at certain temperatures is smaller than that of hardened samples, owing to the precipitation of Fe<sub>2</sub>W phase particles during forging. The variation of particle size and lattice periods of the Fe<sub>2</sub>W phase with tempering temperature we determined.

1/1

USSR

UDC 543.52:546.21

GORENKO, A. F., SKAKUN, N. A., SHEVCHENKO, G. M., ZADVORNIY, A. S.,  
BUGAYEVA, N. I., and KLYUCHAREV, A. P.

"Gamma-Activation Analysis of Carbon in Uranium and Thorium"  
Moscow, Atomnaya Energiya, Vol 34, No 1, Jan 73, pp 53-54

Abstract: In determining carbon in fissionable elements and materials on their base, a higher sensitivity than by conventional methods results when the carbon is burned out in the oxygen flux from the samples preliminarily irradiated with gamma-quanta. In this case  $C_{11}$ , developing in the  $C^{12}(\gamma, n)$  reaction, is selectively extracted from the active matrix and the amount of collected  $C_{11}O_2$  is determined from the radioactive decay of the carbon isotope by a sensitive nuclear detector. The process of accumulation and decay of  $C_{11}O_2$  molecules, extracted from U, Th, and  $(C_{15}H_{12}O_6)_n$  samples, irradiated by bremsstrahlung of gamma-quanta generated on tungsten converter by a 30-Mev electron bundle, is demonstrated. The activation spectrum in ascarite in determining carbon in uranium carbide is shown. Under the selected activation conditions (electron energy 30 Mev, current  $10 \mu A$ , irradiation 20 min.), the sensitivity in determining carbon in uranium and thorium is  $1.3 \cdot 10^{-7}g$ . Two figures, four bibliographic references.

1/1

Nuclear Science and Technology

USSR

UDC 620.197.5.539.17

SKAKUN, N. A., KLYUCHAREV, A. P., KHAR'KOV, O. N., ZELENSKIY, V. F., and  
KULAKOV, V. S.

"Using the Nuclear Reaction  $O^{18}(p, \alpha)N^{15}$  to Study Oxidation of Metals"  
Moscow, Atommaya Energiya, Vol 30, No 5, May 71, pp 456-458

Abstract: In recent times data on nuclear reactions have been employed to study the processes taking place in the surface layers during oxidation of metals and alloys. Registering the reaction products of the material irradiated by charged particles makes it possible to determine the amount of the test element without ruining the sample and at the same time localizing it by depth. One of the methods suggested in this article involves registering and analyzing the energy spectrum of alpha-particles from the reaction  $O^{18}(p, \alpha)N^{15}$  by bombarding a sample containing the isotope  $O^{18}$  with a beam of monoenergetic protons.

The excitation function of the reaction  $O^{18}(p, \alpha)N^{15}$  was measured experimentally in the range of proton energies of 500-730 keV. Using the procedures discussed in the article, the authors find the distribution profile of oxygen in oxidized samples of zirconium. They also examine the possibility of making similar investigations using the narrow resonance of the reaction

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USSR

SKAKUN, N. A., et al., *Atomnaya Energiya*, Vol 30, No 5, May 71, pp 456-458  
 $^{18}\text{O}(p, \alpha)\text{N}^{15}$  when  $E_p = 629$  keV. They also mention the possibility of using  
this resonance to study the thick surface layers of metals. All the investiga-  
tions are supported by illustrations in the form of graphs.

The methods employed made it possible to investigate the interaction of  
oxygen with various solids, especially with the majority of metals and alloys  
used in the design of reactors.

This article contains 4 figures, 2 equations, and a bibliography of 5  
titles.

2/2

- 46 -

172 035

UNCLASSIFIED

PROCESSING DATE--13NOV70  
BERYLLIUM BY PROTON

TITLE--DETERMINATION OF THE OXYGEN CONTENT IN PURE

AUTHOR--(04)--ZADVORNYI, A.S., GDRENKO, A.F., SKAKUN, N.A., KLYUCHAREV, A.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 346-50

DATE PUBLISHED--70

5

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, CHEMISTRY

TOPIC TAGS--PROTON BOMBARDMENT, QUANTITATIVE ANALYSIS, OXYGEN, BERYLLIUM, FLUORINE, ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1994/1879

STEP NO--UR/0075/70/025/002/0346/0350

CIRC ACCESSION NO--AP0115698

UNCLASSIFIED

035

CIRC ACCESSION NO--AP0115698  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. THE REACTION  ${}^{18}\text{O}(p,n){}^{18}\text{F}$  WAS USED WITH PROTONS OBTAINED FROM A LINEAR ACCELERATOR AND HAVING AN ENERGY OF 9.5 MEV. THE IRRADIATED SAMPLES OF INDUSTRIAL BE AND PURIFIED BE IN AN AR ATM. WERE ANALYZED BY GAMMA SPECTROMETRY. THE O CONTENT WAS 1.65 AND 0.2 PERCENT IN TECH. AND PURE BE, RESP. THE ERROR IS PLUS OR MINUS 12 PERCENT, AND THE SENSITIVITY 10 PERCENT NEGATIVE 2 PERCENT.

UNCLASSIFIED

1/2 023

TITLE--ON THE POSSIBILITY OF ESTABLISHING THE STOICHIOMETRIC RATIOS BY THE  
RADIOACTIVATION METHOD -U-  
AUTHOR--(03)-ZADVORNI, A.S., GORENKO, A.F., SKAKUN, N.A.

UNCLASSIFIED  
PROCESSING DATE--04DEC70

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM.; 25: 867-9(MAY 1970)

DATE PUBLISHED----MAY70

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

TOPIC TAGS--STOICHIOMETRIC COMPOSITION, RADIOACTIVITY, CHEMICAL  
COMPOSITION, CARBON, OXYGEN, SYNTHETIC MATERIAL/(U)LAVSAN SYNTHETIC  
MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/1328

STEP NO--UR/0075/70/025/000/0867/0869

CIRC ACCESSION NO--AP0138338

UNCLASSIFIED



2/2 023

CIRC ACCESSION NO--AP0138338  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. A COMPARISON WAS MADE OF THE  
CONTENT OF CARBON AND OXYGEN ATOMS PER UNIT OF VOLUME OF SUBSTANCES  
SIMILAR IN THEIR STRUCTURE. AT THE SAME AMOUNT OF HYDROGEN NO  
DEVIATION FROM STOICHIOMETRY FOR LAYSAN ((C SUB15 H SUB12 O SUB6) SUBN)  
AND ITS ANALOG MAILAR WAS OBSERVED. AT A PROTON FLUX OF 0.02 MU A THE  
SENSITIVITY FOR CARBON AND OXYGEN IS RESPECTIVELY 10 PRIME NEGATIVE3 AND  
10 PRIME NEGATIVE2PERCENT (WEIGHT). THE STATISTICAL MEASUREMENT ERROR  
IS NOT HIGHER THA PLUS OR MINUS 5PERCENT.  
PHYSICAL-TECHNICAL INST., KHARKOV.

FACILITY:

UNCLASSIFIED

USSR

UDC 612.357.32.014.481.1

SKAKUN, N. P., and DROGOVOZ, S. M., Chair of Pharmacology Ternopol Medical  
Institute

"Effect of Whole-Body X-ray Irradiation on the Synthesis of Bile Acids in Female  
Albino Rats (Chromatographic Study)"  
Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 9, Sep 70,  
pp 40-41

Abstract: It was established experimentally that an inhibition of all steps in  
the synthesis of bile acids in the liver occurs during acute radiation sickness.  
Female albino rats weighing 130-160 g were used. Secretion of bile in mg/min  
per 100 g body weight was determined, as well as the content of cholates. The  
formation of primary bile acids from cholesterol and the conversion of desoxy-  
cholic acid into cholic acid were particularly impaired. Conjugation of free  
bile acids into taurocholic and glycocholic acids was also impeded, especially  
during the later stages of radiation sickness. In these stages, the concentra-  
tion of cholic acid in bile rises, there is a decrease of taurocholic acid, and  
glycocholic acid disappears completely from the bile.

1/1

Acc. Nr:

AP0037016

Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskii Zhurnal SSSR, 1970, Vol 56,  
Nr 2, pp 273-278

EFFECT OF BILE ACIDS ON BILIATION INTENSITY AND CHOLATE  
FORMATION

Skakun, N. P.; Drogovoz, S. M.; Bezkorovaynaya, N. M.

From the Department of Pharmacology, Medical Institute, Ternopol

Comparative studies of bile acid preparation effect (dehydrocholic, cholic and gly-  
cholic) on the biliation intensity and cholate formation have been carried out in 66 male  
white rats. Dehydrocholic acid has the most marked choleric effect, natural bile acids  
being considerably less active in this respect. The activity of cholic and glycholic acids  
in equimolecular doses is nearly similar.

Natural bile acids are more active in their cholate formation effect. Even in small  
doses they favour a sharp rise in the concentration and quantity of cholates. This is mainly  
due to the effect of the tauric cholic acid and in a lesser degree to the glycholic and dezo-  
xycholic acids. In contrast to natural bile acids the dehydrocholic one causes a slight  
decrease in cholate concentration in the bile, however due to the high level of the choleric  
reaction there is a general increase in the quantity of cholates. Dehydrocholic acid stimu-  
lates the cholate formation on account of the synthesis and excretion of tauric cholic acid  
and to a lesser degree of the deoxy- and glycholic acids.

REEL / FRAME  
19721952

2 2n.

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--<sup>UIC</sup>DOUBLE IRON FREE TOROIDAL BETA SPECTROMETER FOR THE INVESTIGATION  
OF SHORT LIVED ACTIVITIES -U-  
AUTHOR--(05)-RAKIVNENKO, YU.N., ROMANIY, I.A., KLYUCHAREV, A.P., SKAKUN,  
YE.A., YATSENKO, G.I.  
COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(4), 578-82  
DATE PUBLISHED-----70

S

SUBJECT AREAS--PHYSICS

TOPIC TAGS--BETA SPECTROMETER, PARTICLE ACCELERATION, CESIUM ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/0588

STEP NO--UR/0185/70/015/004/0578/0582

CIRC ACCESSION NO--AP0137673

UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AP0137673

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A BETA SPECTROMETER IS DESCRIBED FOR USE IN STUDYING SHORT LIVED ACTIVITIES WHICH ARE FORMED FROM THE INTERACTION OF ACCELERATED PARTICLES WITH VARIOUS TARGETS. EACH LENS OF THE SPECTROMETER CONTAINS 100 COILS PREPD. FROM A PROFILED CU TUBE, THE SHAPE OF THEIR OPERATING SEGMENTS BEING DESIGNED SO THAT 2-MEV E CAN BE FOCUSED. THE APP. CAN MEASURE DOUBLE AND TRIPLE COINCIDENCES. THE TARGET IS CHANGED BY MEANS OF A VACUUM VALVE WITHOUT DESTROYING THE VACUUM IN THE APP. THE APP. WAS TESTED BY USING 10-MK PRIME137 CS SOURCES. FOR THESE SOURCES THE APRAMETERS OF THE APP. WERE DETD. TO BE AS FOLLOWS: TRANSMISSION OF 1 LENS 16PERCENT OF PI, RESOLN. 1.0PERCENT.

FACILITY: FIZ.-TEKH. INST., KHARKOV, USSR.

UNCLASSIFIED

1/2 028

UNCLASSIFIED

PROCESSING DATE--16SEP70

TITLE--CHEMICAL DISINFECTION OF SOME OBJECTS IN EPIDEMIC

KERATOCONJUNCTIVITIS -U-

AUTHOR-(03)-ANDZHELOV, V.O., BELYAYEV, A.L., SKALA, L.E.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OFTAL'MOLOGII, 1970, NR 1, PP 40-42

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EYE DISEASE, ADENOVIRUS, INFECTIOUS DISEASE, EPIDEMIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1980/0821

STEP NO--UR/0357/70/003/001/0040/0042

CIRC ACCESSION NO--AP0049037

UNCLASSIFIED

S

2/2 028

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0049037

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL INVESTIGATIONS OF THE TYPE 8 ADENOVIRUS RESISTANCE SHOWED THAT IN A TITRE OF 10 PRIME 9.5 TSD SUB50 THE VIRUS WAS FULLY INACTIVATED WITH 0.5 AND 1 PERCENT PHENOL SOLUTIONS IN 50 AND 15 MINUTES RESPECTIVELY, WHILE A 5 PERCENT PHENOL SOLUTION ELIMINATED ITS INFECTUOUSNESS IN THE FIRST MINUTE. IT IS A WELL KNOWN FACT THAT INFECTED MEDICAL INSTRUMENTS AND DEVICES PLAY AN IMPORTANT PART IN THE PROPAGATION OF THE CAUSATIVE AGENT OF EPIDEMIC KERATOCONJUNCTIVITIS IN MEDICAL INSTITUTIONS. IN THIS CONNECTION SPECIAL CONDITIONS INVOLVING THE USE OF CHLORAMINE, PHENOL, HYDROGEN PEROXIDE AND POLYVINYL, PYRROLIDONE, IODINE ALCOHOL SOLUTIONS HAVE BEEN WORKED OUT.

USSR

UDC 576.8.095.51.095.18:615.28

SKALA, L. Z., IL'YASHENKO, B. N., LIKHACHEVA, N. A., and SKVORTSOVA, Ye. K.,  
All Union Institute of Disinfection and Sterilization

"A Study of the Mutagenic Action of Halide Containing Disinfectant"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 11, 1971, p  
146

Abstract: Four iodine compounds and four chlorine compounds were tested on bacteria and phages in concentrations causing 86-99% inactivation of the microbes. The frequencies of mutation observed in *E. coli* were:  $6 \times 10^{-6}$  by iodopiron,  $4 \times 10^{-6}$  by iodonate,  $3 \times 10^{-6}$  by iodolan, and  $6 \times 10^{-6}$  by an aqueous iodine solution. Chlorine compounds yielded similar results on *E. coli*:  $1.1 \times 10^{-7}$  mutations were observed after application of chlorsuccinamide,  $5 \times 10^{-6}$  after KDKhTSK,  $3.1 \times 10^{-6}$  after sulfochlorantine, and  $3.4 \times 10^{-6}$  after chloramine. The frequency with which the bacteriophages reverted to wild type ranged from  $5 \times 10^{-6}$  to  $7 \times 10^{-6}$ . Since the frequency of spontaneous mutations in *E. coli* K12 (reversion from  $thr^-$  to  $thr^+$ ) is  $7.6 \times 10^{-6}$ , it is concluded that the strongly inactivating iodine and chlorine compounds exert no mutagenic effect on the bacteria and bacteriophages investigated.

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USSR

UDC 632.954

SKALETSKAYA, L. I., Kirovograd Experimental Station

"Residual Effect of Herbicides on the Weediness of Plantings, Harvest and Quality of Grain of Winter Wheat"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 9(107), 1972, pp 53-55

Abstract: The experiment was conducted to determine if the herbicides used to destroy weeds in mixed corn and soy bean plantings inhibited the growth of the subsequent crop in the rotation, winter wheat. After studying the effects of herbicides, including prometryn and linuron, on the harvest of silage from corn and soy beans, the heavy loam soil was planted with winter wheat type Bezostaya I, 5 million seed grains per hectare. Early in the spring the crop was treated with ammonium nitrate, at a rate of 1 centner per hectare. By winter time there were no monocotyledonous weeds on the plantings; the most dicotyledonous weeds were on the control plantings. By harvest time monocotyledonous weeds predominated, while the quantity of dicotyledonous weeds on the plantings treated with prometryn and linuron was half that on the control plantings. Analysis of the grain for vitreousness, elasticity and other qualities indicated that residue from the herbicides had no practical effect on the winter wheat. Yield was also not adversely affected. 1/1

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UDC 546.261

USSR

MESHPOB, V. S., NIKITIN, V. P., and SKALETSKAYA, N. A., State Institute of Applied Chemistry

"Electrical Properties of Non-Stoichiometric Titanium Carbide"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug 73, pp 54-57

Abstract: Electrical conductivity, Hall effect, and thermal emf of titanium carbide in the region of its homogeneity at low temperatures were studied. Samples were produced by direct synthesis of powder titanium with a purity of 99.5% which contained (in %): 0.068 N, 0.055 C, 0.065 Si, 0.18 Fe, 0.11 Ni, and 0.55 Ca, and acetylene carbon black with a purity of 99.995% in a vacuum of  $10^{-5}$ - $10^{-6}$  mm Hg at 1800°C. Samples for study were made by extrusion of the synthesized powders under a pressure of about two tons/cm<sup>2</sup> and sintering in a vacuum of  $10^{-5}$  mm Hg at 2200°C. It was found that the titanium carbide samples with the composition  $TiC_{0.91}$ - $TiC_{0.46}$  have a metallic conductivity of the n-type with a strong degeneration of current carriers. With increased concentration of carbon vacancies a decrease of the Hall Coefficient and thermal emf can be observed which changes sign at the lower boundary of the  $TiC_x$  region of homogeneity. The electrical resistance of  $TiC_x$  is slightly decreased with an increase in the number of

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USSR

NESHFOR, V. S., et al., Poroshkovaya Metallurgiya, No 8, Aug 73, pp 54-57

carbon vacancies which was associated with the increased concentration. The Hall coefficient increases slightly with temperature, and electrical resistance and thermal emf grow linearly in absolute magnitude as the theory of metals requires. An exception to this exists for compositions close to the boundary of the region of homogeneity for which thermal emf changes sign with temperature and deviates somewhat from the linear temperature relationship. The change in sign for the thermal emf in  $TiC_x$  with composition and temperature is explained by assuming a shift in the conductivity strip to the side of the smallest energies relative to the Fermi level for a large increase in the concentration of carbon vacancies. Three figures, one table, eleven bibliographic references.

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USSR

SKALETSKIY, V. V.

"Estimate of the Accuracy of Frequency Methods (Linear and Logarithmic) Used in the Selection of Equipment for ACS"

Inform. Metody v Sistemakh Upr. Izmereniy i Kontrolya. T. 1 [Information Methods in Systems for the Control of Measurements and Testing, Volume 1 -- Collection of Works], Vladivostok, 1972, pp 488-498 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V258)

Translation: In calculating distribution function  $W(t)$  of time of waiting for a call for the beginning of servicing in a single-line queueing system, frequency methods are used. It is necessary to calculate integrals such as

$$\int_0^{\infty} \frac{x \operatorname{arg} K(jx)}{x^2 - \omega^2} dx,$$

replacing the function  $\operatorname{arg} K(jx)$  with a piecewise-linear function. The accuracy with which the function  $\operatorname{arg} K(jx)$  must be approximated in order for the error in calculation of the integral to be within a fixed limit is determined.

R. Liptser

1/1

Veterinary Medicine

USSR

UDC 619:576.858.4

SIMONOVA, E. G., SKALINSKIY, Ye. I., UZYUMOV, V. L., and MISHCHANIN, V. A.,  
All Union Scientific Research Foot-and-Mouth Disease Institute

"Ontogenesis of Foot-and-Mouth Disease Virus (An Electron Microscope Study)"

Moscow, Veterinariya, No 9, 1971, pp 28-31

Abstract: The development of foot-and-mouth disease (FMD) virus in the epidermal layer of guinea pigs' paws was studied. A suspension of type A<sub>22</sub> virus adapted to these animals, in a dilution of 1:10 and a dose of 0.2 ml, was injected into the plantar surface of the paws, and material for study was extracted 6, 12, 17, 20, 24, 48, and 72 hours after infection. Extracts were fixed in a 1% solution of buffered glutaraldehyde, and then fixed in a 1% solution of osmic acid buffered with veronal acetate. The samples were washed with the original buffer, dehydrated in acetone, and polymerized at 60°C in 24-48 hr. Slices obtained on an ultramicrotome were contrasted with a saturated solution of uranyl acetate and lead salts by the Reynolds method and examined under an electron microscope. Guinea pig epidermis was treated and in the same manner infected with the same virus. A strain inactivated by heating was used as the control. The investigations established that formation

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USSR

SIMONOVA, E. G., et al., Veterinariya, No 9, 1971, pp 28-31

of the focus of infection begins on the 12th day after injection of virus in the cisternae of the endoplasmic reticulum in the horny layer of epidermis. In the course of its development, the virus destroys the membranes of the endoplasmic reticulum, gradually extending the area of the infection. Electron microscope study of the ultrathin sections of the epidermis revealed the presence of full and empty particles of FMD virus 20-24 hours after infection.

2/2

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1/2 028 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--ON THE ANTIPHAGE SUBSTANCE ISOLATED FROM ACTINOMYCES GLOBISPORUS

-U-

AUTHOR--(04)-KURAI, H., KUIMOVA, T.F., SKALDZUB, N.G., KRASILNIKOV, N.A.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 120-124

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PHAGE, ACTINOMYCES, ION EXCHANGE, CHROMATOGRAPHY, ANTIOXIDANT  
ADDITIVE, PROTEIN, DNA, RNA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1990/1441

STEP NO--UR/0220/70/039/001/0120/0124

CIRC ACCESSION NO--AP0109501

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109501

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FURTHER PURIFICATION WAS CARRIED OUT ON THE RAW PREPARATION WITH ANTIPHAGE ACTIVITY ISOLATED FROM THE CULTURAL BROTH OF ACTINOMYCES GLOBISPORUS 81 VAR. A. THE PROCEDURE CONSISTED IN A STEPWISE FRACTIONATION WITH AMMONIUM SULPHATE AND ION EXCHANGE COLUMN CHROMATOGRAPHY ON DEAE-SEPHADEX A-50 WITH THE FOLLOWING RECYCLING CHROMATOGRAPHY ACCORDING TO OUR SCHEME. ALL STAGES OF PURIFICATION WERE CARRIED OUT AT 4-6DEGREES WITH AN ADDITION OF 0.0002 B BETA-MERCAPTOETHANOL INTO BUFFER SOLUTIONS AND SEPHADEX COLUMNS AS A STABILIZER OR ANTIOXIDANT. THE HIGHLY ACTIVE ANTIPHAGE SUBSTANCE, ISOLATED FROM THIS STRAIN, WAS SHOWN TO BE OF PROTEIN NATURE WITH SPECIFICALLY NEUTRALIZED WITH DNA PREPARATIONS OF VARIOUS BASE COMPOSITION BUT NOT WITH RNA.

UNCLASSIFIED



USSR

UDC 621.355.8+621.762

YEREYSKAYA, G. P., DUNAYEVA, T. I., and SKALOZUBOV, M. F., Novocherkassk Polytechnic Institute

"Preparation and Study of Silver Powder with a Zirconium Additive, for Use as Material for the Positive Electrode of a Chemical Source of Electricity"

Leningrad, Zhurnal Prikladnoy Khimii, Vol XLIV, No 6, Jun 1971, pp 1272-1276

Abstract: The electrochemical properties and the utilization factor  $K_U$ , of the positive electrode of a primary chemical current source, depend not so much upon the choice of material (silver oxide, silver chloride, powdered silver) as upon structural features of the initial active mass, such as porosity, particle size, specific surface, and the like. The effect of various amounts of zirconium oxide additive on performance ( $K_U$ ), discharge density, and other factors, was studied. It was concluded that 0.6% zirconium additive in silver powder alters the properties of the latter, increasing the actual surface of the electrode, as well as its capacity when used in primary devices. It also tends to stabilize the structure of the electrode during cycling.

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1/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--MECHANISM OF THE ELECTRODEPOSITION OF A SILVER TUNGSTEN ALLOY FROM  
AN AMMONIUM SULFATE ELECTROLYTE -U-  
AUTHOR--(02)-KUDRYAVTSEVA, I.D., SKALOZUBOV, M.F. S  
COUNTRY OF INFO--USSR  
SOURCE--ZASHCH. METAL. 1970, 6(1), 64-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--ELECTRODEPOSITION, SILVER ALLOY, TUNGSTEN ALLOY, ADSORPTION,  
ELECTROLYTE, AMMONIUM SULFATE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/2097 STEP NO--UR/0365/70/006/001/0064/0067  
CIRC ACCESSION NO--AP0127470  
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127470

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE ELECTRODEPOSITION OF THE ALLOY, THE CURRENT EFFICIENCY EXCEEDS 100PERCENT IF THE ASSUMPTION IS MADE THAT ONLY AG IS DEPOSITED. THIS EXCESS INCREASES WITH AN INCREASE IN W. FURTHERMORE, THE MICROHARDNESS OF THE DEPOSIT INCREASES WITH THE W CONTENT AND REACHES A MAX. AT SIMILAR TO 0.8 WT. PERCENT W. AT A CONST. CONCN. OF AG THERE IS A SEMILOGARITHMIC RELATION BETWEEN THE W CONTENT IN THE ELECTROLYTE AND IN THE ALLOY. ALSO, IN THE PRESENCE OF W THE POLARIZATION ARE HIGHER BY 40-300 MV THAN IN THE ELECTRODEPOSITION OF AG ALONE. INCLUSION OF W IN THE CATHODIC DEPOSIT IS POSSIBLE BY SEVERAL ROUTES. ONE OF THESE IN THE REDN. OF WO SUB4 PRIME2NEGATIVE ON THE CATHODE WHICH MOST LIKELY PROCEEDS ACCORDING TO: WO SUB4 PRIME2NEGATIVE PLUS 4H SUB2 O PLUS 6E YIELDS W PLUS 8OH PRIME NEGATIVE. ANOTHER WAY IS THE POSSIBLE DIRECT ADSORPTION OF WO SUB4 PRIME2NEGATIVE ON THE SURFACE OF AG. RESULTS OF CHEM. ANAL. FAVOR THE POSSIBILITY OF THE REACTION WO SUB4 PRIME2NEGATIVE PLUS 8AG PRIME POSITIVE PLUS 6E YIELDS 2 PLUS 4AG SUB2 O. FACILITY: NOVOCHERKASSK, POLITEKHN. INST., NOVOCHERKASSK, USSR.

UNCLASSIFIED

USSR

UDC 632.95

5

MEL'NIKOV, N. N., ANDREYEVA, YE. I., PRONCHENKO, T. S., SKALOZUBOVA, A. Y.,  
SHKURATOVA, G. N., KURGANOVA, L. B., YURKOVA, A. G., OHUKHOVA, V. I., and  
NOVIKOVA, R. G.

"Concerning Liquid Organomercury Seed Disinfectants"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection --  
collection of works), vyp 1, Moscow, 1970, pp 150-155 (From IZh-Khimiya, No 11,  
Jun 72, Abstract No 11N427)

Translation: From the results of hothouse and small-plot field tests of  
non-Soviet and experimental Soviet samples of liquid organomercury fungicides,  
as well as with consideration to non-Soviet research and practical use in such  
fungicides, the authors conclude that liquid preparations deserve attention  
as promising forms for use as seed disinfectants in Soviet agriculture.

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USSR

UDC 632.95

4

ANDREYEVA, YE. I., MEL'NIKOV, N. N., PRONCHENKO, T. S., SIKAL'ZUBOVA, A. V.,  
MATVEYEVA, G. N., OVSISHCHER, M. R., BEZUGLYY, S. F., and USMANOV, M. F.

"Phenothiuram Seed Disinfectant"

V sb. Khim. Sredstva zashchity rast. (Chemical Agents for Plant Protection --  
collection of works), vyp 1, Moscow, 1970, pp 135-145 (RZh-Khimiya, No 11,  
Jun 72, Abstract No 11N429)

Translation: The combination disinfectant phenothiuram (40% tetramethyl-  
thiuram disulfide, 10% copper trichlorophenoxide, and 20%  $\gamma$ -hexachlorocyclo-  
hexane; heptachlor or some other organochlorine insecticide may be substituted  
for the last component) has been tested and is recommended for treating  
cotton seeds (10-12 kg/ton) and the seeds of legume grain crops (3-4 kg/ton).  
Phenothiuram may also be used to treat seed corn, tree crop seeds, and the  
planting material for flowers, shrubs and trees. Phenothiuram is moderately  
toxic and is recommended as a substitute for organomercury disinfectants.

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USSR

UDC 632.95

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YUKHTIN, N. N., ANDREYEVA, YE. I., MEL'NIKOV, N. N., SKALOZUEVA, A. V.,  
PRONCHENKO, T. S., SHKURATOVA, G. N., YURKOVA, A. G., KURGANOV, L. B.,  
NOVIKOVA, R. G., and OBUKHOVA, V. I.

"Phenylmercury and Hexylmercury"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vup 1, Moscow 1970, pp 145-150 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N426)

Translation: Seed disinfectant dusts -- hexylmercury (1% EtHgCl, 18-22% hexachlorobenzene, and up to 20%  $\gamma$ -hexachlorocyclohexane) and phenylmercury (1% EtHgCl and 18-22% hexachlorobenzene) -- are officially authorized in the Soviet Union for use against the same plant diseases as those controlled by granosan. About half the EtHgCl expended when granosan is used is expended when phenylmercury and hexylmercury are used. Phenylmercury can be used against fusarium wilt and helminthosporiosis. The new disinfectants show promise as agents for controlling dwarf wheat infections and wheat kernel smut. The most promising signal dyes for the disinfected grain are rhodamine C, methylene blue, acid blue-black and direct red 2C.

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USSR

UDC 621.385.032.53:666.595.81/.82:621.385.032.71

SKAL'SKAYA, V.P., MSTEIKIN, I.I.

"Effect Of Technological Factors In The Production Of Metalceramic Units On The Formation Of Small Leaks In Them"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 8, 65-101 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A11C)

Translation: The paper considers the effect of manufacturing methods on the formation of small leaks in metalceramic units produced by soldering methods with the aid of active metals, thermocompression welding, and soldering of metallized ceramics by hard solders. The investigations show that with megatrons and ion-sorption pumps it is possible by an increase of the partial pressure of argon in the storage process to fix small leaks in systems with metalceramic units. Metalceramic units produced with the use of titanium have different rates of leakage as a function of the soldering temperature. With the use of PSp72 solder, the soldering temperature must be 850--880° C, and the exposure time 5 min. Departure from the optimum soldering temperature and exposure time leads to the appearance of small holes in the metalceramic units. In metalceramic units produced by soldering metallized ceramics in  
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SKAL'SKAYA, V.P., et al., Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh,  
1970, No 8, pp 95-101

advance, the exposure time must amount to  $\leq 2$  min. An increase of this time lead to an increase of the leakage rate of products during their storage and warmups. Change of the temperature, exposure time, and pressure during thermocompression welding within the limits 1000--1050° C, 10--30 min, and 1.5--1.8 kg/mm<sup>2</sup>, respectively, do not affect the quality of metalceramic units. Metalceramic units produced in an optimum regime of soldering or welding, with storage during the course of a year and periodic warmups, do not have slow leaks within the limits of response of the method. 6 ill. 7 ref. G.B.

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1/2 020

UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--REGIONAL ARTERIAL PRESSURE IN ARTERIAL OBSTRUCTION OF THE LOWER  
EXTREMITIES -U-

AUTHOR--(03)-SILINSH, I.A., SKARDS, YA.V., PURINUA, B.A.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 4, P  
94-97

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ARTERY, BLOOD PRESSURE, BLOOD CIRCULATION, DIAGNOSTIC METHODS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1245

STEP NO--UK/0589/70/104/004/0094/0097

CIRC ACCESSION NO--AP0106026

UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--AP0106026

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MAXIMUM ARTERIAL PRESSURE (MAP) IN THE LEG, THAT COULD BE DETERMINED USING A VOLUMOMETRIC PRINCIPLE OF RECORDING, IS A VALUABLE DIAGNOSTIC INDEX OF THE REGIONAL BLOOD CIRCULATION IN ARTERIAL OBSTRUCTION OF THE EXTREMITY. MAP IN THE CRURAL PORTION OF THE AFFECTED EXTREMITY IS CONSIDERABLY REDUCED; THE DIFFERENCE BETWEEN BRACHIAL AND CRURAL MAP, AS A RULE, EXCEEDING 15-20 MMHG (ON THE AVERAGE 55.1). CRURAL MAP IN THE AFFECTED EXTREMITIES IS MARKEDLY AND SOMEWHAT CONTINUOUSLY REDUCED DURING THE REACTIVE HYPEREMIA, WHEREAS IT SHOWS GREATER INCREASE THAN IN SOUND PERSONS IN CHANGING THE POSITION FROM HORIZONTAL TO VERTICAL.

UNCLASSIFIED

USSR

UDC 619:615.92:636.22/.28

GOLOSNIITSKIY, A. K. Professor, SHCHERBAN', N. F., Doctor of Veterinary Sciences, North Caucasus Zonal Scientific Research Veterinary Institute, SKARGIN, V. I., Chief Veterinary Physician, and FILIPOVICH, N. P., Director of the Veterinary Laboratory, Chertkovskiy Rayon, Rostovskaya Oblast

"On the Toxicology of Chlorophos"

Moscow, Veterinariya, No 4, 1973, p 102

Abstract: Studies were conducted on 26 bulls in an artificial insemination program following intoxication with chlorophos. On that day the barn had first been disinfected with 3% sodium hydroxide, and in the afternoon the bulls were treated with 3% chlorophos solution. Due to falling temperature the barn was closed and soon became filled with chlorophos vapors. The bulls developed the following symptoms: decreased heart rate, salivation, skeletal muscle tremor, incoordination, depressed body temperature, respiratory difficulties, convulsions, and refused feed; 10 of the bulls died. Autopsies disclosed cyanosis of the mucous membranes, congestion of liver, spleen, and especially of the lungs; gall bladders were enlarged in most of the animals, and epicardial and endocardial hemorrhages were present. On diagnosis treatment with atropine sulfate and intravenous glucose and caffeine was instituted. Blood levels of

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USSR

GOLOSNIISKIY, A. K., et al., Veterinariya, No 4, 1973, p 102

cholinesterase were decreased by 86%, and gradually rose to normal on treatment. The intoxication was apparently due to high body concentrations of chlorophos as a result of inhalation of the vapors.

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USSR

SKARIN, V. D.

"Estimate in the Method of Penalties for Problems of Convex Programming"

Mat. Metody v Nekotor. Zadachakh Optimal'n. Planir. Vyp 3 [Mathematical Methods in Certain Problems of Optimal Planning, No 3 -- Collection of Works], Sverdlovsk, 1971, pp 19-31 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V554 from the Introduction).

Translation: The relationship between optimal solutions and optimal values

$\max_{x \in M} f(x)$  and  $\sup_{x \in C} F(x, K)$ , is studied, where M and C are convex sets of a certain space E, where M is fixed by a system of convex inequalities; functional F(x, K) selected in some manner (K is a vector parameter) reflects the measure of the penalty for disruption of limitations defining set M. Particular attention is given to establishment of estimates relating the optimal values of the two problems.

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USSR

UDC 576.858

SKARIAT, L. V., KALININA, NO., GINEVSKAYA, V. A., and AGOL, V. I., Moscow State University imeni N. V. Lomonosov and Institute of Poliomyelitis and Virus Encephalitis, USSR Academy of Medical Sciences, Moscow

"Synthesis of Virus-Specific Proteins in Cells Infected with Encephalomyocarditis Virus"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 3, Jan 71, pp 713-716

Abstract: Protein synthesis was studied in cells of ascites carcinoma Krebs-II, infected with encephalomyocarditis virus. The cells were infected with C<sup>14</sup>-labeled virus and then subjected to electrophoresis. Comparison studies involving incubation of infected and noninfected cells were conducted. Two virus-specific peptides formed in the infected cell correspond in electrophoretic mobility to structural proteins isolated from mature virus. No evidence of the low-molecular-weight, minor peptide entering into the composition of the virus particle was detected in an extract of the infected cells. The data found confirmed the hypothesis that a high-molecular-weight peptide (or peptides) is the primary product of the translation of RNA. This high-molecular-weight peptide subsequently splits up into functionally active proteins. In later stages of virus particle formation, it is

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USSR

SKARLAT, I. V., et al., Doklady Akademii Nauk SSSR, Vol 196, No 3, Jan 71,  
pp 713-716

possible that the peptides are split into even smaller fragments. It is assumed that proteases participate in the breakdown of the primary polypeptide, which gives specificity to this process. Further studies are required to elucidate this point.

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1/3 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--USE OF SPACE PHOTOGRAPHS IN GEOLOGY, SPACE PHOTOGRAPHS IN THE SERVICE OF GEOLOGY -U-

AUTHOR--SKARYATIN, V.D.

S

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIRODA, NO 3, 1970, PP 71-74

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, METHODS AND EQUIPMENT

TOPIC TAGS--GEOLOGY, SPACEBORNE EARTH PHOTOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1990/0001

STEP NO--UR/0026/70/000/003/0071/0074

CIRC ACCESSION NO--AP0109401

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UNCLASSIFIED



2/3 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0108401

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHOTOGRAPHS OF THE EARTH TAKEN FROM SPACE VEHICLES HAVE IMPORTANT ADVANTAGE THAT THERE IS A CONSIDERABLE GENERALIZATION OF RELIEF. FREE OF DETAILS, GEOLOGISTS CAN STUDY PHENOMENA OF A PLANETARY SCALE. ANALYSIS OF SPACE PHOTOGRAPHS IS VERY HELPFUL IN STUDYING CRUSTAL STRUCTURE BOTH ON THE CONTINENTS AND OVER AREAS OF SHALLOW WATER ON THE CONTINENTAL SHELF. IT IS A HIGHLY USEFUL METHOD IN DETERMINING THE NATURE OF SEDIMENTATION IN THE DELTAS OF MAJOR RIVERS AND LAKES AND MAPPING SEDIMENTARY AND IGNEOUS ROCKS IN INACCESSIBLE REGIONS. THIS ARTICLE CONCENTRATES ON THE USE OF SPACE PHOTOGRAPHS FOR STUDYING PLANETARY ZONES OF FRAGMENTATION OF THE CRUST (PLANETARY FISSURING, CREATING ITS BLOCK STRUCTURE), STRUCTURES WHICH HAVE BEEN CALLED LINEAMENTS. MOST OF THE NEW GEOLOGICAL INFORMATION WHICH HAS BEEN OBTAINED APPLIES TO THE DETECTION OF EARLIER UNKNOWN MAJOR DISLOCATIONS. THESE DISLOCATIONS CONSTITUTE A ZONE OF INCREASED FISSURING NOT EXPRESSED IN THE FORM OF A SINGLE TECTONIC FAULT BUT INSTEAD HAVING A CONSIDERABLE WIDTH, SOMETIMES MANY KILOMETERS WIDE. THEY CANNOT BE DETECTED BY AERIAL PHOTOGRAPHY BECAUSE AT THESE SCALES THEY ARE DIFFUSE. THESE MAJOR DISLOCATIONS FREQUENTLY GOVERN THE DISTRIBUTION OF MINERAL DEPOSITS. FOR EXAMPLE, THE STUDY OF SPACE PHOTOGRAPHS BY FINNISH GEOLOGISTS LED TO THE DISCOVERY OF EARLIER UNKNOWN DISLOCATIONS AND THEN THE FINDING OF RICH DEPOSITS OF CHROMIUM, MANGANESE AND IRON. THERE IS A DEFINITE PATTERN IN THE DISTRIBUTION OF THE NETWORK OF LINEAMENTS RELATIVE TO THE EARTH'S AXIS OF ROTATION.

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PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0108401

ABSTRACT/EXTRACT--PHOTOGRAPHS PRINTED DIRECTLY FROM FILM EXPOSED IN SPACE FAR SURPASS TELEVISION PHOTOGRAPHS IN RESOLUTION, ALTHOUGH THE LATTER HAVE PROVEN USEFUL IN SOME CASES. IN ADDITION, THE BEST PHOTOGRAPHS ARE THOSE OF THE NEAR VERTICAL TYPE. PARTICULARLY GOOD PHOTOGRAPHS WERE OBTAINED FROM THE APOLLO AND GEMINI SHIPS. THESE PHOTOGRAPHS, TAKEN AT ALTITUDES OF 200 KM, ARE MUCH SUPERIOR TO THOSE TAKEN AT 600 KM BY METEOROLOGICAL SATELLITES. SPACE PHOTOGRAPHS HAVE BEEN USED IN CONSTRUCTING MAPS OF PLANETARY FISSURING FOR DIFFERENT REGIONS OF THE EARTH. THE ARTICLE IS ACCOMPANIED BY SUCH A MAP FOR THE AREA EXTENDING FROM THE NILE TO THE BRAHMAPUTRA, FROM THE LOWER COURSE OF THE VOLGA TO THE SOMALI PENINSULA. THE BEST DEVELOPED FISSURES HAVE A NW STRIKE AND ARE LINEAR; THEY ARE INTERPRETED FROM CHANGES IN PHOTOGRAPHIC TONE. LINEAMENTS ON THE EARTH AND MOON HAVE COMMON CHARACTERISTICS: ON BOTH BODIES LINEAMENTS OF NW AND NE STRIKE PREDOMINATE; ON BOTH BODIES LINEAMENTS ARE BETTER EXPRESSED IN MOUNTAINOUS REGIONS THAN IN LOWLANDS.

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UNCLASSIFIED

USSR

SKARYNKIN, V. S.

"One Method of Solution of Matrix Inequalities of a Special Type"

Uch. Zap. Gor'kov. Un-t [Scientific Works of Gor'kiy University], 1972, No 146, pp 60-66 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V501).

Translation: This article discusses the determination of vector  $X_0$ , satisfying the inequalities

$$(I - A)X \geq P, X \geq 0 \tag{1}$$

and subset  $X_0 \leq X$  for any other solution  $X$  of system (1).

KARZHEVSKAYA, E. P.

Microelectronics:

Excerpts from Russian-language book edited by F. V. Zakharov, House, Mikroelektronika, No. 5, 1972, Sovetskoye Radio Publishing House, Moscow, UDC 621.382.621.396.6-101.5.

MICROELECTRONICS

OPRS 57333  
25 October 1972

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- a -

(I - OASR - F)

ally, an important role is played by the choice of a constant current source.

The article analyzes the dependence of instability of the logic differential of the integrated circuit for the current parameters on charge in the destabilizing factors (supply voltage, temperature, and technological scatter in the constant current source) by using different modifications of the constant current source.

Recommendations are given for the optimal selection of the constant current source.  
The article contains 4 figures, 1 table, and 5 bibliographic references.

UDC 539.186.1.211.27  
Distribution of Thermelastic Deformations in the Surface Region of Thermally Oxidized Silicon. Valiyev, K.A., Kozlov, B.I., Karkina, A.G., Malov, A.G., and Rakov, A.V. in the Collection *Mikroelektronika*, edited by P.V. Lukhin, No 5, p 282, Sovetskoye Radio Publishing House, 1972.

The article theoretically analyzes the distribution of elastic deformations in the surface region of thermally oxidized silicon. The authors examine the case of a dense oxide film on a semiconductor and the case of termination of its denseness. The authors agree with the theoretical calculation. The authors discuss the results of experimental testing to the localization of the deformations in the surface layer of silicon at the sites of termination of denseness of the oxide. They show the influence of termination of denseness on the chemical activity and Volt-Faraday characteristics of the MDP structures.

The article contains 3 figures and 11 bibliographic references.

UDC 621.383.421546.48.22/23  
Investigation of the Longitudinal Operating Mode of CdS-CdSe Film Photoresistors. Kozlov, K.A., Kozlov, K.M., Kozlov, M.I., and Kozlov, E.P. in the *Radio Engng. Electron. Phys.*, No 5, p 298, Sovetskoye Radio Publishing House, 1972.

The article describes a manufacturing method and the parameters of the CdS-CdSe photoresistors operating in a longitudinal mode. The authors mention their high specific sensitivity (0.5-1 A/V<sup>1/2</sup>) and the weak dependence of the

Parameters on temperature of the surrounding atmosphere. They give a comparison of the parameters of the photoemitter during operation in longitudinal and transverse modes. The article contains 11 figures and 6 bibliographic references.

UDC 621.383.311 + 621.396.6-181.416

Analysis of Several Characteristics of the Operation of a Resonance High-Frequency Hybrid-Phase Amplifier Made According to a Circuit with a Common Emitter. Aksenov A.I., Dvardin A.D., Yuryev I.V., Korobovnikov P.V., Shadrin G.I., and Kurkin F.V. Izv. Vuzov, Radiofizika, 1972, No 5, p 310; Sovetskoye Radio Publishing House, Moscow, 1972.

The article cites an analysis of the operation of a resonance microemitter high-frequency amplifier, operating in a linear mode. The authors show that with a constant capacitance of the blocking condenser, the magnitude of the frequency dynamic capacitances on the frequency characteristics of the cascade can be ignored.

The article contains 6 figures, 2 tables, and 6 bibliographic references.

11,734  
CSU: 0702/73-S

-END-

USSR

UDC 911.3:616.981.455(470.5)

KONDRASHKIN, G. A., SKARZOV, M. M., KALYAZINA, I. M., KONDRASHKINA, K. I.,  
PUGACHEV, Yu. A., DEMYASHEV, M. P., LUKYANOV, A. D., GRISHIN, A. V., PROSHIN,  
V. G., and EREMenKO, A. T.

"Natural Focal Activity of Tularemia in the Valley of the Central and Lower  
Ural River"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous  
Infections -- collection of Works), Saratov, No 4(14), 1970, pp 72-93 (from  
RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.125)  
by B. Dobrokhotov

Translation: A detailed analysis of zonal differences in the structure of  
temporary fauna complexes of mammals and their associated parasitocenoses in  
the valley of the Ural River is presented. The characteristic boreal forms  
in the northern-latitude areas of the river are gradually changed to desert  
forms toward the South. The relationship of subsequent changes of these com-  
plexes from the north to the south with the epidemiological and epizootiolog-  
ical parameters of each zonal section of the natural focus of tularemia are  
emphasized. Development of natural foci of tularemia in the central and lower  
valley of the Ural River is related to characteristics of the fluctuation in  
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USSR

KONDRASHKIN, G. A., et al., *RZh-Meditsinskaya Geografiya*, No 3, Mar 71,  
Abstract No 3.36.125.

the level of the Caspian Sea. Tables of the changes in species composition and population of mammals, Ixodes, Gamasidae, and fleas distributed over the various regions of the Ural floodplain (northern and southern part of the valley of the central Urals, Chapayevsk, Kalmyk, and Makhambets flood plain of the lower Ural River) are given.

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USSR

UDC 517.94

SKATETSKIY, V. G. S

"On a Certain Reducible System"

Vestn. Belorussk. un-ta (Herald of the Belorussian University), 1969, Seriya [Series] 1, No 3, pp 3-5 (from RZh-Matematika, No 4, Apr 70, Abstract No 4B297, Author's Abstract)

Translation: Necessary and sufficient conditions were obtained for a system of linear homogeneous equations

$$X' = X(U_1 \varphi_1 + U_2 \varphi_2),$$

where  $U_1$  and  $U_2$  are constant quadratic matrices of arbitrary order and  $\varphi_1$  and  $\varphi_2$  are scalar functions, whereby it has at least one nonzero solution in a finite special form.

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Semiconductors and Transistors

USSR

UDC: 621.396.69:621.319.4(088.8)

SKATKOV, I. B.

"An Oxide-Semiconductor Capacitor"

USSR Author's Certificate No 270074, filed 15 Jul 68, published 13 Aug 70  
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1V297 P)

Translation: This Author's Certificate introduces an oxide-semiconductor capacitor of the feed-through type which contains a current-conducting wire of diode metal which acts as the anode of the capacitor and is covered with a dielectric such as an oxide film. As a distinguishing feature of the patent, the effectiveness of interference suppression is increased and the frequency range is extended by making the current-carrying wire in the form of a helix with a shielding washer which is also made of diode metal placed at one end of the helix.

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USSR

UDC 632.95

BABIN, Ye. P., SKAVINSKIY, Ya. P., ANDRUKHOV, N. A., SEDLOVA, L. N.,  
LITOSHENKO, N. A., and RUDAVSKIY, V. P.

"Chlorination of Diphenyl Ether and Its Derivatives"

Khim. tekhnologiya. Nauch.-proizv. sb. (Chemical Technology. Science-  
Production Collection), No 3 (69), 1973, pp 48-49 (from RZh-Khimiya, No 22,  
25 Nov 73, Abstract No 22N571 by D. Z. Levin)

Translation: Sulfides of metals with variable valence or mixtures of  $Sb_2S_5$  and  $I_2$  are used as a catalyst to chlorinate  $Ph_2O$  and  $(MeC_6H_4)_2O$ . Example.  $Ph_2O$  and 0.3%  $Sb_2S_5$  are loaded into a reactor and  $Cl_2$  is supplied at 70-80° for 4 hours at the rate of 30 g/hour. Tetrachlorodiphenyloxyide is obtained, boiling point 155-7°/5. Heptachlorodiphenyloxyide, FeS, 111-3 are obtained in a similar fashion (the substance, catalyst, and boiling point in °C are given); octachloro-4,4'-ditolyl ether, FeS, 192-4 (ethyl alcohol);  $\omega, \omega, \omega, \omega', \omega', \omega'$ -hexachloro-ditolyl oxide,  $PCl_5$ , -;  $\omega, \omega, \omega, \omega', \omega', \omega'$ -hexachloro-2,2'-dichloroditolyl ether,  $Sb_2S_5$ , 300 (decomposition); trichloro-4,4'-dicarboxydiphenyloxyide, -, 259-61; pentachloro-4,4'-dicarboxydiphenyloxyide,  $I_2 + H_2SO_4$ , 192-3; octachloro-4,4'-dicarboxydiphenyloxyide,  $H_2SO_3 + I_2$ , 268-70. These chloro derivatives are used as synergistic additives in herbicides, insecticides, and nematocides.

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USSR

UDC 632.95'

SKAVINSKIY, YA. P., EABIN, YE. P., SERGEYEV, YE. V., and NIKOLAYEVSKIY, . . . M.

"Method of Preparing Acid Chlorides of Chlorinated Benzoic Acids"

USSR Authors' Certificate No 255250, filed 21 Sep 68, published 1 Apr 70  
(from *KZh-khimiya*, No 20 (II), 25 Oct 70, Abstract No 20 N613P by T. A. BELYAYEVA)

Translation: 43.5 g  $\text{PnCCl}$  are chlorinated at a temperature of 110-115° in  $\text{Cl}_2$  gas (30 g/hr) for 3 hr in the presence of 0.1-10%  $\text{FeS}$  as catalyst. A mixture is obtained containing eight acid chlorides of di-, tri- and tetrachlorobenzoic acids, which are used in the production of herbicides.

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USSR

UDC 575.111:575.24:576.851.48

KONDRAT'YEV, Yu. S. and SKAVRONSKAYA, A. G., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"The Effect of 5-Bromouracil on the Sensitivity of Hcr<sup>+</sup> and Hcr<sup>-</sup> Bacteria to the Lethal and Mutagenic Effect of Ultraviolet Light"

Moscow, Genetika, No 9, 1971, pp 149-154

Abstract: The incorporation of 5-bromouracil into the DNA of Escherichia coli KMBL 49 and its derivative Hcr mutant E. coli KMBL 100 dar<sub>5</sub>, bacterial strains with equal thymine requirement, increased their sensitivity to lethal ultraviolet irradiation to the same extent. This suggests that the action of the thymine analog is not associated with the inhibition of dark repair, at least the first stage, which is defective in Hcr mutants. 5-Bromouracil intensified the mutagenic effect of UV irradiation on both direct mutations and reversions. As in the case of the lethal effect, the sensitizing effect of 5-bromouracil on the mutagenic effect of UV irradiation was independent of the Hcr phenotype.

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USSR

UDC 575.24/322.1576/851

LIKHODED, L. YA., and SKAVRONSKAYA, A. G., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya USSR Academy Medical Sciences, Moscow

"Mutagenesis Induced in Escherichia Coli WP<sub>2</sub> by Continuous and Fractionated Irradiation With Ultraviolet Light"

Moscow, Genetika, Vol 7, No 5, 1971, pp 138-141

Abstract: The frequency of UV-induced mutations in the tryptophan locus of Escherichia coli was studied on 1-night-old broth cultures of strain WP<sub>2</sub>. The number of mutations induced by fractionated irradiation with ultraviolet light is considerably smaller than that induced by continuous irradiation of the same dose. However, fractionated and continuous irradiation, which produce the same percent of destruction of bacteria, also produce the same mutagenic effect. Under conditions which prevent DNA synthesis, excision repair is accompanied by a small number of errors or no errors, leading to the formation of UV-induced prototrophic revertants.

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USSR

UDC 575.111:576.851.5

SKAVRONSKAYA, A. G., and KIRYUSHKINA, A. A., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"Repair of UV-Damaged DNA by Competent and Non-Competent Cells of *Bacillus subtilis*"

Moscow, Genetika, Vol 7, No 7, Jul 71, pp 102-108

Abstract: The activity of the system of dark restoration (HCR system) in cells that were in a competent state with respect to transformation was studied in experiments with *Bac. subtilis*. A competent population of *Bac. subtilis* cells was obtained according to C. Anagnostopoulos and J. Spizizen (J. Bacteriol., 81, 741, 1961). Transforming DNA was obtained from a dark culture of the prototroph *Bac. subtilis* strain 168 M received from Samenhoff (USA). Extraction of DNA was carried out by the Samenhoff method. The repair capacity of the cells was not lowered by the state of competency. DNA that entered competent cells showed an increased UV sensitivity during the first 1-3 min. This was not due to a loss of repair capacity by the recipient, but to the non-repairable (presumably single-strand) state of the transforming DNA. The maximum level of resistance of transformants to the action of UV rays was reached after 30 min of contact with the transforming DNA. How-  
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USSR

SKAVRONSKAYA, A. G., et al., Genetika, Vol 7, No 7, Jul 71, pp 102-108

ever, even at this stage transformants were more sensitive to UV light than the general population of competent recipients. The greater sensitivity of transformants was due to 1) inactivation of transformed cells; 2) inactivation of fragments of transforming DNA before their integration with the genome of the recipient; 3) excision during dark restoration of sections of bacterial chromosomes that contained integrated fragments of the donor DNA.

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Genetics

UDC 575.24

USSR

KONDRAT'YEV, Yu. S. and SKAVRONSKAYA, A. G., Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR

"The Effect of 5-Bromouracil Substitution on the Ultraviolet Sensitivity of Escherichia coli Strains With Normal and Decreased Capacity for Dark Repair"

Moscow, Genetika, No 4, 1971, pp 123-128

Abstract: The effect of 5-bromouracil (5-BU) on the sensitivity of microorganisms to ultraviolet light was studied in the E. coli strains B/r Hcr<sup>+</sup> thy try and B/r Hcr thy try. The incorporation of 5-BU into DNA and thymine starvation was found to increase the sensitivity of both strains to UV light. The effect was independent of the activity of the hcr gene. The Hcr<sup>+</sup> strain was much more dependent on thymine. Grown on a medium without thymine or a low concentration of the substance, the cells eventually died. The degree of sensitivity to the lethal action of UV light was also a function of the difference in the thymine requirements of the two strains. Addition of 5-bromodesoxyuridine to the medium did not influence bacterial growth, but it tended to diminish the inhibitory effect of thymine deprivation.

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UDC 575.24

USSR

~~SKAVRONSKAYA, A. G.~~ and SMIRNOV, G. B., Institute of Epidemiology and Microbiology  
Imeni N. F. Gamaleya, Academy of Medical Sciences USSR, Moscow

"Phenotypic Suppression of Ultraviolet Sensitivity of Escherichia coli B by  
Streptomycin"

Moscow, Genetika, Vol 6, No 7, Jul 70, pp 111-119

Abstract: Treatment of ultraviolet-irradiated Escherichia coli B cells with sub-  
bacteriostatic concentrations of streptomycin decreased their sensitivity to UV  
while increasing that of the B/r-like fraction of the E. coli population. Similar  
treatment decreased the UV sensitivity of E. coli B/r. The effect of the anti-  
biotic is attributed not to inhibition of protein synthesis, but to phenotypic  
suppression of the  $fil^+$  gene. The high UV sensitivity of E. coli B is assumed to  
result from an insufficiency of the enzyme polynucleotide ligase.

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USSR

UDC 621.43.052.001.5

SOBOL', V. N., ZEL'DES, N. L., Candidates of Technical Sciences, POGREBNIYAK, V. V., and SKAZHENIK, A. M., Engineers

"Strong Supercharging of the 10D100 Engine by Gas Turbine Compressor"

Leningrad, Energomashinostroyeniye, No 7, July 72, pp 17-18

Abstract: An analysis is presented of modifications and improvements to a gas turbine compressor TK-34, intended to increase its efficiency in a forced regime up to the value of pressure rise ratio  $\pi = 2.1$ . The theoretical results were substantiated by tests conducted on modified serial TK-34 turbo-compressors. They show that a reduction is obtained in specific effective fuel consumption.

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UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--PREPARATION OF BASE CASTINGS FROM LOW ALLOY CAST IRON -U-  
AUTHOR--(05)--SKAZHENNIK, V.A., BELYAKOV, B.P., MIROSHNICHENKO, A.I.,  
BABYACHENKO, B.D., BUT, YU.G.  
COUNTRY OF INFO--USSR

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SUBJECT AREAS--MATERIALS

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NICKEL CONTAINING ALLOY, CHROMIUM CONTAINING ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1995/1387

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CIRC ACCESSION NO--AP0116836

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0116836

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IMPROVEMENT OF HARDNESS, STRUCTURE, AND DURABILITY OF CASTINGS FOR DENTAL EQUIPMENT WAS ACHIEVED THROUGH THE ADDN. OF NATURALLY ALLOYED CR-NI AND TI-CU CAST IRONS TO THE PRODUCTION FOUNDRY CAST IRON. THE OPTIMAL AMTS. WERE: CR-NI 10-12 AND TI-CU CAST IRONS 7-8PERCENT WITH RESULTING CHEM. COMPN. OF THE FOUNDRY CAST IRON: C 3.0-3.35, SI 1.4-1.7, MN 0.7-0.9, CR 0.2-0.35, CU 0.2-0.35, NI 0.1-0.26, TI 0.1-0.15, P SMALLER THAN OR EQUAL TO 0.3, AND S SMALLER THAN OR EQUAL TO 0.12 WT. PERC TE SIL STRE GTH 26 KG- M PRIM , HARDN S 187- 0 . THE MICROSTRUC URE CONSISTED OF ONLY PEARLITE WITH INCLUSIONS OF GRAPHITE HAVING LENGTH OF 220 MU.

UNCLASSIFIED

USSR

UDC 669.017.12

LEVI, L. I., BALABANKIN, V. Ye., POPOVA, N. Yu., and SKAZIN, V. Ye., Moscow  
Institute of Steel and Alloys, Scientific Research Institute of Electrical  
Engineering

"On the Problem of Improving Nickel-Calcium Alloys"

Ordzhonikidze, Tsvetnaya Metallurgiya, No 1, 1972, pp 109-111

Abstract: The deoxidation of nickel and nickel-calcium alloys by blowing the surface of the liquid bath with hydrogen and continuously evacuating gas from the furnace chamber was investigated on brands NP-2 and NO nickel. It was found that 8-12 l/min hydrogen blowing for 20 min guarantees sufficiently complete deoxidation of nickel (0.003-0.001% O<sub>2</sub>), regardless of initial oxygen concentration. With purging temperatures of 1530° and higher, the ingots showed large grains; with a temperature of 1480° equiaxial small-sized grains predominated. The typical structure of the produced NIKA alloy is discussed by reference to its microstructure. These alloys contain fewer impurities than existing alloys. Two illustrations, nine bibliographic references.

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5 Foundry

UDC 669.16:621.746.53

USSR

OSHCHEPROV, B. V., SKAZIN, Yu. V., BECALINOV, V. Z., and AZIMOVA, N. M.,  
Zlatoustovskiy Metallurgical Plant

"Effect of the Quantity of Liquid Synthetic Slag on the Quality of Steel and Alloys"

Moscow, Stal', No 10, Oct 70, pp 909-911

Abstract: A method has been developed for determining the optimal height of the layer of liquid synthetic slag necessary during casting of alloys Kh15N60, Kh20N80, EI602, EI437BU and steels Kh16N6, EI835 and others into 0.5-2.7-t ingots in order to ensure good quality of surface and underfilm zone of the ingot. The depth of penetration of the pipe into the ingot body increases at extreme heights of the layer of liquid synthetic slag. The reduction in slag consumption from 17-20 to 8-10 kg/t of alloy considerably improved the quality of the microstructure and surface. The optimal height of the layer is directly proportional to the rate of casting.

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USSR

UDC 632.95

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VOLODKOVICH, S. D., ANDREYEVA, YE. I., GOLYSHIN, N. M., KONOVA, V. I., KAPLAN, G. I., PRONCHENKO, T. S., USHAKOV, M. G., ABELEKHESEV, V. I., DVOYCHENKOVA, E. A., and SKAZKINA, T. P.

"Bromtan"

V sb. Khim. sredstva zashchity rast. (Chemical Plant Protectants -- collection of works), vyp 1, Moscow, 1970, pp 116-129 (from RZh-Khimiya, No 13, 10 Jul 72, Abstract No 13N501 by T. A. Belyayeva)

Translation: The preparation bromtan ( $\text{BrCCl}_2\text{CHBrCH}_2\text{CH}_2\text{CH}_2\text{Cl}$ ) (I) is being tested as a soil fungicide and antiseptic for nonmetallic materials. I is as effective as carbathion in the control of melon fusarial wilt. I in a concentration of 0.8 percent is equivalent to DNOC in an 0.6 percent concentration with respect to hibernating forms of the causative agent of apple scab and brown spot. I is active in the control of cotton root rot and wilt at a consumption rate of 100-100 kg/ha.

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USSR UDC 616.45-001./3-092.9-056.716-071 [616.432+616.457]-053

SKEREL'SKAYA, YU. B., Endocrinology Laboratory, Institute of Human Morphology,  
Academy of Medical Sciences USSR, Moscow

"Reaction of the Hypophysio-Adrenal System of Rat Fetuses to Stress"

Moscow, Problemy Endokrinologii, Vol 17, No 3, 1971, pp 60-63

Abstract: In a study concerning the prenatal development of neuro-endocrine coordinating mechanisms, 22-day old rat fetuses were given in utero subcutaneous injections of adrenaline (10 micrograms), insulin (40 milliunits), ACTH (40 milliunits), or 0.1 ml of the solvent. One hour later, the animals were decapitated, and the concentration of ascorbic acid in the adrenal glands of the fetuses was determined. Exogenous ACTH caused a 39.6% reduction in the ascorbic acid concentration in all cases; adrenalin caused an 18.8% reduction in 83% of cases; and insulin caused a 14.2% reduction in 58% of cases. Since ascorbic acid concentration in the adrenal glands decreases when the amount of ACTH circulating in the blood increases, the conclusion is made that the hypophysio-adrenal system is functioning in 22-day old rat embryos.

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USSR

UDC: 51

SKERUS, S. L., YACHYAUSKAS, I. P.

"A Coalition Differential Game for Three Players"

Lit. mat. sb. (Lithuanian Mathematics Collection), 1971, 11, No 4, pp 887-898 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 47432)

Translation: A coalition differential game of three persons is reduced to a coordination game in which the values of the characteristic function are computed as gains in certain situations of equilibrium in coalition-less differential games. The existence of a unique Neumann-Morgenstern solution coincident with the C-kernel is proved for this cooperative game. Authors' abstract.

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USSR

SKHIRTADZE, R. L.

UDC 577.4

"The Design of Probabilistic Transformers in a 'Diagonal' Vector Code"

V sb. Issled. nekotor. voopr. mat. kibernet. (Studies of Some Questions of Mathematical Cybernetics--collection of works), Tbilisi, Tbilisi University, pp 81 - 86 (abstract in Georgian) (from RZh Matematika, No 11, Nov 73, abstract No 11 V534)

Translation: Let there be a set of independent random variables with two equiprobable values, 0 and 1. The problem studied is that of finding a system of Boolean functions of these variables such that the values of the functions in the system will form a random binary vector with a given distribution law. A method of solving this problem is suggested, leading to a fairly simple system of monotonic, nonrepeating functions.

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